

*" We Seek to Serve  
and Not to Compete "*

Volume XV

No. 10

# MADRAS INFORMATION

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## Contents

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### This month's cover

October 2 marks Gandhi Jayanti. Decentralization of power by the vesting of more power in the Panchayat was part of the major ideology of the Father of the Nation. Fittingly enough, on his Anniversary this year, the process begun last year of covering the entire State with panchayat unions is being successfully completed.



## HOW MANY GRAMS IS A SEER ?

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# WORKERS' Education



SRI R. VENKATARAMAN, *Minister for Industries.*

*The worker is the main instrument through whom the Plan targets have to be achieved. Hence, it is important that workers' education schemes be designed to enable the worker become plan-conscious and productivity-minded. Thus stated Industries Minister Venkataraman in the course of his speech initiating discussion on the problem of "Workers' Education" during the Tenth Annual State Conference of Social Work held recently in the City. This article contains the text of the Minister's speech.*

Of late the concept of Workers' Education has assumed special significance and importance in all countries. With growing industrialisation and the changing concepts of social justice, the important role played by the worker in the national economy is increasingly realised. Workers' education enables the worker to play this role more effectively and fruitfully. It is only when the worker is enabled to give his best in the cause of industrial development that the social wealth of any country can go up and result in the rise of the standard of living of all, including the workers.

In short, Workers' Education is an investment in human resources. It not only seeks to develop professional skills, but brings enlightenment, broadens the perspective of the worker, leads to better employer—employees relations and results in increased productivity. Illiteracy and ignorance impair the capacity for effective participation in any democratic undertaking. Education makes the worker think independently, face problems boldly and arrive at solutions by himself by proper reasoning instead of through dogmatic approach.

Workers' Education Schemes in India would enable the worker to become plan-conscious and productivity-minded. The worker is the main instrument of the targets of the Plan. He must be made to feel the heavy responsibilities he has to shoulder for making this country an industrially developed one. He must be able to make willing contribution and sacrifices towards increasing the quantum of the National Product, which will in turn maximise the goods and services that all, including the worker, can enjoy.

Workers' Education is a very broad and extensive term and it primarily includes at least 3 or 4 distinct fields, viz., (1) literacy and post-literacy education, (2) vocational or technical education, (3) trade union education, education on labour problems and labour legislations and (4) citizenship training.

Thus, Workers' Education is not merely confined to literary education. It is not even industrial relations education or trade union education. It is an all round education aimed at developing an integrated personality in the worker.

## Long History

Workers' Education has had a history—nearly of a hundred years. In the United Kingdom the Workers' Education Association is a voluntary organisation which has been offering educational programmes to workers with the assistance of University Lectures, Trade Unionists and with grants from Government. Four resident colleges in Britain offer one and two-year courses for workers and of these Ruskin College at Oxford primarily gives social science background for trade union leaders. Workers' Education Programmes in the United States have received impetus from organised Trade Unions, Universities as well as from the United States Government. The Workers' Education Movement has recorded progress in Canada, Scandinavia, Yugoslavia and other countries.

In India, Workers' Education programmes are conducted by: (1) the Central Board for Workers' Education;

(2) certain voluntary agencies like ICFTU Trade Union College at Calcutta ; (3) a few workers' organisations, and (4) a few State Governments.

### Central Board

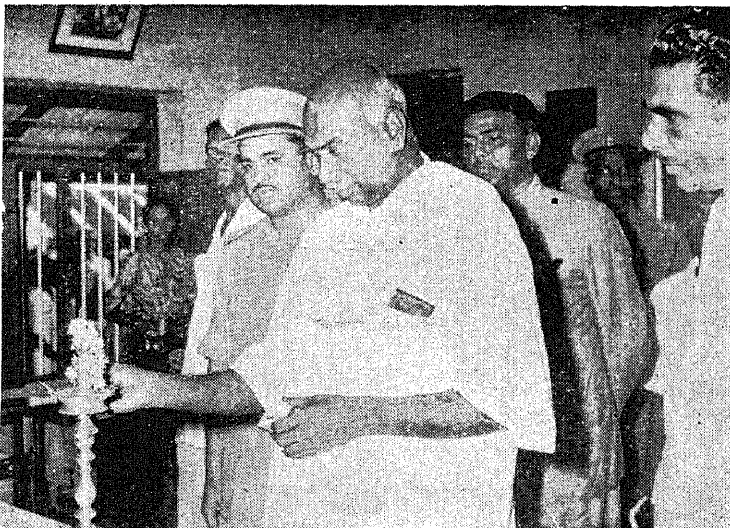
The Central Board for Workers' Education is an autonomous body constituted in the Ministry of Labour and Employment, Government of India. The Board consists of representatives of workers, employers, educational bodies and Government.

The Workers' Education Scheme of the Central Board envisages three stages of implementation namely, training of a cadre of top-level organisers and field officers known as Teacher-Administrators ; training of selected workers and trade union officials as worker-teachers ; training of workers at Unit level, by the trained worker-teachers.

The Teacher-Administrators are whole-time employees of the Board. On completion of their training, they are posted to different regional centres and entrusted with the work of training selected workers in whole-time training courses of three months' duration in batches of about 25 persons. The workers so trained are known as "Worker-Teachers." The training is a continuous process, each centre turning about 75 to 100 trained worker-teachers in a year.

The Worker-Teachers, on completion of the training, revert to their own factories or other places of employment and conduct programmes for the rank and file of the workers largely outside the working hours. They are paid a honorarium for their work on behalf of the board. They are actively assisted in their work by the Teacher-Administrators by close supervision, demonstration and advice.

Chief Minister Kamaraj, opened the Madhar Sangham Building and inaugurated the Police Industrial Co-operative Society during a recent visit to Cuddalore N.T. In the picture, he is seen lighting the 'Kuthuvilakku' in the Madhar Sangham.



Considering the fact that workers' education is more a Trade Union responsibility in most of the Western countries, this Scheme has also provided for the Trade Unions to take up these education programmes and rules for sanctioning recurring grants, up to a maximum of 75 per cent of the expenses of Rs. 10,000 on non-capital expenditure have been framed.

It may be of interest to point out that the Central Board for Workers' Education which is an autonomous body constituted by the Ministry of Labour and Employment *more or less on the model suggested by the Indian Conference of Social Work in 1957* has opened 12 regional centres, each one under the charge of a Regional Administrative Officer. Some regional centres have opened sub-regional centres for catering for particular areas. In Madras region also it is proposed to open a temporary sub-regional centre at Coimbatore shortly. In some places residential centres have also been opened. Workers belonging to different factories and different towns are brought together and made to live together. A part of their expenditure on boarding and lodging is met by the Board.

### Training Programme

Till the end of July 1961, some 1,172 worker-teachers and 10,928 workers have been trained, in India. The Madras Centre has completed two courses of worker-teachers training of three months' duration, and the third course is in progress. Fifty workers drawn from 40 different establishments from both private and public sectors have already been trained and 27 are under training. The trained workers have reverted to their own factories and they have started 25 unit level classes, covering roughly 600 workers.

It would be seen that workers' education should help to arouse curiosity in the worker and quicken in him the process of learning so that he would be enabled to appreciate his responsibilities and relate his duties, hopes and fears to the larger task of national development that is in progress. Again, it will be necessary that adequate literature should be produced so that the workers may have the right type of material for study. While a general programme of workers' education should cover workers in a big way and as rapidly as possible, there would be need to explore the desirability of evolving special programmes which would cater for the special needs of certain sections, i.e., advanced courses for trade unionists.

### Curriculum

The curriculum includes Plans and the role of labour in the Plans, Productivity, Industrial Relations, Labour Legislation, Wages, History of Trade Unionism in India and foreign countries, Trade Union Philosophy, Discipline



and Co-operative movement, etc. Instead of the traditional lecture method only, active teaching methods are adopted and the student is made to fully participate in the class. Two-way communication method is adopted. Every lecture is followed by a group discussion on the subject where the students discuss their view points and have their doubts cleared. Qualities of leadership are also developed by making one among the group the leader to control and conduct the discussion on right lines. Seminars and debates also form a very important part.

Role playing is also used as an aid. In role playing the participants are given the details of a situation. They are then allotted parts and given some general guidance but the actual words spoken are usually extemporised. The role players then act out the situation and finally they and the audience discuss the play and the problems it raises.

Field work, study visits to various factories and trade union offices, screening of films bearing on labour problems, charts, etc., are used as instruments for direct observation of actualities and they add greatly to the studies which might otherwise be too academic. In these visits to the various factories the workers see for themselves various new things being created by their co-workers and this enables them to take legitimate pride in themselves. Similarly films make a deep impression on their minds and direct observation of conditions existing in other parts of the

world or other States make them feel that they must also come up in life. These aids are all the more useful in the case of illiterate workers.

### **Creative Education**

The methodology of Creative Education propounded by Dr. Miss Payne has also been integrated in the scheme. This is on the simple premise that man is basically good. Lack of proper communication is the cause of tension in the world and only by originating properly with affinity and understanding the reality of the situation, communication can be effective.

The ICFTU Asian Trade Union College run at Calcutta, the Workers' Education Association formed at Bombay and the Workers' Training College at Indore arrange courses on Trade Unions, Industrial Relations, Law, etc., for Trade Union Workers. The Uttar Pradesh Government organized a special short-term course for Trade Union representatives in 1957.

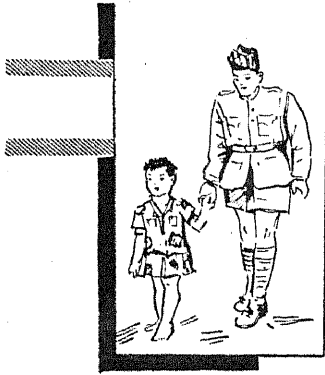
I am sure that the participants in this discussion would bring to bear their knowledge and experience to the discussion and help formulate constructive suggestions for promoting Workers' Education. They will no doubt also indicate the lines on which in their view, it should develop and the manner in which the enthusiasm of trade unions, employers and others concerned could be generated and canalised.

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## **Employees' State Insurance Medical Benefit to families**

Medical benefit under the Employees' State Insurance Scheme has been extended to the families of insured persons in Salem, Tiruppur and Udumalpet areas with effect from September 2, 1961, covering about 16,390 family units. Medical benefit has already been extended to the families of insured persons in Tiruchirappalli, Cauverynagar, Dalmiapuram, Rajapalayam, Sivakasi and Ranipet from August 15, 1961. With the extension of medical care to families of insured persons in all these areas, about 33,240 family units will be benefited.

The Government of Madras have made arrangements for the administration of medical care to families in these areas. The family of an insured person, consisting of the spouse, minor legitimate and adopted children dependant on the insured person and the dependant parents, if the insured person is a male, will be entitled to all the medical benefits on the same scale as the insured person except hospitalisation.



## **POLICE AS** *Guardian of youth*

SRI F. V. ARUL, *Deputy Inspector-General of Police.*

*The Police department should, in its essence, function as a social service organization and a great deal of stress should be laid on its responsibility as guardian of the juvenile. This was an aspect of police duty on which Sri F. V. Arul, Deputy Inspector-General of Police, dwelt at length while presenting a paper at a sectional meeting of the Tenth Annual State Conference of Social Work held in the City recently. This article contains the substance of the "Paper".*

The Police philosophy is a positive one of aiding and assisting all instead of a negative one of repression and prosecution. Unfortunately, to many people, the word 'Police' is almost synonymous with suppression. The general public pictures the policemen as a guardian of the law relentlessly pursuing law breakers with a view to bringing them to book. This stern and negative concept has been reproduced by the Press, the cinema and in literature. Of course, it is the duty of the Police to see that offenders are punished but it is no less their duty to attempt to prevent people from becoming offenders. It is inconceivable that one should have curative without preventive medicine. Prevention and cure are two aspects of the same problem.

There are other reasons for extending the action of the police to that of prevention. To begin with, prevention is far cheaper than suppression and its consequences. For

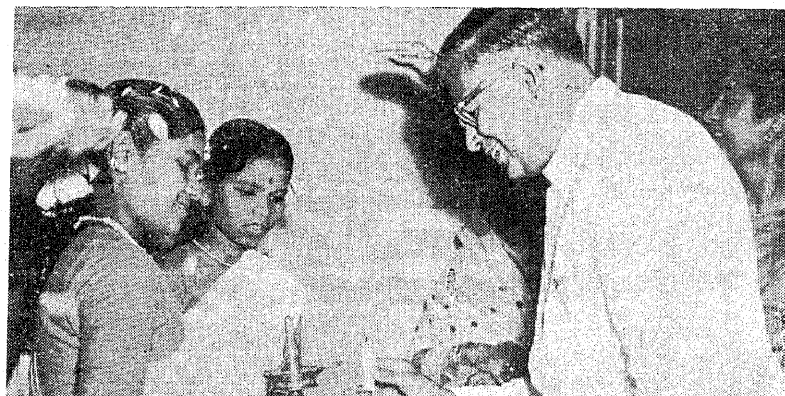
Industries Minister Venkataraman, declared open the Seva Sangham Girls' Training Institute and Hostel at Gandhinagar recently.

instance, one may take the common example of the intoxicated man leaving a tincture shop. The Police Officer who gets a bit curious about the man and escorts him home in order to see the sort of home life he leads before taking action for prosecution will have done his bit towards the welfare of the community as a whole. By this simple act he may prevent possible tragedy, suffering ill-treatment, or perhaps even the break up of a home. Many examples could be given. But that is not all.

### **The other Being**

In every policeman, there is another being which is very human. If a policeman is kept constantly at suppressive work, it is a waste of his humanity. His field of activities should be widened so that his best instincts are utilised which in turn will bring him inner satisfaction. The performance of protective work by the police will improve its relations with the public. The public are impressed with the work of the police in the field of road safety. This type of service should be extended to other fields of police work so that the people may gradually understand the police and not remember it only from the point of view of its unpleasant aspects.

The Police department should, in its essence be a social service organisation and a great deal of stress should be laid on the social service which it renders to youth. The period of adolescence between school leaving age and the time when a young person settles down as a responsible citizen is a critical period of his life. It is then that character building, physical training and other aspects of healthy manhood must be cared for.



7

The street has always been a favourite playground of children of all ages. This is natural. The lack of play fields due to speculation in building sites in all urban areas inevitably drives the children into the streets. They know that they will find their friends there, freedom to move about and things and people to see, as the street is the gateway to independence and the mirror of life.

But the mirror is two-sided. After dark, the road assumes a different aspect. Trouble and temptation lie in wait for the unwary. The trouble lies in the fact that many of these young persons are not only under no restraint but are vulnerable to the group psychology of the 'gang'. Therefore, both the police and social service agencies have the duty to increase their protection of youth and thus safeguard their future. This is in keeping with the declaration of the rights of children drawn up by the United Nations, which says that children should be able to develop in a normal and healthy fashion physically, intellectually, morally, spiritually, and socially, in liberty and dignity and that they should be able to grow up in an affectionate and understanding family atmosphere which favours the harmonious development of their personality.

