

538

# The POWER

A MONTHLY JOURNAL

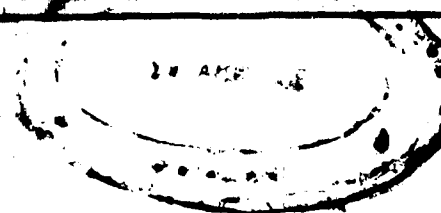
EDITOR:- P. S. PILLAI, M.A.

Vol. II  
No. 11

AUGUST, 1952.

INDEPENDENCE DAY NUMBER

Price Rs. 2/-



388

## FEATURES

The Thought & Action  
Messages.

### PICTURE STUDIES

OF  
LIFE LINES  
PRODUCE AND PRESERVE  
WORLD'S WEALTH  
STEP OUT IN STYLE  
PROJECTS for PROSPERITY  
SURVIVE ON THE SOIL  
Etc.

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### PASTIME in PICTURE

OF  
THE STAR & THE STUD  
LAW & LIFE  
DOWER OF DEMOCRACY  
PAINFUL PARDY  
FEMALE'S FORUM  
MEMORIES OF MEN  
&  
MATTERS Etc.

RESERVED

Up to our altars, now,  
Haste we, and summon  
Courage and loveliness  
Manhood and woman!  
Deep let our pledges be:  
Freedom forever!

Ever New India's own  
Free Sons and Daughters!  
Free as our rivers are  
Ocean-ward going;  
Free as the breezes are  
Over us blowing--

### **The Thought**

We all pray God to bless us with more vigour and more wisdom to lead the way for economic emancipation and drift the land towards peace and prosperity by research and industrialisation.

Our best wishes to all patrons on  
this historic occasion of the celebration  
of Indian Independence.

**AUGUST 15, 1952.**

### **And the Action**

We act on truth and justice amidst all tribulations and terrors to hearten those that despair and droop and guide all people in their path of peril and pilgrimage.



## MESSAGES.

*Government of Madras,*

RAJ BHAVAN,  
Guindy, Madras,  
18-7-52

I am glad that the Editor of the monthly Journal "Power" is to publish an Independence Day Number and I wish it every success.

SRI PRAKASA.  
Governor.

*V. V. Giri,*

*Minister of Labour, Government of India.*

NEW DELHI.  
11-7-1952

I wish your Independence Number to be released in August great publicity and success.

(Sd.) V. V. GIRI.

*C. R. Srinivasan,*

*Editor.*

THE "SWADESAMITRAN"  
Madras. 2-8-1952.

I am glad to learn that you are bringing out a special issue of the "POWER" on Independence Day. Articles in the "POWER" have been both informative and interesting and I have no doubt the journal is making its contribution to the build up of new India. I wish your enterprise continued success.

(Sd.) C. R. SRINIVASAN.

*Sri la sri*  
*Subramania Pandarasannadhi Ayl.,*

*Adhinakarhar, Tiruvavaduthurai Mutt.*

TIRUVAVADUTHURAI

(TANJORE DT.)

15-7-1952

It is said, "Wealth is desired by all but is acquired by few". This maxim can be recast as "Wealth is desired by all and is acquired by all" if only the essential factors of the production of wealth are developed on right lines. Of the four factors of production, namely land, labour, capital and enterprise, labour is the most potent and complicated factor, the solution of which involves the best brains of all in this industrial age, saturated with the spirit of trade-unionism. This problem of labour can be made less complicated by resort to labour saving appliances which will take the place of manual labour with greater effect. In order to secure the full effect of such labour-saving devices and to successfully exploit the hidden natural resources of our country, harnessing electrical energy in such a way as to make it the back bone of our agricultural and industrial systems, is absolutely necessary. This need has to be brought home to the people of the village as they form the backbone of India's rural economy which in its turn forms the basis of her national wealth.

This journal aims at making the village folk power-minded so that the use of electrical energy may become a habitual necessity for them in all their operations thus paving the way for the development of the country's wealth. Hence we offer hearty blessings for the success of the Journal of the occasion of its Independence Day Number.

ஸ்ரீ-லக்ஷ்மி-தெய்வசிகாமணி அருஞ்சல  
தேசிக சுவாமிகள்.

குன்றக்குடி  
9-7-1952

உலகம் இயக்க இயங்குகின்றது. இயங்குகின்றவன் பரிபூரணன். பேராற்றல் பேரருள் உடையவன். அவன் சக்திமயமாக நின்று இயங்குகின்றான். அங்ஙனம் இயங்குகின்ற பரிபூரணனை நினைந்து வாழ்தலால் நிலவுலகம் நிறைந்த பயன் பெறும். அந்தப் பரிபூரணனை மேற்புல அறிஞர்கள் "Power" என்றே குறிப்பிடுகிறார்கள். "The Prayer is the instinctive cry of the human soul to a power that can help it in its time of need", என்று பேசுகின்றார்கள். இந்தப் "Power" என்ற பெயரையே பெயராகக் கொண்டு விஞ்ஞானத் துறையில் சிறந்த பணியாற்றுகின்ற பத்திரிகை வாழ்க.

தமிழகத்தை விஞ்ஞானத்துறையில் தொழிலியல் துறையில் முன்னணிக்கு கொண்டுவர வேண்டுமென்ற உண்மையான உணர்ச்சியோடு சிறந்த முறையில் நடத்திவரும் இத்தொண்டு வாழ்க! வாழ்க!!

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## PREFACE . . .

It is charming thought to celebrate the joyous Independence Day festival with a gift for your friends to give something new that the occasion demands. And what could be more original and useful than a new source of reading enjoyment for you and your friends—yes, the POWER that you are holding now. The response that we have had from esteemed firms, friends and associates not only sustained but increased our enthusiasm and strengthened our confidence in our ability to bring out such a splendid souvenir.

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The world would be very different without the service of the modern genie—electric power. In our age of electric power and electric wonders, the generation, distribution and utilisation of electricity contribute most sufficiently to the comfort and economy of living all over the civilized world. It enters into the cost of every crop which is grown and of every article that is manufactured. There is no end to the service electricity renders to mankind just as there is no end to its development. In short, Electricity is a part of the fabric of the universe itself and the more we learn about it the deeper is our understanding of the great natural mysteries. To a great extent the future well-being of the work is in the hands of the electrical and mechanical engineer.

Our infant but popular journal The Power pledges itself to the service of the community. Ours is the first and foremost of its kind bringing whole-world knowledge of power to its innumerable readers, with all other features you like for quick, profitable reading in the field of Science, Trade and Industry, in Art and Pastime—gallant, gorgeous and graceful. Line by line, page by page the Power is a potential medium for bringing new life and hope. You need to see and savour all these for yourself.

Appreciation is incomplete without criticism; and criticism is hardly worth its name, if it is not constructive. We shall be grateful for such appreciation and criticism from our readers. They will certainly be our guide to improve. For what we have done already, our thanks are due to the distinguished contributors and to many well-known firms and associations who have been extending their valuable patronage to us.

