Tamil Arasu

SEPTEMBER 1975 50 Ps.

Khadi Kraft – a trusted name for khadi and village industries articles

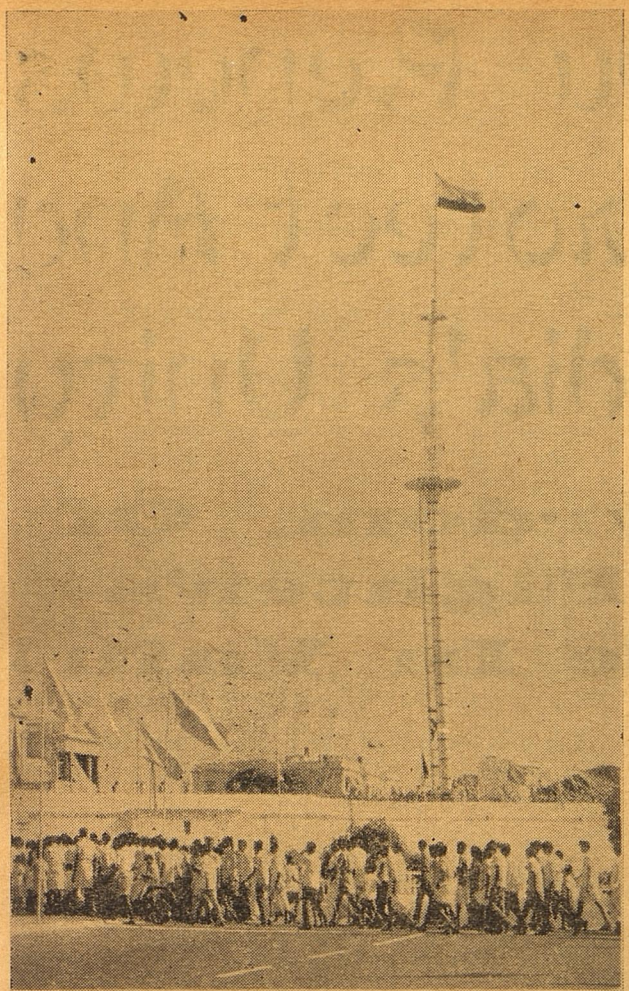
KHADI KRAFT offers a wide range of articles-artistic handicrafts to essential commodities. Available at over 200 Khadi Kraft Branches all over Tamil Nadu and Pondicherry.

Khadi Kraft is Elegance Par Excellence.

TAMIL NADU KHADI & VILLAGE INDUSTRIES BOARD
KURALAGAM
MADRAS-600001.

For retail and whole-sale, contact Khadi Kraft at:

KURALAGAM MADRAS-600001 Phone : 29684	36C, ANNA SALAI MADRAS - 600002 Phone : 81954	MADURAI MAIN ROAD TIRUCHIRAPPALLI Phone : 3814	AVANASHI ROAD COIMBATORE Phone : 35051



Our COUNTRY,

Our FLAG

Tamil Nadu Chief Minister Dr. M. Karunanidhi is seen unfurling the National Flag on Independence Day 75 from the ramparts of Fort St. George.

Tamil Arasu

Vol. VI September, 1975 Issue 3

CONTENTS

Tamil Nadu Renews Pledge To Protect And Preserve India's Unity

The Martyrdom Of Freedom Fighter's Shall Not Be In Vain!

"Today — 15th August — is a day of rejoicing over the recollection of that day of days 28 years ago, when the golden sun of Freedom in effulgent splendour cleared away the engulfing mists, of serfdom and spread out the light of Independence through the length and breadth of the Indian soil.

In order to root out the foreign domination that was continuing its aggression on our mother-land, freedom-lovers had to wage a struggle not for a day or two but through very many years, on numerous fronts, and adopting a variety of methods. **Our history sobs in anguish while recording the fact that the leaders of the battalions which had set out to break the shackles that bound the Mother were beheaded mercilessly.**

The tombs of those lamps of sacrifice, however, sport the smile of victory. Battlefields where bullets were sprayed in torrents ; corpses that spurted blood as they were thrown to the ground ; prison-blocks that opened wide their demoniac mouths with a fiendish clamour to devour the freedom-fighters ; records of repression that speak volumes of the tortures inflicted — was it not against the back drop of the anthology of these gruesome events that the golden flower of Indian Independence came to bud and blossom ! And was it not also Mahatma Gandhi's dream that this flower of gold should come to be extolled by the world for acquiring fragrance too!

PROBLEMS OF POVERTY

Compared to the conditions prevailing in many other free countries, the situation in India is vastly different. When other countries have realised the need for and taken action to see that only nutritious food should be given to children, here in our land there is practically no concern about nutrition ; rather, it is enough if food of some sort is found for the starving stomach. The sole concern of our poor — their numbers is legion — is to find even this morsel of food to keep the wolf at bay.

A vast majority of our population merely manage to exist, with their outstretched hands warding off the severity of the scorching sun and the tree-side alone serving as their mansion of shelter from the pouring rain.

The abodes of lakhs and lakhs of Harijans —fondly hailed as the children of God — are little more than the garbage-bins of the tiny villages.

The fisherman who gambles with his life on the seas every time he departs bidding farewell to his near and dear ones and sets sail on the catamaran and is sure of his life only when he sets foot again on the shore — is not so secure on land either, for a mere whiff of a gale can blow away, his frail palm—leaf huts and deprive him of his only shelter.

The zephyr of joy does not blow through the life of the vast masses of the working class — the farmer who brings up food, the weaver who provides cloth to preserve our dignity, the labourer whose sweat enriches this our mother-land, the miner, the pearl-diver, the blacksmith, the porter, the tree-tapper, the washerman, the hairdresser and the clerk who has merely mastered the three R's— these precious sons of our soil, do still find their lives blighted by negligence.

MOONLIGHT WASTED ON FOREST

It is not as if efforts have not been initiated to improve the lot of these people. Only, those efforts have not been such as to yield adequate results. Who can savour a feast, if it is one which has been prepared for five but finds itself being served to 10 or 15 at the time of eating ?

If the society is to obtain the full benefits of developmental plans, then every individual has to realise, and also act on the realisation, that uncontrolled growth is not possible when the earth which supports us has no means to expand.

Whatever be the plans drawn up for economic advancement, they would be as chimerical as moonlight in the forest, if population increases in uncontrolled manner.

ENEMIES OF THE PEOPLE

Even while public service is being carried on in the midst of difficulties of these dimensions, there are persons who commit economic offences, and set at naught the endeavours of the Government ; these persons are anti-social elements and they are out to grab whatever is worth from the burning house. The Government of Tamil Nadu has been extending its unhesitant co-operation to the efforts of the Central Government to stamp out these evil practices.

Smugglers, blackmoney tycoons, tax-dodgers, adulterators and hoarders — one shudders even to mention these elements as a par of our society,— for they have grown as cancer in the body politic. However stern and drastic be the steps taken by the Government of India to curb this dreadful disease and to release our people from its vicious clutches — those measures deserve to be welcomed. In token of our resolve, the distillers of illicit arrack, smuggler-barons, hoarders and adulterators have been arrested in hundreds here in our State also.

UNFLAGGING ARDOUR

Because of our unflagging ardour for progressive measures, we have been implementing a number of such schemes ; and we are working tirelessly to fulfil more such plans. The minimum needs programme can have no bounds. All of you are aware that, having realised this, the Government of Tamil Nadu has not stood aghast at the volume of work yet to be done but has, on the other hand, proceeded in right earnest on the journey towards its ideal by commencing whatever could be done for the uplift of the people at the lower strata.

Whatever be the dimension of the danger that arises to harm India, from wherever and however intense in form it may come, the people of Tamil Nadu are ever prepared to lend their strength to the task of dealing with and disposing of the threat ; and it was as a symbol of this determination that, at the time of the last Pakistani aggression, we handed over a sum of Rupees six crores to the Prime Minister as our contribution to the Defence Fund.

We shall take a pledge on this day to protect and preserve Indian Unity which was the dream of those who were imprisoned, who were yoked to the mill and who gave up their lives even, for the sake of India's freedom.

TOWARDS MEANINGFUL UNITY

Our task must continue for making a success of the principle " Unity in diversity " in this vast country comprising a variety of cultures and national entities speaking different languages. This task should be carried out in a manner to strengthen India still further.

Those in one region of the country should display due regard to their counterparts in other regions so that States may come together in friendly relations, so that the linguistic minorities may have protection, so that the special characteristics of each of the State languages may not be whittled down but may be preserved and nurtured, so that the art-treasures in the four corners of the country may be accorded appropriate appreciation and so that the leaders who are the embodiment of sacrifice and the noble elders are held in esteem throughout the length and breadth of our country.

In this respect, our Tamil Nadu has been functioning with a very large heart for a very long time. And now other parts of the country have begun to emulate the example of Tamil Nadu. The Swami Vivekananda Memorial at Kanyakumari! And in the city of Delhi, the statue of Thiruvalluvar that was unveiled by the President of our Republic! Tamil Nadu had already sent its contribution of Rs. 1 lakh for the erection of the Rajendra Bhavan — a memorial for the former President of India, Dr. Rajendra Prasad — to the committee headed by Mr. Jagjivan Ram.

The Government of Tamil Nadu has also contributed a sum of Rupees one lakh to the Kamala Nehru Trust functioning under the chairmanship of Mr. K.N. Singh, Central Deputy Minister, to establish a post-graduate Medical Research Centre in Sultanpur, U.P., so that a section of the Hospital coming up as part of the above centre may be named after Dr. Anna.

NORMALCY WITH DISCIPLINE

It is this type of exchange of friendly relations that we have been emphasising for long. Good relationship is sustained by well-preserved rights — and those rights have also to be reasonable is our conviction.

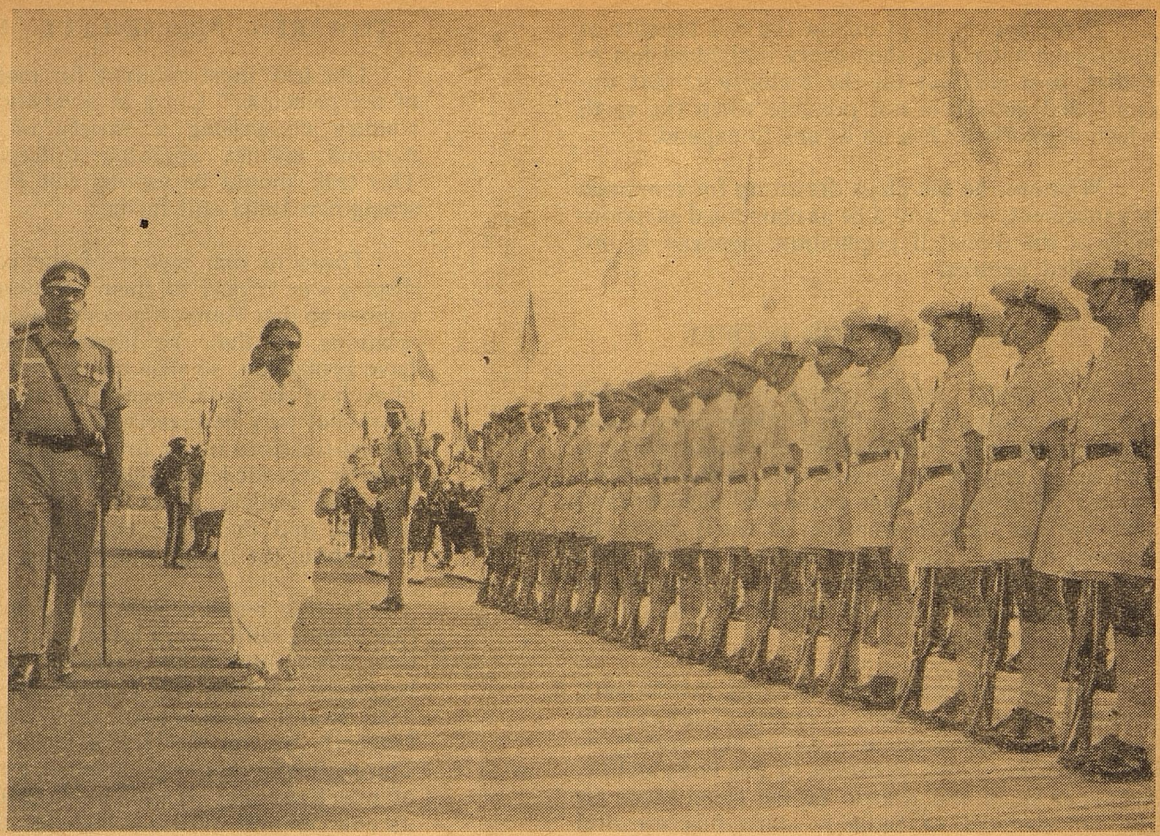
What we desire today is that normal conditions should emerge in a manner to enthuse the hearts of all and without impairing discipline.

All of us should engage ourselves in the task of putting an end to penury, of stamping out the evils and of ensuring that all that emerges shall only be the good things.

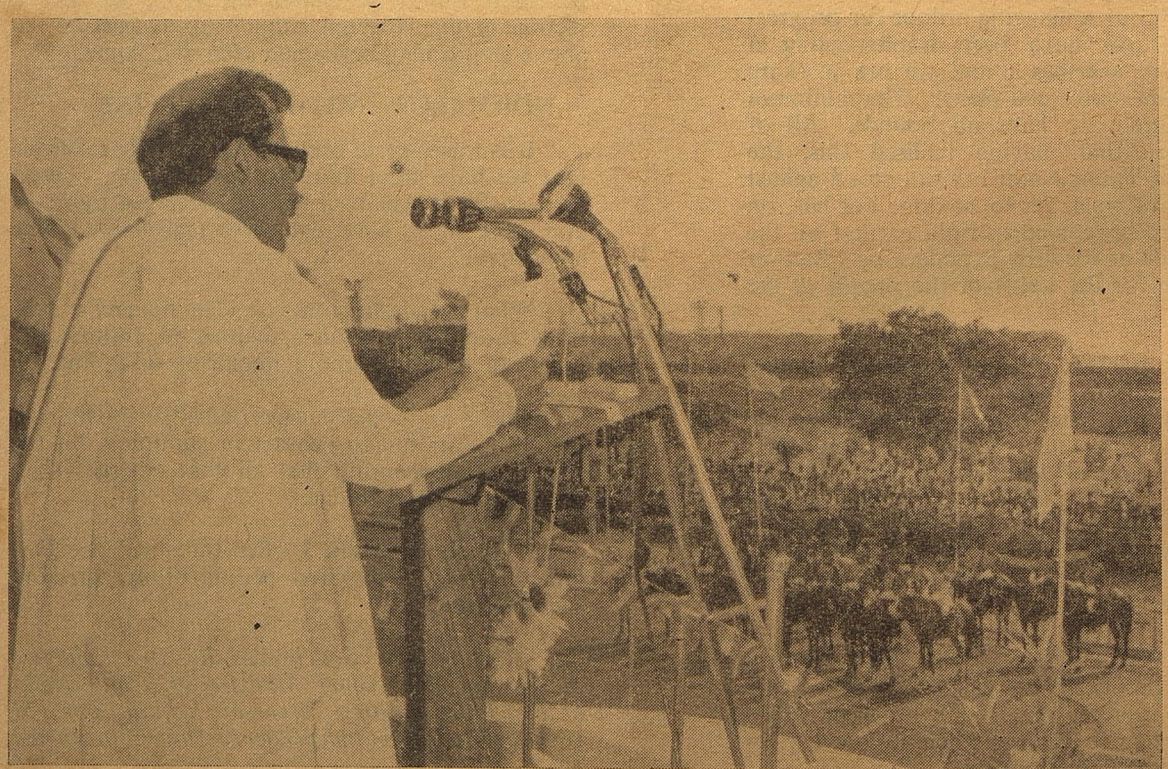
With these words, I offer Independence Day Greetings to the beloved people of my precious Tamil Nadu."

(Text of speech delivered by Dr. Kalaignar M. Karunanidhi, Chief Minister of Tamil Nadu, at the Flag Hoisting ceremony held at Fort St. George, Madras on Independence Day, 15th August, 1975).

FROM THE RAMPARTS OF HISTORIC FORT ST. GEORGE



THE CHIEF MINISTER MAKES HISTORIC DEDICATION



Village Level Minimum Needs — — Perspective Study of Local Bodies

On the eve of launching the massive village level Minimum Needs Programme, Tamil Nadu is considering comprehensive amendments to the Tamil Nadu Panchayats Act, 1958 which vested local self-Government along with productive enterprise in the locally elected bodies. The experience gained in the working of the Act, will form the only basis for the proposed amendment. Local self-Government in Tamil Nadu under the above Act, is a 3-tier set up *viz.*, Panchayat Union Council and District Development Council. There are at present 16,628 Panchayats, 598 Town Panchayats, 12 Townships and 374 Panchayat Unions. The most recent sweeping change in this respect was the separation of the development administration of these local bodies from the Revenue Department at the Divisional Level, with effect from 1—7—74.

M.V.P. Act of 1950

Article 40 of the Constitution of India casts a duty on State Governments to create Village Panchayats, endow them with adequate powers and resources and develop them as autonomous units of local self Government. In pursuance of this objective, the Madras Village Panchayats Act of 1950 was enacted constituting a Panchayat for each village with a population of 500 and above, with elected members, and with a detailed list of civic functions, to be handled by them. District Boards had no control over these Panchayats which were administered through the Inspector of Local Boards.

During the period between 1950 and 1958, historically important changes took place in the development of rural areas. National Extension Services and Community Development Projects were organised to cover every part of India. The Community Development Blocks were constituted at the rate of 66,000 to 1,00,000 people per block. Integrated development of the community as a whole, covering its social, economic and cultural needs, was sought to be implemented through the National Extension Services and Community Development Programmes. Under these schemes a horizontally co-ordinated team of development officers, functioned at the block level. The Balwantrai Mehta Committee on Democratic Decentralisation (1957) advocated the integration of the Community Development set-up with a popularly elected Panchayat Samiti, to bring about local participation in Developmental activities.

There are certain anomalies in the present delimitation of Village Panchayats, which generally follows the boundaries of existing revenue villages. Before the abolition of Zamin and Inam Estates, many of the ryotwari revenue villages consisted of different hamlets, some of which were non-contiguous pockets within Zamin areas. When the Zamin and the Inam Estates were abolished and estate villages were converted into ryotwari ones, no rational regrouping of villages was attempted, with the result that many revenue villages are still made up of non-continguous hamlets separated by long distances. When Panchayats were constituted, mechanically based on the irrational revenue configurations, noncontiguous habitations separated by distances of even 3 or 4 kilometres, happened to be grouped together under the same panchayat.

ARC's report on Panchayat administrations

The Administrative Reforms Commission in its report on Panchayat Development Administration has said that the desire for upgrading from a village to a Town Panchayat emanates not from the local bodies but is thrust on them by Government, (prodded into action by the Accountant-General) in the teeth of opposition from the Panchayats in becoming a poor member of a higher class, with reduced grants and increased self-expenditure, thus severely abridging its utility to the people.

In the light of these circumstances, in a separate action, the Government have constituted a Committee to review the financial structure and base of Town Panchayats and, help them overcome the difficulties.

The term of reference of the Committee as laid down by Government are as follows :—

1. Review of the existing finacial resources of the Town Panchayats both under tax and non-tax items.
2. Whether the taxation sources are being utilised fully and if not, what are the impediments and also the ways for removing them.
3. Whether the Panchayats can augment their income by setting up more remunerative enterprises.
4. Whether House Tax Matching Grant given to Village Panchayats may be extended to Town Panchayats.
5. Whether any changes are necessary in the assignment of proceeds under Entertainment Tax and surcharge on Entertainment Tax.
6. Any other issues connected with the finances of Town Panchayats.

A Village Panchayat is constituted for any local area having a population of not less than 500. A Town Panchayat is constituted for any local area having a population of not less than 5,000 and an annual income exceeding Rs. 10,000/- provided the area possesses urban characteristics. For institutional or industrial or labour colonies and health resorts, a Township may be constituted in the place of a panchayat. A Panchayat Union is constituted conterminous with the Community Development Block constituted for purposes of National Extension Service Scheme. A District Development Council is constituted for a Development District.

Community Development Programme

Panchayat Union Councils have been given specific duties and they have also been provided with financial resources. The execution of the Community Development Programme has been entrusted to the Panchayat Union Councils.

Every Panchayat has a President, a Vice-President and members. The President is elected directly by all voters in the Panchayat. The members are elected by the voters from the wards. The Vice-President is elected from among the members. The number of members in a Panchayat varies from five to 15 according to the population. There is provision for reservation of seats to persons belonging to Scheduled Castes/Scheduled Tribes. If no woman is elected to the Panchayat, a woman may be co-opted as a member. In the Township, all members are appointed by the Government. Both officials and non-officials are nominated as members.

The President of all the Panchayats in a Panchayat Union are members of the Panchayat Union Council. If there is any Township in the Panchayat Union, one of the non-official members is elected as a member to the Panchayat Union Council. There is also provision for co-option of three members belonging to Scheduled Caste/ Scheduled Tribes and three women members as members of the Councils, if necessary. An M.L.A. or M.L.C. of the area can participate in the meeting of the Panchayat Union Council but he has no right to vote in the proceedings. Elections to Panchayats and Panchayat Union Councils are held once in five years. The last ordinary elections to Panchayats were held in July—August, 1970. The next ordinary elections are due in the year 1975. Casual elections are now conducted wherever necessary.

The Tamil Nadu Panchayats Act, 1958 provides for controlling and supervisory measures over Panchayats and Panchayat Union Councils. If there is any default on the part of the President or Panchayat in performing any duty, the Collector can appoint some person to perform the duty. If there is no co-operation of members with President, the Collector may authorise the President to perform the duties of Panchayat for a period not exceeding 6 months. If charges are made against the President and if it is found that the President wilfully omitted the duties cast upon him, misued his powers etc., the Collector may notify the removal of President from Office. A no-confidence motion can be brought against the Vice-President of a Panchayat and if it is carried with the support of not less than 2/3rds of the sanctioned strength, he can be removed from Office. If any Panchayat persistently makes default in performing the duties imposed on it by law or it is not competent to perform its duties or abuses its powers, it may be dissolved or superseded for a specified period. In the case of dissolution, the President, Vice-President as well as members will lose office and fresh elections will be held to fill up all offices after reconstitution. In the case of supersession, the President will continue to be in office. The members of the superseded Panchayat may be resotred to Office or elections may be held for members after re-constitution.

A Chairman or Vice-Chairman of a Panchayat Union Council may be removed from Office if charges are made against him. A Chairman or Vi ce-Chairman may be removed from Office if a no-confidence motion is brought against him and passed with not less than two-thirds of the sanctioned strength of the Council. If the Panchayat Union Council persistently makes default in performing the duties or abuses its powers or it is not competent to perform its duties, it can be dissolved for a period not exceeding one year.

TAMIL NADU'S SCHOOL OF SCULPTURE—EXAMPLE CITED FOR EMULATION IN AUSTRALIA

To study how the different countries of the world treat and help the "remote areas" within their bounds, a study tour was granted to Australia's Member of Legislative Council Hon. Thiru. William R. Withers. During the course of his study the Australian Legislator visited Tamil Nadu, and spoke as follows in Australian Legislative. Council The speech was made on 19—3—75.

"In Madras I had many meetings with Government officers and officials of Tamilnadu, I gained an appreciation of the work of the Tamil Nadu Government in endeavouring to house and look after the general welfare of the Harijans, who are socially and economically depressed people. The Tamilnadu Government had some interesting ideas in regard to assistance to industry. It is endeavouring to obtain industry in Tamilnadu and is offering incentives, among which are a two-year tax-free concession for any foreign industry establishing in that State and electricity concessions for new industries in their development period. I think those are good ideas which we could perhaps consider in the future.

"I was impressed by the tourist town of Mahabalipuram, which is centred around some very ancient caves and carvings. The Tamil Nadu Government has set up a tourist centre at which stonemasons are trained in the old arts, so that people who visit the town can watch the stonemasons at work. In this way a tourist industry has been developed, while at the same time people are being trained in order to retain the old arts. I consider this is a good idea which could be introduced in Australia. and particularly Western Australia, to enable Aborigines to do much the same kind of work in their own art, and I have written to the Minister for Tourism and others asking them to give consideration to such a promo tion.

"I would like to thank the people who assisted me in Tamilnadu. They are the Secretary of the Parliamentary Association (Mr. Thiru M. Shanmugasubramaniam), the Secretary to Government, Social Welfare (Mr. D. K. Oza), the Secretary to Government, Transport (Mr. J. S. Bhango), and the Section Officer of the Legislative Assembly (Mr. J. Reginald John). I also extend my thanks to Mr. Ramchandar, Secretary to Government Public Works, Mr. M. M. Rajendran, Secretary to Government, Housing, and Mr. N. Krishnamurthy, Secretary to Government, Education."