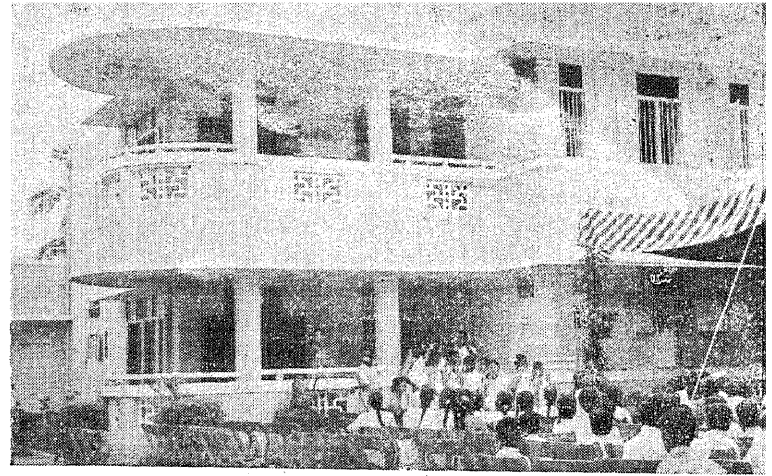
### Boys' Clubs

In the field of social service to youth by way of protection, the police officer holds a privileged position. Walking the streets both day and night, the arbiter and judge of dozens of incidents each day he is excellently situated to intervene at the first signs of juvenile maladjustment or any threat to their best interests. One of the characters in a recent book says, "I became a policeman so that I could be in the midst of life". Occupying such a vantage position, the policeman must raise barriers between predisposition and opportunity, which will have the two-fold action of "cleaning up" the roads and public places and safeguarding young persons in danger.

One positive measure of social service which the Police could render to youth is the organisation of Boys Clubs. As a matter of fact, this has been done not only in Madras City but in all the districts of the State. The basic principle underlying the conduct of such clubs is that the moral sense of children is naturally and inherently good and all that it needs is the opportunity for growth and development.

### Freedom the Principle

The Boys Club, therefore, provides recreation as an attractive alternative to the street corner. It provides a building of some sort where young persons will find space, light, a variety of equipment and possibilities for new activities which their own poor homes can never provide. The principle followed in these police Boys Clubs is freedom from compulsion. Unless one wishes to rear a race incapable of exercising its freedom, always awaiting orders from some higher authority, one must preserve



A view of the Seva Sangham Girls' Training Institute at Gandhinagar.

a part of life in which youth is offered the widest possible variety of freely chosen occupations. There are obvious attractions about compulsions; it would bring even the most unwilling within the range of beneficial activities. But the price would be the loss of that freedom to choose for oneself which should be allowed to be cultivated even from the years of adolescence.

Second only to freedom from compulsion is variety of interest. It is important to remember that there are more differences of temperament and interest in young people between the ages of 14 and 18 than in younger children or in older men or women. No social service for youth can be fit for a democratic society which does not admit of a variety of forms of expression. Muddle is bad but utter neatness is a deadly peril. It should be the aim of every youth organisation to encourage that rich variety which flows from diverse personalities for such variety is the substance of true life.

### Overcoming Prejudice

Membership of all police Boys Clubs is free. The only condition which is imposed is a pledge on the following lines. "I promise that I will endeavour to be honest, straight forward and manly in my daily life and that I will do all that I can to promote the best interests of the Club".

Leadership comes naturally to the police officer as he is accustomed to accepting responsibility and is usually a good organiser. He is familiar with the seamy side of life and so there is tolerance in his make-up. Boys are inclined to think of the police as hostile to the spirit of youth a sort of spoil-sport. There is a sense of antagonism, a feeling that the police exist to suppress them and that therefore they should bait them. The Boys Club sponsored by the police help overcome such prejudices and aid winning over an important element of the population to the side of law and order.



Home Minister Bhakthavatsalam, addressing the Agricultural Development Conference held in the City recently at the Information Centre.

One must guard against the youth attending these Clubs being "preached at", for nothing sets up in youth a mood of antagonism sooner than the suspicion that they are being got at for the purpose of moral improvement and that what is being done for their recreation is only a device for such purpose. What must be realised from the beginning is the importance of really and genuinely keeping the idea of "moral uplift" out of the club. The aim, instead, should be to encourage youth to cultivate activities for their own value.

One other way in which the police can render social service to youth is by constituting a specialised unit for dealing with wayward youth. The nucleus of such a specialised unit has been recently set up in Madras City. Members of such a unit should be chosen from amongst serving officers and their choice should be governed not only by the interest in the work and special abilities which they have shown during their careers but by their psychological make-up, moral outlook and balance.

To avoid the possibility of mistake, it would appear essential that candidates should have to pass an aptitude examination and a psychological examination. Youth in danger and delinquents are not like other children. The knowledge of their problems and education is a science in itself, built up slowly with the help of criminology, psychology and sociology. The solution would be to have the candidates for such specialised police units to be taught at an institute of criminology.

### Specialised duties

Generally speaking, the duties of Juvenile Aid Police Units are the following:—They will take charge of all juveniles and first offenders immediately after arrest and cause their production in court or the institution to which they are committed; will maintain contact with the Approved and Borstal Schools and Probation Officers

to keep track of offenders who continue to retain their criminal propensities, and advise the regular police on action in respect of those who revert or are likely to revert to crime; will participate in or organize measures to counter criminal influences in high delinquency areas of cities and towns by promoting development activities, recreational facilities, boys clubs, and other youth activities and by advising the regular police on action against corrupting influences in these areas; will enforce the provisions of the Reformatory Schools Act, Borstal Schools Act, Probation of Offenders Act and Children's Act, in respect of juveniles and first offenders, and in respect of erring parents or guardians who are liable for the acts of such juveniles or offenders and will conduct cases against juveniles in the Juvenile Courts and assist the Juvenile Courts in their work.

### Women Police

The association of women police with such specialised units will be extremely helpful. The variety of tasks and duties of a Juvenile Aid Police Unit requires both male and female members. It is perfectly in keeping with woman's nature to perform duties essentially protective in which she can use both her heart and her knowledge of social work.

In a system where all juvenile cases are handed over to the specialised unit, it might appear tempting at first sight to relieve all other departments of police of any responsibility for protective work in relation to youth. This will be tantamount to over-simplification of matters. The Juvenile Aid Police Unit has neither a de facto nor de jure monopoly of juvenile cases. The general police will more often than not find themselves confronted with situations in which they become immediately responsible for children. In such situations they cannot shirk their responsibilities. The protection of youth is every police man's business before it becomes the business of some specialised unit of the police.

### Another Way

Another way in which the police of the State has sought to render social service to youth is by organising schools for children. Recently, in one district, such a school was raised to the standard of a High School. Free mid-day meals are being provided in these schools for all the children. It is easy to imagine these tiny-tots growing into manhood and womanhood retaining a lasting affection for the police, for it is the wise, sympathetic and understanding policeman who is the true friend of all youth. The humble work, which he does, is of vital importance in containing a form of social malaise which is constantly increasing. The greater application to it will result in greater social service to a vital segment of society.

## Role of Technical Training

*In this article presented in connection with Technical Training Week observed recently, the author Dr. Nabagopal Das, Director-General, Employers' Federation of India, emphasises that technical training not only increases the efficiency of the worker but also accelerates economic development.*

The most crying problem in industry to-day is how to increase productivity. While industrial production has registered a spectacular increase over the past ten years (the index shot up from 100 in 1951 to 137.3 in 1957 and to 169.2 in 1960), the same cannot be said of productivity. No doubt productivity also has increased (according to a survey made by the *Eastern Economist* productivity increased from 114.2 in 1951 to 131.7 in 1957), but as the figures themselves show, the rise in productivity has not been commensurate with the rise in production.

It must be emphasised at the very outset that the worker is not a complete master of his productivity. The tools and machines used, the techniques followed, the nature of the raw materials consumed and the technical organisation of the factory where the works have, in most cases, more influence on productivity than the physical or mental efforts the worker makes. A distinction should also be made between machine-paced and man-paced work. When there is an automatic machine, productivity or even efficiency is controlled more by the machine than by the man. Negatively, increase in productivity should not always be identified with harder work on the part of labour, nor decrease in productivity with slackness.

### The Factors

What are the factors which affect the productivity of labour? These may be classified broadly under three heads:

(a) General factors, (b) technical factors and (c) human factors. Under "general factors" would come items like climate, geographical distribution of raw materials, organisation of the labour market, degree of unemployment, labour shortages and labour turnover. "Technical factors" will include standardisation of work and material, wear and tear of machinery, quality and amount of machinery available, distribution of labour as between different operations, degree of integration within the factory, and control over raw material. Equally important are the "human factors", such as labour management relations,

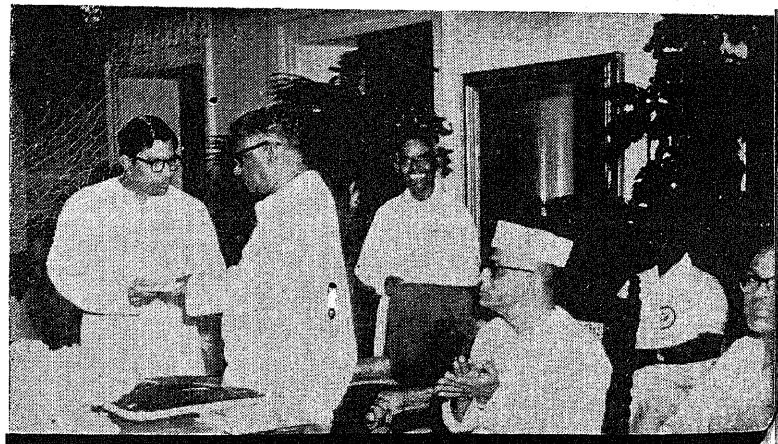
social and psychological conditions of work, wage incentives, physical fatigue and the technical aptitude of the labour force.

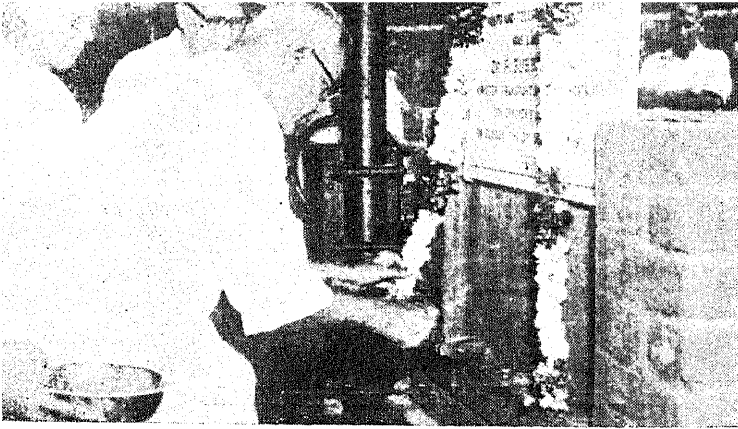
It is this last item in the third set of factors which is being underlined in the ensuing National Technical Training Week. If the efforts made in our country during the past decade have not raised industrial productivity to the extent desired, part of the failure must be attributed to the shortage of technically proficient personnel.

### Efficiency increased

When we speak of technically proficient personnel, we refer to men (and women) at all levels—those who plan, organise and supervise production as well as those who fall within the category of workmen. While technical education at the former level can help to redress shortcomings in the organisation of production, training at the lower level increases the efficiency of the worker. Increased productivity through the application of new methods of production can be achieved only if workers at the lower level also are adequately equipped in technological and organisational methods.

Finance Minister Subramaniam, handing over the Souvenir brought out in connection with the release of the 1008th publication of the Saiva Siddhanta Works Publishing Society to Sri T. P. Meenakshisundaranar, who presided over the function.





Dr. P. Subbaroyan, laid the foundation stone for the Post and Telegraphs Staff Colony at Teynampet during his recent visit to the City.

Experience has shown that, if new methods of production are applied in the absence of adequate technically trained personnel, productivity does not increase, because of the poor operation and maintenance of machines, the limited exploitation of basic resources, etc. In some under-developed countries, the overstressing of capital shortage has led to the neglect of technical training and education, with the result that economic development has not proceeded at the pace at which it should have done.

### Many Steps

It is fortunate that in India at least, the importance of technical training for the personnel engaged in industry has not been lost sight of. Technical education was assigned an important place in both the First and Second Five-Year Plans and the Draft outline of the Third Plan has re-emphasised that "the assessment of manpower requirements and the training of technical personnel are among the basic conditions for economic development". Many steps have been taken to expand the facilities for training the large number of technical personnel required for industry. There has been considerable progress, during the past ten years, both in the number of technical institutions and in the out-turn of qualified technicians, as would be evident from the following table:—

	1950	1955	1960
Number of Engineering Colleges and Polytechnics.	135	179	294
Annual out-turn ..	4,676	8,516	15,707

There has been a similar increase in the number of institutions and annual out-turn, in the category of junior technical schools, vocational training institutions and schools for various arts and crafts.

Bearing in mind the increased tempo of economic development during 1961-62, the Planning Commission has assessed the requirements of technical personnel during the Third Plan period as follows: degree holders, 45,500; diploma holders, 80,000; craftsmen for engineering trades, 750,000; craftsmen for non-engineering trades, 350,000. Corresponding programmes at various levels have also been drawn up to meet these large requirements.

These are steps in the right direction. Even so, the percentage expenditure on technical education in relation to total expenditure on education will be much lower than in the developed countries of the West. Secondary classical schools and colleges outnumber technical schools and colleges by at least 5 to 1—a figure which provides a sad contrast to the state of affairs prevalent in the European countries.

One way in which the gap can be bridged is by industrialists expanding and developing their apprenticeship training programmes. At present, most of them train young men for their individual requirements only. It would be desirable and necessary for them to take a broader view of the country's needs and organise apprenticeship training schemes for others as well. As far as small units are concerned, they can form group schemes as in the U.K. and thus help increase the supply of technical personnel.

### A word of Caution

A word of caution may be uttered at this stage. While expansion of facilities for technical training is most welcome, the quality of training must not be watered down. It has been the general experience of many employers that the technically qualified persons coming out of the colleges and other institutions to-day are not up to the mark. The reasons for this state of affairs should be investigated and appropriate steps taken at least to arrest further deterioration. For example, adequate economic and social incentives must be offered to the teachers in technical institutions. Money should be spent on expanding and improving existing well-established institutions rather than on setting up a large number of poorly equipped and badly staffed new institutions.

The point that requires emphasis is that technical training not merely increases the efficiency of the worker, but also accelerates economic development. On the one hand, the stepping up of productivity enables the worker to earn more and spend more. On the other hand it increases the resources of industry and enables more of such resources to be set apart for further development.