We are grateful to the eminent personages for their kind and inspiring messages and to many of our friends and well-wishers whose guidance and suggestions have carried us far on the road to success with our motto "We seek to serve and not to save".

The great end

Of the power, that it should be a guide  
To educate and lift the thoughts of men.

Our distinguished former Secretary of the Madras Electric Trades Association, Mr. C. L. Modi, B. A.—of M/s. Modi & Modi—has just



now returned from his successful Continental Tour. His business career has been unique and he is always in favour of efficient and honest business. His extensive tour by way of visiting England, Belgium, Germany, France, Switzerland and Italy would certainly add to his rich knowledge of men and matters. The following are some of his experiences and observations which we reproduce for the benefit of our innumerable readers.

In England he visited well-known firms like Revo Electric Company Limited, Wandle-side Cable Works Limited, Auto-Diesels Limited which were well kept up based on the maxim, "Time for everything and Place for everything", in spite of the fact that labour is troublesome to-day in England and a heavy cut of exports to other countries is keenly felt due to causes beyond control. Besides, he made visits to many famous firms and noted the perfect and efficient working of them. Contact with many shippers and their observations about Indian Businessmen also engaged his time for a while. His visit to British Industries Fair at Olympia and Earls Court in London and also at Birmingham has confirmed his appreciation of perfectness and thoroughness

of Englishmen who are polite and courteous to foreigners especially to Indians and help them in all ways they could. His next visit was to Belgium, in which country he had been to Brussels, Charlesroi, Luxemburg, Antwerp, Bruce, Gent and other places and made a close study of business. No prejudice in Belgium against India is his conclusion. Germany was the next country he visited. Important places like Hamburg, Berlin, Hannover, Frankfurt, Essen, Munich, Munchen and Bremen were covered up. The name German, he emphasizes, is synonymous with boldness. Among the many factories he visited, one is Telefunken Factory, in Berlin—a symbol of perfect equipment, neat style and efficiency, coupled with the nice treatment of visitors like princes. France was his next sojourn. Paris, Delle and Lyons were visited. He saw an Automobile Factory in Paris, and some Electric Factories in Delle and Lyons and was much impressed at their general luxuriousness and efficiency. He came next to Switzerland and saw a Watch Factory in its working. Towns like Berne, Zurich, Geneva, Laussane, Montreux and Interlaken were covered up. The highly industrialised state and the high standard of living of the Swiss did not escape his notice. He next turned his attention to Italy, and visited Venice, Florence, Naples, Milan and Rome and found Italy, on the whole, was not on a par with other neighbour countries.

Summing up his observations, India has to learn a lot from the Western Countries not only in Trade and Commerce but in many other things; in Western Countries there is a tendency for the prices to go up; the shortage of Raw Materials is keenly felt; the major quota of business is diverted to countries like America, Africa and Australia due to the fact that the Westerners have begun to feel that India is very rapidly getting herself industrialised.

We wish Mr. C. L. Modi all luck and more prosperity and we are sure that his recent tour followed by his new and rich experience will be very useful to the younger generation who will be mariners in the wide ocean of trials and errors during their business careers.



WORLD - WIDE  
JOURNAL



PUBLISHED MONTHLY



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The Father of the Nation

### MADRAS MARINA

The Madras Marina is a miracle of marvel—the most beautiful of beaches of the world.

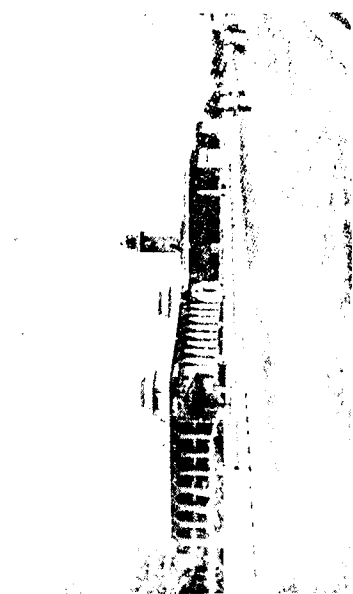
Throughout the day hundreds of fisherfolk are out at sea with their catamarans to make their daily catch. At sunset, men and women, the old and the young frequent to refresh. The gents walk in happy groups along the beautiful strip or the shining sandy shore to gather renewed inspiration from the invigorating sea-breeze. The ladies sit in friendly circles gaily chatting, being admired unaware by the onlookers at their beauty and grace. The children form themselves to play their merry game near the water's edge. A few others come and go to the canteen and the swimming pool which are on up-to-date style and service.

It is indeed a sight for Gods to see the myraid of cars passing to and fro San Thome and Fort St. George 1, a distance of about three miles. All eyes are turned to the west as rays of crimson and copper-red fall on the whole array of buildings opposite to Marina from Queen Mary's to University Buildings.

In short, Madras Marina is Tourist's Tabloid-rich in its scenery and richer in its serenity.

There is a pleasure in the pathless woods,  
There is a rapture in the lonely shore,  
By the deep sea, and music in its roar,  
I love not man the less, but Nature more.

—Byron.



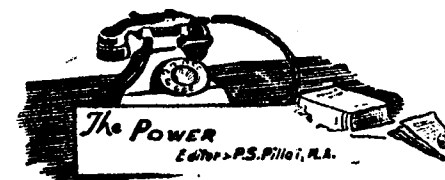
# POWER

Vol. II

August, 1952

No. 11

There must be discipline in our public life  
— Gokhale.



Another 15th August has come and it is a solemn day for us in India. The Indian Nation and the Humanity the world over owe to Gandhiji a debt of gratitude. Alas, he paid the price of his life. To-day it is the full satisfaction of nationality, the completeness of independence and integration that we celebrate. The memory of the Congress Party's contribution in the fight for Swaraj and the reverence for the martyred architect of Freedom are still green in our minds and memories. The one political party in India still commands the allegiance of the masses—though as was seen from the general elections held in January last, individuals or groups or sections felt disgruntled, disappointed or dis-illusioned. But, we trust, they also would co-operate, in the country's interest, wherever they can and would criticise and oppose only where they must.

For the vast majority of people the main anxieties are social and economic rather than

political. Political freedom is mainly a means to a better life. The right to work, the right to a living wage, the right to minimum education, the right to care and maintenance in infancy, old age and ill-health are more important to the common man. Freedom from want is the test of such standard. And to achieve this freedom, we have to secure high standards of social and economic rights which accrue from a greater standard of production and distribution.

Stagnation in Industry and Agriculture threatens a social break-down. The standards of life are raised by modern technical methods and equitable distribution of wealth. All these involve land reforms and economic planning. In India the former remains to be touched while the latter has begun to make its way, for the Five Year Plan has become a blue print. Much has been said about this plan. But there is no doubt about the fact that the industrial progress in the country after Independence has been slow—very slow. A number of internal and international factors have been the causes for this sad state of affairs, chief among them being the devaluation of the rupee, the strained relationships with Pakistan, costly nature of imported capital goods and foodgrains, absence of free flow of raw materials and above all, vagueness of the Industrial and Import policy of the Government.