THE 5th PLAN'S NATIONAL MINIMUM NEEDS PROGRAMME

The content of the National Minimum Needs Programme is as follows :—

(*i*) providing facilities for elementary education for children up to the age of 14 at the nearest possible places to their homes and it has been targeted to achieve by the end of the Fifth Plan a coverage of 97 per cent in the age group 6—11 and 47 percent in the age group of 11—14 ;

(*ii*) ensuring in all areas a minimum uniform availability of public health facilities by establishing primary Health Centres at the rate of one for each Community Development Block, one sub-centre for every 10 thousand population and to provide drugs at the scale of Rs. 12,000 per annum for each centre and Rs. 2,000 per annum for each sub-centre ;

(*iii*) supplying drinking water to villages suffering from chronic water scarcity or unhygienic sources of water ;

(*iv*) providing all-weather roads to all villages having a popu lation of 1,500 and above ;

(*v*) arranging for developed home-sites for the landless in rural areas ;

(*vi*) carrying out environmental improvement of slums ; and

(*vii*) ensuring the spread of electrification to cover approximately 30 to 40 per cent of the rural population. **

State Has Fulfilled National Fifth Plan Targets In Fourth Plan Itself

OVER-ZEALOUS WELFARE MEASURES FOR HAVENOTS IN STATE LEADS TO CUT IN PLAN ALLOCATION

Viewed in the light of the objectives envisaged, the scope for the Programme in the State seems to be very limited since the State would have achieved most of the minimum norms even before the end of the Fourth Plan period. In respect of elementary education, the State has covered by the end of 1973—74, 91 per cent of population in the age group 6—11 and 53 per cent of population in the age group of 11—14 against the estimated achievement of 84 per cent and 36 per cent respectively at the national level. With regard to rural electrification, the State has little to cover in contrast to the 30 to 40 per cent national target for the Fifth Plan under N.M.N.P. In respect of the distribution of house-sites to rural landless labourers, even by the end of 1973—74 about 4.50 lakh persons have been benefited. Besides this a total extent of about 7 lakh acres have been assigned for cultivation purposes benefiting about 4 lakh persons by the end 1973—74. As for Health, by the end of the Fourth Plan Primary Health Centres have been established to cover all the Community Development Blocks. Similarly the State have made significant strides also in respect of rural roads, water supply, nutrition and slum improvement and there is large scope for extending the Minimum Needs Programme in these areas.

The State has however fallen a silent victim in the spheres of social welfare as certain other spheres to the anomalous procedures evolved for the transfer of resources from the Centre to States for the Fifth Plan period. The Central Planning Commission has evolved the "National Programme of Minimum Needs" for which resources would be diverted to States where certain minimum norms in respect of essential social services have not been attained "irrespective of the resources position of the individual States." In this regard, Tamil Nadu would have attained the minimum targets in most of the cases even by the end of the Fourth Plan period so that there would not be any substantial flow of Central funds in this respect. On top of this, the Sixth Finance Commission have chosen to consider Tamil Nadu as an advanced State with regard to "standards of administration" judged on the basis of per capita expenditures in respect of certain socio-economic spheres including strangely enough, primary education, Medical and Public Health and Welfare of Scheduled Castes, Tribes and other Backward Classes of population and on that account the State has been deprived of sizable grants during the Fifth Plan period. As a result, the State Government is expected to get a transfer of only Rs. 167.99 crores from the Central Government against the anticipated transfer of Rs. 210.57 crores for the year 1974—75.

THIRUKKURAL IN SOVIET UNION

Works by noted Indian authors are now becoming very popular in the Soviet Union. Every year a number of books are being brought out by various publishing houses. Between 1946 and 1973 Indian books on different subjects came out in the Soviet Union 828 times in a total of 28,408,000 copies.

The Soviet people are having also an opportunity to read ancient Indian philosophical works and enjoy the creations of contemporary Indian authors, thanks to the initiatives being taken by the Soviet publishing houses. Last year, the Khudozhestvennaya Literatura Publishing House in Moscow put out a book of selected works by the renowned ancient Indian poet Kalidasa. The same publishing house has now published yet another one—the great Tamil work 'Thirukkural' —in Russian language, the edition running into 25,000 copies.

Even in 1853 a Russian newspaper " RUSKI INVALID " carried a detailed report about Tamilnadu, its culture and about the immortal " Thirukkural." May be this might have been the first mention about Thirukkural in Russia. Afterwards many Soviet Indologists have mentioned about " Thirukkural " in their works and some prose tranlations of certain couplets from it were also made.

The recent publication of " Thirukkural " in Russian language is a translation in poetry form. Mr. Ibrahimov an experienced translator, who has rendered many Tamil works earlier into Russian language, has done this translation. In this work he is guided by the works on " Thirukkural " by Parimelazhakar and the great Tamil scholar late Dr. Mu. Varadarajanar.

" There are books created by individuals which are so astoundingly deep and strong in expressing the innermost thoughts, feelings and aspirations of a whole people, which become as if they are the creations of the entire people. Such one is "Thirukkural", writes Mr. Ibrahimov in his preface.

Mentioning the popularity of " Thirukkural " he says, " Thirukkural is near and dear to scholars well-versed in ancient literature and equally to ordinary people in South India. And not only to them, the famous Kural has already marched victoriously all around the world. Indian and European scholars are of the uniform opinion that this is the most eminent work in Tamil literature. And this literature is volumnious and significant."

In his preface Mr. Ibrahimov also gives various legends prevalent regarding Thiruvalluvar and explains various problems faced by scholars in defining the period of " Thirukkural " and life of Thiruvalluvar. He gives a broad picture of ' Arathu Paal,' ' Porut Paal' and Kamaththu Paal' and feels that Porut Paal contains rich material for historians. Many interesting information about the social structure prevalent at that time and in Kamathup Paal, Thiruvalluvar proved to be a true poet and a deep psychologist capable of penetrating into the souls of both men and women with such an artistic manner.

Mr. Ibrahimov further says that " Thirukural is not only a monument of a far off country but a living book, capable of disseminating even now the seeds of truth, goodness and human love. The secret of the influence of Kural on Tamil language is not only the depth and richness of its contents but also the astounding, one can say, magic sounds of poetry. The waves of time has brought us the boat with works of ancient Indian humanist and innumerable translations appearing in many countries of the world testify that this immortal work continues to live." *

TRAFFIC MANAGEMENT IN CITIES

by

Dr. D. Jhonson Victor,

Prof and Head,
Transportation Engineering Division,
Indian Institute of Technology,
Madras.

Traffic Management in Cities is a very wide and complex field, involving an efficient interplay of many agencies and disciplines. The techniques of management would vary from city to the scene and the social, economic and financial constraints under which we have to operate. Our problems are enormous and complicated. We have to deal with mixed traffic and also mixed levels of user behaviour. The success of urban traffic management would be the result of interaction of the highway, the vehicle, the driver and the pedestrian. To achieve any tangible results, improvements should be affected in all the above, simultaneously.

There is an urgent need for traffic education, which unfortunately is a slow process. Hence, in our designs for traffic facilities, we should take into account the general level of the present traffic safety consciousness and build the facilities suitably, resorting to redevelopment of some areas to the extent necessary. Particular attention should be paid to define a traffic policy for each city and to expand and efficiently organise coordinated public transport systems.

Since we can never place a price value for a human life, we must make every effort to save lives from being lost in the traffic movement. To this end, the provisions for traffic safety should form an integral part of the urban traffic plans.

Efficient traffic management demands the proper interplay of the three E's — Engineering, Enforcement and Education. Each one of these three components is essential. The accident statistics for any city is a measure of the performance of traffic management in that city. Our cities have been registering a rising trend in the number of accidents during the past few years. For example, the numbers of fatal accidents in Madras for 1972, 1973 and 1974 have been 215, 227 and 250, respectively, The total number of accidents (which have been reported) has been of the order of 7,700 per year, which indicates the need for improvement.

Safety vs. Expediency :

The most important aspect of the problem of traffic management is to arrive at a definite policy on the growth of traffic in the area, which is also closely related to proper land use plan. We find congestion, pollution and accidents in the cities, mainly because of the unplanned increase in every kind of traffic. **For satisfactory traffic management, it is necessary that any increase in traffic should be matched by proper attention to the physical facilities.** But unfortunately, the improvement of physical facilities is usually restrained due to financial constraints. Hence we normally have to put up with compromise solutions, where we trade-off safety against the expediency to move traffic.

There are three planning choices towards a traffic policy :

1. To allow traffic to grow without any restraint, and to consider it a national obligation to provide for the traffic in cities.

2. To restrain the traffic moving towards the city centre, by intercepting the traffic at the periphery of the central business district, and to provide for concessional bus or rail transit ride to the city centre.

3. "Do Nothing" or allow things to drift.

The first choice is adopted by U.S.A. and Japan, examples of extreme conditions being Los Angeles and Tokyo. In Los Angeles, even eight-lane freeways get congested. Expressways are being built in Tokyo at different elevations for want of land area, and these become congested within a few years after completion. The second choice is being adopted in different forms in some European cities. To achieve any satisfactory performance with this choice, an efficient system of public transport is essential. The third choice can only lead to chaos. We have to choose one of these alternatives and define the traffic management policy that is to be followed for any particular city.

A town planner by name Jellicoe has suggested that the city in the distant future will have its roads and road junctions on the roof of multistoreyed buildings. People would park their car on the roof and come down by lifts to their apartments. Such a condition is definitely undesirable and may appear to be

over imaginative. However, a semblance of this stage is seen in some reaches of Hanshin Expressway near Osaka in Japan, where the roads are carried over the roofs of four-to-five-storey buildings.

Problem of Parking Space :

In the absence of any restraint on the growth of traffic volume, it becomes necessary to provide for parking of a large number of vehicles in the city centre. If a commuter brings his car to his place of work, he has to park it nearby for nearly eight hours. Such parking requires a considerable amount of parking space, as can be seen in case of the Pentagon Building, where the area occupied by parking and circulation roads is many times the area of the building. When such extent of land is not available, multistorey parking garages will have to be resorted to. The tendency of the motorists is to avoid these garages in preference to on-street parking in view of the inconvenience and expense. Hence the multistorey garages are often underutilised. Heavy traffic causes congestion and results in serious air pollution. The proper handling of heavy traffic also necessitates costly structures for interchances, as seen in cities such as Berlin, San Francisco and Tokyo to name just a few.

The developed countries are now trying to adopt the second choice of placing mild restraints on the volume of traffic entering the city area. But they find it difficult due to resistance of interested property and business owners and also because of lack o adequate public transport infrastructure. Our cities are not yet fully developed. The car ownership is also very low now. But the need for public transport is urgent. Hence it is high time now for us to define the transport policy clearly and to implement the plan from now on, so that we will not find ourselves some years hence in the same difficult situation as the advanced countries have at the present time.

Start on the Intercept Concept Now!

One of the ideas proposed for restraining traffic is known as the 'Intercept Concept'. Here a number of public parking areas are provided at the fringes of the city centre adjacent to the major highways leading to the city. These parking complexes also incorporate terminals

PEDESTRIANS THE MAJOR VICTIM IN TRAFFIC ACCIDENTS

for rapid rail or bus transit so that the commuters can transfer to the transit mode smoothly to enter the city centre. The fare on the transit should be low and subsidised to encourage their use. Within the city centre, adequate and uninterrupted pedestrian footpaths are to be provided. This concept requires an efficiently organised public transport system. **It is possible to apply this concept to Madras with advantage. Currently, we have a number of railway stations on the suburban railway. Soon we are to have the underground rapid rail-transit along the North South Corridor, *i.e.*, Tiruvottiyur to Tiruvanmiyur. We would also have a number of bus terminals along the periphery of the city.**

If we could organise proper facilities to park cycles, motorcycles and cars at each of these stations and termini, and if we coordinate the bus system to pick up passengers speedily from the various railway stations, we could avoid a large number of cars, motorcycles and cycles in the city centre. We may then be able to use more efficiently the existing carriageway to carry the public transport (including taxis) and goods vehicles and the reduced number of private transport. This concept is worth serious consideration by city planners, traffic planners and the police authorities, for adoption in our cities.

INTER-MODAL TRANSFER

The traffic facilities in the city should be considered as a coordinated system consisting of many modes. It is essential to ensure a smooth transfer from one mode to the other. In European cities, it is common to find the transfer facility at the main railway station. For example, at the main railway station of Hannover in W. Germany, one could change conveniently from train to tram, city bus, underground suburban train and also to airport bus. This is worth considering for our cities also. There is some effort in this direction evident at Madras Central Railway Station, but the situation in other major cities is far from desirable.

CENTRE CITY DISTRIBUTION

The distribution of traffic within the central business district of the city requires a close examination. As the conditions in each city are different, the solutions have also to be different. Since major redevelopment is usually very difficult, regulatory measures may have to be resorted to with a view to achieve smooth circulation of traffic. Suitable traffic ordinances regarding one-way operation, no-parking on major roads,etc. are often necesssary. In addition, we need proper zoning ordinances regarding the location of public facilities, such as cinema theatres, schools, colleges, transport terminals, hotels, etc., which are potential sources of traffic generation. **One example of difficult situations in this connection is the cluster of cinema theatres opposite Mount Road Post Office in Madras.**

GOODS TRANSPORT

For the sustenance of the activities in the city, smooth movement and transfer of goods is essential. At present godowns and warehouses are normally located in crowded high-density areas such as George Town in Madras, where the roads are very narrow. While every effort should be directed towards relocation of goods terminals, restricted timings, may have to be considered for loading and unloading operations of trucks in the existing goods transfer areas.

CAPTIVE RIDER

The captive rider is the person who has to depend on the public transport to come in to the city centre out of necessity. Such persons are the children going to school, old people, and the poor who cannot afford private transport. The general tendency among the people is to go in for private transport if one can afford it, as is evident from the waiting lists for purchase of cars and scooters and the shift from cars to scooters after the oil cirsis. However, the majority of commuters have to depend on public transport, and this number increases daily due to many economic reasons. It is hence essential that public transport

should be strengthened and run efficiently. On narrow roads, where the density of population is also high, minibuses similar to 'Jeepneys' in Manila could be introduced.

PEDESTRIAN FACILITIES

The majority of people in our cities are pedestrians, and it is this category of road users, who are the most neglected in the traffic management scene. The facilities so far provided for pedestrians are inadequate and these are often misused by others. **Pedestrians form the major victims in traffic accidents. For example, out of 92 fatalities in 1974 involving city buses in Madras. 35 were pedestrians.**

Many of the footpaths are inadequately planned and maintained. On certain footpaths, temples have been built blocking the entire width. Encroachment by hawkers, poor maintenance of the surface and inadequate width of pavement, and construction of parapet walls across the footpath, etc., force the pedestrians to walk on the carriageway. Instances are not wanting where footpaths are totally absent in front of places of worship and schools, and at heavily crowded bus stops. The tendency to widen carriageway by cutting into the narrow pavement is usually self-defeating, as the pedestrians spill over the road and a part of the carriageway becomes a traffic hazard. Pedestrian crossings should be marked clearly with a number of lines parallel to the road between two thick lines perpendicular to the road, besides the stop lines.

SOME TRAFFIC HAZARDS

Our current accident analysis procedure tends to place the blame for the accident either on the vehicle driver or the victim. It is very rare that an accident investigator points out the effect of the engineering deficiency in causing an accident. Our city roads get cut at amny places by many agencies, chief among them being the departments concerned with water supply, drainage, electricity and telephones. Sometimes, these agencies leave the trenches unfilled and the excavated earth dumped on a part of the road for long periods of time, without even the provision of warning signs and danger lights, leading to traffic congestion and accidents. It should be made mandatory that whenever any cutting is made within the road land in the city, the work should be completed expeditiously on round-the-clock schedule.

Many accidents at non-signalised crossings occur due to inadequate sight distance and obscure stop signs. Recently, the Deputy Registar of I.I.T., Madras died at the junction of St. Mary's Road and C.P. Ramasamy Iyer Road in Madras due to a scooter-bus collision. The sight distance here is inadequate. It is learnt that traffic lights will be installed at this junction soon. The severity of the accidents at this and similar junctions could be reduced if the bus-stops are placed just ahead of the junction (instead of just after the junction) and better sight distances are ensured by rounding corners and prohibiting construction at the corners.

TRAFFIC INDISCIPLINE ALWAYS ENDS IN ACCIDENTS

Speed breakers — a misnomer for bumps — have been erected in a number of places with the good intention of forcing the motorists to go slow. But normally their profile is not designed properly and they are left without the requisite warning boards, lighting and painting on the road. Thus, instead of preventing accidents, the bumps cause accidents especially to scooter users. They often qualify as ' spring breakers ' for cars and as ' limb breakers ' for scooter riders. These are absolutely out of place on a city road.

Traffic indiscipline is evident all around at all levels. Pedestrians indulge in jaywalking and cross the road at will inspite of pedestrian crossings provided. Vehicles overtake at places where overtaking is unsafe and prohibited. Wrong parking of cars lead to congestion and dislocation. For a variety of reasons bus drivers find it necessary sometimes to park the bus at the middle of the road to pick up and to drop passengers. A better adherance to traffic rules is essential not only to avoid accidents but also to effect optimum use of the available facilities. Hence the need for traffic education is urgent.

Japan is probably the only country where the number of accidents per year has declined since 1972 inspite of the increase in traffic volume. The credit for this trend in Tokyo is claimed by the Highway Administration for having provided effective engineering improvements including expressways, and is equally claimed by the Tokyo Police for their better enforcement and installation of traffic signs and computer controlled signals. Tokyo Police have a separate research station, where they conduct research in many fields including traffic. They conduct durability and performance tests periodically on the paints used for traffic signs and road markings. Road markings are maintained clear. Traffic surveys are conducted periodically to design and evaluate improvements to facilities. They have a highly sophisticated computer controlled signal system. The movement of traffic at accident-prone areas and usually congested road junctions is monitored by TV cameras and traffic sensors mounted at a number of locations. The traffic signals at almost all the important road junctions within the city are interconnected and activated by the computer. At the central control room, the display board shows the roads in the controlled area and the congested reaches are indicated by red lights. The operator could monitor the actual movement at five TV camera locations at a time out of the many installed. He could also send messages to the various display boards on the road or to patrol cars. This kind of sophisticated traffic management may have to be adopted in the distant future in our country. Meanwhile, we should strive to improve our traffic management techniques within the limitations of our financial constraints.

ESTHETICS ON ROADS

For efficient traffic management, it is essential to put up a number of structures on, adjacent to, above and below the road as part of the facilities. Examples are : pedestrian bridges and subways, traffic sign and signal structures, grade separated intersections, roadway tunnels, crash barriers, noise attenuators, elevated roads, etc. Apart from the functional requirements, these structures should also be designed with an eye on esthetics as they affect the environment. Esthetics is a requirement to enhance the quality of life and the indirect benefits are not insignificant.

SOUTHERN RAILWAY'S BREAK THROUGH IN COMMUNICATION TECHNOLOGY

The success of the Southern Railways in providing facilities for passengers to telephone home or office from the moving train is because of the microwave communication system. The Rs. 1.5 crore 120 channel microwave network, spanning about 2,000 kms of the Southern Railways, commissioned by the Signal and Telecommunication Engineers of the Southern Railway in May, 1969 represents the largest microwave network in the East outside Japan. The Southern Railway fully exploited natural eminences like Kodaikanal, Horsely Hills, Nandi Hills, Yercaud, Yelagiri, Pallavaram, etc., to locate the repeater stations using a number of hop lengths ranging from 80 to 140 kms. between each. This is a world record in the matter of distances between adjacenet repeater stations. Connecting as it does, the Southern Railways Headquarters with the various Divisional Headquarters and with important points of operational and commercial value through a system of multi-channel telephonic and teleprinter communication, this sophisticated communication system is available round the clock. The system functions to an efficiency of about 99.8%. It enables instant communication between management at the various departmental headquarters with the Divisional Units and with field organisations in charge of operations execution of maintenance and of works. The communication is available both ways. There is an exclusive teleprinter link connecting the Headquarters with various Divisional Units in addition to many telephonic and teleprinter channels available on the various routes.

Microwave Radio Patch :

In addition to providing telephonic and teleprinter multi-channels of communication, the microwave radio channel has been used to radio patch affected spans of a control section that may be interrupted on account of thefts and other interruptions and of breakdown due to weather conditions. Effective functioning of train control circuits is a basic necessity for efficient maintenance of passenger and goods train services and for enabling maximisation of the available capacity for running trains on any section. **This radio patching through microwave has brought up the efficiency of some section control circuits from as low a figure as 50 per cent or 90 per cent and more.**

Advantage has also been taken of the microwave network to link the various passenger reservation offices on Southern Railway at Bangalore, Madurai, Tiruchirappalli, Ernakulam etc., with Madras passenger reservation office through an exclusive teleprinter network. With this link, it is possible to provide information to the public with regard to availability of berths and their reservation for their onward journeys beyond Madras and *vice versa* within a very short time, instead of their having to wait for a day or two for obtaining such information as was the case in the past when the overhead line telegraph wires were used for such purposes.

VHF Radio Communication :

The Southern Railway has also introduced VHF radio communication between locomotive and guard particularly on goods trains. On our long and heavy ore trains, it is not possible for the driver and guard to communicate with each other by exchange of all-right signals through flags or lights. The VHF radio enables instant communication between the guard and the driver. Further, this radio communication enables guard and driver to resume normal running when they are stopped in mid-section on account of alarm chain pulling, vaccum or other difficulties. Such VHF communication which is instaled in the controlling cabins of terminal yards is very helpful for calling locomotive to the station platform only when required, and thereby helping in reducing pre-departure detentions.

Tele Links for Running Trains :

Experiments have also been carried out successfully by the Southern Railway on the Madras—Bangalore section for connecting important trains like Brindavan Express through VHF and Microwave links to the control offices in Madras and Bangalore while the train is in continuous motion. In addition to the control offices, it also be possible for the conductor-guard of the train or any passenger on the train to speak from the moving train to any railway or public telephone subscriber at Madras, Bangalore or any othr places connected to the Railway or P. & T. communication system.

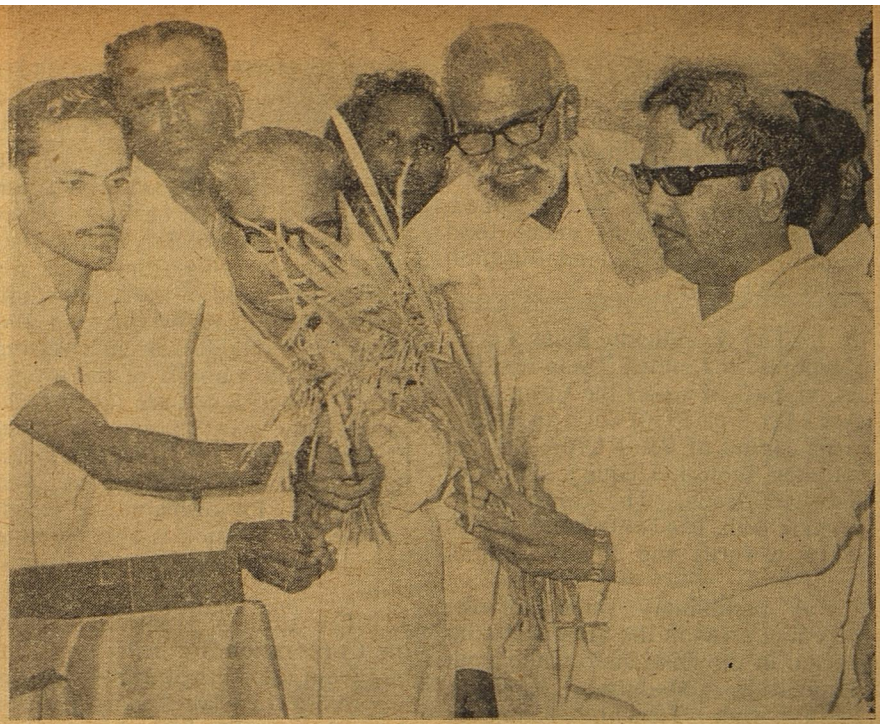
The Southern Railway has been the first on the Indian Railways to introduce closed-circuit television. Madras Central provides audio-visual communication to the travelling public through TV receivers, positioned at strategic and important locations in the concourse, waiting halls and platforms. Information regarding late running of trains, special instructions to passengers regarding safety aids in travelling, etc. are displayed on the TV sets. Incidentally, the TV system pays its own upkeep through the revenue earned in the commercial display of advertisements. This system of communicating with the public is proposed to be extended to other important stations on Southern Railway, like Bangalore, Madurai, Tiruchirappalli, etc.

MINI SOLAR POWER PLANT TO ENERGISE TV SETS

A mini solar power plant that can energise a tubewell or television set in an isolated village is to be developed by West German Technologists in collaboration with the Indian Institute of Technology, Madras and BHEL, Tiruchy. An Indo-German agreement in this connection has recently been finalised by the Ministry of Energy. The importance of the plant for the educational satellite television programme to be launched soon for thousands of villages in India some of which have not yet been linked with electricity grids is obvious.

The above power plant consists of a bank of solar " Collection " which traps sun's rays, heats up water, which in turn raises the temperature of a more volatile liquid. The vapour produced from this liquid under pressure is fed into a turbogenerator which rotates and delivers powers. The basic technology for solar collection has already been developed. The collaboration will be on improved designs for economic and maintenance free operation.

The Govt. of Tamil Nadu Becomes A Farmer



C.M. Inaugurates State Farming Corporation's First Farm

With the inauguration, on 8th September, 1975 the first of the 150-acre State Farm at Mussaravakkam the Government of Tamil Nadu takes the first step to become one of the biggest producers of food in Tamil Nadu. The Government is already performing the twin tasks of procuring and distributing food ; but is entering the field of production of food-crops for the first time.

The idea is to make use of the land declared as uncultivable. Though there is an extent of 11 lakh acres of such land, in the first phase, the State Farms Corporation is embarking on the scheme with a limited scope of 60,000 acres in the districts of chingleput, South Arcot Pudukottai, Thanjavur, and Thirunelveli. This phase itself will yield, 1 lakh tonnes food grains and 1. lakh tonnes tubers and Pulses. A profit of Rs. 6.5 Crores will accrue to the Government.

The organisation of a farming Corporation under the aegis of the Tamil Nadu Government has as its main objective the exploitation of uncultivable waste lands available in the Districts by setting up large scale farms in suitable areas. The farms set up may also incidentally, serve as model Centres on improved farming technology. The emphasis will be on maximising production, in order to make farming commercially attractive. Commercial Agriculture pre-supposes choice of suitable high income crops and their intensive cultivation. A venture on these lines will therefore be associated with suitable processing units to utilise the raw material produced taking advantage of the market trends and the need for development of suitable markets for the produce. **The farm production would also be closely linked with other sectors of development such as food or feed industry which would purchase, store, preserve, process and market the end products.** The entire programme in other words, is expected to give a new orientation to the concept of State managed farm production.

The total area of Tamilnadu is 320 lakhs acres. Of the above, 70 lakhs acres are available for irrigated cultivation. Of this, 11 lakh

acres are cultivable wastes which are readily available. Most of this waste lands are owned by Government and could be taken over by the State Farms Corporation. The fallow lands could be developed, irrigated and brought under food crops by applying the land utiisation order Act 1961.