# Can the expert administer?



*Top management is important and competent men should be put in charge and this includes the specialist also. Classifying the administrator broadly as specialists and lay administrators and then posing the question whether the expert should be allowed to occupy the highest position in administration is not quite the correct way of looking at the problem. Thus declares Professor M. S. Thacker whose interesting talk "The Expert—on top or on Tap" recently broadcast by All-India Radio is reproduced in this article.*

Administration is a wide term covering a variety of jobs which require expert knowledge and skills in several different fields of human activity. The bank manager, the head of a commercial firm, the chief of an industrial establishment, the boss of a research organisation, the secretary of a government ministry—all are administrators, but the experience and equipment required for each one of these positions is different and the field of work of each distinct and separate from those of others.

There was a time when anyone with a certain amount of general education and a fund of common sense could take on any job in administration, but the days of such naive simplification are gone. The business of government and industrial and commercial enterprise are so diversified, that for each type of administrative job a person must have, special talent and aptitude and some specialised knowledge of the techniques and processes involved in his field of work.

The amount of expert knowledge required varies from job to job. For some, say, like the manager of a mine, specialised technical knowledge of the particular field and skill need to be acquired over a long period. For others, a person intelligent and possessing common sense, can acquire the required specialised knowledge while on the job itself. Some large commercial houses select young graduates of promise fresh from universities for positions of executive responsibility. Governments select young men on the basis of various competitive examinations. These young men acquire knowledge and skills of administration in the organisations.

No one will dispute the need for experts in most organisations. A research organisation might need a legal adviser; a production unit must have the services of a cost accountant. The functions of such experts are advisory. Experts required for giving advise on matters arising incidentally out of the activities of an organisation would function only in that capacity. But the man at the top in a research organisation will be a scientist; in production an expert in that field.

## Competent men

With the broadening and diversification of functions, one might be tempted to classify administrators broadly, as specialists and lay administrators. The top position in an organisation, say, an industrial concern, is occupied sometimes by a general administrator; sometimes by a specialist. This sometimes creates a flutter "Eyebrows are raised". And the question is asked. "Should the expert be on top or on tap? Should he be allowed to occupy the highest position of administration and direct the day-to-day affairs and determine matters of policy? Or, should he be subordinate to the general administrator, tendering advise whenever called on to do so and keeping merely an alert watch the rest of the time? Would it not be enough if the expert is consulted occasionally on specific points?"

When the question is posed in this way, one might get the impression that we have two distinct groups of men to choose from for top management positions. That, however, would not be the correct way of looking at the problem. The situations needs to be analysed further.

Incidentally, it is often said that we are faced with a serious shortage of specialists and therefore they should not be 'wasted' on managerial or administrative work. Is there not a shortage of competent administrators also? The point is if top management is considered important, and if so, let us put competent men in charge (whether they be specialists or otherwise).

Various public services such as police and revenue collection have naturally to be manned by members of the relevant services. In specialised organisations, such as research laboratories, the expert has to assume the responsibilities of management. So would be the case in regard to highly technical departments dealing with design and development. In between, there are a number of other services or organisations where administrative responsibilities and expert knowledge and experience of particular fields are closely interlinked.

While there are instances where the expert obviously must be on 'top', there are instances where he has to be content with being on 'tap'. The problem arises where a choice lies between a lay administrator and an expert. The top position in a modern industrial undertaking can be taken as an example.

#### Qualities needed

To deal with this what might appear as a vexed question, one must have a clear idea of the qualities required of the person for these positions. In addition to specialised knowledge and skill, the head of an organisation has to have certain other qualities. He should be a good judge of men with a broad understanding of their motives and urges, a leader who will not only be followed by his men but who can spur them to action with enthusiasm and zeal. He must be endowed with a flair for organisation and in times of crises, he must have the capacity to rise to the occasion and take bold decisions. Above all, he must have robust

common sense which will carry him through periods of stress and strain. The most successful administrators are these who are blessed with these qualities in abundance.

If one objectively analyses these qualities, two facts emerge. Some may possess these qualities innate in them but there is nothing to prevent a capable person from acquiring them gradually in the school of experience. They are not the special monopoly of the lay administrator. The expert or specialist may also be born with such qualities or acquire them. In fact, the expert, through the disciplining of his mind is in a better position to acquire them, if he does not already possess them.

The general impression, fallacious though, is that a specialist takes a lopsided view of things, that his mind is so much preoccupied with his own field of interest that he is not able to view ideas, events and men in their proper perspective. This is true not only of some specialists but also of some non-specialists. It is not characteristic of any one class of persons. The history of recent progress is replete with instances of experts, who have proved to be efficient organisers and administrators.

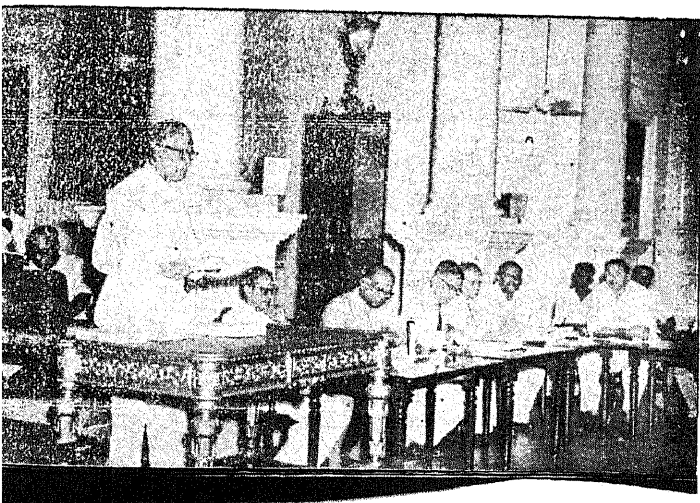
Whether a specialist makes a successful administrator or not depends on two factors, on his ability as an expert and on his qualities as a leader of men. The fact that a particular specialist has failed as an administrator cannot be held to prove any point.

#### A Classic Conflict

Here it would be relevant to refer to the conflict between two well-known personalities who were as great in administration as in science, Sir Henry Tizard and F. A. Lindemann, who later became Lord Cherwell. C. P. Snow has given a picturesque description of the personal differences between these two at a critical period of British history. Sir Henry Tizard started his career as a research scientist, taught at Oxford, and eventually became a top level scientific administrator in the Government with power and influence in determining national policies.

At the beginning of World War II, Tizard was asked to prepare a defence plan against aerial bombing; the Air Ministry set up a committee for the Scientific Survey of Air Defence with Tizard as Chairman. Tizard realised with characteristic foresight, backed by his expert knowledge, that the only hope of saving England was to support fully the development of what later came to be known as Radar. It redounds to the credit of Tizard, that he succeeded in making the Defence Services accept it in all faith and sincerity. Within a very short time, the Tizard Committee was asking for millions of pounds for Radar, and getting them without the batting of any eye.

Industries Minister Venkataraman, addressing the Fourth Conference on Industrial Housing held recently at Rajaji Hall.





But in this affair, Tizard incurred the severe wrath of Lindemann. Like Tizard, Lindemann had started his career as a scientist, taught for a while at Oxford and then finally moved away from science. Very soon he became a trusted friend of Winston Churchill and strongly opposed Tizard's plan to develop Radar.

### The lesson

On a later occasion, however, Tizard was not able to carry his point. Lindemann, despite the opposition of Tizard, made the British Government accept his plan of strategic bombing of German working class houses. His claim was that given a total concentration of effort, it would be possible to destroy 50 per cent of the houses in all the larger towns of Germany. Tizard was overruled and strategic bombing was carried out with all the strength the country could muster. The final result proved it a mistake; Lindemann's estimate had been ten times too high.

The story of the conflict between these two great personalities exemplifies the qualities which a successful expert on top should have and the pitfalls he should avoid. Whereas Tizard backed Radar on solid technical grounds as the only solution for England in her hour of crisis, the strategic bombing as suggested by Lindemann was a wasteful effort; he was being swayed by personal prejudices and differences.

We live in an age of experts and specialists. There is no organisation today which can do without experts, if it is to be progressive and dynamic. In some organisations it is necessary to have the expert on top; in others, he may be there to tender or render advice.

Scientific research and highly technical organisations would need the services of specialists on top. Yet another example is the Military Organisation of a country. While broad questions of defence policy are decided by Government the execution of these policies that involve vast administrative responsibilities has to be carried out by the Service Chiefs.

One hears that a general administrator is free from temperamental characteristics one meets with in specialists or learned persons. It is also said that a general administrator thinks of short term solutions; an expert, on the other hand, because of his professional equipment and knowledge is able to look beyond the present, and has a foresight of what the future holds. These are points of view which often are overstated because of prejudices or the coveted authority that goes with a top position? I would not dilate on this. But, a fact one must accept is that the expert and the administrator must learn to have a healthy respect for each other's role. Without this mutual regard, there is bound to be tension between the two groups resulting in the weakening of the organisation.

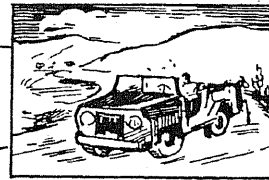
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## Developing subsidiary food products

The Union Government has drawn up several programmes for the development of subsidiary, supplementary and diversified food products. These schemes envisage the promotion of diversification of the average Indian diet in order to improve its nutritional content. The aim was not only to use the natural foodstuffs available but also other nutritious foods derived from raw materials which had hitherto not adequately been used, and foods saved from wastage by means of processing and preservation. The proposals also include a campaign to promote suitable dietary habits, avoidance of waste and popularization of balanced-diets.

- In the Third Five-Year Plan, it was proposed mainly to undertake the setting up of plants for the production of edible groundnut flour and the Indian Multipurpose Food, the dissemination of information regarding the techniques (both industrial and home-scale) of preservation, dehydration, etc., of perishable foods and the setting up of demonstration units in this connection and the propagation of improved techniques for the par-boiling of rice.

# Combating emergencies



**IS AN ART**

*Emergency relief measures cannot always be provided with the best of equipment and situations may arise when rescue operations will have to be conducted with the aid of makeshift substitutes that are readily available. The trainees at the Central Emergency Relief Training Institute at Nagpur receive both theoretical and practical instruction in the novel art of combating emergencies. This article gives an account of the Institute and its work.*

In a vast country like India, calamities may and do occur in widely separated areas, and *ad hoc* relief measures arranged at short notice are not always efficient or adequate. To station a permanent emergency relief machinery at every place is neither expedient nor desirable. The need was, therefore, increasingly felt to have a standing countrywide organisation which could render emergency relief promptly and efficiently according to a pre-arranged plan based on a proper appraisal of needs and resources.

In April 1956, the Union Home Minister announced in Parliament the proposal to set up an Institute with the object of having "a trained set of people who will minister to the needs of men and women in the hour of trial". The Central Emergency Relief Training Institute was started a year later in Nagpur.

## **Queer Spectacle**

The Nagpur Institute presents a queer spectacle to the onlooker. In the stretch of land facing the Institute, there are jeep trailers loaded with a mechanised boat and a couple of ordinary oar-boats, a variety of improved floats made out of rubber jackets, charpai cots, empty kerosene tins and motor tyres. Call it the art of improvisation, but this is what the trainees are supposed to master. In an emergency, every equipment may or may not be available; it is the art of improvisation that must prove equal to the challenge. The trainees study here rescue operations with the best of equipments and also take lessons in improvising substitutes from out of readily available common material.

Till July 22nd 1961, the Institute trained and fanned out all over the country a reserve force of 1,250 trainees. These include young I.A.S. and I.P.S. officers, Deputy

Collectors, Sub-Divisional Officers, Block Development Officers, school and college teachers, home guards and representatives of well-known social organisations.

## **No Rigid Formula**

Ten miles away at Kamptee, the N.C.C. Officers Training School trains batch by batch teachers and lecturers drawn from all the States in the country. These pre-commission course officer cadets are given five days' intensive training in emergency relief. About 1,500 N.C.C. officers have had the benefit of this training so far.

The Institute is there to train administrators, planners and instructors—three categories—in the technique of emergency relief. The reason is obvious. Natural calamities differ in nature and magnitude. As such, there cannot be a rigid formula of action. The trained imagination of the man on-the-spot can and should prove equal to all emergencies.

The Institute, through training of imagination and practical lessons, helps him to achieve the maximum results with the available material in the shortest possible time. For this reason, the class of administrators is the first to be trained. Then come police, home guards, N.C.C. officers, school teachers, college lecturers and social workers.

## **The Emergency Man**

The Emergency Man has to make himself the best planner. He must foresee and forestall. He must assess in normal times the type and magnitude of various calamities which could possibly come to his town, district or State. He must know the danger zones, their stretching expanse and also the safety spots and secure places.

The quickness of his action and its ultimate success depend upon his thorough knowledge of the part where he could be required to act. Left to his administrative skill, he can determine the number of vehicles required to fight the calamity by way of warning-publicity, evacuation, transport and rescue and the ways and means of commissioning that number at once. In this encounter with emergency, he must overcome panic and confusion. The publicity machinery is, therefore, the first to be mobilised; then goes into action his army of civilians. The next and final phase of the drama is emergency relief operations.

#### **Relief Measures**

Though calamities differ in type and magnitude, they have good many features in common. The relief measures have, therefore, to conform to a pre-determined

pattern. These include rescue of casualties, repairs to buildings and other structures and salvage of property, debris clearance, restoration of essential services, removal of the affected persons to safer zones, traffic control, emergency feeding, sheltering and clothing of the destitute and the homeless, provision of essential supplies and water, first-aid and medical attention, emergency sanitation, prevention of epidemics, care of animals, identification and disposal of the dead and, above everything, prevention of confusion.

The Institute imparts theoretical and practical knowledge in all these specialised subjects. The complete story of the achievement of the trainees in the widespread floods of this year is still to unfold itself. But the Institute today is more determined than ever before to attain a greater perfection in its science.

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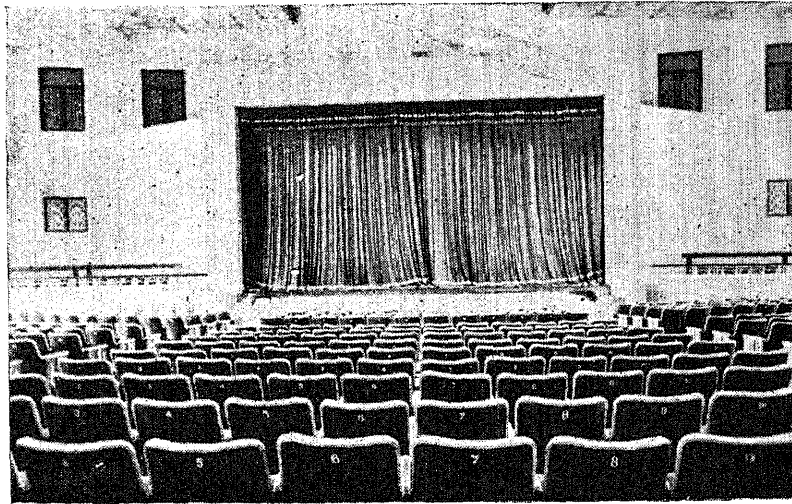
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Fort St. George, MADRAS-9.