Such wide gaps and disparities in the sectors of Trade, Industry and Commerce should be bridged slowly though, so that a sense of proportion and propriety may prevail and the country may work her passage in a progressive manner. The years ahead of us are going to be piping years of peace and prosperity. They will test our nerve, our unity, our strength and our patriotism. On this anniversary of Independence may we dedicate ourselves to the great tasks ahead so that we might become a truly great nation, self sufficient in moral, material and military resources.

### Power's Punch

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### Special Article—I

(By Courtesy of)

### M/s. G. E. C. (I) Ltd., Madras.

An instrument which embodies one of the most important applications of industrial ultrasonics, the non-destructive testing of materials has recently been put into operation in the work of the Dunlop Rubber Co., Ltd., at Birmingham, England. The instrument, which has been developed jointly by the Dunlop Research Centre and the General Electric Co., Ltd., of England, is designed for the production testing of aircraft and motor vehicle tyres of all types.

The story of the project goes back to 1943, when, owing to the scarcity of rubber, it became necessary to find a non-destructive method for determining whether the internal structure of aircraft tyres had been damaged by landing stresses and the tyres were therefore unfit for rethreading.

The method developed depends on the fact that any internal discontinuity e.g. imperfect bonding between rubber and fabric will necessarily lead to the presence of an air film and that this rubber air boundary will cause almost 100% reflection of ultrasonic waves which reach it. With new tyres a fault of this type is not impossible, though rare, but with used tyres it is common and may make it inadvisable to renew the threads, notwithstanding the fact that the tyre is superficially sound.

The instrument to be described is used for tyre testing on a production basis and can detect faults having an area of  $3/8" \times 3/8" \times 3/8"$  or more. It consists of a steel cabinet which contains an ultrasonic generator and valve amplifiers, together with pneumatic handling equipment for lowering the tyres into an adjacent tank of water, where they are tested. The reason for using the water bath is that water produces a good transmission path between transmitter and receiver, together with reasonable acoustic matching with the rubber

i.e. there is negligible absorption or reflection at the water, rubber boundary. If a dry contact was used it would be practically impossible to exclude air. This would result in nearly 100% reflection of the wave, which would be unable to pass freely into the rubber.

Projecting from the front of the cabinet is a pneumatically operated extensible arm, which can be given a cycle of operations to enable it to move outwards and to project beyond the tank so that a tyre can be loaded on to it. The arm then lifts the tyre, moves it inwards and lowers it onto two rollers which are mounted in the tank, above the water. The rollers can be used to revolve the tyre at speeds upto 10 r.p.m. during a test and are driven by an  $1/2$  h.p. motor, through reduction gears. The reason for the speed range is that when a tyre is first immersed it is desirable to revolve it quickly for wetting purposes, and then to slow down for an ultrasonic test, and if necessary, to drop to "very slow" or "stop" for precise location of a flaw.

The ultrasonic transmitter head houses  $5/8"$  diameter quartz crystal mounted in a brass holder placed 1" from the rubber, in the well of the tyre, which is under the water. The ultrasonic beam is radiated at an angle of 120 degrees and a single transmitter within the tyre can be used with up to six receiving crystals spaced around the outer wall. Leads are taken from each of the receiving crystals, to separate amplifiers, and the outputs of these are used for visual indication on six meters and for the operation of six alarm circuits consisting of a relay and a red indicator lamp. Each amplifier has independent controls for setting the meter indication and point at which the alarm lamp lights.

The frequency of the ultrasonic generator is 50 kc/s and the power output about 1 watt. Choice of the frequency is determined by practical circumstances, because as frequency increases, the angle of the radiated beam becomes less, until at about 1000 kc/s it is almost parallel, with a diameter approximately equal to that of the transmitter crystal. Furthermore, the absorption of ultrasonic energy by rubber increases rapidly with frequency and this sets a practical industrial upper limit of about 500 kc/s. The instrument is designed to use a frequency of about one tenth of this figure. This results in a wide angle of radiation, so that a single transmitter can serve six receiving crystals. It also has the advantage that reasonable signals can be obtained without the use of elaborate high-gain amplifiers.

The technique of using the equipment is that after the tyre has been lowered into the tank it is rotated quickly to wet it and remove air bubbles. If desired, a small amount of non-foaming, wetting agent can be added to the water. The ultrasonic generator is then adjusted to give a meter indication of about 80% of full scale deflection on each of the receiver indicators. It should be noted that the apparatus does not depend in any degree on an absolute calibration but purely on the fact an area of the tyre can be considered as "good" and then all other parts are tested relative to this portion.

Next, the tyre speed of rotation is reduced, according to the size of the tyre and the size of the fault which is being sought. A

large aeroplane tyre (or any tyre where area is greater than 1" x 1" are being sought) can be rotated at 6 r.p.m. but lower speeds have been found to be better for smaller tyres or for smaller areas. Each revolution of the tyre results in about a 90 degree arc of cross section being scanned by the crystals and means are provided so that a transmitter and receiver crystals can be rocked about an axis by means of an electric motor, to enable the whole tyre to be examined in a few revolutions.

Small variations in the tyre structure cause small and rapid variations in the meter indications when the equipment is in use, but an operator can soon learn to distinguish between these and true faults such as actual or incipient looseness between layers of fabric.

After a test has been completed, the water within the well of the type is removed by means of a small pump and the pneumatic lifting equipment operates to remove the type from the test tank, back on to a trolley or conveyor.

The pneumatic handling equipment is designed to operate off the works compressed air main and is automatically controlled by cam-operated air valves, with means for adjusting the speed of the loading or unloading cycle. The ultrasonic generator is provided in duplicate, together with a spare receiver amplifier and meter panel, so that the electronic equipment of the tester can be serviced without interrupting production.

## SURVIVE ON THE SOIL :

The Indian village is the foster child of silence and slow time. Helpless in the vicissitudes imported by man and Nature, his attitude is invested with a definite mechanism against foreign influences. His thoughts, habits, method of work belong to the remote past and carries one's memories back to the time of Chandragupta Maurya.

Agriculture is the pivot of our national economy and should be accorded its pride of place. Millions of acres of soil around are lost each year through erosion in the fields where crops are subject to the vagaries of the weather. The remedy lies in the **Tractor System** of complete mechanisation which can help the farmer to reverse this process.