" The Tamilnadu State Farms Corporation Limited " was registered on 5-12-74 under the Companies Act (Act I of 1956) with an authorised capital of Rs. 1 Crore divided into ten thousand equity shares of Rs. 1,000/-each. The Government, to start with, has contributed Rs. 10 lakhs towards the Share Capital.

A preliminary survey of the potential areas in the State was conducted in the Districts o Chingleput Tirunelveli, Madurai, Ramnad, Pudukkottai, Tiruchi, Thanjavur and an area of 60,000 acreshave so far been identified for being taken up under the first phase of development by this Corporation.

	Acres
1. Chingleput ..	8,640
2. South Arcot ..	22,986
3. Pudukkottai ..	10,000
4. Thanjavur ..	3,800
5. Tirunelveli ..	14,778
..	60,204

Main criteria for selection of lands is the availability of good ground water or other irrigation potential. The Central Ground Water Board and State Ground water Directorate have estimated that 3 million acre feet of additional ground water resources is available for extraction. The areas selected are those with the best potential.

Where Government poromboke lands are taken, they are to be taken at an annual rental of Rs. 50/- per acre for a period of 35 years, so that the returns accruing from these lands during the period of the lease would be adequate to repay the loan and leave a reasonable margin ensuring the economic viability of the investment. When lands are taken from temples, the lease amounts are fixed in consultation with the Commissioner for Hindu Religious and Charitable Endowments. Neiveli Lignite Corporation is also handing over its farms to the Farms Corporation.

The drilling rigs required by the Corporation are being taken on hire from the Agricultural Engineering Wing of the Department of Agriculture. The State Farms Corporation would be acquiring some rigs on its own. The Agro Industries Corporation which is expected to go in for large scale purchase of drilling rigs would also be placing its drills at the disposal of the Farms Corporation.

The Project would be financed by loans from the Commercial Banks, Co-operative Land Development, Bank, Repatriates Bank, Co-operative Central Banks and other Financing institutions both in respect of long term and short teres credit requirements.

The farms will raise at least two crops every year, out of which one crop is likely to be Paddy, preferably a short duration high yielding one. The second crop would be a commercial crop. Tapioca and High Yielding millets would also be grown.

Jobs for Repatriates

Ceylon Repatriates when available would be employed as permanent labour. Casual labourers would also be taken from among the members of the repatriates families. In addition, large numbers of local labourers would also be employed during various laboure intensive agricultural operations. The project would thus]generate huge employment opportunities in the rural areas apart from its role in the rehabilitation of the home coming repatriates from Ceylon, most of whom have been working as plantation labour.

Million Acre Farm

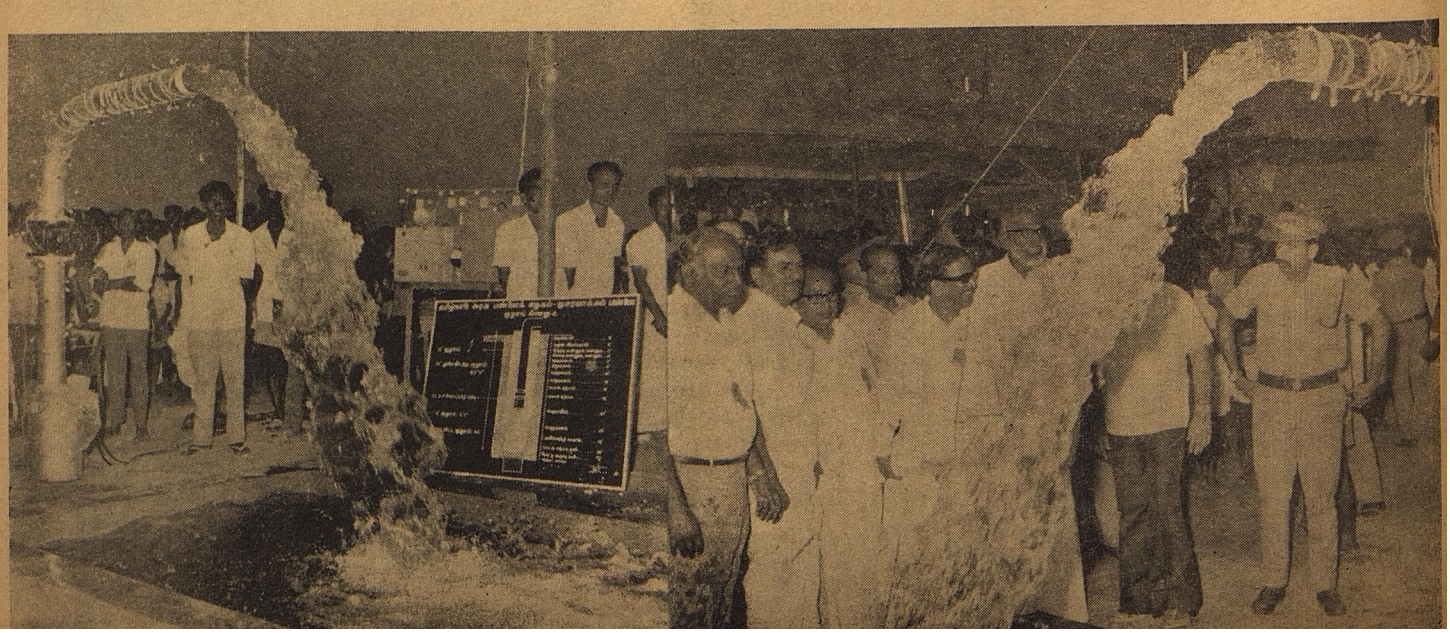
The ultimate objective is to bring about a million acres under irrigated crops. This would be taken up in a phased manner with the idea of completing the development within a period of 5 years or so.

In the first phase about 60,000 acres of lands will be taken up for development in the Districts of Chingleput, South Arcot, Thanjavoor, Pudukkottai and Tirunelveli. A notable feature of development is the attempt to reclaim swampy areas along the coast where too much of water rather than too little water is the main problem.

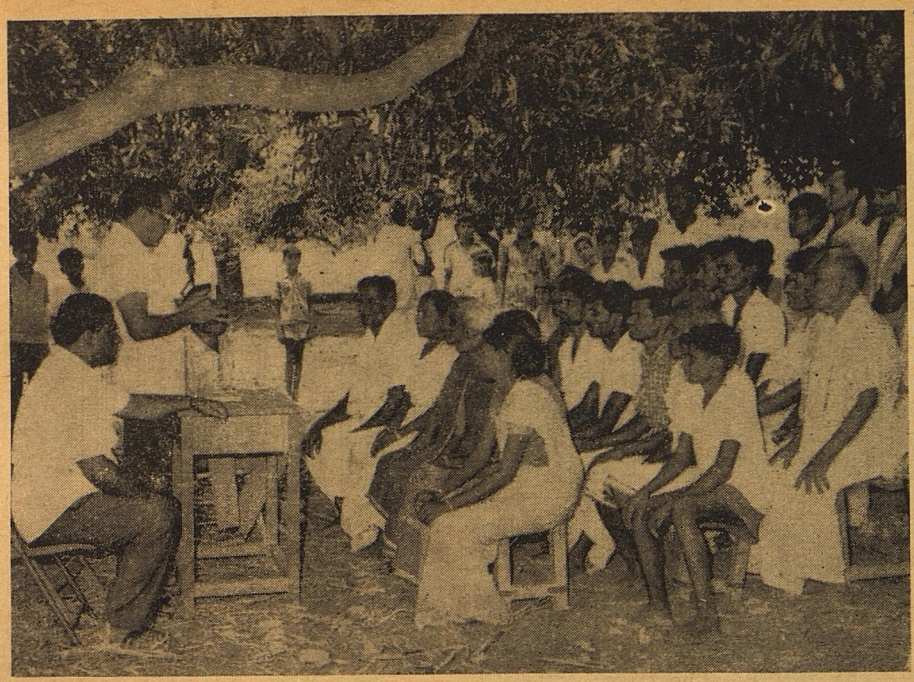
The first phase is expected to result in an additional production of 1 lakh tonnes of food grains and 1.5 lakh tonnes of other crop produce.

This project (first phase) is expected to contribute about Rs. 6.5 crores by way of profit to the public exchequer.

Three 22,500 Gallons per hour ground water wells irrigate the 150 acre Musaravakkam Farm



DEVELOPMENT OF MARGINAL FARMERS



Farmers are given lessons in how to improve their lot with S.F.D. aid.

Scheme Extended to More Districts

The scheme for the economic deve'opment of the Small Farmers and Marginal Farmers is being extended to the other districts from 1975-76. The following seven districts have been selected for the implementation of the scheme. In each of these districts an outlay of Rs. 1.5 crores spread over five years is contemplated. The expenditure will be on detailed project reports already approved by the Government of India.

1. Thanjavur.
2. Tiruchirappalli.
3. Coimbatore.
4. Chingleput.
5. Pudukkottai.
6. The Nilgiris.
7. Kanyakumari.

Under the scheme, a business-like approach is made to solve the problems of the small and marginal farmers as also to enable the landless agricultural labourers to take to profitable enterprises. Though the agency works with the official machinery and operates through the existing financial institutions, much of the hide-bound restrictions have been done away with, to achieve positive results, in a short time.

The Government of India introduced in the IV Five-Year Plan the project for the benefit of small farmers and marginal farmers and landless agricultural labourers in selected blocks in the following five districts under the supervision of an agency in each district, registered under Registration of Societies Act, with the District Collector as its Chairman :—

Small Farmers Development Agency:

(i) Madurai district (18 Blocks)
(ii) South Arcot district (19 Blocks).

Marginal Farmers and Agricultural Labourers Development Agency:

(iv) North Arcot district (3 Blocks).
(v) Salem District (5 Blocks).

The scheme is financed from two sources, namely grants from the Government of India and loans from the Co-operative Institutions. The grant allotted by the Government of India for each Small Farmers Development Agency, is Rs. 1.60 crores and for each Marginal Farmers and Agricultural Labourers Agency is Rs. 1 crore. Duration of each project is five years.

Each Small Farmers Development Agency is meant to benefit 50,000 small farmers and marginal farmers and each Marginal Farmers and Agricultural Labourers Agency is to benefit 20,000 small and marginal farmers. Under this scheme, subsidy is given at the rate of 25 per cent of the small farmers and 33 1/3 per cent to the marginal farmers. Credit facilities are being arranged through the Co-operative Institutions to enable the weaker section of the farming community to undertake better cropping practices, to effect permanent improvements through well digging, deepening and energisation of wells and to augment their income by engaging in subsidiary occupations like Dairy Farming, Poultry Farming, Sheep Rearing, etc.

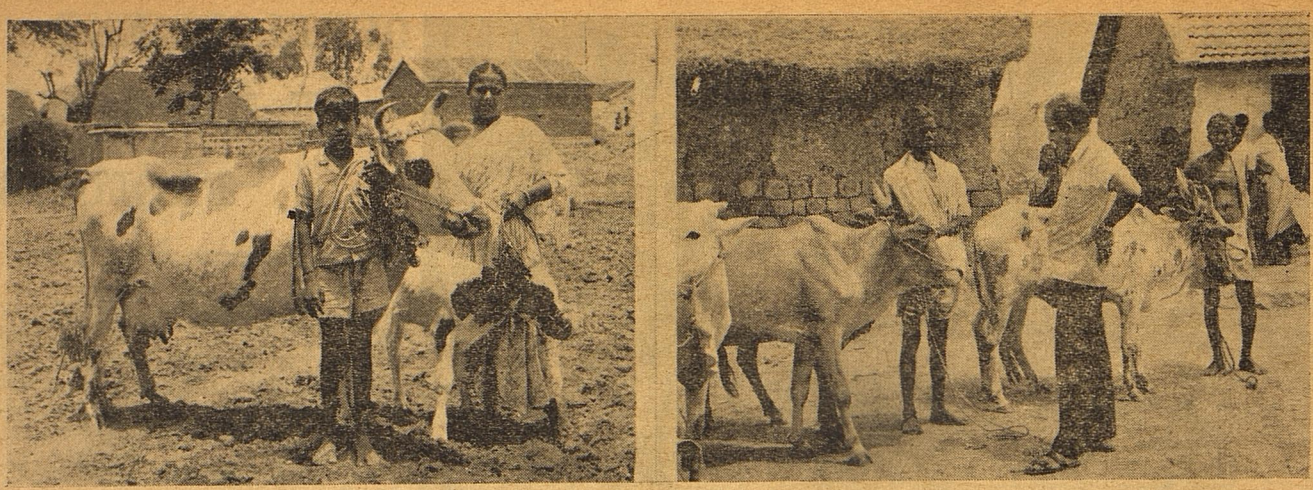
The ultimate objective of this scheme is to help the weaker sections of the rural population in improving their social and economic status.

Subsidiary occupation schemes are provided to the Landless Agricultural Labourers also. To provide employment potential during the off-seasons Rural Works Programme is included. Landless agricultural labourers are encouraged to form themselves into Labour Contract Co-operative Societies, for executing these Rural Works Programmes of the Government.

The agency formed for the Chengam area of North Arcot when it found that its members could not make a success of poultry breeding for want of regular supply of feeds, allocated sizeable sums of money to the Tamil Nadu Poultry Development Corporation for its hatchery and feed-mixing units. Thus it was able to help the entrepreneurs to make a success of their chosen schemes whether in poultry or animal husbandry. This is done to provide infrastructure facilities.

Originally the Chengam Area agency was to serve only the two out of the three Panchayat Union Blocks of CHENGZAM TALUK i. e. CHENGAM and PUDUPPALAYAM. Accordingly work was taken up in these two blocks only during 1971-72, 1972-73 and upto FEBRUARY, '74. During FEBRUARY, '74 the Government of India permitted the extension of the area and accordingly from February '74, onwards this agency serves the entire CHENGAM TALUK, including Thandarampet Block. The Chengam Agency has enrolled 12,069 persons in the co-operatives.

The Chengam area comprises undulating terrain necessitating insentive land-development for the



A marginal farming family benefits from purchase of cow (left) and also purchase of bulls with S.F.D. aid.

small farmers. This work was successfully tackled. Secondly when subsidiary occupation was discussed, sheep rearing was preferred by many of the land-less agricultural labour. By suitably modifying the original scheme, each beneficiary was given 7 ewes and one ram. The are has good grazing grounds and this scheme has become quite a success.

Heifer calf Rearing :

Dairying scheme has been taken up in a big way because of the available potentialities in this area. Further, credit and marketing are linked. Tamil Nadu Dairy Devlopment Corporation is prepared to buy any quantity of milk produced in this area. Good Milch animals are prohibitively costly and good milch animals are not also available. Hence the heifer calf rearing scheme was introduced to solve this problem and thus there has become a strong-hold of well reared milch animals in a short period.

The Tamil Nadu Dairy Development Corporation also decided to establish a milk chilling centre at Tiruvannamalai (VENGIKAL) and subsequently established the same. Each individual can gradually develop a Mini-Dairy of upto five milking animals even and get a substantial steady income. The sub-marginal farmers have taken to the scheme in a big way.

The commercial banks are evincing keen interest in entering this agency area for this scheme. Because in the existing Dairying Scheme credit and marketing are linked up. Only in the areas served by the Milk Supply Cooperative Societies, the Central Coop Bank is willing to provide the required finance. The commercial banks are willing to provide un-tied credit.

The milk pooled by the T.D.D. Corporation in Chengam and Tiruvannamalai taluks are chilled and sent daily to Vellore for pasterisation and despatch to Madras.

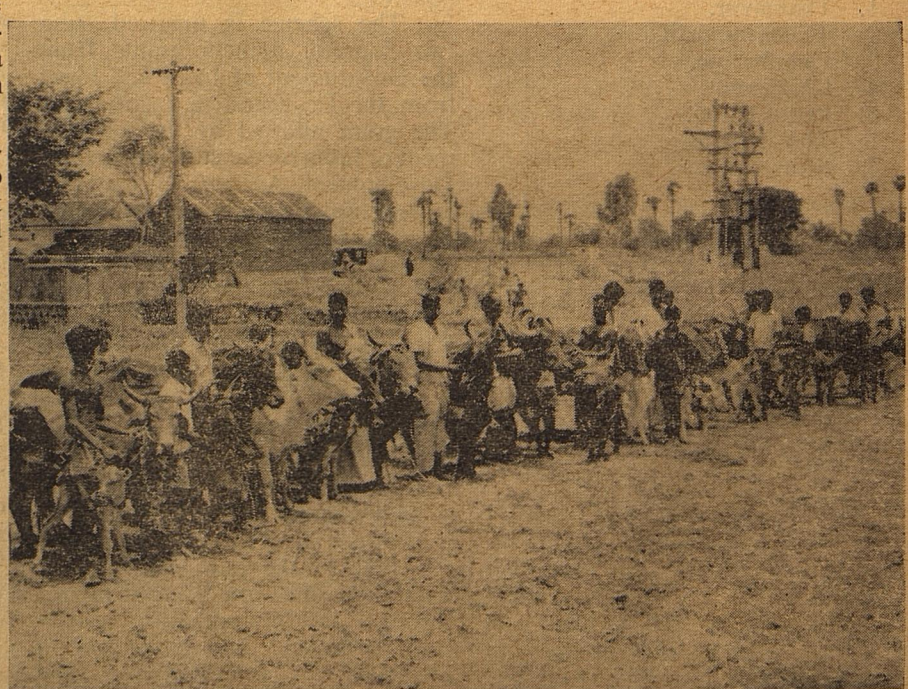
To help the Landless Agricultural Labour and the Marginal Farmers to undertake contract works there are two Labour Contract Coop. Societies in this area. The society for Chengam block was already existing whereas one for Puduppalayam block was newly registered. Each society is provided with a Junior Inspector—Secretary to carry on the day to day transactions and maintain the accounts. Engineering works under the Rural Works Programme are being entrusted to the Labour Contract Coop. Societies for execution.

The entire cost of tools is provided by the Agency : such purchase is of the value of Rs. 5,000/-. The agency has also undertaken to provide a large number of persons training in customs services like repair of sprayers and electric motors of pump-sets.

Rural Works Programme :

The total provision in the Project Report for Rural Works programme is Rs. 20.00 lakhs. It is hoped that this will be exceeded by another Rs. 5.00 lakhs.

A parade of aid-purchased live-stock in Chengam area.



The End of An Agonising Water Scarcity in Madras City

The Local Administration Minister, Thiru Mannai P. Narayanaswami has announced that with effect from 1st September, 1975, the City would get its normal daily water supply. This ends one of the very trying experiences for the city, as it was virtually living on alternate day's supply of water for seven months from February, 1975.

The alternate day supply system was introduced in the first week of February when the storage position deteriorated due to failure of monsoon for two successive years. At one stage, in July, the situation became so precarious that the civic authorities threatened to limit the water supply to once in three days but this was averted by stepping up the drawal from ground water sources. Artificial rain-making with an American crew was attempted as a desperate measure, with some success.

But the real relief came from some unexpected rain in the catchment areas of Poondi reservoir, also known as Satyamurthi Sagar, during the last days of August, resulting in "some improvement" in the storage. This had made it possible to restore the daily supply of drinking water to the city. Arrangements were being made to convey water from Poondi to Cholavaram and then on to Red Hills lake from where water would be taken to the city, partly by gravitation and partly by pumping. With the present storage, it would be possible to maintain a supply of 30 million gallons of water per day during the whole of September and October. By October the onset of North East Monsoon rains would fill up the water sources.

Explaining the storage position, Minister said that Poondi lake now had 535 million gallons of water as against its full capacity of 17,200 million gallons. As on 30—8—75 this water source was getting an inflow of 580 cusecs.

The Minister, accompanied by the officials of the Corporation and TWAD Board, visited the reservoirs and studied the storage position before making the announcement.

Due to inadequate rains during the North East Monsoon in October and November, 1973, the Water Storage position in the three reservoirs for City Water Supply (*viz.*) Poondi, Cholavaram and Red Hills was very insufficient to continue the daily supply of 52 m. gls. maintained till November, 1973. Hence the supply was reduced to 45 mgd. from 1st December, 1973, and then to 40 mgd. from 1st January, 1974 and again reduced to 35 mgd. from 1st February, 1974. As there was not sufficient rains during the South West Monsoon in July/August, 1974 the supply had to be cut to 30 mgd. from 15th August, 1974. With some good rainfall in early October, 1974. the supply was increased to 35 mgd from 12th October, 1974. As there was failure of North West Monsoon during October/November, 1974, the supply had to be reduced drastically. With a view to pull on as long as possible with the available storage and the ground water from Tamaraipakkam, Panjetti,etc., in the City supply had to be made only on alternate days from 6th February, 1975.

To meet the scarcity condition created by the failure of rains, the Government of Tamil Nadu had made generous financial assistance by way of loans and grants. In April, 1974 about Rs. 32.25 lakhs was given to the Corporation for purchasing water lorries to fill up the steel tanks in various parts of the City and to sink new wells and tube wells in various parts of the City. A sum of Rs. 15.00 lakhs was given to P.W.D. to cut contour channel in Red Hills and Cholavaram lakes. An additional sum of Rs. 3.00 lakhs was given during October, 1974 for the sinking of wells. In January, 1975 Rs. 85.00 lakhs was given to Corporation and Rs. 30.00 lakhs to the ground water cell and in June, 1975 an advance of Rs. 50.00 lakhs was given. **In all about Rs. 185 lakhs was given for providing lorry water supply, sinking new wells, tube wells etc.**

About 675 wells were sunk in 1975, and including 6,000 tube wells of 1974 a total of 10,000 tube wells were there by end of August, 1975. More than 1,120 tanks (Steel and Ferro Cement) were erected to be filled up by about 100 water lorries. The Indian Oil Company and certain other institutions have lent their lorries for water transport. Thus it will be seen that the Government of Tamil Nadu and various other institutions extended their fullest co-operation during this drought period. The untiring efforts of the Corporation Engineers made it possible to provide at least the minimum quantity of water during the very difficult period.

RAILWAYS MAKING PSYCHOLOGICAL CASE STUDIES TO PREVENT ACCIDENTS

The Psycho-Technical Cell of Research, Designs and Standards Organisation of the Ministry of Railways has done a very valuable job in identifying the various essential traits of character required for different trades to perform an error-free task.

A start has also been made by some of the Railways in undertaking psychological case studies of staff responsible for accidents. This undoubtedly is a very important step. From a study conducted by the Northern Railway on 22 drivers passing signals at danger, it was observed that 18 had poor education and intelligence, while only 4 could be considered to have education adequate to their task, thus highlighting the influence of education and intelligence on their performance. Heavy family burden was another significant factor. Unfortunately, the fear in the minds of the staff that they may be taken up for their failures and shortcomings tends to put them on their guard and suppress the truth ; this no doubt vitiates the accuracy of such studies. Some modification in the present system, therefore, appears necessary, so as to overcome the fear complex thus enabling the facts being understood in their true perspective and find out the best corrective means.

It is common knowledge and experience that more mistakes are caused by people when they are working under fear, anxiety and apprehensions than when working normally, and since the objective is to see that staff do not err, an atmosphere must be created which is free from fear and anxiety.

Coming to the causes of accidents arising out of human lapses and measures for their prevention, it has to be understood that accidents take place due to a variety of factors often acting in combination. While scanning throw the related literature and exchanging views with experts both at home and abroad, it was found by the writer that basically, it is the incompatibility between the man and his work that he is responsible for most failures. People are assigned jobs for which they have little capacity and inclination. The result is that in spite of training they groan, grumble and commit mistakes and remain a liability for the management. It is a great satisfaction that this vital aspect has caught the attention of the Railway Board to the extent it deserves, and practical application of psychology is being introduced for matching workers with job requirements at the recruitment stage. It would not be out of place to suggest that the Railway Administration should undertake comprehensive job analysis of all categories of staff who may be connected with traffic safety in some way or the other and thus determine the age, education and aptitudes necessary for each of these categories. Training the operating staff with clearly defined objectives, preparing courses to suit them as also the need for appointing, as training instructors, the best men who are interested in the job of imparting knowledge, is an important aspect which needs specific attention.

Life Insurance Corporation of India

Life Insurance was nationalised in 1956. The Life Insurance Corporation of India completes 19 years of its existence on September 1, 1975.

The objective of nationalising life insurance was :

(*a*) to reach the remote and hitherto neglected areas,

(*b*) to provide protection to every eligible man and woman in the country, and

(*c*) to safeguard the savings of the policy holders and to invest them in their welfare and that of the nation.

LANDMARKS

(1) **Growth** : LIC has today 41 Divisional Offices and 780 branches and small offices.

(2) **Business** : As against a business turnover of Rs. 260 crores in 1955, (one year prior to nationalisation) LIC's total business in 1974-75 stands at Rs. 3,113 crores.

A wide range of schemes were formulated and developed to benefit all sections of the people, more particularly the weaker ones, since 1966—67. As against 39 schemes finalised in 1966—67 covering 16,000 lives for Rs. 18 crores of sum assured, the number of schemes finalised in 1974—75 was 788 covering 9,43,099 lives for Rs. 1,341.57 crores.

The rural areas received special attention, and 30 to 35 per cent of new business come from these areas today.

(3) **Service** : Currently, more than 1,300 claims are being paid on an average working day. More than Rs. 1,150 crores worth of claims have been settled by LIC (benefiting over 32 lakh families) since 1966.

In 1974—75, the claims paid amounted to Rs. 130.12 crores as against Rs. 24.96 crores in 1957.

(4) **Investments** : The breakup of investments in some of the socially oriented organizations and industries, which increased from Rs. 8 crores to Rs. 1,216 crores in 1974—75, is given below :

	Rs. in crores
Electricity	483
Housing	410
Water Supply and Sewerage	122
Land Development Banks	126
Sugar Co-operatives ..	10
Financial Corporations	61
Industrial Estates ..	4
Total	1,216

(5) **Benefits to weaker sections** : In keeping with the objective of carrying the insurance to cover every remote corner of the country and to all classes of people, particularly to those in the lower strata of society, non-medical limits have gradually been increased. About 50% of the policies are being issued without medical examination. The LIC has liberalised its approach to the underwriting of sub-standard lives. Persons with a history of serious ailments, who could not have been considered for insurance in the past, are now being insured. Extra premia previously charged for a wide range of occupations pursued by weaker sections of the community, have been removed.