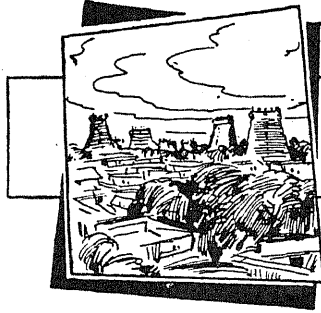
## A THEATRE THAT CHILDREN LOVE



The Children's Theatre in the Government Estate, Mount Road, is a place that children love. Every week-end, films that educate children are exhibited here mixed with comic cartoons that delight them.

It is a joy to watch their innocent faces aglow with pleasure after enjoying the shows at this luxury theatre.

Hundreds of children attend the shows at this theatre and have a happy time. Why not send your children too?



# IN AND AROUND MADURAI

SRI S. NATARAJAN

*Madurai is one of the few Indian Cities which have maintained intact the links with the past. There is no other place in South India where the visiting foreigner, anxious to have an insight into the religious life and traditions of the Hindus, would be so well rewarded.*

Centrally situated, Madurai is the second biggest City in Tamilnad. This ancient City, unlike other Indian cities, has survived the ravages of time and has escaped spoliation at the hands of the Moslem invaders. It has been for the last two thousand years the focal centre of Dravidian culture and civilisation. European scholars refer to Madurai as the Athens of South India. History reveals that Madurai had commercial dealings with Babylon, Greece and Egypt.

As the seat of the Tamil Sangam, it attracted all the scholars of the South. Famous Tamil poets yearned for recognition from the Madurai Tamil Sangam and were not satisfied until their works had obtained the hall-mark of this academy.

The history of Madurai is intimately bound up with the history of South India. The word "Madura" means 'sweetness'. Tradition has it that Siva was so pleased with the City that he sprinkled nectar (Madhu) over it and hence the name.

## Historical Past

Megasthenes, the Greek Ambassador at the Court of Chandragupta Maurya (320 B.C.) has described Madurai as being ruled by a Pandyan Princess. This City was well known to the Romans and Greeks. Ptolemy has mentioned Madurai as the seat of the Pandyan kingdom in the South. He refers to "Mogoura" as the Mediterranean Emporium of the South. This place is mentioned in Kautilya's Arthashastra and also in the edicts of King Asoka.

In the fourteenth century, Malik Kafur, one of the Generals of the Emperor of Delhi, invaded Madurai and set up a Muhammadan dynasty. Madurai later became a feudatory of the Vijayanagar Emperor, who restored to the Pandyan Kings their ancient heritage. The Nayaks

ruled this kingdom in the medieval period (1559-1781). They gave to Madurai a succession of strong and able rulers who brought peace and prosperity for a period of 200 years. It was during this period that the modern City of Madurai was planned. The layout of its main streets was determined according to the laws of the silpa sastras. The important rulers of this period were Viswanath Nayak, Tirumalai Nayak and Rani Mangammal.

The old City of Madurai was razed to the ground in 1840 and a new one was formed. Madurai was first constituted as a Municipality in 1833.

## Magnificent Temple

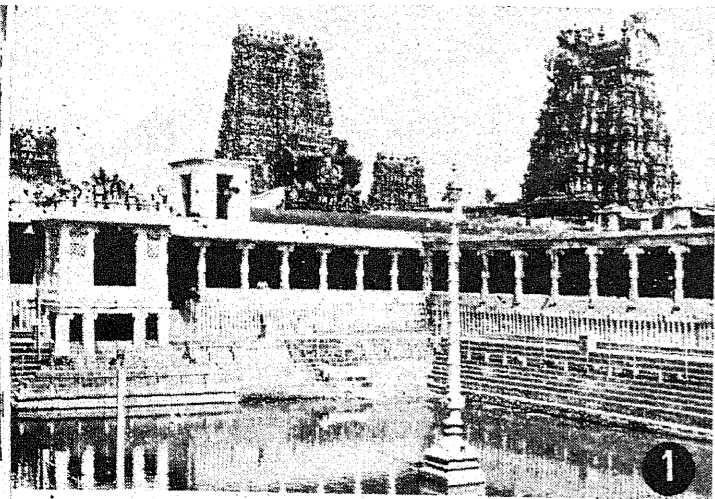
The magnificent temple of Goddess Meenakshi is of course the centre of attraction in the City. This temple is closely associated with the history of the Pandyan Kings. Its architecture and sculpture have excited universal admiration and are considered the richest and most beautiful specimens of their kind.

The temple, built in the heart of the City is in the shape of a parallelogram. A folk song compares Madurai to a lotus, the shrine being the centres of the flower.

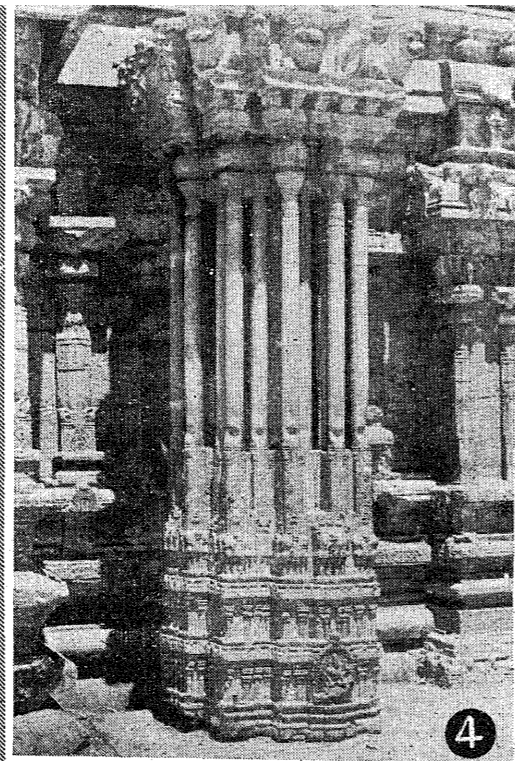
The temple has nine towers all rich in ornamentation. The towers at the entrance on the four sides are particularly big towers. At the foot of the northern tower, in the inner 'Prakaram' there is a musical pillar carved out of a single block of granite which when tapped emits the "Sapta Swara" the seven different musical notes.

Much of the sculpture inside this great temple has a distinctive character which has attracted the attention of scholars and visitors alike. The thousand-pillar hall introduces several beautiful sculptured figures to the visitor. The splendid peasant woman with her children and her

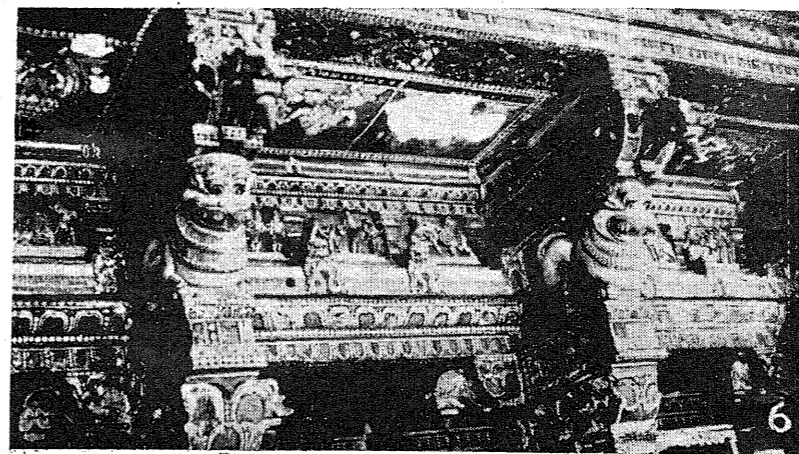




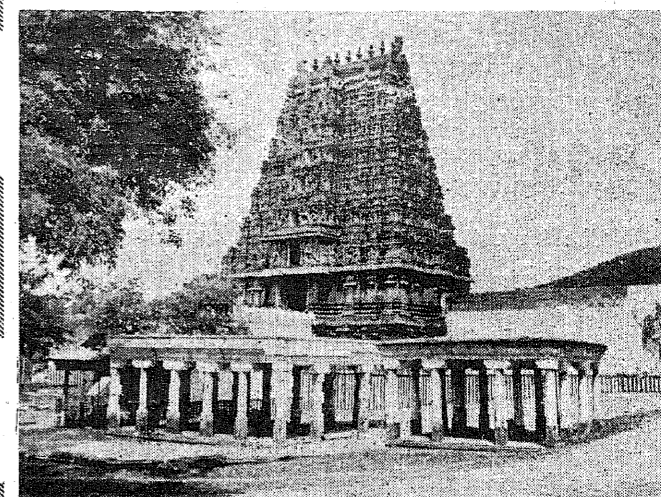
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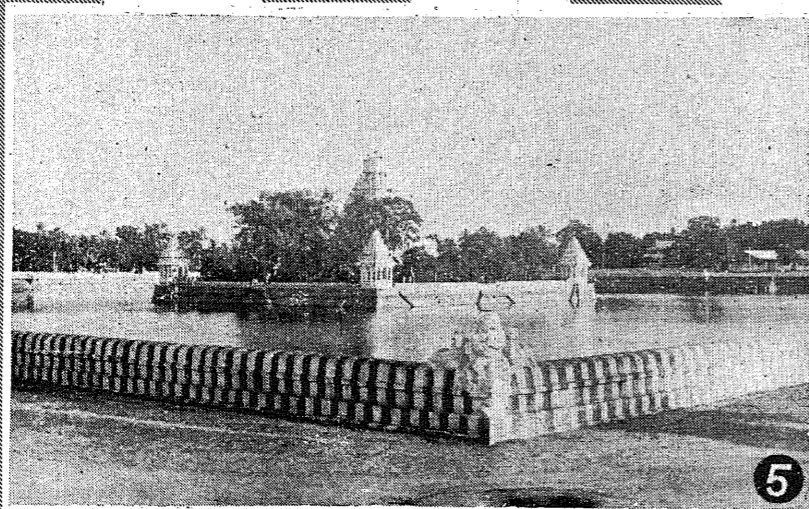
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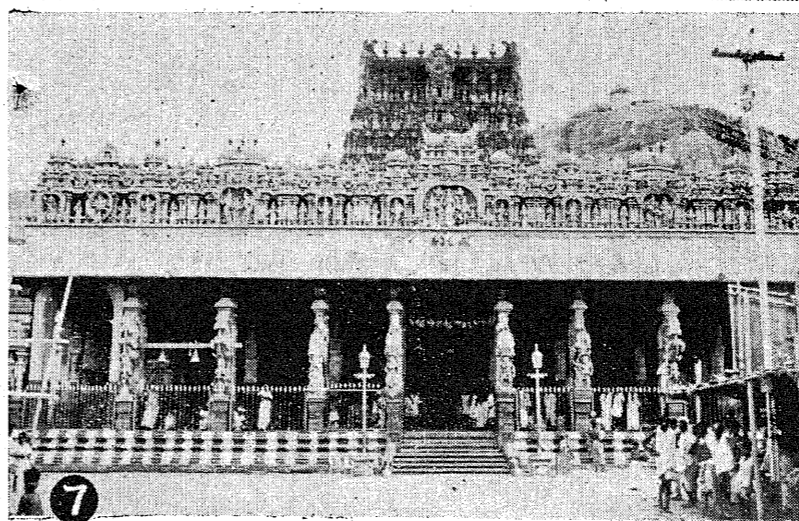
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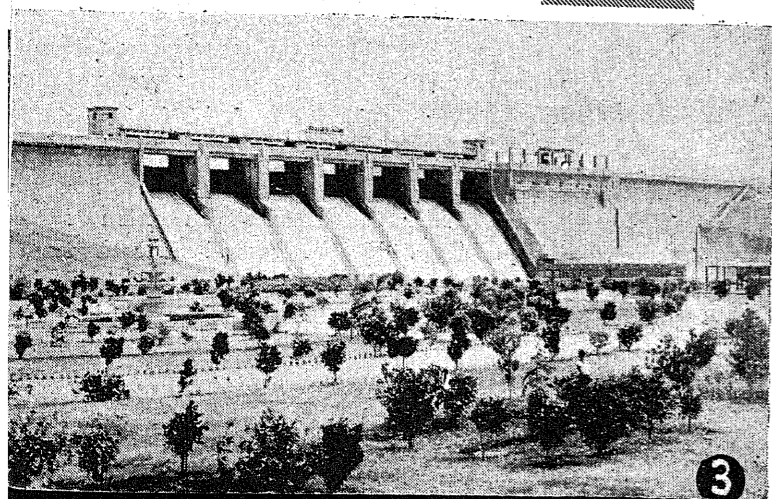
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The greatest attraction of Madurai, seat of Tamil learning and culture is the Meenakshi Temple, temple of temples in Tamilnad. (1) View of the temple with tank in the foreground. (4) Musical pillar (6) Beautifully carved ceiling. (8) Rare and unique Vinayaka with breast and cloven hoof. (2) Tirumalai Nakk Mahal. (3) Vaigai Dam. (5) Mariamman Teppakulam. (7) Tirupparankundram. 9) Alagarkoil. (10) Suruli Falls.

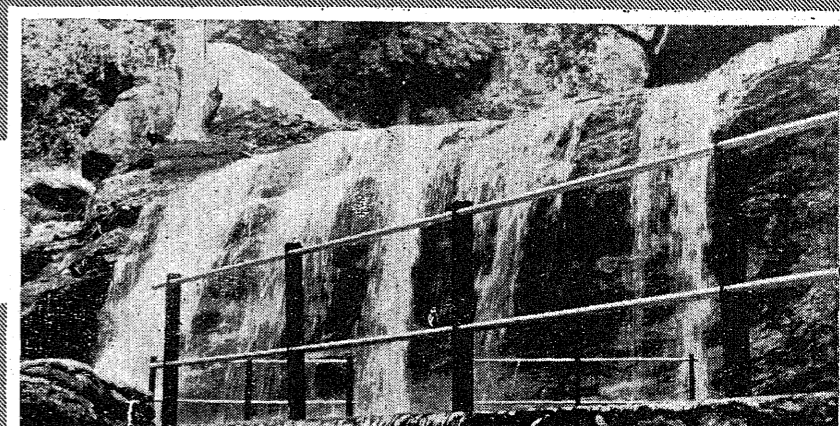
GRADLE OF  
TAMIL  
CULTURE



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8





basket, the swooping warrior complete with local weapons, other figures masculine and feminine or semi-divine are all monuments testifying to the high artistic skill of the ancient sculptor. In the *Tudimandaram* may be seen life-like representations of the ten famous kings of the Nayak dynasty.

The temple is famous for its fine collection of jewels, some of which are of priceless value. Many of the ornaments have a history dating back to several centuries. The total value of the jewels, at a conservative estimate, is in the region of about one million rupees.