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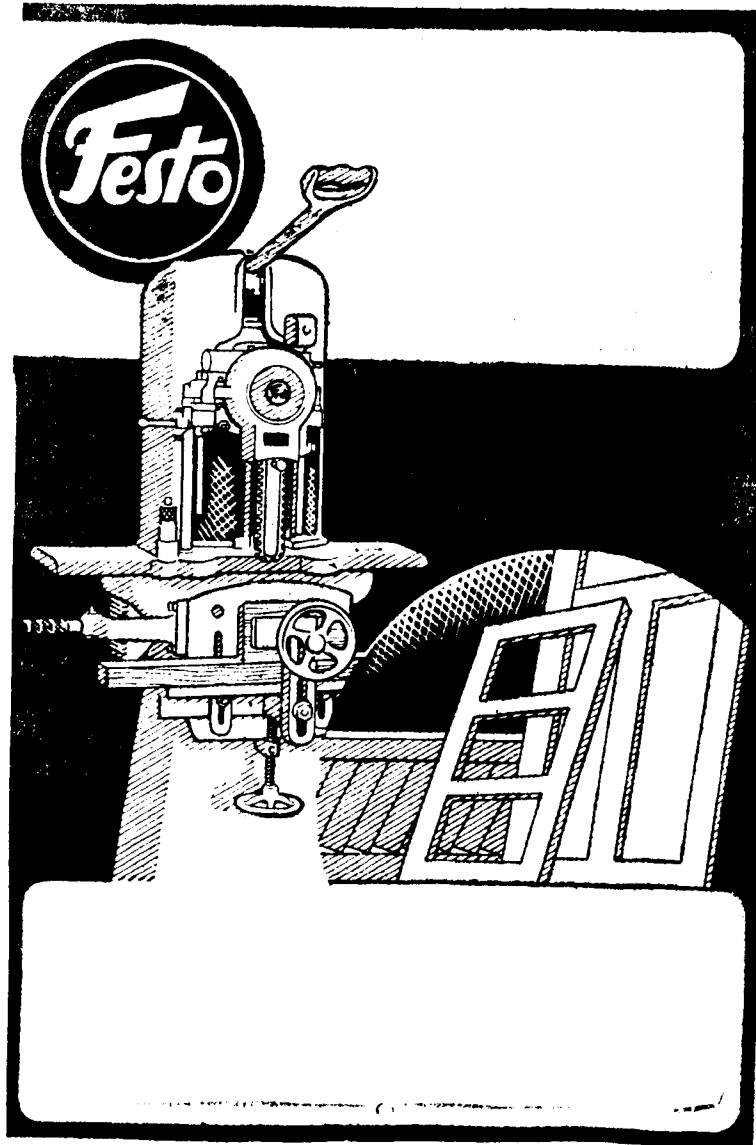
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### Special Article—2.

## NEW WOODWORKING MACHINES (from M/s I.A.E.C.)

The enormous need of housing has led to a brisk building activity and consequently to a substantial revival of the joiner's trade. The manufacture in large series and progressive standardisation, have paved the way for rationalization of production by modern mechanical equipment. The Festo Maschinenfabrik G. Stoll, Esslingen a.N. (Germany) manufacturers of special woodworking machines, is engaged in producing new constructions and in improving such equipment. The I.A.E.C., (Madras) Ltd., 2/17-G, Mount Road, Madras 2, are distributing "Festo" products in India.

A modern Tenoning and Slotting Machine, with 3 to 6 horizontally and vertically adjustable electric motors which are designed as tool holders, serves to make windows and doors at an economic rate. A number of scales arranged all round, permit accurate adjustment and shortest erection times. The work pieces are fed in one short operational cycle to all tools on a ball-bearing, sliding table which is fitted with a practical stop system without the operator having to change his stand. An important factor is the cheapness of the tools; the simple, straight cutters can easily be made and re-sharpened by the user.

Shutters are needed in large quantities. It is known, that the most difficult and time-consuming operation is the cutting of the many grooves in the lateral shutter frames. The improved semi-automatic Shutter Grooving Machine automatically clamps, bores grooves, carries back and releases the workpiece by one lever motion made by the hand. The clockwise and anti-clockwise revolving motor drives the work spindle at a speed of 9,000 r.p.m.

Owing to the ever increasing demand for polished furniture, the 'Festo' Polishing Machine has increased in importance. It has

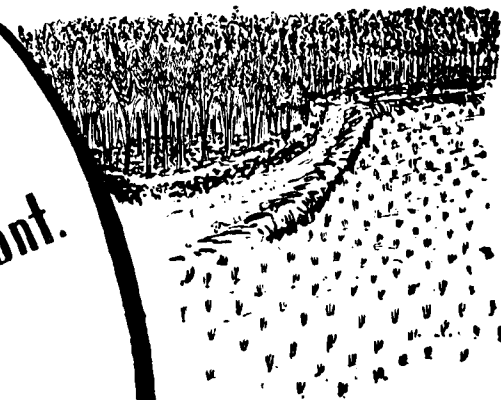
been equipped with a new additional attachment, the buffing motor and permits both the old approved polishing method by means of polishing pads with shellac and the modern buffing (lacquer) or a combination of both methods.

Festo are now producing a new multi-purpose chain mortising machine with tilting and swivelling motor. In addition to the normal mortising work, this machine is used for cutting grooves in shutters, lock mortising, dowel boring and mortising with hollow chisel sets. The table, which can be swung away, and other quick-adjustment possibilities permit a rapid change of the machine within the enlarged working range.

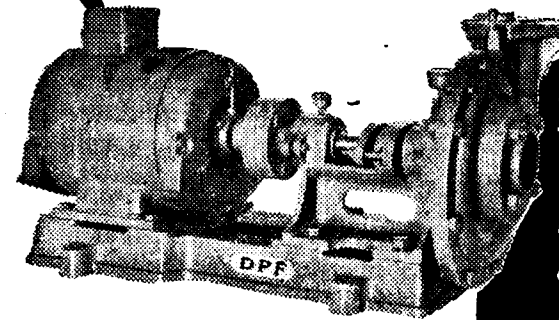
A stationary Parallel Circular Saw for wood cutting is amongst the machines manufactured by Festo. It is equipped with a 4 H.P. electric motor, and is fitted to turn and swivel to all sides for cutting off, bevelling, edging, grooving and milling. Cutting depth is up to 8"-200mm. Modern portable Festo Electric Hand Circular Saws with cutting depths from 1½" to 5½" (45-145mm) serve the same purpose.

Electric Hand Band Saws with pulleys of 9 1/16th"-230mm, diameter, portable, serve for the cutting of beams to length and for working beam; if stationary, for the cutting of small workpieces. The Universal Planing Machine for Carpentry Work is supplied portable as planing machine for beams and stationary as table planing machine, as a combination machine for planing, surfacing, sawing, milling, boring and sanding.

A particularly efficient hand machine for sanding, also affording many possibilities of combination, is the Festo Motor Disc Sander, of which more than 10,000 pieces have already been supplied.



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**First in the Field**  
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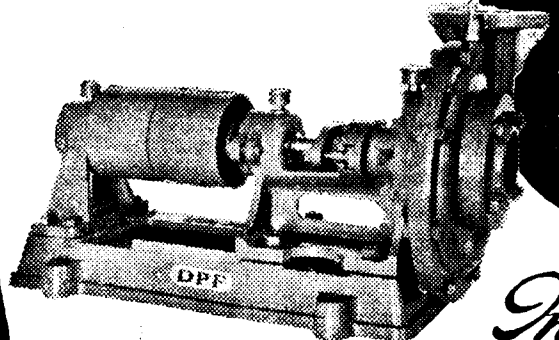


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**COIMBATORE.**

PHONE: 219      GRAM: MOTOR PUMP      EP

## THE STAR & THE STUDIO:

The Indian Film Industry is second in the world—Hollywood in U.S.A. leading. The Star and the Studio help to make the country's culture and potentialities better known overseas.