PROBLEMS OF PROCUREMENT OF MILLETS FOR CATTLE FEED

The chief purpose of food is generation of energy for body processes, such as growth, maintenance and production.

The food-stuff in any diet for livestock are usually chosen on the basis of their ability to serve economically as source of one or more nutrients.

During the process of digestion, certain amount of energy is lost due to their breaking down into simpler forms. The material which loses minimum energy during the process of digestion is considered to be best ingredient.

The present concept of rearing livestock in enclosures is to make full use of the energy, which otherwise would have been lost by the livestock in search of feed in the free range system and to utilise such conserved energy for the purpose of growth and production.

Among food articles and cereals give readily digestable carbohydrates (which give ready energy) whereas other materials like fat and protein need conversion to carbohydrate and in this process of conversion, certain amount of energy is lost.

Cereals like maize, jowar, bajra, ragi, wheat and paddy are the common ingredients used in the formulation of feeds. Preference is given to maize because it is a source of vitain A, in addition to its highest energy content. Cereals give as high as 1,050 to 1,150 K. Cal. of productive energy per pound, whereas cake gives 750 to 780 K. Cal. of energy and green grass 400 to 500 K. Cal.

Among cereals, rice, wheat, ragi and jowar are commonly and widely used as food for human beings and these are generally costly. Yellow maize, which is not a common food ingredient at least in South India, is a useful millet for livestock, feed. By the same token, bajra and to a lesser extent jowar are also used.

Foreign countries, which are highly advanced in dairy and poultry industry use cereals in the livestock ration upto 60 to 70 per cent. This is because grains are available in plenty and are also cheap.

In a country like ours, where there is competition for grains between man and animal, where grains are generally in short supply, utilisation of cereals as food ingredients for livestock has to be restricted to the minimum extent possible. For getting optimum production from livestock the diet should contain a minimum amount of productive energy and this cannot be achieved without cereals in the ration. This is particularly so in case of poultry feeds, whereas in feeding cattle, grains can if necessary, be eliminated.

Normally, a minimum quantity of 30 to 40 per cent of grain should be provided in poultry ration to supply optimum amount of productive energy and this can be supplied by 20 to 30 per cent of maize and the rest 10 per cent by other grains, such as Jowar, bajra, wheat broken and rice broken, depending on their cost and seasonal availability.

In case of cattle feed, even-though it is desirable to add 30 to 40 per cent of grains in their ration, this can be minimised to 10 per cent to 20 per cent and the rest can be supplemented by gram *chunni* or husk, etc.

From the statistics available, about 402,694 MT of livestock feed was produced during the year 1974 in the country by reputed manufacturers, of which 232,700 MT was cattle feed, 163,800 MT poultry feed and 5,550 MT other foods.

Southern zone manufacturers have manufactured about 133,600 MT of which 50 per cent is poultry feed. This figure does not include feed manufactured by small manufacturers. It is estimated that production in the small units may be equal to the production of reputed manufacturers. Mixing and feeding by individual dairy and poultry farmers is a traditional practice in India, and this may amount to 2 to 3 times of the production of both reputed and the small units.

On a modest estimate of about 30 per cent grains in the livestock ration, the demand is for 120,660X3 M.T. of grains on All India basis and the demand in South is about 25 to 30,000 X 3 M.T. It case we use millets as per the foreign standards, that is, 60 percent, the demand for grains would be about 241,200 X 3 M.T. on All India basis and in South India, this would be 60 to 70,000 X 3 M.T.

Development of feed industry :

Production during the year 1974 was 402,090 M.T. of livestock feed against 371,530 in 1972 showing an increment by 8.2 per cent on All India basis. Cattle feed showed an increase by 28 per cent, whereas poultry feed production went down by 10.5 per cent over 1972. This is mainly due to the upward trend in the cost of poultry feed (due to upward trend in the price of raw materials) and the egg price remaining steady, makin poultry farming less profitable in 1974. However it is anticipated that growth rate in 1974 will be at ast 10 to 15 per cent on 1973 figure, in which case, the demand for millets will be further increased by about 12 to 15,000 M.T.

About 436 lakh tonnes of millets are produced in India in an average year of which 50.26 lakh tonnes is usually maize. Despite this production' the surplus grain was just enough to meet the requirements of livestock feeds. In South India, millets production is of the order of 57.60 lakh tonnes of which maize is reckoned as 3.78 lakh tonnes.

Last year our country faced a very critical period due to severe drought conditions in most of the states leading to failure of crops and there was a general shortage of grains. This directly reflected on the market price of grains. Short supply of grain and the consequent high cost forced the feed manufacturers to increase the rate of feeds and without any corresponding increase in price of eggs this has already started making the poultry industry an uneconomical proposition.

In our country, due to different eating habits utilisation of millets as food ingredient differs from place to place. Grains which are less used are only maize, bajra and jowar respectively and livestock feed industry can think of only using these in their rations.

To look back, 1970—71 which was a favourable year, had just enough quantity or a marginal surplus of grains for the food industry. While the prices of cereals like maize, jowar and bajra were on a reasonable level, 1971—72 showed a drop in the yield when their prices increased by about 25 to 30 per cent. 1972—73 became most critical year due to severe drought. Fortunately, Tamil Nadu had reasonable rainfall and production of cereals was satisfactory. But the demand from other States, where there was severe drought, increased the cost of grains due to export from Tamil Nadu. The price, which was as low as Rs. 600/- for maize, went upto Rs. 1,300/- per M.T.

Due to lifting of the ban on the inter-State movement of grains by Centre, has further aggravated availability condition in Tamil Nadu, and the price has went upto as high as Rs. 1,400/- per M.T. and has not come down.

Selling price of feed with grains on the present price will have to be increased proportionately and survival of livestock industry on the increased cost of livestock feed looks bleak, unless there is a proportional increase in the price of milk and egg, which appears unlikely.

The alternatives are :

(*i*) to increase the production of grains by increasing the acreage, which should be taken as long term policy ;

(*ii*) Government to procure grains at a reasonable price from growers and sell them to feed manufacturers at a reasonable profit. This at present is controlled by private traders, who hoard the material in season and sell at a profit of 60 to 80 per cent.

(*iii*) Feed manufacturers can sponsor cultivation of grains particularly maize on the same lines as sugar manufacturers *vis-a-vis* sugarcane. As this will involve large amounts being taken away from normal operating purposes, nationalised banks should come in with production credit.

The spiralling cost of cattle and fodder resulted in a downward trend in the procurement of milk for the dairies and in order to counter this trend, milk price to farmers was revised upward twice during last year, once in April 1974 and again in July, 1974.

Production of milk which accounts for more than 50 per cent of income generated by the Animal Husbandry Sector in Tamil Nadu is far below the the nutritional requirements in that the estimated average production of 2.6 million litres of milk per day in 1974—75 works out to only about 1/3 of the nutritional requirement of 10 oz. per person per day. The development activities in this sector aim at increasing milk production, streamlining its distribution to the consumers in an organised manner.

According to the 11th quinquennial Livestock Census 1974, the number of cows and buffaloes in milk was 13,51,164 and 8,02,197 respectively.

Production figures of the various millet food grains in Tamil Nadu, were as follows :

Production of cholam rose from 5.24 lakh tonnes in 1972—73 to 5.63 lakh tonnes during 1973—74, in spite of the dwindling area under the crop, from 6.80 lakh hectares in 1972—73 to 6.70 lakh hectares in 1973—74 perhaps necessitated by the low rainfall. The marginal rise in the level of yield from 771 kgs. per hectare in 1972—73 to 840 kgs. per hectare during 1973—74 can rafely be taken to be the main season for the increse in production. However, as compared to the production of 6.17 lakh tonnes during 1969—70 the production of 5.63 lakh tonne during 1973—74 is considered to be poor. During 1974—75 drought has also affected the cholam crop, which is mostly grown under rainfed conditions and production is expected to be lesser by about 52 per cent compared to the previous year.

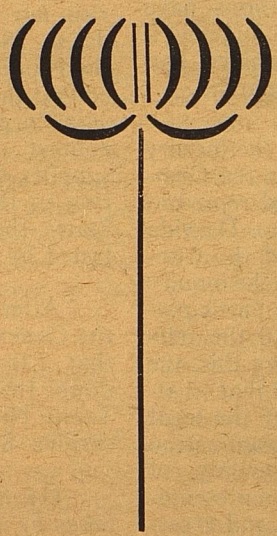
Cumbu : Production of cumbu had gone up to 2.97 lakh tonnes in 1973—74 from 2.60 lakh tonnes in 1972—73 because of marginal increase in yield from 606 kgs. in 1972—73 to 692 kgs. in 1973—74, the increase in area (from 4.28 lakh hectares to 4.29 lakh hectares) being very negligible. However, production of 2.97 lakh tonnes of cumbu in 1973—74 is very much lower when compared to 1969—70 during which year it touched 3.25 tonnes. As in the case of other crops, production of cumbu is also expected to be very low during 1974—75 on account of drought.

Ragi : There is no significant change in the production of ragi in that it was 2.87 lakh tonnes in 1973—74 compared to 2.90 lakh tonnes in 1972—73. Increase in the area under ragi by 2,000 hectares during 1973—74 over the previous year has obviously been counteracted by a decline in yield by 18 kgs. during the year. As compared to the rise in ragi production from 2.83 lakh tonnes in 1969—70 to 3.34 lakh tonnes in 1970—71 the downward trend in production during subsequent years including the year 1973—74 is not satisfactory. Production of ragi during 1974—75 is estimated to be lower due to the failure of the monsoon.

Maize : Covering as it does only 0.15 lakh hectares (1973—74) maize is not an important crop in the State and its production was a meagre 0.16 lakh tonnes during 1973—74. Its production and area of cultivation have remained practically constant.

Other Cereals : There has, however, been a conspicuous increase in the production of other cereals like Varagu, Thenai, Samai, etc., from 2.80 lakh tonnes in 1972—73 to 3.14 lakh tonnes in 1973—74; a 11.7 per cent increase has been possible thanks to a sizeable increase in area from 3.77 lakh hectares to 4.09 lakh hectares during the year. Since most of these crops area raised under rainfed conditions, the expected production would be only about half of the quantum of production in 1973—74 due to drought during 1974—75.

THE RICE DEAL OF 1971



Commission exonerates Minister

The Commission of Enquiry appointed by Government of Tamil Nadu to enquire into the allegation that there has been misuse of power on the part of Thiru P.U. Shanmugam, the then Food Minister, in respect of the disposal of a stock of more than 12,000 *tonnes of rice in the year* 1971, *has held that :*

Misuse of power can arise normally in a situation where the stock belonging to the people and the money of the people are mis-spent or misused. No such occasion has arisen here. Therefore, there is undoubtedly no misuse of power by the Minister.

"After all, the Government was selected as the medium to act and in that situation it cannot be said that at any particular point of time and in the course of his exercise of powers and duties as Minister, Thiru P.U. Shanmugam departed from the usual norms and engaged himself in an alleged contrivance so as to misuse his power. The Government acted as agents for sale on the incessant requests made by the TCMF which was the sole force to draw up its itinerary and the method by which its stock could be publicly and profitably sold. The stock was dealt with in open tenders. Open tender itself would mean when once a tender is to be invited, anybody can bid. It is not as if the Minister or the Secretary for Food contrived as between themselves to sell the stock of the Federation with the connivance of its President for a song to Thandavarayan. There is no proof of collusion between the Minister and the President of the Federation. The Minister did not allow the Federation to sell it as they liked in the open market by giving them permit for export. On the otherhand, he fixed a minimum price with the consent of the T.C.M.F. and was meticulous enough to see that at every stage such price which the TCMF wanted, was fetched in the public dealing with their stock. The tenders called from the very beginning and the ultimate sale by negotiation to Thandavarayan does not indicate that the Minister had any ulterior motive or interest in the adoption of such a method."

The Commission has given its finding as follows :

"I, therefore, find that there is no substance in the allegation that Thiru P. U. Shanmugam, formerly Minister for Food and now Minister for Public Works had misused his powers as Food Minister in connection with the disposal of the stock of rice held by the TCMF in the year 1971 and in connection with the acceptance of the negotiated tender of Thandavarayan in respect of such rice."

The Commission which gave the above finding was constituted, under the Commissions of Inquiry Act, 1952, in G.O. Ms. No. 1140, Public (General) Department, dated 8th April, 1975. Hon. Justice Thiru T. Ramaprasada Rao, Puisne Judge of the Madras High Court was

appointed to enquire into the allegation made against Hon. Thiru P.U. Shanmugam, formerly Minister for Food and now Minister for Public Works, that he had misused his powers of office as Food Minister in connection with the disposal of the stock of rice held by the Thanjavur Co-operative Marketing Federation in the year 1971 and in connection with the acceptance of the negotiated tender of Thiru Thandavarayan in respect of such rice.

The Commission submitted its report to the Government on 26th August, 1975.

The facts leading to the appointment of the above said Commission are as follows :

In the year 1970 the Thanjavur Co-operative Marketing Federation at Thanjavur (TCMF) was directed by the Government to procure not less than 80,000 rice tonnes during the season and they were asked to deliver 50% of the stocks so purchased to the Government as boiled rice at procurement rates. Under this scheme of the Government, the TCMF procured paddy in Thanjavur district and had an accumulated stock of paddy and rice. The said stock belonging to the TCMF could not easily be disposed of for an economic price and hence, the TCMF approached the Government for permission to export paddy and rice outside the State of Tamil Nadu in order to get better prices for their stock. The Government having advanced loans to finance the TCMF and also for the reason that the TCMF was a co-operative institution which acted as the Government's procurement agent, it deserved assistance from the Government. So, the Government took a decision to assist the TCMF in disposing of its stock and further decided to allow the TCMF to dispose of the same outside the State by calling for tenders. Tenders were called for but the entire stock could not be sold by open tenders. Hence, it was decided to dispose of the stock by negotiated tender (nominated tender), and it was sold to one Thiru. Thandavarayan.

The allegation was that the Hon. Thiru P.U. Shanmugam who was then the Food Minister had misused his power of office in connection with the disposal of the stock of rice held by the TCMF and in connection with the acceptance of the negotiated tender of Thiru Thandavarayan. This matter was raised in the Legislative Assembly also, and the Hon. Chief Minister announced the appointment of the above-said commission. The Commission functioned from the 5th May, 1975 and submitted its report on the 26th of August, 1975. The Commission held 39 sittings in all. The Commission issued Notification under the Commissions of Inquiry Act, 1952 inviting all person acquainted with the subject matter of the inquiry to furnish to the Commission affidavits duly sworn to, containing a statement of facts relating to the allegations. In all 50 affidavits, reply affidavits and petitions have been filed. During the inquiry 2 witnesses have been examined and 391 exhibits have been marked.

At various stages of the inquiry the Counsel appearing for the Communist Party of India and representators belonging to Anna Dravida Munnetra Kazhagam and the Congress Party withdrew from the inquiry even though they actively participated and cross-examined all the relevant witnesses. Regarding this, the Commission has observed that whatever might be the force of the legal contentions on the non-examination of witnesses and non-calling of documents, since all the representators actively participated and cross-examined all the relevant witnesses, there was no necessity or justification for them to withdraw at the various stages at which they dithdrew.

Regarding the question whether there was justification for the TCMF to sell its stock of the rice outside the State of Tamil Nadu, the Commission has come to the following conclusion :

The TCMF approached the Central Pool through the Food Secretariat of the Government of India and took sincere steps through its President to strike a deal between the Federation and the Central Pool and as the Central Pool could not accept the economic price offered by the Federation, the talks between the Federation and the Central Government failed. It had, therefore no other option except to approach the State Government who were prepared by then to give their helping hand to sell the stock of TCMF by Public auction by inviting tenders for that purpose. Obviously, this advice by the State Government was a result of the fruitful and successful experience which the Tamil Nadu Government gained when they themselves sold in Public auction about 1 lakh of tonnes and gained a profit of about 33 lakhs of rupees. This would show that the suggestion of fraud and conspiracy as between the Food Department and/or the Food Minister of Tamil Nadu with the Federation is without any substance whatsoever.

Prime Minister's Compliment :

On the general allegation that at the time of the sale by auction of the stock of TCMF there was deficit of paddy in Tamil Nadu, the Commission has found. that in the letter dated 28—11—1970 (Ex. G.-23) the Prime Minister had complimented that the Tamil Nadu had emerged as a Surplus State and again in the context of special bonus and on supplies to the Central Pool, referring to the newly emerging surplus States, the Prime Minister had illustrated by saying ' like Tamil Nadu.'

After analysing the evidence, the Commission concludes by saying that " those facts establish beyond doubt that at the relevant time, the Tamil Nadu State was indeed a surplus State."

On the question of the action taken by the Government in disposing of the stock of paddy and rice belonging to the TCMF, the Commission has observed :

that the President of TCMF made a frantic appeal regarding the availability of surplus rice with the Federation. He suggested that the only way in which the Federation could recoup all its losses incurred on the delivery of paddy and rice to the Government, would be by sale of the remaining stock in the open market in Kerala. The State does not belong to the State but to the Federation. It is only to render service to the Federation that the Secretary for Food took up the matter further and processed it through, in accordance with the common Secretariat practice.

The Government did not render even free service. It collected service charges of Rs. 2/- per tonne and the evidence discloses that a sum of Rs. 26,000/- was collected as charges.

It is also clear that the name of Thandavarayan was not in the picture at all at the time when the

Government took its first decision to sell the stock of T.C.M.F. in open and public auction.

In so far as the President of the TCMF is concerned, it cannot be said that he initiated action because he wanted to benefit therefrom or benefit others. This is because that whatever money was realised by the sale of such stock, was credited to the accounts of the TCMF.

Calling for open tenders through the Government machinery will be inconsistent with any desire to help any individual.

The Commission concludes by saying that " the utilisation of the Government machinery, though for consideration, for sale of the T.C.M.F. stock, is *prima facie* unexceptionable since it is explained on the grounds of expediency and as a gesture on the part of the Government to help an apex Co-operative society which was working in the interest of the State for a long time."

On the allegation that the accumulation of the stock of about 12,750 *tonnes of paddy with the TCMF, was at the contrivance of the State Government, the Commission has observed* :

The suggestion without any basis that the State Contrived with the TCMF to accumulate the stock of about 12,750 tonnes is only to be recorded to be rejected. This is an infinitesimally small stock compared to the large quantities of the stocks dealt with by the State themselves during any period. So the Commission does not agree that the accumulation of the building up of the stock by the TCMF was at the instance of the Minister for Food or his Secretary, but it is purely an accident which has occurred from which the Federation wanted relief at the hands of the Government.

On the question of tender leading to the negotiated tender the Commission has come to the following Conclusion :

The initiated and the follow-up action as is seen from the events that happened were all public events and there was no secrecy about it. There is evidence that several persons participated in response to the call inviting tenders, made security deposits and later withdrew the same because they were unsuccessful. In fact, Thandavarayan was not successful upto the stage of limited tender. But he was frantically offering his own prices for the stock put up for auction and there were competitors who wanted that Thandavarayan's bid ought not to be accepted. **This shows that there was enough publicity and the action undertaken by the Government officials both at Madras and at Thanjavur do not savour any malpractice nor does it provoke a poser whether the action is for a design or haloed by a motive.** The very fact that those who have filed affidavits conceded that the evidence on record does not bring out any material to prove misuse of power and that some more material is required shows that the action to sell by public auction the stock of TCMF under the oral orders of the Minister for Food which was later affirmed by him in writing does not establish any misuse of power on his part or on the part of the Government officials. The very decision to sell by open tender, which would as of right entitle any competitor from any part of the country to participate, would automatically exclude favouritism to any individual.

It is seen from the methods adopted by the Government in calling for tenders that there was no abnormality or irregularity in the procedure. The Government did not blindly accept the highest tender but fixed the minimum for each variety above which alone tenders were accepted. The Government machinery was fairly utilised without being partial to anyone, as all offers by tenderers were subject to confirmation by the Commissioner of Civil Supplies. Care and caution was taken to offer only a small quantity in the first tender and then only the quantity was improved in the second tender. Though normally when tenders failed, it was open to the Federation to sell it directly by negotiation, the intermediary stage of limited tender, namely negotiations with a limited number of people, was undertaken. If any misuse of power was intended in the first two tenders and as there was no minimum rates published, then the Government if they wanted to assist Thandavarayan, could have accepted his bids for a number of lots, as he was the highest bidder then. Again, the fact that the beneficiaries to the first three tenders were total strangers shows absolute impartiality. **It cannot be said in the circumstances that the tenders were make-belief affairs. As no irregularity has been proved, it follows that no misuse of power on the part of the Minister has been established.**

On the question of the acceptance of the tender by Thandavarayan, the Commission says :

The T.C.M.F. which is the moving force and which owned the stock and which had the final say in the matter stood by Thanvdarayan and his offers and that being so, the Government had no option except to accept them, as they were only acting for T.C.M.F. Even at the stage of the negotiated tender and after the failure of the earlier open tenders, there was genuine competition as is seen from the fact that Thandavarayan was over bidding over the rate quoted by Sakthi Ganapathy Tra lers.

On the allegation that Thandavarayan was a stranger to rice business, the Commission has found :

that " the evidence of Jambulingam (A.W. 3) the evidence of Thandavarayan (A.W. 2) and the evidence of Arumugam (C.W.4) establish beyond reasonable doubt that Thandavarayan and Arumugam are not strangers to rice business, but were brokers in the field for over two decades and rice dealers derived more profit as Commission agents rather than as direct dealers."

The Commission has further observed that the " the primary body which has a final say in the matter is the TCMF and its President was acting under due authority as the representative of TCMF. The Government had no interest in the stock or sale proceeds thereof, excepting that they were acting for the benefit of TCMF and in order to save it from financial crisis. The Government no doubt were interested in the entire process, since they wanted to realise as much as possible towards large sums of money which they had advanced to the TCMF. The comment, therefore, that there was some unknown link between Thandavararayan and the Government officials as well as the Minister, remains unsubstantiated."

—oOo—

FACT FINDINGS OF TAMILNADU AGRICULTURAL UNIVERSITY

Agricultural students made to earn from what they learn:

A scheme "Earn while you learn" has been initiated in poultry and vegetable cultivation for the third year and final year students of B.Sc. (Ag.) course, respectively at the Agricultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore-3. Two batches of students with five in each participated in broiler production. The net income share of each student was Rs. 26.70 and Rs. 133.60 in the first and second batches, respectively. In the scheme on vegetable cultivation a batch of 20 students participated and cultivated vegetable crops in an area of one acre and the net income per student worked out to about Rs. 30/- per head. The scheme is popular among the students.

This scheme was also initiated in poultry egg production and for broilers for the third year B.Sc. (Ag.) students at the Agricultural College and Research Institute, Madurai. Six students participated. Each student got a profit of Rs. 50/- and above per month and there is great demand for this scheme from the students.

Economics of Milk Production:

The studies on economics of milk production in the southern taluk of Coimbatore district showed that the average gross cost of milk production per litre was 79 paise. The input-output ratio in milk production was 1.04. The net income per animal excluding the value of unpaid family labour was Rs. 375.07 per annum. The milk yield was positively influenced by the value of concentrates, roughages, period of lactation and value of animal.

Land Development Bank loans for digging wells:

An economic appraisal of the impact of land development bank loans for digging new wells in Uthangarai taluk of Dharmapuri district showed that the non-beneficiaries of loans had the entire area under dry crops, while the beneficiaries had 59.73 per cent of area still under dry crops. The beneficiaries cultivated lesser proportion (69.39%) under food crops as compared to the non-beneficiaries. The proportion of irrigated commercial crops increased in the case of beneficiaries after opening the well. The cropping intensity, demand for labour and working expenses per hectare were also rising. The savings potential of beneficiaries was increased from Rs. 233 to 341 per hectare. A part of the loan granted was uitilised for purposes other than digging wells. The internal rate of return indicated a highly favourable condition for repayment of loans. The farmers would be able to recover the initial investments over a period of three years. The study indicated a decreasing return to scale in the pre-development periods and increasing return to scale in the post-development periods.

Reclamation of Salt affected soils of North Arcot District:

Investigations on the physico-chemical characteristics of salt affected soils of North Arcot District revealed that application of gypsum at 2 tonnes/ha once in two years and 10 to 12 tonnes of FYM or daincha or press mud every year to the reclaimed soils is essential to improve the soil properties and also to maintain the performance of reclamation.

Premass compaign to educate agriculturists:

The pre-season Mass Campaign Programme of Tamil Nadu State Department of Agriculture played consistently predominant role in the adoption of farm practices as contrasted to radio and newspaper. Illiterates or less educated farmers with small holdings were largely the beneficiaries of this campaign. Personal interest, guidance and encouragement from District Agricultural Officer, Co-operation from farmers and periodical training in specialised activities were the factors influencing Deputy Agricultural Officers in carrying out the extension activities successfully. Lack of conveyance and guidance from superior, inadequate field staff, improper storage, facilities and fixation of unrealistic target were certain problems confronting Deputy Agricultural Officers.

The merits of NPK complex fertilisers like concentrated nature, economies and easiness in application without physical mixing etc., motivated the farmers to use them. Radio was found most effective in influencing the farmers to adopt innovations.

Pepper production will give good income:

The study on production, marketing and price behaviour of pepper in Vazhoor block (Kerala) covered the cost and market structures and also acreage response to prices of pepper in Kottayam district. The cost of establishing an acre of pepper garden was estimated at Rs. 1,325 and of this 62 per cent was of recurring nature towards annual maintenance. The annual gross income and net income were Rs. 750 and Rs. 410.60 per acre. The cost of establishment of the garden had a negative influence on the yield while the area and age of vines had positive influence. The marketing cost from Vazhoor to Cochin market was Rs. 9.51 per quintal. The producers could get 66.30 per cent of consumer's price. The acreage response to prices indicated a declining trend.