In front of the sanctum sanctorum of Lord Siva is the Velliambalam (Hall of Silver) where a beautiful silver-plated figure of Lord Nataraja stands. An unusual feature of this idol, is that here the right foot is lifted instead of the left, whereas, in almost all the temples in India, it is the left foot of Lord Nataraja that is depicted as lifted in a dance pose.

### Tamil Sangam

Madurai was the cradle of Tamil literature. Tradition has it that there were two Sangams constituted to promote the language. Out of the works brought out by these Sanghams, only one work (a Tamil Grammar) now exists. Although little is known historically of the two Sanghams, a third Sangham is said to have lasted to the end of the second century A.D. Many of the literary productions of this Sangham are still extant. Of these, the 'Thirukkural' and the 'Silappathikaram' have won world-wide recognition.

At the north-western end of the Siva shrine is the chapel of the Tamil Sangham. The new Madurai Tamil Sangham was established in 1901.

### Places of interest

*Thirumalai Nayak Palace.*—Thirumalai Nayak Palace has been declared by competent authorities to be the

Home Minister Bhakthavatsalam, inaugurated the "Information Forum" of non-official organizations at a function in the City recently. Dr. P. V. Cherian, Council Chairman, resided.



largest and most perfect specimen of palace architecture. There is an agreeable combination of Hindu, Mohammadan and Gothic architecture.

Below the 60 feet dome of the palace is the "Swarga Vilasam" or throne room. This room may be compared with the great audience hall in the Mughal palace at Delhi. The audience hall in Thirumalai Nayak's hall is of polished granite with an ivory enclosure. In this enclosure stood the jewelled throne. Now the throne is not there.

*Tumkum Bangalow.*—This is a beautiful architectural relic of Thirumala and is in the same style as the palace. The noteworthy feature of this Bangalow is the Lotus Hall so called from the ceiling which represents an inverted lotus in bloom.

In Goripalayam, there is a large mosque which contains two tombs of the Sultans of Delhi. It is a most sacred place of Muslim worship in Madurai.

*Thirupparangundram.*—This sacred place is situated four miles south of Madurai. The Mohammedans claim that the name is properly Sikkandar malai after the Fakir Sikkandar who was buried at the top of the hill. This place was formerly an outpost of Madurai and figured in several of its wars but today it is famous for its temple dedicated to Lord Subramania.

The shrine is a rock-cut one. The horse court of the temple is a fine example of Nayak architecture. This is a place where Hinduism and Islam thrive side by side on terms of great intimacy.

It is stated in mythological tradition that the City of Madurai was once about to be destroyed by a gigantic elephant, a snake and a cow, all created through mantric powers by the enemies of the Pandyas and which were however mysteriously turned by Siva into rocky hills. These hills now surround the City in their real shapes; Anamalai (Elephant hill), Nagamalai (Snake hill) and Pasumalai (Cow hill).

The temple at Alagarkoil is situated in very picturesque surroundings amidst the ruins of an ancient fort. Nakkirar, a Tamil poet refers to this place as "Pazhamuthir Cholai" in his poem "Tirumurugatrupadai".

Karuppannaswamy, the God of the Kallars and the eighteen steps leading to his temple are held in high reverence by devotees and it is claimed that nobody will dare to tell a lie inside this temple.

The hill which is about 1,000 feet high is famous for its holy spring called 'Silambaru' and "Noopura Gangai". A picturesque two-mile route leads the visitor to a

mandapa at the summit where bathing facilities are available. The Kalyana Mandapam of Alagarkoil contains many beautiful sculptures on its pillars which are fine specimens of Nayak Art.

*Annuppanady.*—To the student of archaeology, the City of Madurai and its environs afford ample opportunities for research. In the village called Annuppanady, two miles from Madurai town, some earthenware jars containing a number of human bones were unearthed. The villagers stated that it had been an old custom of the village to bury living men when they grew old and became a burden to others. The jars which are of varying sizes are most of them 5 feet in height.

### Vaigai Dam

The Vaigai Dam located about 40 miles west of Madurai City and on the route to the beautiful hill station of Kodai kanal and the Periyar lake, the famous game sanctuary of the South, has developed into a popular tourist centre. The dam-site is connected well by roads from Theni, Periakulam, Andipatti and Kodaikanal in Madurai district and is therefore easily accessible to visitors.

*Kodaikanal.*—The generous splendour of the summer days is nowhere so gorgeous as in Kodaikanal which bids fair to challenge the right of Ootacamund. For true lovers of nature, Kodaikanal provides, within a comparatively small circumference on the hill, varied charms. There is a picturesque lake with facilities for boating. It contains delightful spots for excursions and picnics.

*Suruli Waterfalls.*—The waterfalls at Suruli in the Kumbam valley are being developed as a tourist centre. Well-laid out roads and bathing facilities will certainly attract more visitors to this falls.



Dr. Panjab Rao Deshmukh, Union Minister for Agriculture and President, National Agricultural Fair 1962, recently addressed the first meeting of the Local Advisory Committee at Chepauk.

Another place where we can see Hindu-Muslim unity in worship is Palani. This famous temple is situated on a hill 450 feet high. There are 659 steps. Apart from being a place of pilgrimage, it is celebrated for its rich landscape and beautiful surroundings. The Muslims call the God here "Palani Baba" and offer him scented bathi. They offer their prayers at a special niche set apart in the inner wall at the back of the sacred idol set in the sanctum sanctorum.

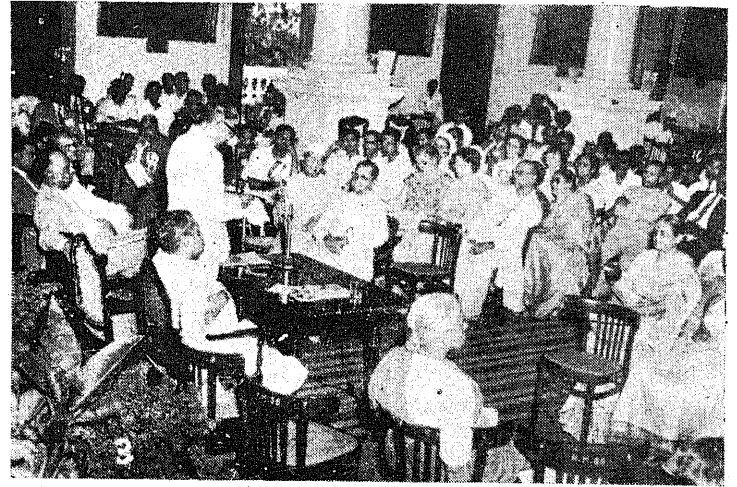
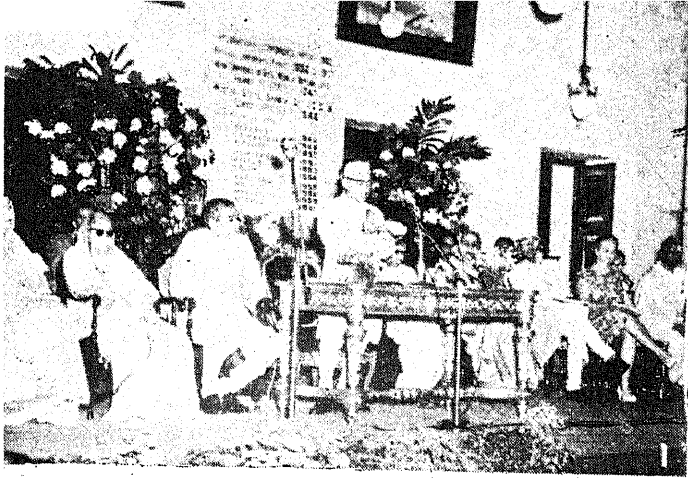
The idol is said to have been made of a combination of the nine basic herbal plants found in the hilly area surrounding the Palani region, and milk and other offerings poured over it as a part of worship and ritual are considered to acquire medicinal value. This idol of Palaniandavar was set up by Saint Bogar. There is a separate Samadhi in the outer prakaram dedicated to this Saint.

Madurai has stood in the forefront in the freedom movement and it is noteworthy that Gandhiji visited Madurai and Palani and opened the famous temples here to Harijans.

## Shark Repellent

A simple colour-blindness test with a shark has proven so disastrous to the big fish that scientists wonder if they have accidentally discovered a powerful shark repellent. The finding was reported at the Pacific Science Congress in Honolulu by Dr. Eugenie Clark of the Cape Haze Marine Laboratory at Sarasota, Florida. Dr. Clark had been testing a lemon shark's responses to square and diamond-shaped targets in a pool when she decided to see if changing the colour of one target to yellow would make any difference. As was customary, the trained shark approached the target, but a few feet away it stopped short and did a back flip out of the water. Then it swam frantically in tight circles, refused to eat, and within a few weeks died.

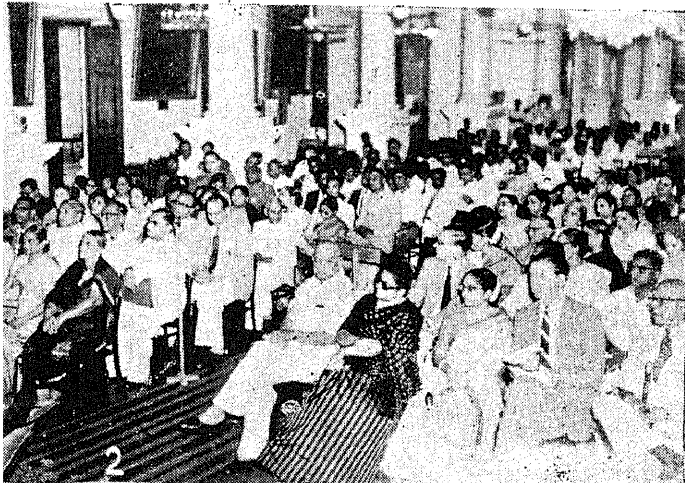




(1) and (2) Governor Bisnurám Medhi addressing the three-day Tenth Annual State Conference of Social Work inaugurated in the City recently by Union Minister Gopala Reddi; a view of the audience. (3) Industries Minister Venkataraman addressing the panel on 'Workers' Education'. (4) The Chief Secretary addressing the panel on 'Social Welfare and Panchayat Raj'. (5) Governor with invitees at Raj Bhavan where he gave a tea party to the delegates.



## SOCIAL WORKERS' MEET



## An Explanation

# Inclusion of Unsold Bonds in Quarterly Draws

*This explanatory note is intended to clarify to the public the justification for the inclusion of unsold prize bonds in the quarterly draws.*

The Prize Bonds Scheme of the Government of India has been so drawn up that the number and amount of prizes are determined with reference to each complete series of Prize Bonds. Accordingly, every series consisting of 1 lakh units of Rs. 100 bonds carries 40 prizes amounting in all to Rs. 92,000 to be awarded every quarter and every series of 10 lakh units of Rs. 5 Bonds carries 278 prizes amounting in all to Rs. 46,000.

The Prize Bonds Scheme further provides that all series from which any bonds have been sold will be eligible for participation in the draws held after the expiry of two calendar months from the month of their sale but in the event of an unsold bond or a bond sold within two calendar months immediately preceding the month of the draw winning a prize, that prize will not be awarded.

### No disadvantage

As the number and amount of prizes are linked with each series of bonds put on sale it is not possible to confine

the draws and declare the prizes in respect of sold bonds alone. Nor would it be desirable to ignore the partially sold out series until they are fully sold out for participation in the draws as it would seriously diminish the chances of bond holders of these series of winning a prize for no fault of theirs.

Further the inclusion of unsold bonds in the draw does not operate to the disadvantage of the purchaser or reduce his chances of winning a prize as each holder of bond, whether from a fully or a partially sold out series, gets the same number of chances for winning a prize.

### An Analysis

The following analysis of the results of the four Prize Bonds draws held so far shows that the prizes won by the Bond holders have, by and large, been more than what they would have been entitled to on a proportionate basis on the sold bonds.

	Prize Bonds Rs. 100 denomination.		Prize Bond Rs. 5 denomination.		Total.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.
<i>First Draw.</i>						
Percentage of bonds sold .. ..	33.6 per cent	33.6 per cent	53.6 per cent	53.6 per cent		40.8 per cent
Percentage of prizes won by the public ..	33.75 per cent	33.54 per cent	54.54 per cent	54.48 per cent	52.22 per cent	41.16 per cent
<i>Second Draw.</i>						
Percentage of bonds sold .. ..	35.4 per cent	35.4 per cent	59.7 per cent	59.7 per cent		44.2 per cent
Percentage of prizes won by the public ..	36.50 per cent	35.58 per cent	60.79 per cent	58.03 per cent	58.05 per cent	43.71 per cent
<i>Third Draw.</i>						
Percentage of bonds sold .. ..	35.4 per cent	35.4 per cent	59.6 per cent	59.6 per cent		44.4 per cent
Percentage of prizes won by the public ..	33.75 per cent	36.55 per cent	60.75 per cent	62.36 per cent	57.84 per cent	46.16 per cent
<i>Fourth Draw.</i>						
Percentage of bonds sold .. ..	34.79 per cent	34.79 per cent	73.98 per cent	73.98 per cent		49.97 per cent
Percentage of prizes won by the Public ..	31.81 per cent	36.33 per cent	73.17 per cent	73.10 per cent	68.95 per cent	50.56 per cent

# Working of the Factories Act

*A short review of the working of the Factories Act in the State during the year 1960 is given in this article which takes note of the number of factories covered by the Act, the general structure of industry in the State, the accident rate in factories and the steps taken for their prevention, etc.*

There were 5,843 factories covered by the Factories Act, 1948 at the beginning of the year 1960. The number of such factories at the end of the year 1960 was 5,884 of which 5,670 factories were in commission as against 5,667 in commission during 1959. The average daily number of workers employed in these factories at the end of the year was 320,115 as against 317,679 workers at the end of 1959. In the Public Sector, there were 172 factories employing, at the end of the year, 39,754 workers as against 167 factories employing 41,671 workers at the end of 1959.

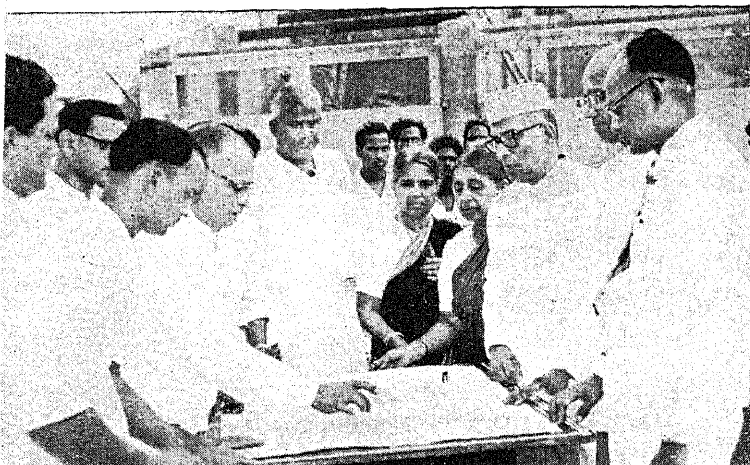
Out of 5,884 factories which were on the registers during the year 1960, 3,134 factories were inspected once, 553 factories twice, 69 factories thrice and 8 factories more than 3 times.