To make a good picture as to suit the social, political and economic conditions, there shall be perfect harmony between the director, producer, art director, cameraman and sound engineer; because the sum total of story, sound, art and camera direction gives a picture. Above all the star plays a prominent part towards the success.

She is a star—it is said. She is born, not made—it may be true to some extent. With charming personality, confined to apt and appropriate taste in dress, combined with ornaments, hair style and proper training in talking, singing and acting, the star (male or female) can be secured. The stars not only serve their own country but also the cause of humanity through their art.

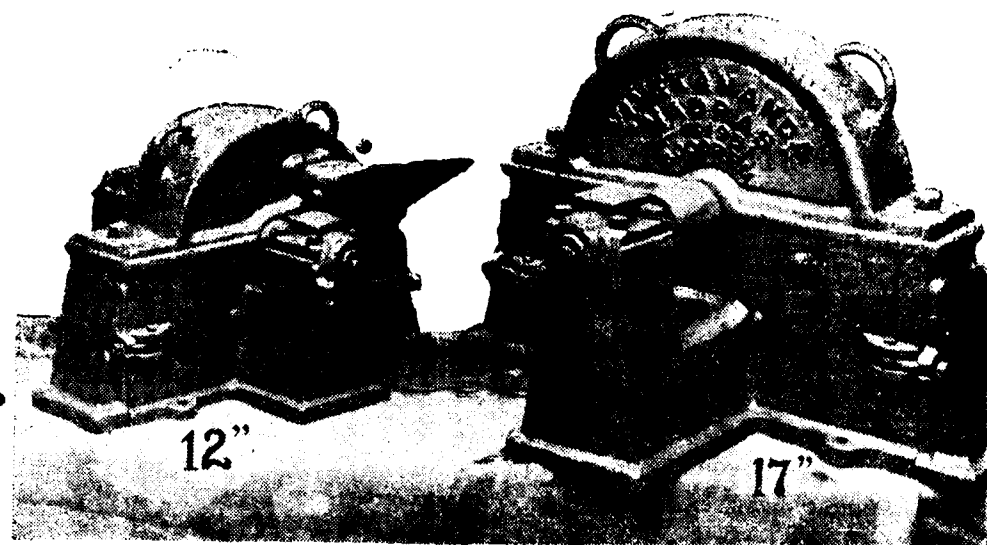
Through International Film Festivals, the world gets ample opportunities to improve the art of films on a common platform. Indian stars can go out as ambassadors of Indian culture as long as they mirror the real people of India.



(The happy at Hollywood)

# VIVEKANANDA DISINTEGRATORS

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- CONSTRUCTION** ... Made of Close-grained Cast Iron, and accurately machined to ensure smooth running.
- BEARINGS** ... Made out of Phosphor Bronze and aligned for perfect Smooth Working.
- BEATERS** ... Made of Special Steel to withstand shocks, wear and tear and balanced to swing.
- SCREENS** ... Made of Special imported  $\Delta$  Steel Bars to resist undue wear.

| Data.             | 12" Size.              | 17" Size.              |
|-------------------|------------------------|------------------------|
| Speed R. P. M.    | 5000                   | 4100                   |
| Dia. of Pulley    | 3 $\frac{1}{2}$ "      | 4"                     |
| B. H. P. required | 4 to 6                 | 6 to 10                |
| <b>PRICE :</b>    | <b>Rs. 300/- each.</b> | <b>Rs. 420/- each.</b> |

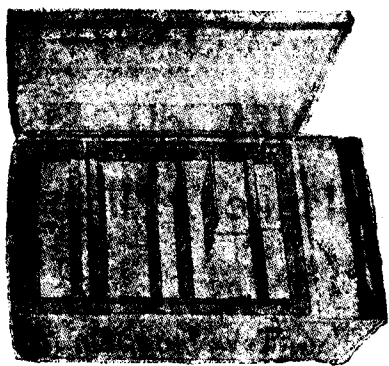
Recommended for pulverising Soap Nuts, Roots and Chemicals, Oil Cakes, Bones etc.

Thousands of these machines are working all over the State giving efficient and satisfactory service. The important feature of our machines is, very low Power Consumption and maximum output. All machines are balanced and tested before leaving the works.

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**"MARVELOUS"**



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**For**

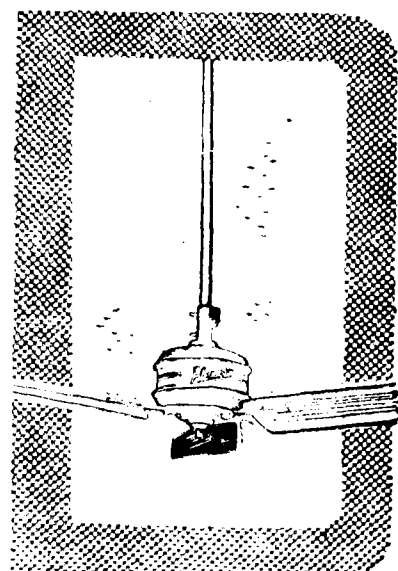
|                                        |                |
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| M. s. Richardson & Cruddas             | Frigidaire     |
| " I. A. E. C. (M) Ltd.                 | Hotpoint       |
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| " Parry & Co., Ltd.                    | Philco & Star- |
| " Addison & Co., Ltd.                  | nette          |
|                                        | ADVICE,        |
|                                        | Installation   |
|                                        | etc.           |

### PRODUCE & PRESERVE :

Produce and Preserve must be the watchword of every Indian in this hour of Food Shortage. The "Save the Food" Campaign is as vital to-day as the "Grow More Food" Campaign in our planning for self-sufficiency. The preservation of food and foodstuffs which was followed from the rudest of early civilisation, is more than a patriotic gesture—it is economy and good nutrition.

The spoilage of food and foodstuffs is a common phenomenon, as evidenced by minor changes in odour, flavour or texture. Other extreme forms of spoilage are like putrefaction of foods of animal origin, the souring or curdling of milk etc. The primary causes of food spoilage are micro-organisms known as bacteria, molds and yeasts. They change the natural characteristics of the foods chemically or physically or both. Living organisms, bacteria, yeasts and molds can survive only under favourable environmental conditions. If the external conditions to which they are exposed become unfavourable, these spoilage organisms cannot grow or survive.

One such important method of preserving food and foodstuffs is the use of *Refrigerators*.



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COMFORT . . . .

Sit under a PHOENIX FAN and laugh at the blazing sun. Yes, for cool comfort in summer PHOENIX FANS really stand supreme.