Source : *Tamil Nadu Agricultural University.*

Better irrigation and additional use of fertiliser will help more production of chillies

A study on production and marketing of chillies in Ottanchatram (Madurai district) revealed that the cost of production per quintal was Rs. 22.60 for green chillies and Rs. 143.63 for dry chillies. The net income per hectare was higher for green chillies (Rs. 8,978) than that for dry chillies (Rs. 1,962). The input output ratio was 2.14 and 1.44 respectively for green and dry chillies. The study pointed out scope for improvement in irrigation and fertilizer use and the producers received only 65 to 66 per cent of consumer's price.

Nitrogen increases protein and oil content in sunflower

The investigations on the effect of N and P on the nutrition of sunflower revealed that a combination of 50 kg N and 75 kg P/ha was adequate for maximum yield in red soil while in black soil the increase was a linear function of doses of N and P. Nitrogen and phosphorus application have increased the protein content and oil content. Varieties Commander and Mingren contained high protein with high lysine content. These two were found to be better for preparation of protein isolate as they contained less chlorogenic acid.

Importance of development programmes

The Intensive Cotton Development Programme had helped the farmers to improve their economic conditions and make permanent farm improvements.

The staff of Indo-German Nilgiris Development Project and other extension staff mainly through their individual contacts succeeded in making the farmers adopt plant protection measures particularly against late blight disease of potato.

Credit requirement and credit gap in agriculture

An economic appraisal of credit requirement and credit gap in agriculture in Parambikulam Aliyar Project Region was desgned to estimate the credit requirement of farms and to assess the credit gap in Udumalpet and Gudimangalam blocks. It was observed that as the farm size increased the credit requirement decreased. The total cash requirement per crop acre was highest in small farms. The institutional credit was availed more by medium and large farms. Seventy one per cent of the credit needs of small farmers was met by money lenders. The credit gap was highest in small group of farms.

Sowing trials in rice

In the continuous cropping experiment with 28 monthly plantings of IR. 8 rice, January sown crop recorded the maximum yield of 5,646 kgs. and September sown crop the lowest yield of 1,658 kgs/ha. In terms of per day production January sown crop had recorded 59 kgs. and September sown 13.4 kgs/ha. By growing IR. 8 in January, the additional yield obtained was 2,698 kgs/ha. over June-July sowing and 1,755 kgs. over August sowing. The soil fertility studies revealed that there was increase in organic carbon status after six successive croppings. The available N, P and K in the soil are influenced by season of planting. There was no appreciable change in the EC and pH of the soil.

Split application of 'N' to rice

Split application of N at four stages of crop growth *viz.*, at planting, 15 days after planting, a week before flowering and a week after flowering, in the ratio of 30 : 30 : 20 : 20 was found to be ideal for Co. 29 and Kanchi rice. Co. 29 responded upto 210 KgN/ha without lodging.

Economic conditions of small farmers and agricultural labourers

A study on the economic conditions of small farmers and agricultural labour in Karamadai (Coimbatore) indicated that income disparity among small farmers ranged from Rs. 200/- to Rs. 6,800/- per annum whereas it ranged from Rs. 300 to Rs. 3,000 among the agricultural labourers. The per capita income and expenditure pattern indicated a deficit budget in both cases. However, the small farmers had 61 per cent deficit while agricultural labourers had 23 per cent deficit in meeting their expenses. Both the groups spent more than 60% on food items. The per capita indebtedness of small farmers was twice that of agricultural labourers.

Effects of granular insecticides against stem borer and gall fly on rice

The effect of four granular insecticides, *viz.*, carbofuran, phorate, quinalphos and fenthion and two emulsifiable concentrates *viz.*, parathion and endrin was tested against stem borer and gall fly on rice in two seasons with special emphasis on the time of application. Application of carbofuran and phorate gave good control of stem borer and gall fly provided the first application commenced on the 15th or 20th day rather than on 30th day after planting. Foliar sprays were less effective than granules.

Water management of rice

The results of study on water management of rice showed that in monsoon season there was no need for maintaining 5 cm depth of water as the influence of rainfall was much more than the quantity of irrigation water applied. The irrigation levels did not influence yield during monsoon season but in summer season the irrigation levels differed significantly. Maintaining water at 5 cm depth continuously throughout the crop growth recorded the highest yield.

—: 0 :—

Source : *Tamil Nadu Agricultural University*

CITRUS CANKER AND ITS CONTROL

Citrus canker is a destructive disease often observed in an epidemic form in India and in several places like China, Indonesia, Philippines, Japan and Java. In fact this disease makes itself felt in all the citrus growing areas of the world. It is stated to have originated from China or India or both and has spread to Europe and U.S.A. In U.S.A., the disease became so severe that mass eradication of diseased plants-often entire orchards-had to be undertaken to prevent its spread. In India, it has been reported from several States like Assam, Tamil Nadu, Andhra Pradesh, Karnataka and Punjab.

Symptoms

The disease is caused by the bacterium *Xanthomonas citri*. The disease affects all the serial parts viz., leaves, twigs, thorns, older branches and fruits. On the leaves, the disease first appears as small, watery, translucent spots, usually of yellow colour, than the surrounding tissue and with raised convex surfaces. The spots may appear on either side of the leaf but are usually on the lower surface. As the spots mature, the surface becomes white or greyish and finally ruptures in the centre giving a rough, hard, corky and crater-like appearance. The lesions which are circular when young, become irregular when old. The old lesions are light brown in grape fruit, dark brown in sweet oranges, mandarin orange and Trifoliate orange leaves and almost black on lime and lemon leaves. The spots increase in size from 1 mm to 1 cm in diameter and may coalesce to form elongated lesions. The size and abundance of lesion vary depending on different kinds of citrus trees and condition of growth. Lesions are largest on grape fruit leaves, nearly 13 mm in diameter and are not so large on sweet orange leaves. On leaves of lime and lemons, they are much smaller, often not more than 3 mm in diameter.

In Twigs and Branches

Lesions on twigs and branches are quite similar. Branches 50 to 75 mm in diameter are commonly infected. The canker growth often encircles the twigs causing the death of the portions above the infected area leading to die-back of shoots.

The infection spreads to the fruits on which typical crator-like cankerous spots are formed. Yellow halo around the canker is absent in fruits. The cankers may be scattered all over the surface or several cankers may occur together forming an irregular scurfy mass. Gumming is sometimes associated with spots on fruits. **The injury to fruits is only skin deep and no effect on the pulp is noticed but juice content is much reduced.** However, the market value is very much reduced because of the canker spots on the fruits. Cankers provide points of entry to secondary rotking organisms. The affected plants are stunted and fruit yields are reduced considerably.

Canker has never been observed occurring naturally on roots of even badly diseased trees. However the disease has been found on grape fruit roots exposed above ground surface.

Effects of the disease

In young plants, especially in the nursery, the disease causes serious damage. Badly cankered leaves are shed and the assimilating surface of others is reduced while the canker spots often girdle the stems to cause partial or complete death of the plants. As plants grow older, the seriousness of the disease is reduced. It may cause the death of individual shoots by ringing the twigs. A steady partial defoliation is caused which reduces the vitality of the tree and the tree presents an unthrifty appearance.

Susceptibility of citrus species and varieties

Citrus canker various in its seriousness on different species and varieties of citrus. In India it is reported that sweet oranges—Washington Navel, Mosambi (*Citrus sinensis*), grape fruits (*Citrus paradisi* and lime (*Citrus aurantifolia*) especially oval limes are highly susceptible. Valencia (*Citrus sinensis*) Khasi Mandarin (*Citrus reticulata*) and Robab Tenga (Pummelo) are rarely attacked. Soh-Myndong (lemon) (Citrus lemon), Karum jamir (Sour orange) (*Citrus auraritium*) are not attacked.

Mode of entry, survival and spread

The bacterium enters the host through stomata and wounds caused by insects, movement of thorns etc. It multiplies rapidly in the intercellular spaces, dissolves the middle lamella and establishes in the cortical region. Cankerous growth now develops within which bacteria multiply and are released with exudations.

The disease is favoured by mild temperature or wet weather. Temperatures between 30 C to 35 C with good evenly distributed rains are most suitable. Presence of free moisture on the host surface for at least 20 minutes is essential for successful infection.

Control measures

1. Dropped off canker affected leaves and twigs should be collected and burnt.
2. Use of disease-free nursery stock for planting in new orchards is advocated.
3. Spray the plants before planting in new orchards with 1% Bordeaux mixture.
4. In old orchards pruning of affected plant parts and spraying with 1% Bordeaux mixture at periodical intervals depending upon weather conditions. Spray fluids should reach all plant parts for the effective control. Spraying should be done immediately after the appearance of every new flush of leaves.
5. The vigour of the plant should always be maintained by proper fertilisation and irrigation. Manuring should be done in such a way that its maximum effect is felt during wet weather.
6. Proper care should be taken to minimise the attack of leaf miners which disseminate the disease.
7. Stimulation of growth in climatic conditions unfavourrable to canker development can be recommended. The foliage stimulated during the early part of the dry season matures and hardens during the dry season and acquire a considerable degree of resistance when rains commence.
8. The disease can be effectively controlled by spraying with 500 to 1,000 ppm streptomycin sulphate at 15 days interval. The antibiotics are absorbed by leaves and translocated into the plant system, thus functioning as a systemic bactericids.
9. Spraying with neem cake (decomposed in water for one week) at 73 kg in 290 litres of water per acre has been found highly effective in checking citrus canker as well as leafminoer. Number of sprays for one year may range from 10 to 20.

FARM CHEMICALS OF TOMORROW

In the world market today, about 820 pesticides are available, out of which 235 are insecticides, 40 acaricides, 162 fungicides and 9 rodenticides and 15 growth regulators. The use of chemicals can result in improvement in crop yield, crop quality, production and harvesting efficiency.

A new plant growth regulator, cycocel, has been successfully used to retard the stem growth of wheat to prevent lodging. Such retardant could be very useful with very high rates of nitrogen fertiliser on small grains. Usually high nitrogen fertilisation of small grains leads to lodging. By using these retardants to hold back stem growth, high rates of nitrogen could be used on high yielding grains that are long stemmed.

Cycocel has also been found to increase the frost resistance of cabbage. Another retardant, phosfon, increases the salt tolerance of a variety of plants. Other new organics have been discovered wihch drastically reduce the water used by the crop plants. These new products may one day remove some of the geographical or weather limitations on growing certain crops. Warm season plants may eventually be grown in cooler climates. Arid area of the world may be able to get into the food producing business.

Several new organic substances protect plants from insects in a new way. After these substances are applied to plants, the insects take a bite or two and then merely site and starve to death. The substances are specific to chewing insects and the residues are non-toxic. Thus predators of the chewing insects, sucking insects and inter feeders are unharmed. These compounds should be ideal for crops in which chewing insects are the damaging pests.

Protein Boosters:

Recent research indicates that when certain herbicides are used in extremely small amounts on sensitive crops they have a substantial effect on the protein content of the seed and fodder that is produced. The use of new organic chemicals which effect seed constitution, germination and genetic make-up offer tremendous possibilities for the field of genetics and plant breeding.

Several new organic fatty acid derivatives have been found to be useful as chemical pruning agents for trees and bushes along the roads and power lines.

The application of 5' ribo nucleo tides to processed foods has been found to enhance flavour without adding off-notes. Other related substances have been found to change flavour to some degree and to make food more appetising. Chloroform and toluene have been found to prevent the formation of toxic nitrogen oxides in sillage making and the development of new compounds may make ' silo-fillers diseases " a thing of the past.

Several anti-parasitic compounds for controlling internal parasites in farm animals have been investigated.

A number of organic surfactants and enzyme preparations appear to act as digestive aids in promoting greater efficiency in feeding utilisation.

Impact on Farming :

New organic fertilisers are being developed in which plant materials in the form of energy-rich compounds can be more efficiently and effectively used by the plants. These building blocks of energy will no doubt be applied in conjunction with elemental fertilisers. It is likely that farmers may one day apply mixtures of plant growth regulators energy-rich organic plant fertilisers to achieve maximum crop yield.

The effectiveness of growth regulators in controlling plant size, flowering, fruit set and flavour, defoliation and seed germination will undoubtedly have a great influence on farm management. Crops may be planted in rows which are much closed together and with the complete control of weeds. Minimum tillage will become more practical.

The use of chemicals for clearing the forests and for keeping unwanted vegetation out of rice fields, rivers, channels and ponds as well as on food and feed production storage, can save millions of rupees worth of grains which are annually destroyed by the insects and rats.

By

S. N. Kaishik

and

J. S. Vashishta.

RELATIONSHIP BETWEEN GROWTH AND LABOUR MORBIDITY

The study on the pattern of agricultural growth and its relationship with economic development in Tamil Nadu carried out in Chingleput district revealed that no agricultural surplus would be available for further investment in agricultural or industrial sector and the amount of agricultural surplus in the region could be increased by increasing the intensity of cropping and farm investment. Positive marginal productivity of labour implied that it would not be possible to remove any portion of the labour without affecting the output in agricultural sector. Inter-sectoral studies indicated that the output multiplier was highest (4.77) for automobiles sector followed by electricals and electronics sector (3.81) and agro-industries sector (3.65). The results of the variable programming revealed that net profit and employment would be more only when labour force increased with simultaneous increase in irrigated area.

Source: Communication Centre, Tamil Nadu Agricultural University, Coimbatore-3.

NEW DEVICE TO STIMULATE DORMANT MANGO TREES

Mango trees without exception are prove to a high fluctuation in the field of fruits. It varies from year to year. A good yield in one year is normally followed by poor yield or no yield in the successive year. It has been a puzzle to the horiticulturists why the vast variation takes place in the fruit-bearing capacity of mango trees in the seuccssive years. Dr. V. N. Madhava Rao and Dr. K.G. Shanmugavelu, two professors in the Department of Horticulture of the Tamil Nadu Agriculture University, have found an answer to this puzzle and devised ways and means to stimulate dormant mango trees to yield heavy crops. This new research-oriented find is a boon to those who own mango groves.

Mango growers are worried much over the heavy fluctuation in the yearwise yield of their groves. The irresponsive tendency of the old fruits not bearing fruits to the activisation stimulus adds to the mental anguish and agony of the mango cultivators. Horticultural research workers have tried so far manuring, smudging (smoke treatment), deblossoming, irrigating trees, etc., but with little success.

The two professors, who took up this challenging task, make the mango trees behave and bear well through adoption of a novel method. The method consists of pruning the mango trees. Pruning is an age old horticultural practice normally done on fruit trees like grapes, figs, apples, pears, plums, guavas, etc. Explaining the unusual course they adopted, the professors said : " Pruning of an ever green tree like mango is practically unknown and is seldom practised. But as in the case of human beings sometimes a major surgery is necessary to correct an ailment which does not respond to normal methods or therapy."

The professors conducted their experiment in pruning on three trees in the orchards of the Tamil Nadu Agricultural University — one a 45 year old Mulgoa (two numbers) and the other a 20 year old Baneshan (Banganapalle). The yield data of the Mulgoa trees from 1960 showed that only in 1968 they yielded a crop of 500 to 740 fruits. But earlier to 1960 and after 1968 till 1972, the trees gave an average yield of 35 fruits only. The Baneshan tree likewise had not yielded well in ist 20 years of orchard life.

During August 1972, these trees with a thick canopy of branches were pruned by removing criss-cross branches, the diameter of which was more than 30 cms. The centre of the tree was opened so as to have a full play of sunlight on the tree and the trunk. This also facilitated aeration in the tree. In every branch the weak unhealthy shoots and dried twigs were removed. Also the terminal branches consisting of clusters of three to five shoots were thinned to retain only one or two vigorously growing healthy shoots and the cut ends were treated with bordeaux paste. After purning, 200 kg of farm yard manure was applied per tree and irrigated profusely.

The result was tremendous. The tree flowered profusely and even the dormant buds developed flower panicles and bore fruits. This kind of bearing, similar to the bearing of jack fruits on the old branches cannot be normally seen in the mango trees. At the time of flowering carbaryl and wettable sulphur (0.1 per cent) were sprayed at ten dayintervals till the fruits set and this helped to control mango hopper pest. In Mulgoa an yield of 642 fruits was obtained in 1974 and 927 fruits in 1975. The Baneshan tree started yielding during 1974 and 1975. During 1974, an off-season crop of 487 fruits was obtained in January—February besides a regular crop of 171 fruits during May, in 1975 the yield went up to 504 fruits.

The exact causes leading to this " rejuvenation " are being investigated, but the research scientists believe that the pruning has resulted in the disturbance of the hormonal system inside the tissues leading to their redistribution in favour of " fruitful condition " rather than a " vegetative condition." They said, " We believe that by pruning the following beneficial effects could be obtained : including of heavy crop in an otherwise barren-tree, induction of off-season cropping, better colour development and good taste and activation of all branches which yield fruits besides the normal crop borne by terminal shoots."

Pruning as a regular practice is now being adopted in a 90-acre orchard with neelum and Bangalore trees near Pattiveeranpatti in Madurai district.

NUTRIENT NEEDS OF TOMATO

In Tomato, studies on leaf analysis showed that the pre-flowering phase (25 days after transplanting was the optimum stage of sampling to judge the nutrient needs. The critical level at this stage was adjudged to be 2.81 per cent N, 0.455 per cent P and 1.975 per cent K. This was due to an application of 150 kg N, 100 kg P and 50 kg K/ha which recorded 61% increase in yield over the control.

Hard pruning and foliar feeding enhances flower production in roses:

In roses, hard pruning (pruning the past season's shoots to basal 12 cm length), foliar feeding to give 1.93 g N, 1.34 g Pa nd 1.5 g K and a combined spray of GA and urea and potassium dihydrogen phosphate in equal proportions promoted the yield of flowers.

Application of phosfon-D on Crossandra :

The study revealed that in crossandra, phosfon-D induced early flowering (28—30 days) and increased the spike length and number of spikes besides extending the flowering period.

Application of magnesium sulphate to rice increases yield :

Application of magnesium sulphate at 40 kg/ha increased grain yield of rice by 24.7% due to the production of higher number of tillers and reduction in sterility in soils wherein Magnesium deficiency is seen. Protein content of grain also increased with application of Mg.

Potash increases the yield of ragi Co. 7

Studies on the distribution of K and its influence on the yield of ragi Co. 7 indicated that exchangeable K was high during initial stages and decreased as the crop growth advanced. Application of potassic fertilisers at 25 kg/ha increased the yield.

PHILATELY THE KING OF HOBBIES

TANAPEX IN MADRAS

A glamorous hobby which sometimes becomes a fabulous source of fortune, has grown round the ubiquitiously humble figure of the postman. Philately, the hobby of collecting stamps offers a pleasant and absorbing pastime.

Great or small, rich or poor, young or old, able or invalid, all may find in stamp collecting a satisfying and lasting pleasure which no other hobby can provide. That is why it is known as the " King of Hobbies."

The Tamil Nadu Philatelic Exhibition (TANAPEX) is holding an exposition from 6th September to 10th September, 1975 at Rajaji Hall, along with an Auction. No wonder philatelists would like to throng the auction in order to price their unique possessions.

Five different multicolour special Exhibition Covers and special pictorial cancellations depicting the various cultures and arts of the Tamil Nadu Postal Circle will be issued. The cost of the cover is 30 paise plus the value of stamps to be affixed to it which shall not be less than 25 paise per cover.

The central figure of all this glamour and bustle is the postman coming down the street with his large sack of mail to galvanise into action homes and offices alike. He has stood the test of time and he has stood the test of all the latest means of communication. The stamps, because of which he carries the mail, has become a legend and a harmless mania. Be it so. But here we look into the history of mailing from about 5,000 years ago in Chaldea to the daring airmail pilots of the 20th century.

" Neither snow nor rain nor heat nor gloom of night stays these couriers from the swift completion of their appointed rounds," so wrote Herodotus about 2,500 years ago.

The first postage stamp :

One of the first person we know about, who sent out his mail with a stamp on it was a king in Asia. His name was Sargon. Sargon ruled over Chaldea over 5,000 years ago. It lay northwest of the Persian Gulf.

In the early days there was a relay of messengers. The first messenger ran as rapidly possible to the second waiting and repeated his message till it reached its goal.

In Sargon's time, people began to write messages on clay tablets. The message was etched on the tablet while the clay was soft. Then the tablet was hardened by drying it in the sun.

Sargon was afraid that some person with wrong intentions, might send a message in the king's name. To put down such misuse he had a seal cut from a precious stone. With this seal he stamped all state messages that he sent out. With Sargon's great seal stamped into the clay, no one could doubt that the message came from him.

History :

The world's first postage stamp a one penny black, bearing a likeness to Queen Victoria, was issued in Great Britain on May 6, 1840. In 1835, Rowland Hill who made a tax study on taxation, reduced the postal rates, wrappers and envelopes with the stamp denoting prepayment were to be sold at all post offices and for those who wished to use their own stationery he proposed " a bit of paper just large enough to bear the stamp " and covered at the black with a glutinous wash which might by applying a little moisture attach to the back of the letter, so as to avoid the necessity for redirecting it.

It was discovered that the cost of transport per letter was frequently less for a long journey than for a short one. Therefore a fixed rate was suggested and a penny be paid for each one half ounce and that all postage be prepaid.

In 1843, the empire of Brazil issued three values of postage stamps becoming the second Government to use them and were called Bull's eyes. Zurich and Geneva issued stamps. The first adhesive stamp issued in the United States was issued in 1842 by the semiofficial city despatch pot of New York City for local carrier delivery.

After 1850, a number of countries of the world began to issue stamps, more being added each year. Following World War I and II numerous new countries issued stamps while others ceased to exist as stamp-issuing entities.

India Postage :

A constructive step was taken by the East India Company who had spread their activities to Madras, Bombay and Calcutta by 1688. A regular exchange of correspondence was necessary, so the East India Company established major post offices at Bombay and Madras, and smaller ones at various places to receive and despatch letters. Lord Clive improved the postal system in 1766 although it was reserved for Government use only. It was thrown open to the public in 1774. At that time, the lowest rate of letter was 2 annas for every 100 miles. To facilitate the payment of postage a special copper token of the value of 2 annas was struck by the mint.

In spite of the development of the postal service by the Government, private parties continued the business of carrying mail from one place to another and competed successfully with the Government.

In 1837 a major change in the service took place with the passing of the first Post Office Act. This Act was introduced not only to modernise the system but also to give the Government exclusive right to run postal services throughout India. Private postal services were legally disallowed by this Act.

Mr. Bartle Frere, the Commissioner of Sind, introduced paper stamps in token of pre-payment of postage in the Province of Sind in 1852. These Stamps, the famous 'Scinde Dawks' were the first postage stamps brought out not only in India but also in Asia. The central design of the stamp was the East India Company's broad arrow and the stamps were embossed in different colours. Vermilion stamps were issued first but they had a very short life because they were embossed on brittle wafers. While stamps followed but embossing on white paper could not be seen clearly. So, stamps were finally embossed in blue colour on white paper.

From 1856 to 1926 Indian stamps were printed by Messrs Thomas De La Rue & Co of London. The design was changed with the change of the ruler. Thus the stamps carried the head of Queen Victoria, Edward VII, George V

and George VI in succession. Stamps of different denominations were printed in different colours. In 1926 the India Security Press was set up at Nasik and the responsibility of printing postage stamps was entrusted to it.

The first Indian pictorial stamp was issued in 1931 on the occasion of the inauguration of New Delhi. These stamps depicted scenes and landmarks of New Delhi. The next occasion when commemorative stamps were issued was the Silver Jubilee of King George V in 1935. In 1937 stamps with pictures showing the various aspects of carrying mail were issued. To commemorate the end of World War II, a special issue of four stamps was brought out in 1946.

Since Independence, India has issued several definitive and commemorative series of stamps portraying various aspects of its life and culture. These have depicted our wildlife, religions, themes connected with our Five Year Plans, our ancient architecture, social and educational themes connected with children, historical events, the conquest of Mt. Everest, etc. National leaders and freedom fighters, philosophers and thinkers, educationists and scientists, writers and artists, have also been similarly honoured. To make the stamps more attractive and colourful, a multicolour printing machine has now been installed at the Nasik Security Press in March 1972. India will now bring out colourful stamps in series like Indian Masks, Indian Miniature Paintings, Indian Dances, etc. This will be another landmark in the history of stamps in India. There are two other landmarks which are worth remembering.

India was the first country in the Commonwealth to issue a special set of air mail stamps. This was in 1929, India was also the first country to fly mail. This was on 18th February, 1911 when 6,500 letters and postcards were flown from Allahabad to Nainital.

Stamp Collection :

No one can say exactly when stamp collecting began, but clearly it was subsequent to May 1, 1840, when the first postage stamp were put on sale. The earliest reference to it is in an advertisement in the Times in London in 1841.

A young lady, being desirous of covering her dressing room with cancelled postage stamps, has been so far encouraged in her wish by private friends as to have succeeded in collecting 16,000. These, however being insufficient , she will be greatly obliged if any good natured person who may have these (otherwise useless) little articles at their disposal, would assist her in her whimsical project. Address to E.D. Mr. Butt's, Glover, Leadey Hall Street, or Mr. Marshall's, Jewelleir, Hackway.

A new mania has bitten the industrially idle ladies of England. To enable a wager to be gained, they have been indefatigable in their endeavour to collect penny stamps; in fact they betray more anxiety to treasure Queen's Heads than Henry the Eighth did to get rid of them !

Albums :

The first stamp albums were issued in 1862. Just in Lallier originated both the French and English editions, in Paris. He rapidly increased his albums, to accommodate new stamps as they were issued, and for several years held first place amongst collectors for the completeness and arrangements of his books.

Special Stamps :

Airmail stamps are issued especially for letters to be carried by air. Italy issued the first of these for the first Government sponsored experimental flight in 1917 ; the first regular issue was that of the United States the following year. Special delivery, registry, insured and acknowledgement of receipt stamps are for payment of the special fees levied for these services. Late fee stamps are sometimes issued to pay the extra postage for letters mailed after the closing of the special mails.