The inspectors also made 1,267 Sunday inspections, surprise inspections, special inspections and night visits to factories to check employment of workers outside the specified hours of work and on their weekly holidays. They also inspected 146 unregistered factories.

## Industrial Structure

The rice mills continued to occupy a dominant position in the industrial structure of the State but they only employed 15,079 workers while 459 cotton mills including

Revenue Minister Manickavelu, who recently laid the foundation stone for the servants quarters of the Kasturba Gandhi Hospital, Triplicane, inspecting a model design of the proposed buildings. Works Minister Kakkan, is also seen in the picture.



cotton ginning factories employed 119,341 workers. The largest number of factories are concentrated in Coimbatore, Madras, Madurai and Tirunelveli. The Factories in Coimbatore employ the largest number of workers and the districts of Madras, Madurai and Tirunelveli come next.

The Coimbatore district is the most highly industrialised district in the State. Cotton Mills including ginning factories and engineering works predominate in that district. Cotton Mills, Transport, Printing Press and Engineering Works figure prominently in the industrial set up of Madras City. Textile Industry, Rice Mills and Printing Press predominate in Madurai district and Cotton Mills, Ginning Factories and Match Industry in Tirunelveli district.

## Safety Measures

The percentage of casual workers employed varies from factories to factories. The workers are all organised into Trade Unions and, therefore, very few workers are now engaged on a casual basis. To a certain extent in seasonal factories such as rice mills, dhall and oil mills, quite a number of workers are non-permanent as they are daily paid. Most of the workers who have completed 240 days attendance enjoy benefits such as leave with wages and maternity benefits. Thus there has been no discrimination between temporary and permanent workers in payment of wages and other benefits enjoyed.

Fencing and guarding of machinery continued to receive the active attention of the Inspectorate with the result that a major portion of their time was devoted towards advising and instructing the managements of factories in the upkeep of fences and guards. Inspectors acted in their advisory capacity explaining the necessity and type of guards to be provided in order to secure compliance with the statutory provisions. The advice tendered by the Inspectors of Factories received due attention from the managements of factories and fencing and guards for dangerous parts of machinery, etc., were provided and maintained fairly well in almost all factories.

The Inspectors were asked to give talks on safety and on prevention of accidents to supervisory personnel and workers. Arrangements are being made for procuring film strips on safety for exhibition to workers. An album containing photographs of intrinsically dangerous parts of machinery has been compiled and supplied to all the Inspectors of Factories who will make use of it when they give talks on "Safety and Accident Prevention" to supervisory personnel and workers.

The managements of factories are as much responsible as the factory inspectorate in enforcing the provisions of safety and the prevention of accidents in factories as accident prevention work is essentially a team work. With a view to creating incentives among the workers, necessary circulars have been issued to managements of factories employing 100 or more persons recommending grant of awards to workers making valuable suggestions regarding safety. There is a proposal to set up a Regional Labour Institute and Safety Centre. As an initial step in setting up this Institute a workshed in the Industrial Estate, Guindy, has been taken up for display of certain exhibits. In the building that is to be put up, different sections on industrial safety, health and welfare of workers will be established.

#### **Downward Trend**

In 1960, the total number of accidents in all factories was 16,680 as against 17,816 in 1959. Of these accidents, 19 proved fatal as against 33 in 1959. There was thus a decrease in the rates of accidents. Though the downward trend in the accident rate is not appreciable, yet, this was possible on account of the factories section of the Labour Department, having been relieved of the burden of enforcing the non-technical Acts, devoting more attention towards this important item of work (viz.) accident prevention in industries. The constant propaganda on prevention of accidents by way of talks undertaken by the Chief Inspector of Factories and the Inspectors of factories has had its effect to an extent in reducing human suffering in industries.

During the year 1960, the number of man-days lost due to industrial accidents was 117,631 as against 144,911 in the year 1959. There was thus a decrease in the number of man-days lost compared to last year.

#### **Common Causes**

Analysis of accidents by causation disclosed that 'struck by falling body', 'slipping on or striking against objects', 'power driven machinery', 'handling of goods', 'use of hand tools', etc., were some of the causation groups responsible for a large number of accidents. Lack of supervision, instruction, misunderstanding, non-observance of simple precautions while handling goods by the workers and the failure of the managements to take sufficient care to provide for the workers working at heights with sufficient safeguards to prevent falls were the main reasons for the fatal accidents.

The managers of 186 factories were prosecuted during the year as against 360 factories during 1959 for non-compliance with various provisions of the Factories Act, 1948. Two hundred and seventy nine prosecutions were launched against them. Two hundred and twenty nine cases ended in conviction and an amount of Rs. 8,197 was realised as fine.

#### **Maternity Benefits**

The number of factories which employed women and the average daily number of women employed therein during 1960 were 2,183 and 42,474 respectively as against 2,016 and 42,999 respectively during the previous year. One thousand eight hundred and sixty six claims were made for the grant of maternity benefits during the year as against 1,983 in 1959. One thousand one hundred and thirty nine claims were accepted and the total amount of maternity benefit paid by the employers of women workers exclusive of benefits paid by the Employees' State Insurance Corporation was Rs. 1,21,393-96 nP. during the year as against Rs. 85,301-87 nP. during 1959.

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### **Cultural Halls in mofussil areas**

The Union Ministry of Scientific Research and Cultural Affairs has commended to all States a scheme for the construction of cultural halls in the mofussil areas. The cultural hall will be used for music, drama, dance and discussions and other cultural activities. It is envisaged that these halls will be used for a minimum of four functions every month—two for men and two for women. The scheme envisages a Central grant of 25 per cent of the total building cost, the other 75 per cent being raised by the State Governments by themselves or in co-operation with the public.

SECOND

## National Agriculture Fair



*The Second National Agriculture Fair is proposed to be held in Madras from January 14th to February 20, 1962. The first Fair held in Calcutta was an outstanding success. The idea underlying the organization of these Fairs which are planned to rotate from one part of the country to the other is to give all Indian farmers the opportunity to get acquainted with the latest developments in the field of Agriculture. This article gives an account of the Bharat Krishak Samaj, the national organization of farmers, under whose auspices the World Agriculture Fair and the First National Agriculture Fair were held and details relating to the Fair to be held in Madras.*

Bharat Krishak Samaj, the national organization of the farmers of India, came into existence as a result of a Conference of Ministers of Agriculture, Animal Husbandry and Co-operation, and representatives of farmers which was held at Srinagar in July, 1954. The Conference, which was convened by the Union Minister of Agriculture, Dr. Panjabrao Deshmukh, carefully considered the difficulties which were being experienced in furthering the progress of agriculture, particularly in the field of agricultural extension, and decided that it was necessary that a professional organization of the farmers be brought into existence in the country. As a result of this decision, the Bharat Krishak Samaj came into being during the later part of 1954, and the First Convention of the Farmers

of India was inaugurated by the Prime Minister of India, Shri Jawaharlal Nehru, in April 1955.

The Bharat Krishak Samaj is a non-political, non-official and non-sectarian organization of the farmers of India. It has just completed six years of its existence and, during this short period, has established its branches in all the States of the country in addition to initiating efforts in several directions to serve farmers and farming in India.

### Annual Conventions

The national convention of farmers, which is held annually by the Samaj in different parts of the country, affords opportunity to thousands of farmers from various States to come together and exchange ideas on important problems affecting their profession. Many vital decisions taken during these conventions and during seminars on important subjects pertaining to farming have been implemented. The Samaj has brought into existence the National Agricultural Co-operative Marketing Federation, which has undertaken the responsibility not only to import the seeds and fertilizers needed by farmers, but also to assist them to export the commodities produced by them. Besides, it has, recently, set up the Farmers' Co-operative Bank of India and established a college for the rural population near Delhi. The latter institution has started functioning from the beginning of July, this year. The Samaj also organized, for the first time in history, an Afro-Asian Conference on Rural Reconstruction. This was inaugurated by the President of India at New Delhi on January 18, 1961 and was attended by representatives of the Governments and farmers of over

American Ambassador Galbraith handing over a token package of Milk Powder to Chief Minister Kamaraj, while Education Minister Subramaniam happily looks on, at a recent function in the City Harbour to mark the gift of the first consignment of Milk Powder and other articles as part of the CARE programme for aid to the Madras Midday Meals Scheme.





23 countries and such international organizations as the Food and Agricultural Organization of the United Nations, the International Federation of Agricultural Producers, the International Co-operative Alliance, etc., etc. This Conference, which was a great success, is expected to be the forerunner of a new era in the rural reconstruction activities of the two Continents.

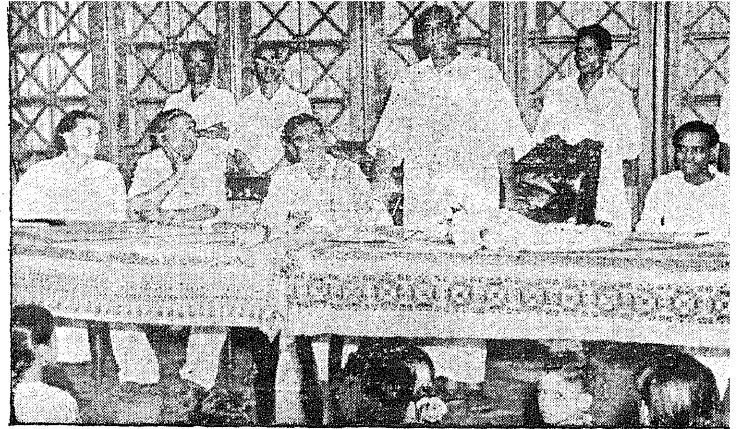
### **Bold decision**

Along with the Annual Convention of farmers, the Bharat Krishak Samaj held an agricultural exhibition, in which the Ministry of Agriculture and the various States Departments of Agriculture displayed the progress made in the field of agriculture and allied sciences. The standard of display in these exhibitions was so poor, and the need for such exhibitions in a country like India, where the national economy is largely dependant on agriculture, so great, that the Bharat Krishak Samaj took the bold decision to organise an International Food and Agricultural Exhibition in New Delhi. The broad objective behind launching this adventure was that this would provide the much needed opportunity not only to farmers, but also to agricultural experts and Community Development and extension workers, to know the progress which had been made in the field of agriculture and allied sciences not only in India, but in other parts of the world also.

### **The Calcutta Fair**

But the more important object underlying the launching of such a venture was to provide an opportunity to the various States and others to lay the foundation of and later develop a proper agriculture exhibition which the country badly lacked and which was greatly needed. An agricultural exhibition is the most reliable and quick visual aid to convey information to farmers, who are mostly illiterate and cannot, therefore, take advantage of the large volume of literature that is produced by the Ministries and the Departments of Agriculture in the country. The first World Agriculture Fair, as it was called, was thus held in New Delhi from December, 1959 to February, 1960 and was visited by over 3 million people including a large number of farmers coming from all parts of India.

Emboldened by the success achieved in the organization of the World Agriculture Fair and with the object of providing continuity to the idea of developing a proper agricultural exhibition in the country, the Samaj took the decision to hold an annual National Agricultural Fair which may rotate from one part of the country to the other and give an opportunity to the farmers in the various regions to get acquainted with the rapid advances which were being made in the field of agriculture and allied sciences. The Prime Minister, who had always been appreciative of the Samaj's efforts for organizing the World Agriculture Fair also made a mention of it in his address to the Conference of Ministers of Agriculture, held in



Chief Minister Kamaraj, inaugurated the third anniversary of the Last Grade Government Servants' Association celebrated recently in the City.

New Delhi last year. This gave additional encouragement to the Samaj to initiate action towards the organization of the First National Agriculture Fair in Calcutta.

It was originally proposed to hold the first fair in Madras, but it was discovered that a big Industries Fair was to take place in the City during the winter of 1961. It was for this reason that Calcutta was chosen as the venue of the first fair and, with the whole-hearted co-operation offered by the Chief Minister of West Bengal and his Government, the fair was acclaimed as the biggest and finest ever held in that city. This fair enabled over 2 million visitors, a large number of whom were cultivators, not only from all parts of West Bengal, but also other States of the country, students of Agriculture, research and extension workers, experts connected with agricultural research and community development, etc., to get a view of the progress made in the field of agriculture and allied sciences in various parts of the country, Eleven States of the Union of India, several Ministries of the Government of India, the U.S.S.R., the Federal Republic of Germany, the Embassy of Japan and the trade in agricultural machinery, plant protection and equipment, plant-food, etc., participated in this Fair to make it a big success.

### **Madras 1962 venue**

The Second National Agriculture Fair is proposed to be held in Madras from January 14 to February 20, 1962. Like the First Fair held in Calcutta, the second one will also be a National Food, Agriculture and Rural Industries Exhibition. It will display details of the progress made in all fields of agriculture, including animal husbandry, horticulture, forestry, co-operation, etc., etc. It will provide the fullest scope to the Ministries of the Government of India and Indian States, the Central Commodity Committee, reasearch institutions, boards, commissions, organizations, manufacturers, distributors and others, to exhibit their acheivements and display their products. The Fair will have a National Sector, a State Sector and

a Rural Industries Sector. About 12 States are expected to participate in the State Sector. The biggest participant of the Sector will be the host State of Madras, which is planning for extensive display of the progress achieved in all fields of agricultural science in the State. One may expect some very picturesque pavilions, depicting not only agriculture, but also the culture of the various States of the Union. A pavilion exhibiting the famous breeds of cattle in the country will be a very distinctive feature of this Sector.

In the National Sector, the Union Ministries of Food and Agriculture, Information and Broadcasting, Scientific Research and Cultural Affairs, Railways and Commerce and Industry are expected to participate. The Ministry of Agriculture is proposing to display the advances made in all important crops which are grown in the southern zone of the country. In the National Sector we shall also have extensive displays put up by the Fertilizers' Association of India, illustrating the production and use of fertilizers. The Agricultural Machinery Association of India and manufacturers of all machinery used by the Indian farmer, the manufacturers of plant protection chemicals and equipment, plant food and allied industries will provide a very big attraction in this Sector. The exhibition of small implements will be a new set-up of the Agricultural Machinery Association of India.

#### **International Section**

In the Rural Industries Sector, the Khadi and Village Industries Commission is expected to put up a pavilion to demonstrate important rural industries of the country,

Weavers' Co-operative will be the other participants in this Sector.

The Fair will also have an International Section in which one may expect very impressive displays to be set up by the United States of America, the U.S.S.R., the Federal Republic of Germany and Japan and certain other countries. They will provide not only some unusual attractions, but also instruction with regard to certain important aspects of the agricultural life of those countries.