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Picture Studies—3

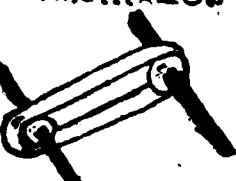
**POWER'S PROGRESS—**

**IN MADRAS STATE**

The Madras State ranks third in the matter of Electricity Supply in India—Bombay and Bengal leading. The total power output in the State 1950-51 was about 700 million units: 75% of this was generated from water power and the rest by the thermal plants. And the State undertakings contribute the major part of the supply.

In rural electrification Madras leads other states in the country. Nearly 2,000 villages receive electricity supply with the use of about 17,000 electric pumps used for well irrigation and with more than 1,500 rural industries running on electricity such as ginning cotton, hulling rice, pressing oil, crushing cane etc.

The Madras Grid comprises three hydro-electric power stations, five thermal steam stations besides a number of small diesel electric stations and 5,000 miles of high tension transmission lines and 4,000 miles of low tension distribution lines.

| UTILIZATION OF POWER                                                                                     | PER CENTAGE |
|----------------------------------------------------------------------------------------------------------|-------------|
| INDUSTRIAL<br>        | 50%         |
| AGRICULTURAL<br>      | 27%         |
| DOMESTIC<br>          | 12%         |
| COMMERCIAL<br>       | 8%          |
| STREET LIGHTING<br> | 3%          |
| TRACTION<br>        | 3%          |
| MISCELLANEOUS<br>   | 4%          |



A country's greatness is seen in the happy homes of the people; in other words, it rests with the women who play an important part in the national life, socially and economically. As mothers and first teachers of their children who are the citizens of tomorrow they have to mould their character and general outlook on life, to inculcate in the future citizens of the world high principles of life, friendliness and fellowship for the common good of humanity and make the saying "The hand that rocks the cradle rules the land" a reality. Then the coveted goal—the world order and peace—will be achieved.

Women in Independent India

Women have a bright future in Free India. Article 15 of the Indian Constitution makes it clear that there shall be no discrimination on the grounds of Sex, birth, caste or community. Women have the right of entry to all public bodies and institutions. They are accorded equality of

opportunity in matters relating to employment or appointment to any office in the land. A woman might rise to the supreme position of the President of India by virtue of her genius, service and qualities of leadership; she can be a minister, she can be an ambassador and so on.

Here is food for thought. In our land past history has been silent on the question of representation of women in the rule and administration of the country. But our present Constitution has broken this tradition and custom. Equal opportunities in the right of voting, in political arena, in industrial field and in Social work are given to women of our land. The late Sardar Patel's rejoinder that though women have equal rights, women cannot become men, nor men women, and that therefore, for natural reasons, are ineligible to certain administrative branches, might find its logical conclusions.

Nevertheless, efforts should be made to see that the ideals of constitution are realised though slowly. It is possible for women to make communal life cordial. Not forsaking their homes, not giving up the duties of a wife or mother, our women could find a little leisure to take up wider responsibilities in life. This, in short, is the ethics of citizenship.

Pastime in Pictures-2

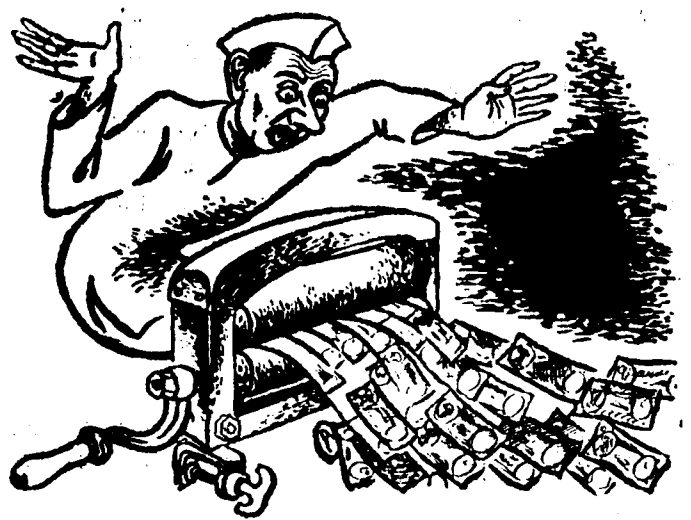
PAINFUL PARODY :

Some years ago, our rulers brought forth upon this nation a new tax, conceived in desperation and dedicated to the proposition that all men are fair game. Now we are engaged in a great mass of calculations, testing whether this tax-payer or that so confused and so impoverished, can long endure.

But, in a large sense, we cannot evade, we cannot cheat, we cannot underestimate this tax. The collectors, clever and sly, who compute, have gone far beyond our poor power to add and subtract.

The income tax law, in its majestic equality forbids the rich as well as the poor to sleep under bridges. The Indian tax-payer sometimes pays more in taxes than it costs him to feed himself and his family. The income tax is strictly and frankly a soak-the-rich measure. It is not for us, the tax payers, to question the tax which the Government pumps it in and pumps it out for the greatest good of the greatest number.

But we pray that this tax of the people, by the Congress, for the Government shall not cause solvency to perish.



The Indian Tax-Payer  
Here we go.....

LADIES LUCK :

COMPETITION - 1

PRIZE  
RS. 25/-

IT IS FINE ! IT IS EASY !!

RULES

- 1. The competition is open for ladies only.
- 2. Address entries to the Power, 296, Lingha Chetty St., Madras - 1.
- 3. Mark in ink the order of merit by 1, 2, 3 which you consider first, second, third in space provided against the items. Leave the rest blank.
- 4. This entry form alone should be used.
- 5. You are bound by the rules and conditions of this competition.
- 6. No responsibility will be accepted for entries lost, damaged or delayed in the Post.
- 7. Last date is September 5th and the prize winner will be announced in September issue of the Power.

HERE'S ALL YOU DO ! NO ENTRY FEE !!

Mark in ink only the number 1, 2, 3 in order of merit which you consider first, second and third. Leave the rest blank. Prize will go to the entrant who sends in the apt solution to be judged by the editor whose decision is final.

Cut here

The good qualities of a woman.

|            |  |
|------------|--|
| Beauty     |  |
| Dress      |  |
| Chastity   |  |
| Modesty    |  |
| Cleverness |  |

Surname in Inks & Block Letters } .....Initials.....

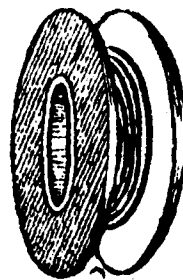
Full Address.....

## LIFE LINES :

Cables and wires serve the world wherever electrical energy is generated, transmitted and distributed. They are the very life lines of the modern society, bringing light, heat and power to home and hearth, farm and field, factory and workshop. In the air, at sea or on land, all scientific triumphs call for the finest and most reliable equipment for which wires and cables are required.

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M/s. Volkart Brothers  
M/s. Philips Electrical Co. (India) Ltd.,  
M/s. Gordon Woodroffe & Co. (Madras) Ltd.  
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Perilli  
Nicco  
Scottish  
Enfield  
Geipel.  
Sumitomo  
P. V. C.