Commemorative stamps are regular postage stamps issued to honour some event, activity or person of national importance. The first stamps of this kind were issued by New South Wales in 1888, on the 100th anniversary of the foundry of the colony. Argentina (1892) and U.S. (1893) issued stamps commemorating the 400th anniversary of the discovery of America. In 1897, Great Britain and Canada signalled the diamond jubilee of Queen Victoria's Coronation.

Specialisation :

Collection of stamps may be of one country only, or of one continent or one period. Others specialise in collections of certain kinds of stamps ; some collect only one issue and study it thoroughly, others may collect only revenue stamps or postal stationery. Those interested purely in stamp designs may collect art or religion on stamps, or flowers, fish, bridges etc., this sort of collecting is topical or thematic.

Famous Collection :

Many famous collections of the past have been dispersed and absorbed by others. One of the most famous of all times was the collection of Phillipe la Renotiene Von Ferrari, an Austrian. During World War I, he fled to Switzerland, where he died in 1917. His property was seized by the French Government, and his collection, which he had formed during 40 years, was sold in auction, realizing more than 26,000,000. (At the rates of exchange of that day).

Arthur Hind's collection, which included the Duveen collection of Maurities and the Griebert collection of Spain and which was sold in 1933—34 after his death, brought a gross return of nearly 11,000,000. In addition, the unique 1-cent British Guiana was sold by private negotiator for a price reputed to be more than 50,000 the highest price ever recorded for a single stamp.

The outstanding collection in Europe in the 1960's was the private collection of Queen Elizabeth II, principally formed by King George V, who was a famous philatelist, it is especially rich in British and colonial issues.

Curious ways of carrying the Mail :

In olden days messages used to be sent in bottles which were washed ashore by strong winds. This technique was adopted by the U.S. postal system.

Reindeer, Elephants and Camel :

Near the town of Sodankyla, Findland, under the Arctic circle, the post goes on small sleds handled by reindeer.

In the Phillipines your letter travels by Ox cart ; in Ceylon it goes by elephant. Fancy, two-wheeled, horse drawn carts carry the post in Pakistan ; so do Camel carts, built like flat-bed trucks. In Northern Scandinavia your letter may be shored around, the route in chair sleds with baby carriage handles. —**R. L.**

TEMPLE PAINTINGS UNEARTHED

The Tamilnadu State Department of Archaeology has recently brought to light two important archaeological notices of historic and cultural interest to Tamils.

In the celebrated Thiruvannamalai temple, a painting as cribable to the regnant years of the famous Krishna Devaraya has been noticed in the ceiling of the outermost Eastern gopura. The painting depicts a caparisoned royal elephant being attacked by a soldier. The soldier weilds a club in his right hand and attacks the elephant. Behind him stands a lady. Behind the elephant is seen another hero, also in the pose of attacking the elephant. A woman stands behind him as well. Krishnadevaraya, won a decisive victory over the Gajapaty and probably the painting is symbotic of the event. The women in the panel are dressed in the typical Vijayanagara fashion.

These paintings are noticed on the ceiling of the cloistered enclosure. There are also great varieties of carpet designs in this place, worthy of note by modern carpet designers. At intervals there are figure paintings. Two of them represent a hero fighting with a tiger. In one, the beast is seen trying to devour the head of the hero, while he is piercing the animal with the dagger, and gives a grim battle. It is a fine portrayol of human victory over the beast.

Another panel represents Matsyendranatha, a seated Yogi on a fish. One of the most important is a figure seated on a Swan probably portraying Manmatha. The figure is the finest for its boldness of conception and powerful expression.

Another important discovery was made in the Venugopala Parthasarthi temple at Chengam. The temple was built in Circa 1600 by a Nayak of Gingee. His portrait is found in the front mandapa of the temple. In the ceiling of the Mandapa, is seen the complete story of Ramayana. Unfortunately the paintings in the outer squares have disappeared but the ones in the inner squares are well preserved. The paintings are panels making use of red ochre, yellow ochre, green, white and black colours. The scenes depicted begin from the fight of Indrajit and Hanuman. Lakshmana swooning, Hanuman bringing Sanjivi mountain, Indrajit doing Nikumbala sacrifice and his death. The panels in the eastern end show the fight between Rama and Ravana. In this many scenes not known to Valmiki or Kamban are depicted. Ravana performing a homa, Hanuman beating Mandodari and Angada dragging Mandodari are such scenes. It is learnt that, the episodes here depicted are mentioned in Sri Ranganatha Ramayana in Telugu. Since the Nayaks were of Telugu origin, they were greatly influenced by the Telugu tradition. The paintings belong to 17th century and make an interesting phase of South India paintings.

Of Saving Comes Having... Invest with

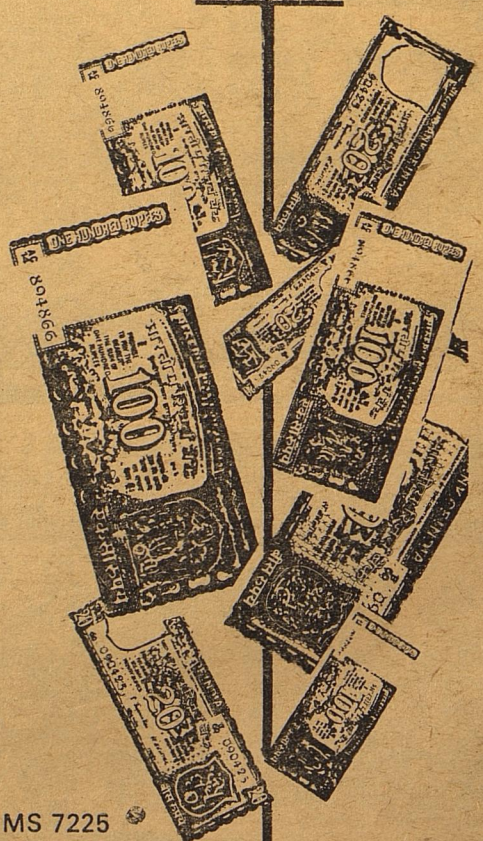
TNSC BANK

Our Revised Deposit Interest Rates :

1. **SEASON DEPOSITS - for sums of Rs. 1000 and over :** per annum
   - Deposits for 15 days to 45 days 3.25%
   - Deposits for 46 days to 90 days 3.75%
2. **FIXED DEPOSITS - for sums of Rs. 100 and over :**

Period	Rate of Interest per annum
91 days and above but less than 6 months	5.75%
6 months and above but less than 9 months	6.25%
9 months and above but less than 1 year	7.25%
1 year and above but less than 3 years	8.25%
3 years and above but upto and inclusive of 5 years	9.25%
Above 5 years	10.25%

3. **SAVINGS BANK ACCOUNTS** — 5.75%
4. **CURRENT ACCOUNT** — No Interest



WE HELP YOU TO SAVE MORE

The Tamil Nadu State Cooperative Bank Ltd.

379, N. S. C. Bose Road, Madras-600 001.
Grams: 'URBANK' Phone: 20367(3 lines) Telex: MS 7225

Branches at : Anna Nagar, Anna Salai (Kamadhenu) Anna Salai (Anna Silai), Ashok Nagar, Besant Nagar, Egmore, Gandhinagar, Greenways Road, Jawahar Nagar, Kellys, Mint, Mylapore, Mylapore Tank, Nungambakkam, Purasawalkam, Royapettah, Raja Annamalaipuram, Santhome, Shastrinagar, Shenoy Nagar, Thyagarayanagar & Triplicane.

TNSCB : 122/75

PRACTICAL MEDICINE FROM PLANT SOURCES

Tamil Nadu Joint Venture sets up laboratory

The Dadha's Injection Department—labelling section. Industries Minister Thiru. Saidq Pasha is seeing finished packages in the liquids department. The effective quality control measures in this unit is evidenced by the extreme care taken with visitors.

Between the old grand-mother's remedies which had effected and continue to effect such remarkable cures to intractable ailments and the sepecific remedies prescribed by the modern doctor, runs a painstaking strand of chemical revolution which isolated the active elements of grand-mother's herbs, tested them and then evolved them into marketable pills—This chemical revolution started way back in 1806, when a German apprentice apothecary named Friedrich Serturner isolated the first active alkaloid of a natural medicine. It was morphine extracted from the Poppy and which has yet to be surpassed in its role as pain-killer.

Since then there has been a world-wide hunt for herbs used by all peoples to cure their ills, bring those herbs to the laboratory for processing and isolating the chemicals responsible for the cures and putting them on the market as standard drugs. Nearer home, the romance of quinine from the Cinchona bark and rawolfa are too well known to be narrated. Suffice it to say that nature's gifts to man are in common use. Sometimes as in the case of aspirin our chemists improve upon nature's chemistry and come up with synthetics. For thousands of years the resin from the willow tree had been used to ease aches and pains, as also rheumatism and neuralgia. The active ingredient was isolated in the 1820's and named salicin. Chemists improved upon salicin and came up with the synthetic acetylsalicylic acid in 1899. This is our aspirin.

Our ultra-modern drug the hormone cortisone was first isolated in the 1930's from the adrenal glands of slaughtered cattle. After animal sources proved inadequate, a world-wide search for plant sources gave us the Mexican Diascorea which now provides us the starting material for all cortisone. The Cinehona Department has also successfully isolated and produced some steroid derivatives from their plantation products, particularly diosgenin.

In this sophisticated research of converting local plants into steriods the Tamil Nadu Dadha pharmaceuticals, a joint venture between State Government and the Drug firm of Dadha, has entered, with well equipped research laboratory. It was inaugurated last month by Industries Minister Thiru Sadiq Pasha.

The STERIOD industry in India is in its infancy, in spite of the fact that it is a source for a range of highly important and expensive drugs like Corticoids, Oral contraceptives, Sex hormones, diuretics, Vitamin D. Anabolic and anticancer agents. TAMILNADU-DADHA have stepped into this versatile field of CORTICOSTEROIDS with a determination to give an impetus to the growth of this industry in India.

CORTICOSTEROIDS are horminal substances that help the human body combat the stresses and strains of daily life by regulating the physiological processes. Normally, our endocrine glands produce this hormone. If, for some reason, the quantity secreted by these glands falls short of the required minimum the deficiency has got to be made good through administration of corticosteroids in the form of tablets or injections. Besides, corticosteroids are indispensable in critical cases of extreme inflammation.

The aim of the Research Laboratory is to develop the Industry starting right from the basic raw materials, exploiting the indigenous plant species (both exotic and local) in coordination with the farmers. This will most probably ensure a continuous supply of raw materials.

The Research Centre, will initially produce corticosteroids namely DEXAMETHASONE, BETAMETHASONE, TRIAMCINALONE, CORTISONE, HYDROCORTISONE and PREDINSOLONE from imported intermediate substances and also will work out the process know- how

for the production of these materials and also the diuretic, SPIRONOLACTONE, starting from the basic plant materials like DIOSGENIN, SOLASODINE and HECOGENIN. **The Corticosteroids manufactured by Tamilnadu Dadha are expected to be in the market in about two years from now:**

The RESEARCH CENTRE'S contribution to national welfare will be two-fold. First, it will save the country's foreign exchange. Secondly, the common man will be able to obtain supplies of this vital drug freely and at reasonable prices. An important step is this being taken towards achieving the State Government's objective of taking medical aid to the rural areas in a big way.

Manned by competant technical personnel, the Tamilnadu Dadha Research Centre has been set up at a cost of over Rs. 2.5 lakhs.

The activity of the RESEARCH AND DEVELOPMENT DEPARTMENT is not restricted to steroids alone. They also have plans to develop processes for the manufacture of several other basic raw materials for the drug industry such as STILBOESTROL, INDOMETHACIN etc. which are being imported at present.

TAMILNADU DADHA PHARMACEUTICALS LIMITED is the first Joint Venture in this country in the Pharmaceutical field. The Company was promoted by the Government of Tamilnadu through Tamilnadu Industrial Development Corporation Limited with Dadhas as Joint Promoters.

The factory is situated on a well developed industrial plot at Dadhanagar, Pallavaram, Chithahthur in Sriperumbudur Taluk in Chingleput District.

The main objective of the Company is to manufacture life saving and important drugs and formulations required for the day to day use of the Government Hospitals and also to bring out quality Drugs at economical prices wtihin the reach of the common man.

PRODUCTS :

The Company presently manufacture various items of Tablets, Injections, Capsules, Ointments and liquid preparations, which are being supplied to the various Government Hospitals and Institutions in the State and also to Central Government and Defence departments. It is a proud achievement of the Company that within a short span of two years since its inception it has been able to meet a sizeable portion of the requirements of the Government Hospitals and Institutions in the State.

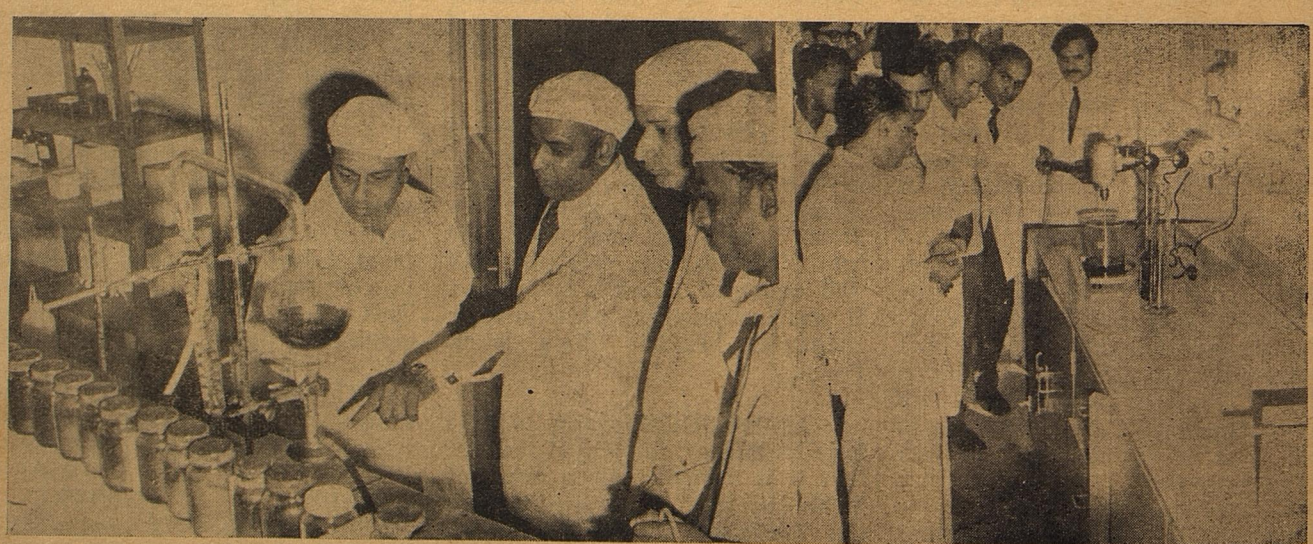
The Company is coming out with a few more medical specialities, of which SANGVIN—a general tonic will be in the market before the end of this year, followed by TAMPCILLIN SYRUP.

QUALITY CONTROL.—The Quality Control department at present tests all the incoming raw materials, in process materials, finished-products, packing materials as per the strict standards laid down in the pharmacopoeia and also as per more stringent internal standards and then only the materials are released for specific purposes.

For testing purposes Quality Control Department follows the standard methods like SPECTROPHOTOMETRY, CHROMATOGRAPHY, FLUORIMETRY, COLORIMETRY, MICROBIOLOGY, etc. in addition to Standard Physical and Chemical methods.

The Quality Control Department is also approved by the Drug Control Authorities for analying products manufactured by other units who are not in a position to have a sophisticated laboratory of their own for testing.

Research and Development : In keeping up with its objective the Company soon after the inception set up the Research and Development Department, initially on the pharmaceutical formulations. The Research and Development department has been successful in formulating new products such as PARAMOL Syrup, Phelemin Syrup and Diethyl Carbamazine Citrate Syrup and improve upon the formulation of Vitamin C tablets, Paracetamol tablets etc. The department has further completed its work on a Tonic and antibiotic syrups which will be marketted in the near future.

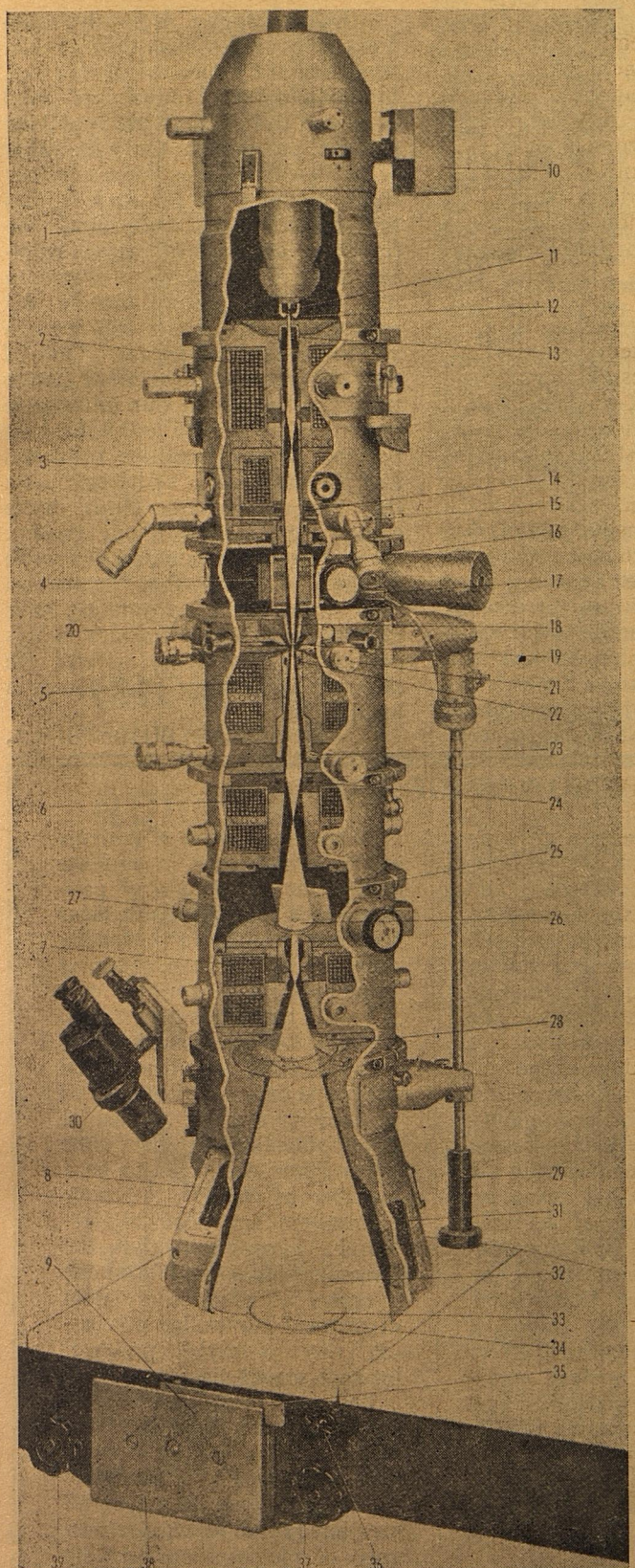


(Left) Quality Control Manager is explaining the methods of Quality Control to the Industries Minister.
(Right) An apparatus in the steroids department.

G. H. to get a

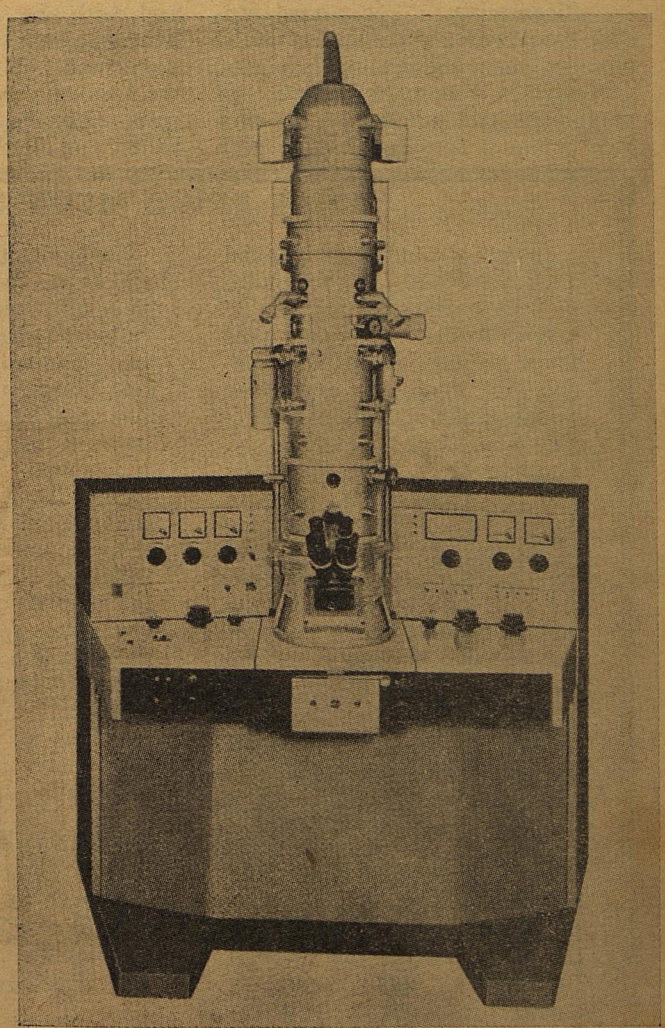
NEW DIAGNOSTIC TOOL

The Electron Microscope



The General Hospital, Madras will shortly be equipped with an Electron Microscope, hailed as the most useful diagnostic tool after the advent of the stethoscope, the microscope and the X-ray machine. With its capacity to enlarge objects upto 3,50,000 & 5,00,000 times, it gives doctors the scope of studying even sub-cellular mechanisms so that some diseases which have baffled doctors can be diagnosed during the life of a patient. It is claimed that the knowledge to be gained from the use of the electron microscope can be used effectively not only on problems of diagnosis, but can be used to solve several problems in the fields of epidemiology, preventive medicine, bio-chemistry, experimental medicine, biology and pathology.

All biological tissues are made up of unit structures i.e. the cells. and different cells in the various organs and tissues in the body perform different functions taking part in growth, metabolism etc. The characteristics of the various cells have been studied with the ordinary microscope but many problems remain unanswered. It is realised that knowledge of the sub-cellular mechanisms is required for the better understanding of the functions of the cells and also the alterations they undergo in different conditions resulting in disease processes. The discovery of the Electron Microscope with its ability to magnify subcellular structures to a very large size has afforded an opportunity to the scientists to observe subcellular organisation of the various elements present in the cells.



The Electron Microscope was originally intended to delineate ultrastructural features in plants and inanimate objects such as metals, leather etc. Since its introduction in 1932 by Ruska a whole new field of knowledge has been opened up, Histology the subcellular characteristics of the human cells and tissues and many in the animal and plant kingdoms have been very succiently delineated. Considerable work still remain to be done in these fields with techniques designed to magnify structures upto 500,000 times the original size.

Diagnosis : Apart from its great contribution in histology, it has played an extremely important part in the diagnosis of diseases. Diseases which have remained a puzzle have become readily recognizable and the presence of little known diseases and various subdivisions of apparently the same disease have begun to be understood. Diseases once dubbed cryptic, idopathic, degenerative or metabolic are being understood better and a diagnosis during life seems possible.

Biochemisty : The above studies have provided the basis for the changes seen morphologically and clinically in diseases and have thus stimulated the biochemist to provide answers for the changes seen at the molecular and ultrastructural level. This has resulted in a fund of useful knowledge being obtained.

Research : The most important contribution of the Electron Microscope however, has been in the field of research in the basic sciences and experimental medicine. Never has a piece of equipment been more usefully employed since the discovery of the stethescope, the microscope and the X-rays. Experimental medicine necessitates the use of the Electron Microscope in all its various fields. Recent trends in research into the causation of cancer, are based on the findings obtained with the Electron Microscope. Viruses, viral-like and other particles have been identified in the various malignant tumours with the help of Electron Microscope and it is postulated that more research in this field would bring to light further factors responsible for the production of the most dreaded of all disease that is cancer.

Experimental production of diseases have allowed the pathologist to follow entire courses of diseases and with the help of theElectron Microscope the earliest evidence of abnormality is being studied with the hope of obtaining a better understanding of the body defence mechanisms. In the field of the Neurological Sciences enigmas remain, leading amongst which is the problem of the blood brain barrier. Work with the electron microscope is now bringing in newer evidence to continuously bridge the gap in our knowledge on these matters, of vital importance.

Epidemiology : A positive diagnosis helps to establish definite data regarding the incidence of diseases. Epidemiological studies are vital in any society intent on launching massive campaigns for prevention of particular disease states. In our country, the need for such studies are essential to understand the trends in incidence of various tropical diseases. Leprosy a common fell disease affecting nearly 3.5 million people in India still remains an unpreventable disease. One of the main reasons is the great lacuna which still exists in our knowledge regarding the growth and behaviour patterns of the causative organism and the mechanism of its action on the various nerves. Many more similar examples exist in our country. Even the much studied Tubercle bacillus needs further evaluation since the disease appears to have different trends and features in this country. In all these spheres the electron microscope will come in handy.

—Selvi. SARASA BHARATHI M.D.,

WHAT PRICE MEDICAL KNOWLEDGE GAP ?

In recent times, our medical and para-medical technologies have been advancing on several fronts. There are now fewer limitations on our capacity to diagnose and cure disease, ameliorate human suffering & prolong life expectancy. Unfortunately, there is a tragic gap between what we are doing and what we are capable of doing. Our medical and health care systems in general, are not totally geared to the task of practical realization of the benefits flowing from the rapid progress in medical science and technology. Our existing system continues to be out-dated in some respects, and suffers from lack of a coherent and coordinated approach to the various aspects of medical care, education and research. The need for improvement is recognized by the Government, the medical community and voluntary agencies involved in the growing network of health and medical services.