The Fair will have a very representative and attractive shopping centre, which will comprise over 200 stalls, affording an opportunity to the small trader to display his wares. One may expect traders from all parts of India to take part in this Centre. Among the attractions for children will be a big children's park with cycles and tricycles giving them a chance to gain traffic consciousness, battery-driven cars and merry-go-rounds, which have never been displayed hitherto in the City before. A theatre and many open air cinema inside the Fair will add further attraction to it.

The Ministry of Community Development and Co-operation have already informed the Development Commissioners in the various States of South India to send farmers in large number to visit the Fair.

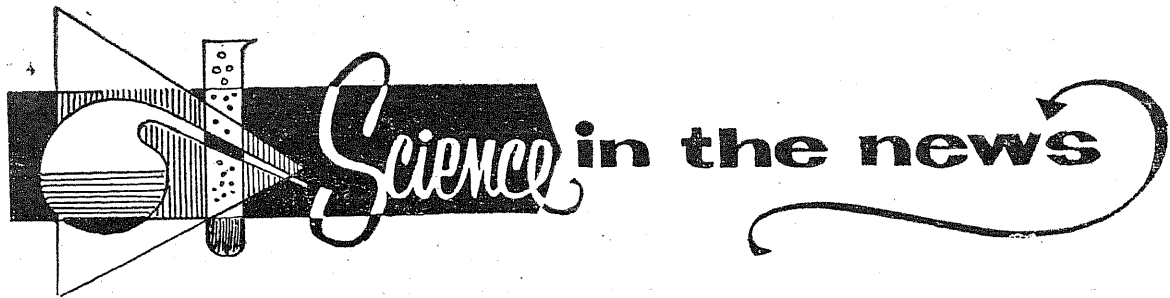
The Eighth National Convention of Farmers will also be held in Madras in the second week of February 1962, when farmers from all parts of the country will have an opportunity to see the Fair in this beautiful City.

## **Houses for industrial workers**

The Government of India have authorised the State Governments to undertake construction of houses, under the Subsidised industrial Housing Scheme, for Industrial workers, whose employers contribute to State Funds, 25 per cent of the prescribed cost of these houses.

This step has been taken in view of the difficulties experienced by some industrial employers in regard to the title of the land, framing building costs and estimates, mortgaging the houses built for workers to the Government and administering the housing colonies built by them. So far employers desirous of building houses for their industrial workers, could obtain 50 per cent of the approved cost as loan and 25 per cent subsidy under the Subsidised Industrial Housing Scheme from the State Governments. The remaining 25 per cent was the employers' own contribution to the cost of construction, which was to be undertaken by the employers themselves.

The houses, to be built by the State Governments, under the revised arrangements will be offered, in the first instance, to the workers of employers who have contributed to the cost and the State Governments will be responsible for their maintenance and administration.



# Science in the news

*Numerous scientific developments, new techniques and improved devices are daily emerging in this Age of Science to lighten the burden of the housewife, the common artisan, the small businessman and the big industrialist. This feature notes such developments. Apart from Indian scientific advances, interesting bits from the United Kingdom and the United States are also included.*

Begun in India only a few years ago, during the Second Plan period, research on the application of atomic Energy in agriculture has already to its credit the production of better varieties of crop plants through the induction of mutations and the standardisation of improved fertiliser practices through radio-tracer studies. Control of pests and diseases and preservation of vegetables are other lines of work now being conducted at the Indian Agricultural Research Institute, New Delhi.

The Informal Consultative Committee of the Ministry of Food and Agriculture was centrelly told that seeds and flowers of a wide range of crop plants were being treated with Gamma rays at the I.A.R.I.'s Gamma Garden, with neutrons at the Apsara Reactor of the Atomic Energy Establishemnt, Trombay, and with radio active isotopes such as radio phosphorus and radio sulphur. The facilities provided by the Gamma garden are being made use of by various Central and State agricultural research institutes.

## **New wheat variety**

From among the mutations already induced, a new wheat variety, named NP. 836, has been developed. This has well prominent awns (bristles found on the flowers), unlike the parent strain which is awnless. NP. 836 is rust resistant and suitable for cultivation in parts of Bihar and West Bengal. Indian farmers prefer awned varieties of wheat, since birds do not attack them so readily.

Several mutants with short and striff straw have also been obtained in wheat through the application of atomic energy. Such varieties do not fall down under conditions of high soil fertility, enabling farmers to derive the maximum return from the fertiliser applied.

In tobacco, a mutation leading to increased leaf-area has been obtained in the variety *Natu*; this mutant is now undergoing trials in the Guntur district of Andhra Pradesh where it is extensively cultivated. Mutations of breeding interest have been isolated in cotton potatoes, tomatoes, maize, jower and citrus. Seeds of teak and other forest trees have been irradiated and are now being studied at the Forest Research Institute, Dehra Dun.

## **Disease Immune Jute**

Crosses between related species of plants, never before successful, can now be made by using pollen grains treated with radiation. A cross made in this way between two jute yielding species, *Corelorus olitorius* and *C. capsularis* has paved the way for developing a new jute variety, possessing a white fibre, immunity to diseases and pests and adaptability to a wide range of environmental conditions.

Through the use of insecticides and fungicides "labelled" with radio active atoms, better methods of controlling pests and diseases are being worked out. The possibility of sterilising some important insects, such as the bed bug and the malarial mosquito, through the use of radiation is being investigated.

In regard to the preservation of vegetables, it has been found that treatment with suitable doses of gamma rays prevents potatoes and onions from sprouting, thus considerably extending their storage life.

## **Electricity Conducting Glass**

A process for making electricity conducting glass has been developed in Russia. In the process, the glass is



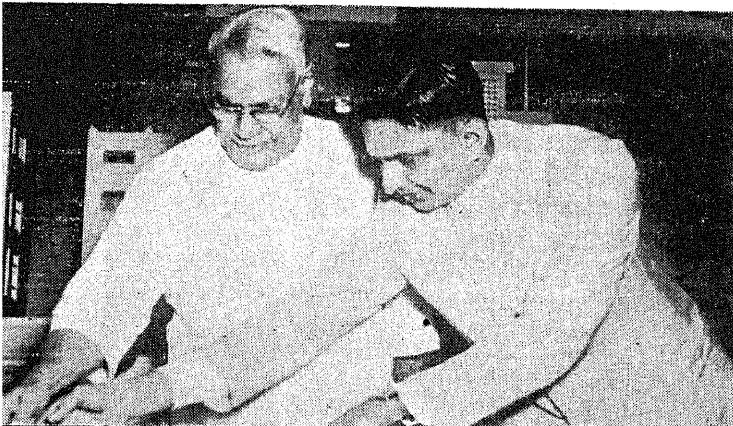
heated almost to its melting point and then treated with tin chloride. This process, it is claimed, causes the glass to become a permanent conductor of electricity. Glass treated in this way loses some of its transparency and a slight iridescence becomes noticeable. Tests show that it may be used for the production of the windscreen of motor cars and aeroplanes enabling the glass to be heated by a small electric current thereby preventing the formation of ice. The glass may also be used for heating of rooms and offices. Tests have shown that the application of heat has very little effect on the conductivity of the glass and as a result the glass can be used effectively as a resistance material in electronic equipment. It may also be used in advertising and instrument panels.

The process is said to be cheaper and in many ways simpler than that used so far for the production of electrically conductive films on the surface of glasses. The electrical conductivity is caused by formation of a thin film of tin oxide anchoring itself to the silica net work on the surface of the glass.

#### Fibre Glass Bus

An experiment in the use of fibre glass which may have far-reaching effects on future omnibus body construction, is being carried out by a coach factory at Lowestoft, England. The body hull, with the exception of the floor and entrance steps, of a new single deck omnibus, has been manufactured entirely from glass fibre bonded with polyester resin. The object of the experiment is to see if there would be worthwhile savings in construction, maintenance and operating cost if fibre glass is used in production of omnibus body. There may be other advantages like quieter running of the omnibus owing to the non-resonant nature of the bonded glass fibre, and greater comfort in both hot and cold weather because of the very low thermal conductivity of fibre glass compared with aluminium and other metals.

Dr. P. Subbaroyan, Union Minister for Transport and Communications, inaugurated the new 8000-line Central Telephone Exchange in the City recently.



A mountain over 9,000 feet high, says a Unesco report, has been discovered in the Indian Ocean 550 miles south-east of Ceylon by scientists aboard the Soviet oceanographic research ship "Vityaz" charting the ocean floor. The mountain is a volcanic cone with several peaks, the highest of which lies about 5,000 feet below the ocean surface. The crew of the vessel named the mountain "Afanasi Nikitin", after the first Russian traveller to sail the Indian Ocean.

The discovery was made during one of the two expeditions carried out by the "Vityaz" as part of the programme to explore the Indian Ocean at present being organised by the International Committee for Oceanographic Research and in which many nations are taking part.

During the voyage, Soviet scientists also attempted to ascertain the thickness of the earth's crust which, according to their findings, is about five miles in the middle of the Indian Ocean.

#### Sugar Processing

A British firm is marketing a new instrument to eliminate the severe corrosion caused by small amounts of sugar in the feed water of boilers used by sugar-processing firms all over the world. Invented by the British Sugar Corporation, it will sound the alarm when the sugar content of water exceeds 2 parts in 1,000,000 of water.

The operation of the instrument depends on detecting photoelectrically the darkening produced when an aniline dye is added to water containing very small amounts of glucose. If 10 parts of glucose are present in 1,000,000 parts of water, the colour produced is deep blood-red, almost black. The instrument automatically samples boiler water every 12 minutes, adds a small dose of sulphuric acid to the sample—enough to convert it to glucose—boils it, and finally adds caustic soda to neutralize the acid and the dye (tetrazolium salt).

The pink colour produced is measured by a photoelectric cell which causes the alarm to ring if the colour is darker than it should be. With automatic operation, the instrument enables continuous watch to be kept on boiler water and cuts out expensive and time consuming laboratory analysis.

#### Solar Energy

Solar energy and the conquest of hunger were among the many problems tackled by Britain's Tropical Products Institute last year. A report just published in London by the Department of Scientific and Industrial Research shows that particular attention was given to immediate uses of the sun's heat in less-developed tropical areas.

An experimental flat-plate water heater was among the many systems tested during the year. During trials on the roof of the institute's London laboratories, a 2-metre-square collector plate heated 180 litres of water to 60°C with an average of only four hours' sunshine.

Trials were also begun on an improved type of solar still for purification of water. The first model of this still is being tested in Malta, and a modified version is being built.

Other developments include temperature switches for controlling flat-plate water heaters by automatically stopping and starting a pump according to the hotness of the sun.

### Relieving Malnutrition

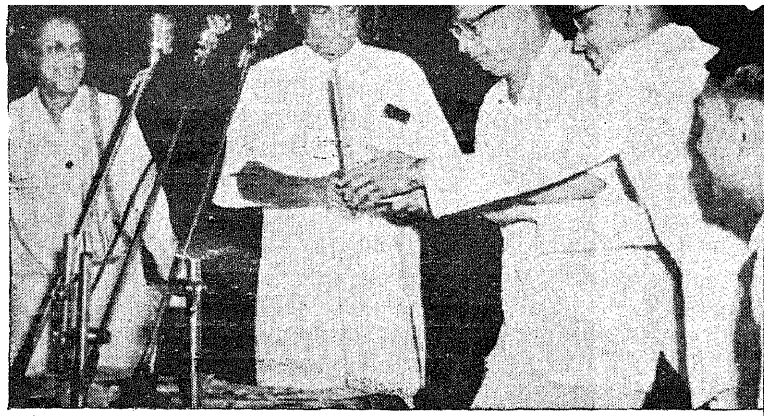
A major project was concerned with using vegetable protein for the relief of malnutrition in underdeveloped territories of Africa and other parts of the world. The institute found that groundnuts were a particularly useful source, and that current production would more than meet the nutritional needs of African children. They also began a study of the economic problems of using groundnuts, such as making groundnut meal for human consumption, raw-material costs, problems of distribution, and what to do with the large quantities of oil which would result from large-scale processing.

One line of inquiry and research involves surplus fruit crops. A note has been circulated on the development of outlets for bananas by processing. Until recently, the only banana product with a regular market in international trade has been the dried fruit, or "figs", for which outlets have always been limited, with little room for new production. The report says: "There would appear to be scope for new methods of dehydration in the improvement of banana products if the process can be operated economically with this fruit . . . ."

"Should the processing of bananas develop to any great extent, there would become available quantities of skins, the utilization of which might make a significant contribution to the industry. With this object in mind, an investigation has been started at the institute on the banana skin as a possible source of chemicals for industrial or other use."

### Identifying Hardwoods

Forestry laboratories the world over will benefit from the success of 25 years of British research into the problem of identifying commercial hardwoods simply and quickly. The final result is a text of anatomical features for identifying hardwoods plus a system of some 900 "card keys"—cards bearing in punched-hole form the characteristics of about 380 commercial hard timbers.



Chief Minister Kamaraj, receiving the silver lock and key from donor M. M. Parameswarar Iyer, who has gifted a building in Purasawalkam to the Corporation for running a Child Welfare and Maternity Centre.

This was devised at the Department of Scientific and Industrial Research's Forest Products Research Laboratory, and published recently as Forest Products Research Bulletin No. 46 together with the 900 identification "card keys".

The bulletin and cards have been produced mainly for the trained wood anatomist. The anatomical features used in the identification of hardwoods are defined clearly and concisely, and illustrated by more than 80 photomicrographs of wood structure.

Regional examples of the woods covered include: India and South-East Asia—teak and rosewood; West Africa—all mahoganies; East Africa—special-purpose hardboards; and Latin America—rosewood, boxwood, mahogany, greenheart, and lignum vitae.

### The Atlas Computer

Computers costing a minimum of £. 2,000,000 each and claimed to be the most powerful in the world are now being manufactured in Britain. Known as Atlas computers, they are the result of years of research and development by Manchester University and Ferranti, Limited, a long-standing partnership which designed and built the world's first commercially available computer more than ten years ago. Compared with this early machine, Atlas is a thousand times faster, is of unique design, and is available at a competitive price.

A pilot model has been working since 1960, and the first production model of a comprehensive Atlas is now being installed at Manchester University. A second machine has been ordered by Britain's Atomic Energy Authority to speed the nuclear research programme. It will be installed for use by the National Institute for Research in Nuclear Science at Harwell, where it will be used first to investigate the complex behaviour of nuclear reactors. Several universities will also have access to the machine for research in a variety of fields.

A wide variety of additional equipment can be attached to the central computer. Atlas thus becomes a general-purpose computer equally suitable for scientific calculations and commercial data-processing.

The speed of the computer is almost the speed of light—which is, in fact, the maximum speed at which signals can travel in existing types of electronic computing circuits. It is made possible because of three new design features.