## Special Article—3.

## CAPITAL AND LABOUR

BY

S. V. GANAPATHY

A. M. I. E. E.

One of the major problems that is so often discussed today by all sections of the people without any conclusion being arrived at is the division of the fruits of industry equitably between capital and labour. How is the resulting profit or loss to be apportioned or shared by the two contributory factors of industry? This question still remains unsolved with the result that there is constant wrangling between the representatives of Capital and Labour all over the world leading to strikes, lock-outs and labour Tribunals and so forth. All this arises out of improper values being attached to Capital or Labour. The problem can be solved if we arrive at a just basis of valuation.

Let us first look at the fundamentals of an Industry. All Industry comprises of the application of human effort in changing the forms of the products of nature. We do not create anything but we go on giving different shapes or forms to available things so as to be useful for us in some way or other such as for eating or drinking or clothing and so forth. The human effort that is applied for the purpose comprises of two parts, one being the industry of the workers who are engaged on the job and the other being the past effort represented by the Capital. For what else is capital but the result of past efforts? Capital is the bequest we have received largely from the efforts of those dead and gone and partly from our past efforts. No industry can get on or be established without the one or the other; both are equally important. Then the next question is how to divide the profits between the past effort and present effort?

Present effort can be applied only if the human body is maintained healthy. This can

be done only if the workers, whether they are manual workers or paper workers, have the means to provide themselves with food, clothing and housing according to their respective standards of living. So a living wage is a prime condition for present effort to be applied. The cost of living index, when properly worked out and perfected would afford the means of determining the living wage.

But the living wage must bear a relation to outturn of work in every industry and every department of it. This of course would vary from country to country; no international standards of outturn can be established, at least under present conditions. In any case the wage must represent a minimum amount of work in every department of life. The tendency that is most marked today is to get higher and higher wages for less and less work. Most of the difficulties of the present day not only in this country but in other countries as well can be traced to this root cause. More men and less work is the characteristic of the present day. However much we may command the bounties of nature, however much idle capital there may be for fruitful investment, no progress can be made nor the difficulties of the day overcome except by every able bodied man putting forth much more work than he does at present. Then only a claim for a living wage can be sustained. Without it the wage would amount to an extortion for laziness. In the ultimate analysis present effort would alone sustain a nation. If present effort is the outcome of a living wage, Capital can exist only if it is fostered by a minimum assured return, as otherwise there is no tendency to save to form a reserve for future use. Capital is linked with the past, and as we pay homage to the dead for the

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legacies which they have bestowed on us, so must a similar homage in the shape of an interest be paid to Capital. Here the bank rate of interest serves as a guide to the rate of interest that is to be assured to Capital. But this bank rate is often too low for attracting Capital and a little over it will be justified.

So a living wage on the one hand and an assured minimum rate of interest on the other must form the basis for every industry. Of course both are subject to change; adjustments have to be made from time to time according to the changing conditions. If the principle be accepted then it will not be difficult to determine the methods of computation of wage structure and returns on Capital.

What remains in excess, after setting apart these sums besides of course providing for depreciation, reserves and taxes, is the divisible surplus. This has to be shared equitably by present and past efforts. We have then to ascertain what is equitable.

Without doubt the thing of the moment should receive greater consideration than the past or the future. Present effort should normally be entitled to a greater share of the divisible profits. In what proportion should this division be done has to be determined from time to time according to the changing conditions of the, availability of Capital and Labour. In fact, no hard and fast rule valid for all times can ever be laid. In times of Capital shortage a larger share of the profits will have to be assured to ensure the flow of the necessary Capital for industries.

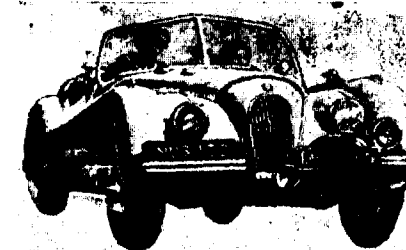
Summarising then, we may say that in the past the tendency has been to appropriate too much of the profits to Capital; the present tendency is the very opposite of it. Both are unworkable in practice. A realistic course is that which steers clear of these two extreme positions and divides the surplus according to the conditions of supply of Labour and Capital, just like any other commodity governed by the law of supply and demand, after ensuring a minimum return to Capital and a living wage to Labour.

### STEP OUT IN STYLE :

One of the most important applications of electric power is in automobiles. A motor car carries its own "Generating Station". The engine forms the power plant, the dynamo the means of generating the current and the battery for storage purposes. In addition, the wiring system to the lights, starter, auxiliaries and the control and recording instruments form the complete system.

A long list of improvements has been incorporated in the latest models in the engines, the brakes, the electricals system, the chassis and the body.

Here's a car for you to get the gentle ride with speed and luxury.



#### Step in

M/s. Sundaram Motors Ltd.  
M/s. Addison & Co., Ltd.  
M/s. Simpson & Co., Ltd.

M/s. Union Co. (Motors) Ltd.  
M/s. Bharat Motors  
M/s. V.S.T. Motors Ltd.  
M/s. Rane (Madras) Ltd.  
M/s. Anand Automobiles  
M/s. Lakshman Prasad & Sons  
M/s. Rayala Corporation  
M/s. Reliance Motor Co., Ltd.  
M/s. South India Corporation (M) Ltd.  
M/s. George Oakes Ltd.  
M/s. Choudry Automobiles

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(All India Educational and Cultural Monthly)

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## PROJECTS FOR PROSPERITY:



India is fortunate in her immense resources of main power, land and water, which if rationally developed by the application of up-to-date scientific methods, should suffice not only to feed her growing populations for a long time to come and to help in raising their standards of living but also to make substantial contribution to the world economy.

The quantity of water that flows annually through the rivers of India is 1,356 million acre feet. Of this only about 6 per cent are at present being put to beneficial use for purpose of irrigation and power generation. The total hydro-electric power developed in the country is about half million kilowatts against probable and possible potential of about 40 million kilowatts.

Of late attention has come to be paid to the aspect of multipurpose projects for flood control irrigation, power-generation, navigation, fish culture and recreation facilities.

A number of river valley projects in the country—in all 46 major projects—have been taken up for investigation and completion with the co-operation of the Central Government and the respective provincial Governments. The adjoining cover the more important of them.

### THE BHAKRA & NANGAL CANAL PROJECTS

In East Punjab—Construction of a dam about 650 feet high on the river Sutlej near the village of Bhakra—total storage capacity is 7.20 million acre feet.

### THE TUNGABHADRA PROJECT

On the border of Madras and Hyderabad States—construction of a dam across the river Tungabhadra near Hospet in Bellary District—reservoir will have a storage capacity of 2.6 million acre feet. There will be 2 canals on the Madras side and the other on Hyderabad side—7000 KW firm and 14,000 KW seasonal power for Madras State.