In India, there is a growing awareness about the importance of medical electronics and radiation medicine equipment, as is evidenced by the research and development and manufacturing activities of about 20 institutions and firms. The Electronics Corporation of India Ltd., a public sector unit under the Atomic Energy Commission, which has been manufacturing a variety of radiation medicine equipment during the last seven years has taken up the manufacture of a wide range of neurological and cardiological instruments. The activities of the Department of Atomic Energy include a substantial development effort in the field of nuclear medicine, medical electronics and radio-pharmaceuticals which can serve to improve the efficacy of existing procedures in the diagnosis and treatment of several diseases.

DR. H. N. SETHNA

While the number of patients saved is increasing in absolute terms, the percentage of patients saved compared with those who might be saved is steadily diminishing. We can, of course hope that the creation of permanent national and even supranational information centres will some day alleviate the problems of memorization and of keeping doctors abreast of developments. At the time when I was privileged to be a member of WHO's Advisory Committee on Medical Research, I proposed that the Organization should establish a centre at which every item of medical knowledge possessing any potential practical interest would be stored.

Between one point and another on the globe, the same disease differs widely in severity. At the very time when the idea is spreading that all men have equal rights, the progress of medicine is generating the most glaring inequalities.

J. HAMBURGER.

CELCRETE

WILL BE CHEAPER QUICKER AND SAFER FOR HOUSING

by

Mrs. Mary George, B.E., F.I.E.,
Superintending Engineer,
Tamil Nadu Housing Board.

The Cellular Concrete Plant (CCP) at Ennore established under Indo-Polish Collaboration at the cost of Rs. 365 lakhs (approx.) was commissioned to production in February, 1972. Cellular Concrete is a new type of building material evolved during the reconstruction of the several continental cities after the Second World War. It is a light weight material of uniform porous structure obtained as a result of aerating the green, concrete mix with gas. It lends itself to prefabrication technique. The trade name of this light weight material manufactured in the factory of the Tamil Nadu Housing Board at Ennore is " Celcrete."

The main raw materials used for the production are sand and quick lime and the complex process, of a physical and chemical nature, which takes place in the course of production, require raw materials of high quality and uniformity. To produce cellularity, a calculated quantity of Aluminium Powder is added and the Celcrete is thus produced as a result of chemical reaction between the various ingredients. The Celcrete aso produced is light in weight.

Celcrete—Today's outstanding building material :

The rationalisation of building industry shows a great tendency for mechanisation and increased use of large prefabricated units. Celcrete the modern light weight construction material can also be an answer to the serious problems of how to build fast and economically inspite of severe climate, high wages and an inadequate supply of skilled labour. Celcrete is a structural material which combines light weight and thermal insulation of wood with strength and durability of stone.

The characteristic properties of celcrete which make this material so effective in building practice is as follows :—

Low Density :

The celcrete weighs about 650 to 750 kgs per M3 in the dry state only one third of normal concrete. The dencity of celcrete combines in an excellent way good insulation values and sufficient structural strength This property of light weight makes for considerable savings in both structural frame work and foundations. This is of exceptional importance in locations where soils are of low load bearing capa-city.

The light weight celcrete also offers the following advantages :—

Easy handling, heavy equipment is not necessary for erection and lower transport cost.

Because of the bigger size of blocks possible on account of its light weight, there is savings in mortar in celcrete masonry and the construction time also is reduced with proportionate reduction in labour charges.

Advantage is taken of the lightness of celcrete and used extensively as precast units either small units, semi-large or large panels for walls and floors.

High Strength :

In solid form celcrete would have a compressive strength exceeding 1,400 kg/cm2. But through its Cellular form, the density and strength are controlled economically to meet structural requirements. As a result of this high strength/weight ratio celcrete floor and roof slab are much lower in weight than a normal R.C.C. slab designed for the same span and live load.

High Thermal Insulations :

The excellent insulating characteristics of celcrete is due to its uniform structure of non-interconnecting cells.

Very few other structural materials offer the same degree of thermal insulation ; the insulating value of celcrete is 3 to 6 times that of brick and 10 times that of concrete. Buildings with celcrete will therefore cut both initial and running costs of heating and airconditioning installation.

Low Capillarity :

All normal building materials absorb or lose moisture until equilibrium with the atmosphere is reached. Moisture content of celcrete is very low even at the high relative humidities.

The soakability of Cellular Concrete in determined after a material has been immersed in water for 48 hours and in such a rest, the obtained value does not exceed 45 % by volume.

Visible cells in celcrete, are of such a size that their capillary action is negligible. Thus the capillary action is only in the thin cell walls and the water absorption and rate of capillarity are both small. Dampness of Celcrete walls caused by rain water has its origin in capillary lifting ability of the mateiral and it requires 90 days to lift water 24 cms. This means that an implastered wall of 24 cm. thick must be exposed to continuous action of same for 3 months to dampness through. In the 24 hours test, the capillarity capability of celcrete is about 30 mm. The low moisture contents, even at high relative humidities remain true even when a temperature differential across the thickness results in a dew point within the material. The reason for this is that the celcrete is a highly surface active material. It loses moisture by capillary and evaporation faster than it takes in vapour permeability Therefore a wall with a relative high moisture content when constructed will drive out low moisture contents provided that sufficient insultation value exists to preevent the dew point from being on the surface of the warm side. This can readily be ensured with the high thermal insulation of celcrete.

Low Shrinkage :

From a saturated condition to equilibrium in air at 67 degree F (20 degree C) and 45% relative humidity the shrinkage has been found by numerous tests, to be 0.01 —0.05%. In practice, however, the moisture variations in this material are much smaller when compared to bricks. Therefore, celcrete is dimensionally very stable.

Dimensional Stability :

The basic chemical composition of celcrete-monocalcium Silicate is characterised by its dimensional stability. There is practically no shrinkage due to moisture variations, the microcells in the celcrete structure and the unbroken cell walls account for its low water absorption. A celcrete block or panel floats and stays floating in water.

Non-Inflability :

The celcrete structures are fire proof and the material itself is nonflammable. The coefficient of thermal conductivity (measured with a no. of K. cal./MH0C) amounts to 0.17 while dry and to 0.26 at natural stabilised humidity. This coefficient is twice better than that of bricks.

The CBRI, Roorkee has also stated in their building Digest No. 86 that autoclaved aerated (Cellular) concrete has good fire resisting properties. It does not fall, during fire, on account of its homogeneous structure.

Fire resistance is expressed in standard grades ranging from 1/2 to 6 hours. A 10 cm. thick aerated or Cellular Concrete slab gives fire resistance of 2 hours against 1 hour 11 cm. thick brick wall and 10 cm. thick concrete slab.

Frost resistance :

Celcrete with moisture content of upto 35% by weight is frost resistant. Tests have shown that 450 freeze—thaw cycles at this moisture content will cause no damage to the material. Above this moisture content frost damage can occur. But in all normal applications, these high moisture contents will not be approached. However, it has been recommended by Polish Experts that Celcrete should not be used below damp proof course level.

Sound insulation :

Sound absorption of celcrete is considerably better than that of dense concrete. Although the reduction of air borne sounds largely depends on the weight of material, by suitable designs desired degree of sound reduction can be achieved. Celcrete is ideally suited for theatres, auditorium and offices.

General :

The wall made with the celcrete is strong and durable, water and fire resistance, and it assures several times better thermal comfort than wall made of brick. These facts could be checked, for example anyone entering an isolated room made of celcrete would have a feeling of coolness. The water resistance of walls made of celcrete was found to be good.

Application range :

The application for this material in house construction are as follows:

1. As a filler wall in between framed structures of multi-storeyed buildings.
2. As a load bearing big panel for walls of multi-storeyed structure.
3. As partition walls.
4. As load bearing block masonry wall upto three storeyed construction.
5. As an insulation cladding to the outer walls to protect the interior from cold.
6. As precast roof and floor slabs.
7. As composite roof and floor salbs with RC grid.
8. As precast lintels.
9. As precast composite wall or floor panels.
10. As ornamental facing panel with embossed designs and colour painted blocks for architectural purposes.

Applications in constructions :

(*a*) **Wall structure :** Small size structural wall units are made of Cellular Concrete grade ' 70'. The wall thickness depends on the dead load of floors and walls, and the purpose of building and on climatical conditions. The weight of the Unit varies from 8 to 25 kg. The height of the storey is determined by the multiple figure of the size of the units, allowing for 1 cm. thick mortar joints. Units for the parapet wall are separate item and are of any decided height, window openings are bridged by reinforced elements.

(*b*) **Partition walls :** Celcrete Partition walls of grade ' 06 ' are built of masonry units of 8 to 12 cm. thick. The small partition units are not reinforced. They are embedded in mortar and fixed to structural walls and door frames by nail or wires would them.

(*c*) **Masonry :** Load bearing and partition walls can be built using cement mortar 1 : 6 or lime mortar 1 : 3 or with combination mortar of lime and cement in proportion of 1 : 1 : 6.

Wherever the blocks are required as clisured, this can be easily cut with saw to the required sizes.

Precast lintels with sunshade are to be adopted above. Openings to avoid sagness in construction.

Door and window frames are anchored to the celcrete wall using holdfasts as in the case of brick work.

Normally no treatment need be given to the external surfaces. Internal surfaces may be left untreated or with a thick coat of plaster to receive painting or colour washing.

Electrical wiring can be done as in the case of brick work. But for making holes for wooden plugs drilling tools should be used.

Precast Roof and Floor Slabs :

The Celcrete is reinforced with 6 mm. rods after coating with latex cement an anticorrosive paint. This precast celcrete slabs are produced in 59 cm. into 229 mc. into 212 cm size. This can be easily erected with a small hoist as it weights only 200 kgs. However, there is a limit to the span in this type of precast slab in our factory.

Composite Roof and Floor Slab with RC Grid :

To overcome the restrictions in the precast celcrete roof and floor slab, a composite floor slab has been developed with RC grid and celcrete as a filler. This composite floor slab is found to be very economical, there is saving on centering. Only centering is required for the grid. The saving on steel is high as much as 52% and the concrete used is reduced, there by saving cement to an extent of about 35%. The composite floor slab is also much lighter in weight than an RCC slab and the resultant load on the foundation is greatly reduced.

Celcon Panels :

The advantage of standardisation in the design of buildings is obvious. If all buildings were to choose from a small range of door and window types, a small range of permissible slab spans, and so on, there would be obvious cost advantages in procuring ready made frames, and in developing shuttering systems or better still to develop precast roof elements.

The light weight celcrete has suggested itself as a filler material with its high sound and thermal insulation properties. Secondly, it affords tremendous opportunities for prefabrication method of construction. It is seen that the use of celcrete in composite slabs effects economy in reinforced concrete. Cement and steel and minimises the use of centering. If centering is to be completely avoided, there will be considerable savings in cost as well as speedier construction.

Therefore a precast floor slab unit has been developed using celcrete with concrete ribs called cel-con panels. The width of the floor panel unit is restricted to 70 cms. for easy handling and the length to suit the span required. Of course greater the span the unit will be heavier. When each unit is placed side by side a groove is found in steel can be placed and the joint concreted along with a screened layers over the whole slab. The latter is done in site to reduce the weight of the precast floor unit.

Advantages :

Advantages resulting from Cellular Concrete constructions :

1. Economy in building material consumption.
2. The mortar consumption for erection of wall of Cellular Concrete blocks amounts to only about 20% of mortar quantity required for brick laying.
3. Economy in foundation.
4. Economy in floor and roof slabs. (Steel & Cement).
5. Reduction in transport cost (weight of cellular concrete is 1/3 that of bricks for same volume.)
6. Quick construction. The time of erection of a building with cellular concrete instead of brick can be reduced 50%.
7. Thermal insulation that helps to shut out both heat and cold.
8. Sound absorption properties comparing favourably with brick construction.
9. It has got workability like wood *i.e.*, sawing, hailing, drilling and screwing is very easy.

The manufacturing process of cellular concrete using sand-lime technology at a time when the cement is not freely available comes as a prime advantage. The construction process using celcrete blocks is easily amendable to the use of lime mortar and thus use of cement is eliminated. Therefore, it is seen that about 40% of economy is effected in the use of cement by using the celcrete products, and about 40% in the use of steel, if composite slabs are used as light weight floor and roof slabs.

Celcrete products are of great advantage in the case of framed structures, from considerations of its light weight. Many of the famed structures in the City are designed taking into consideration this advantage and consequently greater economy is effected in the use of steel and concrete in the design of individual R.C.C. members of the frames and the foundations. Celcrete is also used extensively by private organisations for theatre complexes.

Economics of the use of Celcrete :

The percentage of economy achieved in the following items of construction are as follows :

Foundation & Basement :

The load on foundations is reduced with the use of celcrete for masonry, floor and roof slabs—16% saving in cost.

Floor and Roof slabs :

By using celcrete with RC grid beams as a composite slab—15% saving in cost.

Exterior plastering :

As celcrete has low capillarity, there is no need to protect the walls for dampness—100% saving in cost.

Besides savings in individual items, there is great economy in the use of scare materials like cement and steel.

There is also savings in the use of water.

Celcrete lends itself to precasting of composite elements due to its lightness. Such precast elements are easy to handle and helps industrialization of buildings, making prefabrication cheaper.

It will be seen that there is savings of 7.4% on the overall costs.

Even if exterior plastering is to be added, there still is a savings of 3.11% on the overall cost.

The savings in scarce materials is : Cement —35% ; Steel—52%.

Celcrete has now been used in large scale construction of the Tamil Nadu Housing Board under all climatic conditions. It has proved itself exceptionally adoptable where the use of modern methods has demanded pre-fabrication of large components, standard size and modular co-ordination. Celcrete has therefore established itself as a ' Modern Building Material.'

TANSITTING PRETTY!

Sitting pretty with TANSI.
Quality and pretty-pretty.
Steel and Wooden
Furniture. Leather goods
and leather footwear.
Just two from TANSI.

A score and more for
various utilities. You can
rest assured, sometime
some place you have
known TANSI.

TANSI

TAMIL NADU SMALL INDUSTRIES CORPORATION LIMITED,

26, Whites Road,
Madras-600014

THE WILD DOGS OF MUDUMALAI WILD LIFE SANCTUARY

Conservationists have come out against the practice of offering bounties for killing the wild dogs of Mudumalai to prevent decline in the deer population. As a species it is also worth preserving and Mudumalai is unique in harbouring the wild dog and the Mudumalai wild dog is necessary to preserve the herd qualities of the deer and sambar. " An ecosystem in which there is no predator is analogous to a rose that is never pruned ", argue the conservasionists.

Of all the carnivorous mammals only the wolf, the cape hunting dog of Africa and the wild dog of Central and East Asia hunt in organised packs. In Mudumalai wild life sanctuary the wild dog is very common but as it is highly elusive, it is rarely seen. Unfortunately, it is a much persecuted and misunderstood animal. Being red in colour, it is called Chennai in Tamil. It is the only known animal that whistles to communicate with another of its own kind.

The wild dogs occupy very different habitats, ranging from the open steppes of Tibet to the scrubland and forests of the south. This indicates their adaptability. The bushy tail of the wild dog is usually tipped with black and a white or cream coloured throat patch is common which may extend under the chest and belly. They are uniformly coloured. This makes individual recognition an extremely diffiult affair for the field observer. And it is difficult to distinguish between the sexes even at close proximity. Cubs are uniformly dark brown when very young—a characteristic common to all wild canids.

Features

Adult males, which are slightly heavier than the females, reach over 20 kg in body weight, standing 40 to 45 cm at the shoulder. Body length is about 85 cm and the tail 31 to 38 cm long. Females have 12 to 14 teats instead of the usual 10 found in our domestic bitches. The unique feature of this canid is that there are six, instead of the usual seven, molar teeth in the lower jaw.

The restless wild dogs usually hunt in the early hours of the morning. They generally avoid strenuous activity during the heat of the day, seeking shade under rocks, dense under bush or by lying in or along the banks of a river. In cooler seasons they may be active and hunt at any time of the day. They rarely hunt at night but are found to be active on moonlit nights. Wild dogs have a remarkable sense of smell, sight and hearing.

Whistling Dog

Wild dogs find strength and meal in unity. The larger packs are called clans. Usually the wild dogs of a clan break up into smaller packs of 3-5 animals. Each clan has one large animal which is alert and cues others in so far as moving off in a particular direction or attracting the attention of others with his behaviour. There are lesser ranking adults in the clans which lead the small hunting packs. Whoever observes the wild dogs at a kill will be impressed by the lack of competition to get each one's share. The wild dogs communicate with one another by means of whistling, whining, growing and screaming, but they do not bark. They have many 'communal latrines' for dunging in very obvious places such as at the intersection of two trails or where a trail leads to a clearing in the scrub.

Their Prey

Wild dogs prey upon spotted deer, sambar, hare and field rats. While chasing a larger prey like sambar they run in relays and the spent prey is finally torn and eviscerated while it is still alive. If the prey is small, like a spotted deer, fawn, nothing is left of the kill. But of an adult deer the bones, skin and a little meat may be left. **Clans of wild dogs have been known to kill the tiger and the sloth bear.**. Our study confirmed that they will kill full-grown wild pigs and leopards—a chewed skull and other bones of the latter predator were found in the nursery play area of a den site. But such killing of the big cats must be extremely rare. Wild dogs do kill cattle which wander in the day time through the jungle. Obviously, more cattle are killed during the breeding season which falls during the North East Monsoon when the mild climate facilitates the activities of the wild dogs even through the hottest time of the day.

The wild dogs have the habit of eating their kills fast and moving off quickly either to a favourite resting area or to water. When there are cubs they join them at a temporary nursery and feed them by regurgitation. When the cubs are still too young to travel and are confined to the den which may be a simple or a complex earth den, members of the pack will return to feed them and the lactating mother or mothers.

The wild dogs breed around late September and October. This correlates roughly with the breeding season of the chital and the sambar. Gestation lasts about nine weeks. E.R.C. Davidar, our naturalist f-friend, has observed mating of Chennai in the field. According to him, the mating pair lie down flat on their sides, their bodies forming a semi-circle facing each other.

Excessive Poisoning

In the present day Mudumalai, owing to excessive poisoning by cowherds, tigers are almost extinct and leopards are rare. The one large predator maintaining its number is the Chennia. In the absence of other larger predators, Chennai must be there to maintain the herd qualities of spotted deer and sambar. An ecosystem in which there are no natural predators is analogous to a rose that is never pruned. Uncontrolled, it will grow rapidly in a selfdestroying profusion of smaller and weaker generations, until all that is left will be scrubland with neither flowers nor flesh.

Regretfully, the wild dogs, which are one among the beautiful animals of our jungles, are branded as vermin. So far no conservationist has spoken in favour of them. On the contrary, they blame the Chennai for the periodic decline in deer population, pay a bounty of Rs. 20/-for a dead wild dog and plan to poison wild dog packs.

If the idea to poison the wild dogs is carried out with systematic ruthlessness soon we will be losing from our jungles another magnificent animal, which nature has taken thousands of years to evolve such Curisas Creatice.

By
MICHAEL FOX
Washington University (U.S.A.),
and
A. J. T. JOHNSINGH,
Lechirar in Zoology,
Ayya Nadar Janaki Ammal College
SIVAKASI.

More Employment Oppurtunities for

SCHOOL TEACHERS

Government of Tamil Nadu has sanctioned additional posts in the Education Department to benefit the children studying in schools. This will provide more employment oppurtunity for the qualified unemployed persons and also reduce the workload of the teachers working at present in schools. Selected people will be employed in the elementary schools, Higher elementary schools and Higher elementary standards of High Schools under Government, Municipal, Corporation, Panchayat Union and Aided Management Schools. 200 Physical Education teachers, 50 B.T teachers or equivalent to BT and 300 teachers of Secondary Grade or equivalent grades will be benefited by this sanction.

G.O. Ms. No. 1413, Education, Dated 20—8—75.

1. (*i*) The Government sanction the employment from the date of this order of 300 (three hundredonly) additional teachers of the Secondary Grade or equivalent grades under the State Plan schemes for the additional enrolment of pupils of the age groups 6—11 and 11—14. The Director of School Education is authorised to convert any of these 300 posts into Higher Grade if he considers it necessary. The Director of School Education will distribute the posts among elementary schools, higher elementary schools and higher elementary standards of High Schools under Government, Municipal, Corporation, Panchayat Union and Aided managements according to the needs of additional enrolment provided that while assessing the need for additional teachers, it is necessary to go by **the figures of actual recorded average attendance at the end of 1974—75 and not merely by enrolment figures.** After catering to the needs of additional enrolment in 1975—76 the surplus posts, if any, may, as already permitted in G.O. Ms. No. 2015, Education, dated 24—11—1971, be utilised to sanction additional posts to schools which are in need of additional posts as per the approved teacher-pupil ratio.

(*ii*) The Higher Grade teachers (if any of the 300 posts are utilised as Higher Grade posts) will be paid in the scale of pay of Rs. 150—4—170—5—225 and the Secondary Grade teachers and teachers of equivalent grades on that of Rs. 210—5—245—10—325 and both will in addition, be paid Dearness Allowance, House Rent Allowance etc., at the rates admissible under the rules and orders in force.

(*iii*) The sanction for the employment of teachers in the Government schools will be from the date of employment upto 31—5—1976 in the first instance.

(*iv*) Under the rules relating to Elementary Schools, there is provision for allotting Secondary Grade posts in Standards I to V for certain purposes only (*e.g.*, for being the Headmaster and for teaching English in Standards III to V).

There are however, Secondary Grade posts in Standards I to V created by the upgrading of Higher Grade posts in recent years. Notwithstanding the provision in the rules, the additional Secondary Grade teachers sanctioned in this Government Order can be apopinted in Stds. I to V also. The posts in which such additional Secondary Grade teachers are appointed shall be treated as Secondary Grade posts, and such teachers shall be given the Secondary Grade scales of pay.

2. (*i*) The salaries payable in 1975—76 to the teachers holding posts allotted under these schemes (6—11 and 11—14) to Government schools in 1974—75 as well as those to be allotted in 75—76 will automatically be debited to the relevant debit head in the normal course.

(*ii*) During 1975—76 which is the second year of the Fifth Plan period, grants will be paid to Local Bodies towards (*a*) the salaries of teachers holding the posts newly allotted to Local Bodies out of the additional posts newly sanctioned in 1975—76 in this and other relevant Orders besides (*b*) the salaries payable in 1975—76 to teachers working in posts originally allotted to the Local Bodies in 1974—75 under the State Plan schemes for that year, posts which will continue in 1975—76. This principle applies to Age Groups 6—11 and 11—14 which are covered by this Government Order as well as to the other State Plan Schemes. In the case of the Panchayat Unions, the grant will cover also the State Plan Scheme posts allotted to the Aided Elementary and higher elementary schools in the respective Panchayat Union area.

(*iii*) The above grants will be paid to the Local Bodies in advance every quarter (on or after the 1st April, 1st July, 1st October and 1st January) by the concerned District Educational Officers. On receipt of the report of posts remaining filled up, the District Educational Officers shall sanction the grant for that quarter, the quantum being the amount required to pay emoluments to the incumbents from the commencement of that quarter or the date of appointment as the case may be to the commencement of the next quarter. Adjustment can be made in the quantum of grants for a subsequent quarters where (due to the posts remaining vacant for some period in the previous quarter or some other reason) the requirements for previous quarter or quarters are found to be less than the advance grant released for those quarters. The grant for the fourth quarter will also be released in advance and final adjustment of the grant paid in one year will be done next year on the basis of Audited Figures which will be available from the Examiner of Local Fund Accounts. During their routine inspection of elementary schools, the District Educational Officers and Deputy Inspectors of Schools should check up the

details of teachers for whom the Local Bodies are given grants for salaries under Elementary Education Plan schemes.

(*iv*) Aided Elementary Schools in non-Panchayat Union areas and Aided High Schools will be given grants by the School Education Department in 1975—76 under the schemes " Age Groups 6—11 and 11—14 " for the posts allotted under the scheme in 1974—75 as well as for the posts to be allotted in 1975—76.

3. (*i*) Sanction is also accorded to an expenditure of Rs. 3/- per mensem per teacher on contingencies for 10 months—(*i.e.*,) Rs. 3 into 10 months into 300 teachers or Rs.9,000 in all.

(*ii*) The District Educational Officers are authorised to sanction grants for contingencies in advance to the Local Bodies to which additional posts are allotted during 1975—76.

(*iii*) A Municipal Council/Corporation which gets any amount as grant for contingencies may utilise the amount for any school or schools under its control according to the relative priorities of the various schools (and not necessarily in the particular school in which the additional posts are utilised)'

(*iv*) The orders in sub-para (*iii*) above are applicable to Panchayat Union Councils also, in respect of grants due for contingencies in respect of additional posts utilised in Panchayat Union ElementarySchools (but not in respect of additional posts utilised in Aided Elementary Schools in Panchayat Union area).

(*v*) Government Schools getting additional posts under this scheme may incur expenditure on contingencies at Rs. 3/- per month per teacher.

4. The expenditure will be debited to the following detailed heads of account :

Age Group 6—11

"277 Education — A. Primary *a.* Government Primary Schools — Schemes in the Fifth Five Year Plan — II. State Plan — JA. Additional enrolment of the pupils of the age group 6—11.

b. Assistance to non-Government Primary Schools — Schemes in the Fifth Five Year Plan —II. State Plan —JA. Additional enrolment of pupils of age group 6—11.

c. Assistance to Local Bodies for Primary Education — Schemes in the Fifth Five Year Plan — II. State Plan — JA. Additional enrolment of Pupils of age group 6—11.

Age Group 11—14

277 Education.A.Primary " *a.* Government Primary Schools —Schemes in the Fifth Five Year Plan — II. State Plan — JB. Additional enrolment of pupils of the age group 11—14."

277. Education— A. Primary- " *a.* Assistance to non-Government Primary Schools — Schemes in the Fifth Five Year Plan — II. State Plan — JB. Additional enrolment of pupils of the Age Group 11—14."