But perhaps the most revolutionary aspect of the computer is a supervisory system that automatically makes its own decisions in regulating the flow of work through the machine. It allocates the resources of the computer to work on several programmes simultaneously in such a way that the whole machine is operating at maximum efficiency.

### **Electronic Navigator**

A new, airborne electronic device which, the makers claim, will make an aircraft independent of outside navigational aids has been developed in Britain. It is a digital computer known as DEXAN (Digital Experimental Airborne Navigator), and forms the basis for a new "electronic navigator" which will work solely within an aircraft and at all times feed the pilot accurate information on his actual position.

The system has been designed and built by the General Electric Company Limited as part of a programme for the Ministry of Aviation in conjunction with the Royal Aircraft Establishment at Farnborough, Hampshire. Teams at the company's electronics laboratories and at the Royal Aircraft Establishment have produced an experimental computer which has been put through intensive tests aboard a Comet 1-A airliner. It can handle more than 300,000,000 items of information a minute.

DEXAN carries out continuous navigational computations on information from a Doppler radar and gyro-compass carried in the aircraft, but this is only one of many jobs the computer could be made to perform.

Discussing the effectiveness of the system, which has been evaluated by the Ministry of Aviation, the General Electric Company says that during one hour of flight more than 17,000 million digital operations have to be carried out correctly by DEXAN. Analysis of the results has shown that DEXAN performed its functions with a high degree of accuracy and reliability.

### **Steel Process control**

A Sheffield (England) steel works is the first in the world to employ an electronic digital computer for the control of an actual steelworks process. The computer has been

installed at the billet mill of Sameul Fox & Co., Stocksbridge, Sheffield, for the control of cutting up steel billets up to 450 ft. long.

The firm states: "A major problem in dealing with billets of this length is to avoid wastage, the lengths required varying from 30 ft. down to 18 in. Previously it was the practice for billets to be cut at the judgment of the cutter—a job calling for considerable skill. By using the computer, however, the necessary calculations can be made very much faster and with greater economy than by a human operator".

The sequence of operations is that the billet length is measured during the final passage through the mill, and this length is fed into the computer. Details of the customer's requirements have already been set up on the input board of the system by the cutter and, within seconds, the computer completes its calculation based on the information and transmits the result to the various cuttings.

### **Plastic Bricks**

Plastic bricks introduced by a North England firm will, it is claimed, provide houses to outlast those traditionally built with bricks and mortar. The bricks, which have been patented, are made of chemically fire-proofed polyester fibre bonded to a central insulated material of unconnected molecular structure. They can be so treated that the colour scheme will last the life of the house.

It is believed that the price of a house built in this way will be more or less than the same as that of a normally built house. Heating costs are expected to be lower because of the use of insulation material, and the electrical wiring and water pipes can be incorporated in the insulated skin. The firm envisages the possibility of manufacturers producing a do-it-yourself kit for home house-builders.

### **Unmanned Weather Station**

An automatic, unmanned weather station, powered by atomic energy, has begun operating on Axel Heiberg Island in northernmost Canada. It covers a previously blank area on U.S. and Canadian weather maps. Every three hours the station automatically transmits reports on temperature, wind, and barometric pressure. Expected to operate two years before refuelling, it is powered by a pound of strontium-90, whose heat of radio activity is converted into electricity. The strontium-90 is sealed in insoluble and corrosion-resistant materials. The station was designed and built for the U.S. Weather Bureau and the Atomic Energy Commission.

## Drugs From New Organic Compounds

The current research work in the field of organic chemistry concerning the development of drugs and the synthesis of organic compounds, with potential uses in medicine or industry, is described in a number of research papers published in the latest (July) issue of the Journal of Scientific and Industrial Research, published by the Council of Scientific and Industrial Research.

Organic chemists at the Haffkine Institute, Bombay, have been working on the preparation of derivatives of thiourea possessing better anti-tubercular activity than the parent substance. Of the 25 compounds synthesized, one compound has been found to inhibit the growth of the tubercle bacilli. Similarly, from isonicotinic acid, a well established drug in the treatment of tuberculosis, derivatives, called isonicotinic acid hydrozones, have been synthesized and tested at the Central Drug Research Institute, Lucknow. Some of these new compounds have been found to possess activity comparable to that of isonicotinic acid, and, in addition, they are three to four times less toxic.

Investigations on the synthesis of local anaesthetics, more potent but less toxic than the ones now in use, are in progress in the Chemistry Department of the Banaras Hindu University. Ten new derivatives of thiazolidones, as these chemicals are termed, have been synthesized and pharmacological tests have shown two of the compounds to be highly effective as local anaesthetics.

Two other research papers in this issue of the Journal describe the synthesis of a group of organic compounds similar to some colouring matter present in plants—flavones, isoflavones and flavanoids. Many potential uses have been reported for these compounds. Some of them possess activity similar to that of vitamin P, the deficiency of which causes the capillaries of blood vessels to become more permeable. A few are poisonous to fish and others exhibit antioxidant properties and are able to prevent rancidity of oils and fats. A series of 19 isoflavones have been synthesized in good yield in the laboratories of the Department of Chemical Technology, University of Bombay.

### Rare Surgical Technique

A British apparatus which enables a patient for a heart operation to be cooled to 10° to 15°C, under which conditions the heart and brain are protected from injury by their

own cold state has been manufactured by the surgical division of Allen and Hanbury, Ltd., of London. "It means, in effect, that the surgeon is operating on a 'dead' person. Under 'profound-hypothermia' (as the state is known), the heart stops pulsating and is absolutely dry", a spokesman for the manufacturers states:

"Surgeons can use this condition of the patient for from 50 to 60 minutes, after which time reheating is started and he is brought back to 'life'." The equipment is called "the Westminster profound-hypothermia apparatus".

The technique was developed in the department of experimental surgery at the Westminster Hospital, London. The method differs from that employed by the heart-lung machine, in which artificial oxygenation is used and the heart continues beating during the operation.

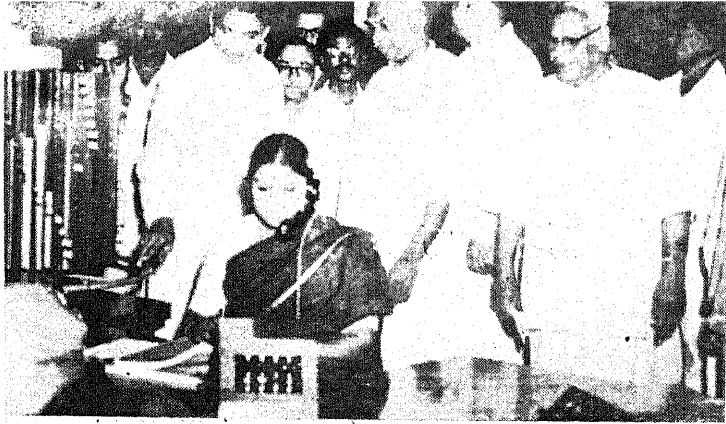
A film has been made of one successful operation, and was shown at an international symposium in Paris in July. It will be made available free of charge to surgeons and hospitals overseas through depots and agencies of Allen and Hanburys throughout the world.

### Radiation Sterilization

A British medical firm, Smith & Nephew Associated companies, Ltd., has bought an electronic accelerator costing about £100,000 to extend research in the radiation sterilization of surgical materials supplied to hospitals. Research made possible by the electronic accelerator, which should be in use in a year, will help in the fight against infection in hospitals.

In collaboration with the United Kingdom Atomic Energy Authority, Smith and Nephew Research, Ltd., has studied the principle of radiation sterilization by using gamma rays from a radioactive isotope. Further researches into this method are in progress.

The electron accelerator method uses high-speed electrons produced by a cathode. The machine bought by the company will produce electrons with energies up to 4,000,000 electron volts at a power output of 4KW.



Dr. P. Subbaroyan, Chief Minister Kamaraj and others going round the new Central Telephone Exchange.

Radiation methods such as these enable even sealed and packaged articles to be sterilized successfully and without any radio activity risk to anyone handling them afterwards. The electron accelerator will not only be used as a research tool, but will provide a pilot plant to supply quantities of surgical materials in a sterile condition to hospitals.

### Emergency Lung Service

Two small boxes are kept at London Airport ready to be placed aboard an airliner and rushed to any part of the world in the event of an emergency. Each box contains an electronic "lung" known as the Barnet Ventilator, which has frequently been used to save the lives of patients suffering from respiratory diseases.

The firm which keeps the 'lungs' at the airport operates a round-the-clock service which ensures that they can be flown to any part of the world with minimum delay. A spokesman for the firm said: "We have often had emergency calls for a 'lung' from doctors in Britain and overseas. But we needed fast means for getting them from Buckingham (where they are made) to their destination. Quite recently a 'lung' was unavoidably delayed for over five hours, and so we have decided to keep two at London Airport just to meet such eventualities."

### Removing Lung Clots

Three surgeons at the Baylor University College of Medicine have added modern technique to an old form of operation so that it now shows promise of saving patients destined to die suddenly of blood clots in the lung. The old method, developed by the European F. Trendelenburg in 1908, is known to have saved only 16 lives in Europe and the United States. During this time uncounted thousands have died of lung clots.

The 17th survival, achieved by the Baylor trio came through the quick use of a heart-lung machine. For 15 critical minutes while clots were being removed from the pulmonary arteries, blood circulation was shunted away from the lungs and into the oxygenating machine. Thus, the patient was adequately supplied with oxygen, and the surgeons were able more easily to perform their work without being hampered by the flow of blood through the pulmonary arteries.

### Detecting tuberculosis

A simple skin test for detecting tuberculosis has been reported by Dr. Sol R. Rosenthal and the Lederle Laboratories of Cyanamid International. The testing equipment consists of a plastic cylinder, shaped like a thimble, which holds a set of steel prongs on which tuberculin has been dried. Tuberculin is a substance derived from the tuberculosis germs. When the skin reacts to it the patient may be tubercular and should undergo more tests. The prongs are pressed against the patient's skin and then can be thrown away, along with the cylinder. Readings of any reaction can be made after 48 hours, the same time span as in the widely used Mantoux test, in which tuberculin is injected between the layers of skin of the forearm.

### Preventing Cattle Disease

Researchers at the University of Oklahoma have found that feeding cattle an antibiotic supplement can keep them from catching anaplasmosis, a disease known to infect cattle in many areas of the world. The mortality rate has been as high as 58 per cent in infected herds. In experiments on a select group of test animals placing minute amounts of the drug aureomycin chlortetracycline in the feed was found to keep them free of the infection. All cattle not fed the antibiotic contracted the disease-carrying parasites which invaded their red blood cells. While the disease occurs the world over, it is especially prevalent in warmer climates. It is characterised by anaemia, fever, loss of appetite, loss of weight, and yellow membranes.

### Measuring blood flow

A machine which can measure accurately the speed and volume of blood flow without opening a blood vessel has been developed by two University of Chicago scientists. Their Direct-current Electro-magnetic Flowmeter, now ready for laboratory use, they say, is accurate within five per cent. The scientists report the flowmeter can determine the effect of various drops on blood flow and on heart valves.

# Food from Tidal Lands

*This article seeks to correct the general impression that tidal lands would not be adaptable for agriculture. Experience elsewhere as in India has shown that tidal, marshy lands can be reclaimed by simple treatments and at small cost.*

A belt of tidal lands runs almost all along the coastline in India. This includes the river deltas and the several backwaters biting into the coastline. By far the largest land stretch that comes under this category is the Sundarbans in West Bengal and the estuaries of the Cutch peninsula come next. Hitherto these had hardly been considered fit for any use. It is noteworthy that in certain parts of the country, entrepreneurs have launched agricultural practices in this type of land with varying success. But no concerted effort appears to have been made, nor a rational approach to the problem has been attempted to salvage them for gainful use.

By far the major portion of tidal lands lies at the sea level or down to three metres (10 feet) below it. Close to the sea or connected with it, they are subject to saline action.

## Main Requisite

For proper utilisation of such marshy lands, the main requisite is formation of bunds isolating a convenient number of blocks of sizes varying from 40·4 hectares (100 acres) to 809 hectares (2,000 acres) with water courses in between. Earthen bunds can safely resist the water pressure which varies with the tide levels around the bunds.

After isolating the blocks, the water inside the bunds is pumped out into the intervening canals and the entire area drained for agricultural operations.

The reclaimed soil should be analysed and suitable manure should be applied for making up the deficiency of soil nutrients. Such a technique has been adopted in the San Francisco bay in the United States by reclaiming nearly 121,406 hectares (300,000 acres), and on the Kerala coast nearly 40,470 hectares (one lakh acres) of tidal lands.

The question will naturally arise how in a tidal area fresh water can be supplied for successful cropping. Normally, cultivation in this part can be done throughout the year if fresh water is available.

However, it is only during the monsoon, say between June and September, that there will be assured fresh water-supply from rainfall. It is, therefore, possible to take a monsoon crop without much difficulty. If reservoirs can be constructed for water-supply during the non-monsoon months, such storage can be utilised for another crop in the post-monsoon period.

An advantage which this proposal presents is the complete elimination of canal and canal structures for loading water from the storage to the fields, the field level being all below the sea level. The intervening canal space between blocks would remain filled up with fresh water during monsoon periods. Irrigation requirements will be met by drawing water from the canals through pipe holes across the bunds.

Even if major storages in the high reaches of a river are not possible, there is still scope for maintaining fresh water from rains that collect in half of the blocks in the tidal area by bunds and using the same for the remaining half of the blocks parcelled out from the tidal lands. This, therefore, enables quick results being achieved without large scale investment on major engineering structures.

## Employment Scope

On a modest estimate it appears possible to develop tidal lands to the extent of nearly eight lakhs hectares (two million acres) in India. Rockening on a crop yield of half a ton per acre per crop annually, reclaimed lands can be expected to yield 1,016,050 metric tonnes (one million tons) of foodgrains. The main engineering work involved being earth bund formations, it gives scope for a large number of local, unskilled labour to be employed. It also lends itself to comparatively quick results in raising food crop.

On an average an investment of about Rs. 750 per hectare (Rs. 300 per acre) will be enough for completing the project, and the total capital investment will be Rs. 60 crores over a period of five years. Most of this investment should be in the form of loans to the cultivators themselves for making bunds and other preliminary works, reimbursible in 15 years.

## *Plan Results Speak*

The Village and the Farm are the country's life-lines. It is here that the two Five-Year Plans have produced the most striking results in Madras State.

More than 10,500 villages out of 18,000 villages have been electrified, over a lakh power pumpsets are used in farm operations, almost every village with over 300 population has a school, many good roads provide links with the outside world. Advice under the Community Development Programme has been availed of in cultivation methods with excellent results.

New industries and factories that have sprung up in neighbouring townships have provided gainful employment to village surplus population.

The peasant in Madras State to-day is happy. There is now a new confidence in his face and a new spring in his gait, thanks to the Plans.