"*c.* Assistance to Local Bodies for Primary Education — Schemes in the Fifth Five Year Plan — JB. Additional enrolment of pupils of the Age Group 11—14."

277. Education — B. Secondary " *c.* Government Secondary Schools — Schemes in the Fifth Five Year Plane— II. State Plan — JB. Additional enrolment of pupils of the age group 11 to 14."

" *d.* Assistance to non-Government Secondary Schools — Schemes in the Fifth Five Year Plan — II. State Plan — JB. Additional enrolment of pupils of the Age Group 11—14."

" *e.* Assistance to Local Bodies for Secondary Education — Schemes in the Fifth Five Year Plan — II. State Plann—JB. Assistance to Municipalies and Corporations —Additional enrolment of pupils of the age group 11—14.'

5. This order issues with the concurrence of the Finance Department *vide* its U.O. Note, dated 14—8—75.

G.O. Ms. No. 1414, Education, Dated 20—8—1975

The Government sanction the employment from the date of this order in Secondary Schools under all kinds of managements of 500 (five hundred only) posts of B.T. and equivalent grades (*i.e.*, Tamil Pandits, Grade I; Physical Education Teacher, Grade I; etc) for the additional enrolment of pupils of Age Group 14—17 in High Schools. Particulars are given below :

The Director of School Education will distribute the posts among various kinds of managements—Government, Government (Board), Municipal, Corporation and Aided High Schools—according to the needs of additional enrolment provided that while assessing the need for additional teachers it is necessary to go by the figures of actual recorded average attendance at the end of 1974—75 and not merely by enrolment figures. After catering to the needs of additional enrolment in 1975—76 the surplus posts, if any, may as already permitted in G.O. Ms. No. 2015, Education, dated 24—11—1971, be utilised to sanction additional posts to schools which are in need of additional posts as per the approved teacher—pupil ratio.

2. (*i*) The salaries payable in 75—76 to teachers holding posts allotted under this scheme to Government and Government (Board) High Schools in 1974—75 and to be allotted in 75—76 will automatically be debited to the relevant debit head in the normal course.

(*ii*) Grants to Local Bodies (Municipalities and Corporations) for the salaries payable in 75—76 to teachers holding posts allotted to local body high schools under Age Group 14—17 in 1974—75 and to be allotted in 1975—76 are authorised to be paid in advance every quarter including the fourth quarter by the concerned District

Educational Officer, subject to adjustment in the next year after audited figures become available.

(*iii*) Aided High Schools will be given grants under the scheme " Age Group 14—17 " by the School Education Department for the posts allotted under the scheme in 1974—75 as well as for the posts to be allotted in 1975—76.

3. (*i*) Sanction is also accorded to an expenditure of Rs. 5/- per mensem per teacher on contingencies for 10 months — *i.e.*, Rs. 5/- into 10 months into 500 teachres or Rs. 25,000 in all.

(*ii*) The District Educational Officers are authorised to sanction grants for contingencies, in advance, to the Local Bodies to which additional posts are allotted during 1975—76.

(*iii*) A Municipal Council/ Corporation which gets any amount as grant for contingencies may utilise the amount for any High School or schools under its control according to the relative priorities of the various schools (and not necessarily in the particular high school in which the additional posts are utilised).

(*iv*) Government and Government (Board) High Schools getting additional posts under this scheme may incur expenditure on contingencies at Rs. 5/- per month per teacher.

4. The expenditure will be debited to the following detailed heads of account under " 277.Education—B. Secondary."

" *c.* Government Secondary Schools—Schemes in the Fifth Five Year Plan — II. State Plan — JA. Additional enrolment of pupils of the Age Group 14 to 17."

" *d.* Assistance to Non-Government Secondary Schools—Schemes in the Fivth Five Year Plan—II. State Plan—JA. Additional enrolment of pupils of the Age Group 14 to 17."

" *e.* II-JA. Assistance to Municipalities and Corporations — Additional enrolment of pupils of Age Group 14 to 17."

5. This order issues with the concurrence of the Finance Department vide its U.O. Note dated 14—8—1975.

G.O. Ms. No. 1415, Education, Dated 20th August, 1975.

1. (*i*) Sanction is accorded to the employment from the date of this order in Higher Elementary Schools of 200 (two hundred only) additional Physical Education Teachers, Grade II on the scale of pay of Rs. 210—5—245—10—325 plus usual allowances as admissible from time to time. The posts will be distributed by the Director of School Education among the various District Educational Officers etc for allotment to individual schools in some equitable manner.

(*ii*) The sanction for employment of such teachers in Government Higher Elementary Schools will be for the period from the date of employment upto 31—5—1976 in the first instance.

2. (*i*) Grants to Local Bodies (including in the case of Panchayat Union Councils Aided Elementary Schools in their respective areas) and aided managements for the salaries of the Physical Education Teachers Grade II posts allotted under the scheme shall be paid by the District Educational Officers following the procedure mentioned in para 2 of G.O. Ms. No. 1413, Education, dated 20—8—1975 relating to Age Groups 6—11 and 11—14. (There are however no posts sanctioned in any higher elementary schools in 1974—75 under any analogous Plan Part II scheme, for which salaries have to be paid under this scheme in 1975—76).

3. The expenditure on these 200 posts will be debited in 1975—76 to " 277. Education—A. Primary —*e.* other expenditure—Schemes in the Fifth Five Year Plan-II. JD. Appointment of Physical Education Teachers in Higher Elementary Schools."

4. The provision in Budget Estimate 74—75 for the 303 posts of Physical Education Teachers Grade II in High Schools (sanctioned in para 4 of G.O. Ms. No. 665, Education, dated 29—4—1974) had originally been made under " 277-A -*e.*-II-JD. To rectify the anamalous situation wherein the salaries of staff working in High Schools were debited to a head of account with with the nomenclature " Appointment of Physical Education Teachers in Higher Elementary Schools " it was ordered in G.O. Rt. No. 1310, Finance (Budget (Special II) dated 11—12—1974 that the expenditure on those 303 Physical Education Teachers should be shown under the following new head with effect from Revised Estimate 1974—75 and Final Modification of Appropriation 74—75 :

" 277—B—*j*—II—JI. Scheme of Physical Education " with required sub-detailed heads.

The above reclassification orders was given effect to in FMA 1974—75 but by over sight was not given effect in Revised Estimate 74—75 and Budget Estimate 75—76. The provision of Rs. 13.47 lakhs in Budget Estimate 75—76 under 277—A—*e*—II—JD has two components:

	Rs in lakhs
Part I provision for continuing the 303 Physical Education Teachers in High Schools	9.04
Part II provision for appointing Physical Education Teachers in Higher Elementary Schools (Part II scheme	4.43
	13.47

The reclassification mentioned above has necessarily to be followed in Revised Estimate 75—76 and FMA 75—76. The expenditure in 1975—76 on the 303 posts of Physical Education Teachers created in High Schools in 1974—75 has to be debited in 1975—76 only to

" 277—B—*j*II—JI " (the opening of which new head has already been sanctioned by Government while the expenditure on the 200 Physical Education Teachers should alone be debited to " 277—A—*e*—II—JD ". The Director of School Education may issue suitable instructions in this regard to the District Educational Officers, etc.

5. This order issues with the concurrence of the Finance Department *vide* its U.O. Note dated 14th August, 1975.

Tamil Nadu Steps For Qualitative Improvement in College-Level Teaching

The qualitative improvement of teaching in colleges has been the constant concern of educationists in Tamil Nadu. A decisive step in this direction was taken on 9-8-1975 when Thiru K. Mohanarangam, M.A., B.T., Director of Collegiate Education, Tamil Nadu, inauguarated a Faculty Study Circle at presidency College. This is the first phase in the formation of such circles at seven university centres—Madras City, Thanjavur, Tiruchirapalli, Coimbatore, Salem, Madurai and Tirunelveli.

This programme of class oriented pooling of teaching resources will initially consist of three study circles in each centre-one in Mathematics and Statisties, another in Physics and Chemistry and the third in Botany and Zoology. These study circles are made up of principals and senior professors in the city colleges. In Madras city centre, the Principal of Presidency College will be the ex-officio Chairman of the circle and the senior professor in each circle will be the Co-chairman. In course of time the study circles will be enlarged to include the humanities depending on the measure of success achieved by the pilot project in the sciences.

The study circles will meet twice a quarter and review the quality of teaching in each subject and suggest improvements. A combined meeting of all the circles will be held at the end of the year. Any suggestions for the further improvement of the syllabi or teaching methods will be brought to the notice of the concerned authorities through the Director of Collegiate Education.

These study circles would help to evolve uniformly effective methods of teaching based on the actual experience of teachers confronted with specific problems in classes. The Director in his inaugural address suggested that a Question Bank be formed to avoid the eleventh hour rush of hurried question-paper setters This would ensure a balance in the format of each question paper. The authorities have been requested to make available funds for the continuance of such circles.

The Director emphasized the need for leadership in education to be retained by college teachers' The syllabi should be constantly revised to keep pace with research in each field of study.

Professor J. Ramachandran, Principal, Presidency College, is convinced that the study circle will ensure that college Teachers study their subjects exhaustively and not confine themselves to the syllabus. The teacher is not supposed to respect his vocation to the time-table, but be constantly engaged in adding to his professional equipment.

Several principals and professors of the city colleges welcomed the idea of the study circle. It was pointed out that the study circle was meant to serve as an advisory body. **

THE QUESTION BANK

—:o:—

What is it ? And How Organised ?

The department of Collegiate Education is being assisted by Dr. J. Davy and Mr. Peter Moss of British Council in creating the Question Bank. The Question Bank is a collection of questions and old examination papers which would serve to guide examiners in the setting of question papers and define the area of study in each subject.

The questions meant for the Question Bank should be framed on the basis of a clear written statement of content and educational objectives in the subject in which the candidate is to be tested. The questions should be both objective and subjective incorporating short paragraph questions and short notes. Dr. Davy pointed out that the element of chance favouring students answering multiple choice type questions can be eliminated by penalizing the candidates for wrong answers.

The Question Bank should also provide specific answers to questions and at least outlines of answers to questions calling for an essay-type answer. These questions should be pre-tested in the classes and included in the Bank only after evolving a satisfactory criterion based on statistical data as to their effectiveness. Dr. Davy suggested that for a start existing questions in the text-books could be suitably modified to conform to the objectives of the Question Bank. Teachers and students should be jointly involved in the project.

The Question Bank as a Teaching Aid.

Dr. Davy pointed out that the Question Bank can form a part of the professional equipment of teachers. For instance a candidate asked to answer an essay-type question can be helped by providing him with a point-wise breakdown of the main question into a number of subsidiary questions. The Question Bank can also be used for periodic internal assessment.

Dr. Davy suggested that the twelve universities chosen by the University Grants Commssion for the establishment of Question Banks can be approached for source material to make the Question Bank as comprehensive as possible. **

SPOTLIGHT ON EMPLOYMENT SITUATION IN TAMIL NADU

(During the month of June 1975)

Employment Trends :

An increase in the number of Employers using the Employment Offices, the number of applicants on Live Register and Registration is noticed during the month under review while a slight fall is seen in the placements and the number of vacancies notified. The increase in the Registration is due to the announcement of results. The increase in the Live Register is due to the increase of Registration and the extension of vacancies notified has 3 months to six months. The number of vacancies notified has slightly decreased due to the absence of bulk demands. As a corollary to the decrease in the number of vacancies notified, the placements effected and the number of submissions made have also showed downward trend.

Placements effected through the efforts of the Employment Exchanges :

1. Total No. of applicants placed in employment	2,620
(*a*) Out of (1) above, No. of Ex-servicemen placed in Employment	70
(*b*) No. of Physically Handicapped applicants placed in Employment	68
(*c*) No. of Repatriates placed in employment :	
Burma repatriates	37
Srilanka Repatriates	47
(*d*) No. of Professional and Executive Standard applicants placed in Employment	36

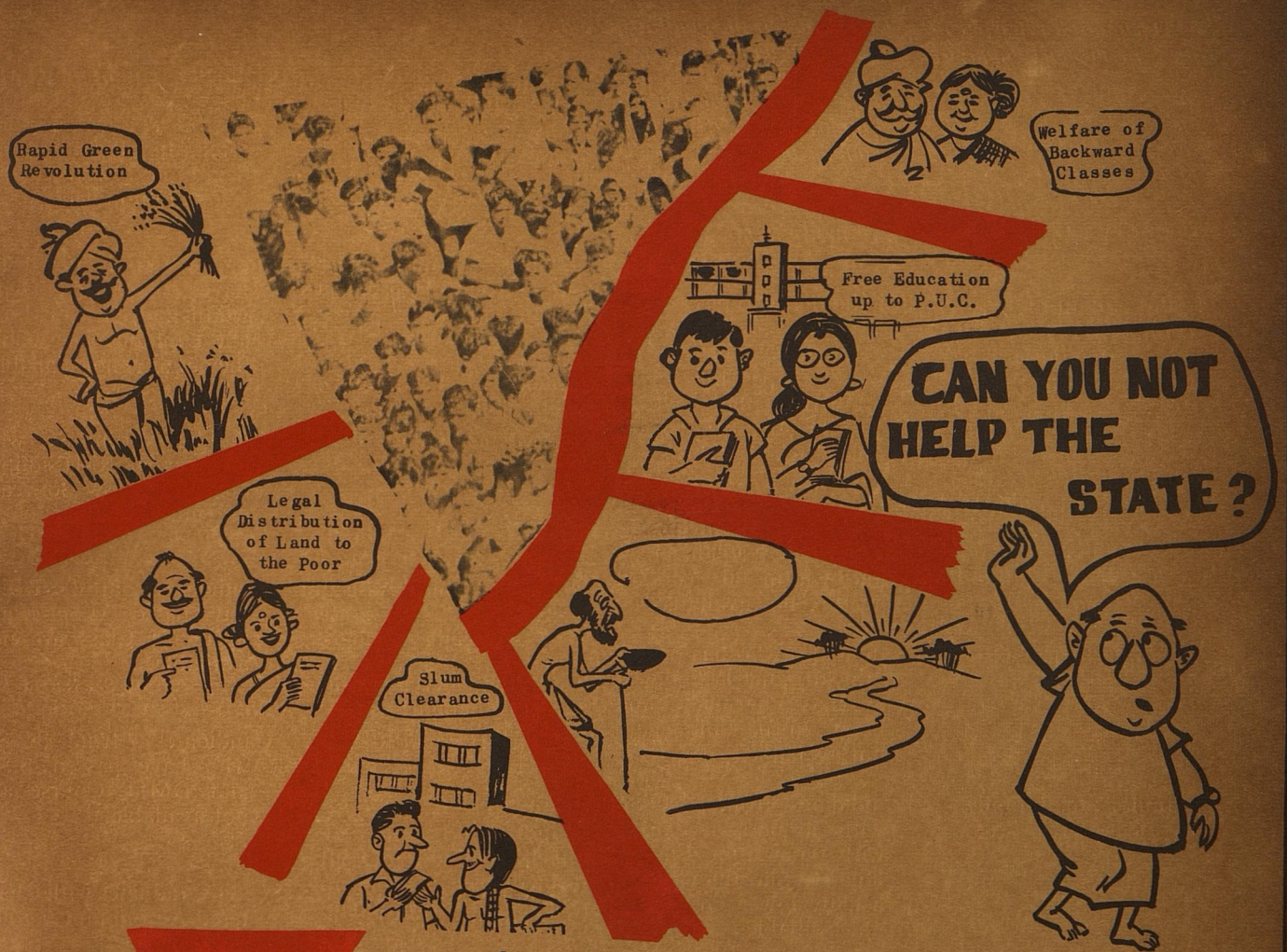
Other services rendered by this Department :

(*a*) No. of guidance talks delivered at Schools by Vocational Guidance Officers of the Employment Exchanges	14,920
(*b*) No. of applicants who received guidance in the matter of choosing their careers	1,472

Details of shortage occupation on Exchange-wise experienced :

Sl No.	*Occupation reported to be in short supply.*	*Details about the qualification, experience prescribed and reasons for the shortage as furnished by the Employment Officer in Tamil Nadu*
(1)	(2)	(3)
1.	Higher Grade Teacher	Candidates who have passed Junior Basic Teachers Training are not willing to move outside to work in leave vacancies that existed in other areas.
2.	Cholera Overseer (Priority) Male Candidates only	Candidates from Priority Category with Sanitary Inspectors Course and age between 20—25 years are not available.
3.	Town Planning and Building Inspector (Only) male candidates, SC/ST)	Scheduled Caste/Scheduled Tribe candidates with the following qualifications are not available : *a.* LCE of the Board of Technical Education of the Govt. of Tamil Nadu or any other equivalent qualification recognised by the Govt. of Tamil Nadu or (2) Pass in the higher Grade in the Govt. Technical Examination in the subjects : 1. Applied Mechanics 2. Building drawing and estimating 3. Building materials and Construction. 4. Surveying levelling and in the Lower Grade in the Govt. Technical Examination in the subjects : (*a*) Barch work of road making and (*b*) Geometrical drawing or (*c*) Pass in the draftsmanship (civil) Course under the revised syllabus introduced from July, 1952 conducted by the Govt. of India, Ministry of Labour with experience in Town Planning for a period of not less than two years. Age 30 years.
4.	Mechanics Grade III (only male candidates) SC/ST	Candidates from SC/ST with LAE or DAE with automobile as subject with I class and (2) Practical experience in a workshop or repute factory for a period of one year expreince in repairs and maintenance of tractors, pump units and Agricultural machinery or atuomobiles are not available.
5.	Mechanic-cum-Driver (only male candidates) SC/ST	Candidates from SC/ST in non-priority category with 5 years experience in repairs of Diesel Engines, air compressors etc. and licence for driving theory vehicle are not available.
6.	Steno-Typist (BC)	Candidate from BC and non-priority category with typewriting English and Tamil both by Higher Grade and shorthand by lower grade are not available.
7.	Higher Grade Teacher (Urudu Medium)	Candidates who have passed Higher Grade Teacher Training course in Urudu Medium are not available.
8.	Rural Medical Practitioner (SC/ST)	Candidates from SC/ST with a pass in BIM (Siddha) with previous experience (or) 'A' class practitioner are not available.
9.	Steno-Typist (SC/ST)	Candidates from SC/ST with a pass in the following Govt. Technical Examinations are not available. Typewriting-English and Tamil both by Higher Grade Shorthand English and Tamil both by Higher Grade.
10.	Health Assistant (Woman)	Women candidates who have passed Sanitary Inspector's course and between 18—30 years are not available.

Sl No.	*Occupation reported to be in short supply.*	*Details about the qualification, experience prescribed and reasons for the shortage as furnished by the Employment Officer in Tamil Nadu.*
(1)	(2)	(3)
11.	Pipe Line Fitter (For SC/ST, BC & OC —each one post)	Candidates who passed S.S. L.C. with a certificate of competency for water works pipe line fitter granted by the Govt. of Tamil Nadu are not available.
12.	Librarian Grade III	Candidates possessing certificate in Librarianship awarded by a University and within 26 years of age are not available.
13.	Siddha Pharmacist	Candidates who has passed 8th Std. and Training in Siddha Pharmacy and below 26 years of age are not available.
14.	Junior Stenographer (SC/ST)	Candidates from SC/ST with a pass in SSLC with typewriting English Higher, Shorthand English by lower Grade are not available.
15.	Senior Clerk	Graduate with dock experience are not available.
16.	Dock Inspector	Graduates with dock experience are not available.
17.	Sanskrit Pandit	Candidates who have passed SSLC with Siromani Title or diploma in Oriental Learning in Sanskrit are not available.
18.	Secretariat Assistant	B.Com. Graduates with T. T.C. are not available.
19.	Assistant Librarian	Graduates with diploma in Librarianship and 5 years experience are not available.
20.	Balasevikas (Women only)	Candidates whohave passed SSLC with Balasevika Training are notavailable.
21.	Female Nursing Asst. (Siddha)	Female candidates whohave passed VIII std. and one year training in any Siddha system are not available.
(1)	(2)	(3)
22.	B.T. Assistant (Teaching the Deaf)	(Female) candidates who have passed BT with History (Main) and Diploma in Teaching the deaf and age below 30 years are not available.
23.	B.T. Assistant (Maths and Science) for teaching the Blind	(Female) candidates who have passed B.T. with Maths and Science (Main) and Diploma in Teaching the blind are not available.
24.	Medical Officer BC	Candidates from SC who have passed BIM (Siddha) and age below 30 years are not available.
25.	Geochemical Assistant (SC/ST)	Candidates from SC/ST who have passed M.Sc. (Chemistry) I Class are not available.
26.	Supervisors (SC/ST)	Candidates from SC/ST who have passed B.Sc. and DMIT Course are not available.
27.	Junior Executive Accounts (SC/ST)	SC/ST Graduates with Chartered Accountant are not available.
28.	Draughtsman (SC/ST)	SC/ST candidates who have passed Draughtsman course are not available.
29.	Signalman	Candidates who have passed SSLC with two years experience as Senior Signalman in Navy are not available.
30.	Borewell Foreman (SC/ST)	Candidates with previous experience for not less than 6 months in the operating of HB sets and age between 18—30 years are not available.
31.	Boreman for Head Bore Set	Candidates who have passed VIII Std. with training in the operation of bore set including hand bore sets and age between 18—28 years are not available.



Despite these Achievements
Rising Population Raises Problems

SURELY YOU CAN
BY PLANNING YOUR FAMILY

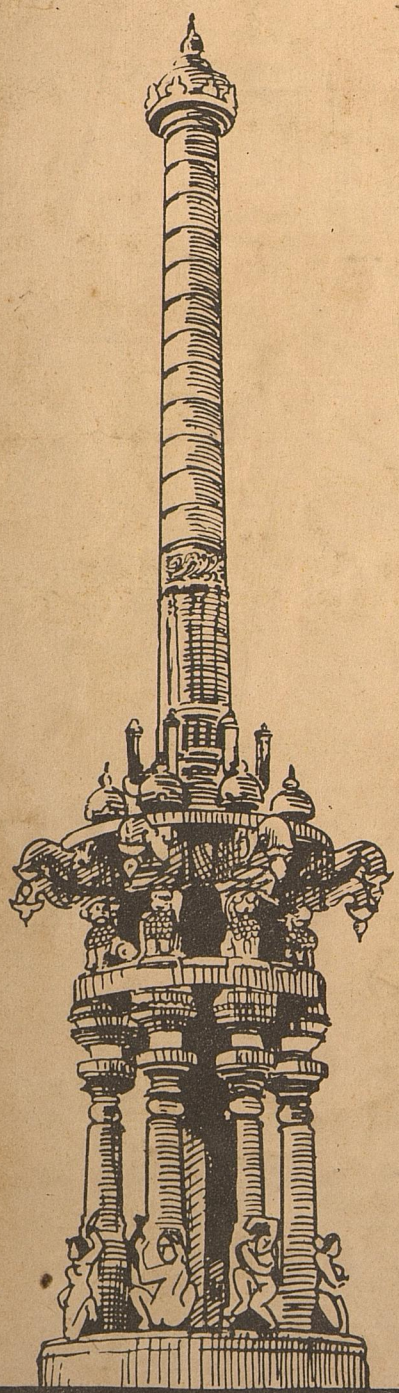
DEPARTMENT OF HEALTH SERVICES AND FAMILY PLANNING

Regd. No. M. 8676-A

VISIT

THE ART GALLERY AT

POOMPUHAR

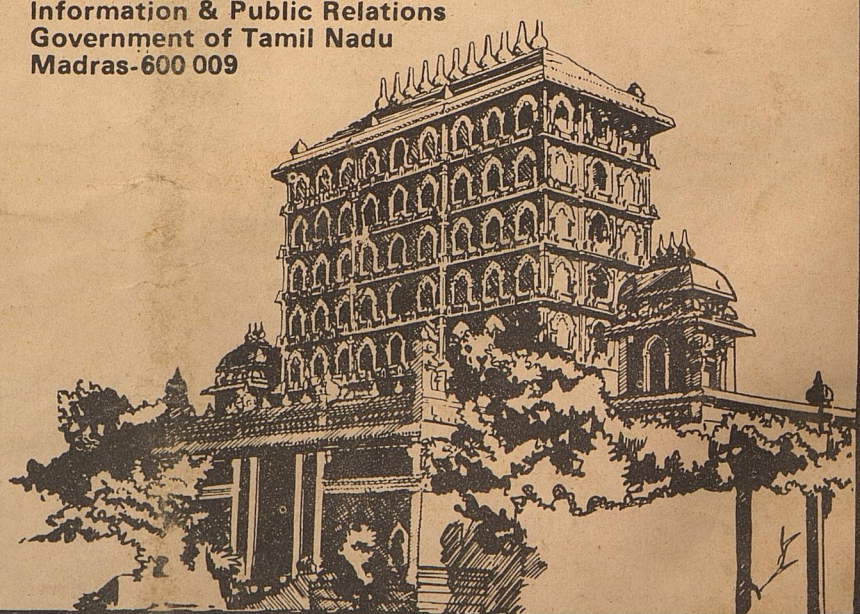


- Where the stones tell a tale and recapture scenes from *Silappathikaram*, the ancient Tamil classic;
- Where a city sunk beneath the wave comes glowingly alive!
- A feast for the eyes — and food as well for thought — that's what you get at Poompuhar.
- The *piece de resistance* is the exquisitely carved statue of Madhavi, the temple courtesan.

COME...SAVOUR THE SCULPTURAL DELIGHTS OF THE POOMPUHAR ART GALLERY

Poompuhar is 21 kilometres from Sirkali and 29 kilometres from Mayavaram

ISSUED BY :
Director,
Information & Public Relations
Government of Tamil Nadu
Madras-600 009



EDITED AND PUBLISHED BY THE DIRECTOR OF INFORMATION AND PUBLIC RELATIONS, GOVERNMENT OF TAMIL NADU AND PRINTED AT THE TAMIL ARASU PRESS, GOVT. ESTATE, MADRAS-600002.