### THE DAMODAR VALLEY PROJECT

In the provinces of Bihar and West Bengal—construction of 8 dams with hydro-electric power installations—facilities for irrigation about 900,000 acres of lands—generation of power of about 373,000 installed power.

### THE MAHANADI VALLEY DEVELOPMENT

The Hirakud Dam Project, the Tikkarpara Project and Naraj Dam Project in the Province of Orissa—each with its canal system and hydro-electric power installation—the 3 units capable of independent development and also of forming an integrated part of the basin-wide plan—the Hirakud Dam Project on the upper most end of the Mahanadi river is started first.

### THE MOR PROJECT

Is in West Bengal—the first stage in the construction of masonry dam across the river Mor which will store 0.84 million acre feet—the second stage is of a barrage further down and 2 canals one on either side of the river—estimated to irrigate 600,000 acres and produce power 4,000 KW installed.

### THE TAPTI VALLEY PROJECT

In Bombay—planned on regional basis on the river Tapi—2 stages, the first being the construction of a weir across the Tapi at Kakrapur with a system of canals on both banks of the river, the second stage providing for the construction of an earthen dam—the continuous power generated will be about 48,000 KW.

### THE KOSI DAM PROJECT

Lies in Bihar—construction of a high dam of 800 feet height 5 miles above the point where the kosi river emerges on the plains in Nepal—dam will rank as the highest in the world—will impound 6.9 million acre feet of water and will generate about 1.8 million KW of power.

### THE SINDH VALLEY SCHEMES

In the states of Jammu and Kashmir—the construction of a diversion weir across the Sindh—17,000 KW of firm power—necessary for the upkeep and development of the Kashmir Valley.

### OTHER PROJECTS

The other projects under construction are relatively small but they extend over all parts of India.

The total expenditure on the river valley projects under construction during the last 2 years is about Rs. 40 crores and substantial result and relief in food and power production are expected.

நீ பம்புகள்

நீடித்த

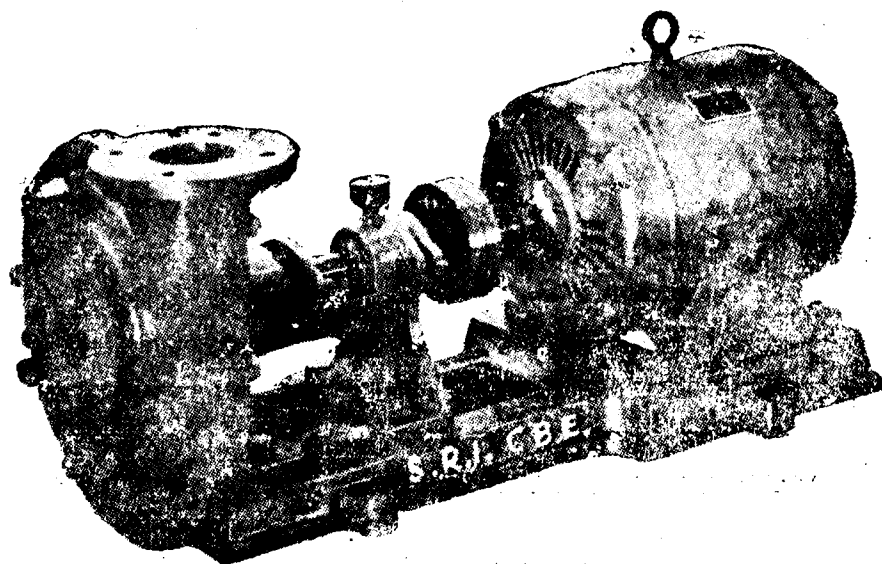
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குறைந்த

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THE POWER

31

AUGUST 1952

## THE WAY WE SEE THEM.....

Nonsense is not so ridiculous after all. Scientists are persons who get a lot of pleasure out of non-sense. It provides profit. Many false conclusions have been drawn from failure to recognise non-sense. In statistics, for example, nonsense relationships play a large part in giving a real understanding of the subject. The non-sense invented by Zeno, the Greek mathematician and philosopher concerning motion—the paradox about the race between Achilles and the Tortoise—had exercised great brains for many centuries.

It is interesting to have the analysis of the names of the 499 members of the Parliament. The Sinhas top the list with the strength of 13. Rao's and Das's are 11 each. There are 10 Misras, 8 Reddys, 7 Chaudhuris, 6 Joshies, 4 Shastries. Many names are there in threes and twos. There is a Muslim Azad and Hindu Azad. Members often are not agreed in the spelling of their names.

The known knowledge from unknown corners is (1) in north-eastern Iran the bones of three Stone Age people were unearthed, perhaps of 75,000 years ago, (2) explorers have uncovered a 7,000 year-old town site known as Jarmo in Iraq (3) scientists discovered under sea mountains 11,000 feet high in the Arctic and Pacific oceans.

The constitutional pundits and literary purists wrangle over, the synonymous nature of 'national' and 'official' in the language problem. Hindi will be official language from 1965. No mention is made of national language in the constitution. English has given us the unity in diversity for the cultural nexus that bound India from Srinagar to Cap Comorin, from Ajmere to Shillong was due to English language. It has also brought us new political and social concepts and scientific outlook. It helped us to march from mediaval to modern times. Anyway let us watch the switchover from English to Hindi.

## THE SURGEON AND THE PATIENT.

A famous surgeon, known for his outspokenness and high fees, was asked by a rich businessman who wanted a delicate operation. The fee demanded was Rs. 1000/-. "But that's outrageous!", cried the rich man. Then I suggest you go to Dr—said the surgeon.

"His fee will be half of mine and you won't have to pay for it, your heirs will".

Atomic bombs are not difficult to make but very difficult to destroy. The talk about an International agreement for abolishing and destroying all atomic bombs is inaccurate and misleading.

The brochure by Professor C. N. Vakil and Mr. P. R. Brahmananda on Economics of Electricity planning, supplies ample food for thought and action. The economic loss arising out of the power cut in India is about Rs. 75/- crores. The Five Year Plan draws attention to the fact that about Rs. 1000/- crores will be necessary for investment in industries, if the electricity produced under the Five Year Plan is to be utilised. But the Planning Commission has allocated only Rs. 100/- crores for industry. Therefore, we find there exists no co-ordination between the Industrial and Electrical targets of the Planning Commission. And we find the whole concept of Electricity planning needs immediate revision.

## Politics speaks :—

Congress alone can deliver the goods:

PANDIT NEHRU.

K. M. P. alone can save the country from corruption :

ACHARYA KIRPALANI.

Socialist alone can uplift the masses:

JAYAPRAKASH NARAYAN.

Jan Sangh alone can undo the partition:

Dr. SYAMAPAASAD MOOKERJEE.

Mahasabha alone can preserve Hindu culture :

Dr. N. B. KHARE.

Schedule Castes Federation alone can save the Harijans :

Dr. AMBEDKAR.

## The Modern philosopher :—

A philosopher is one who, instead of crying over spilt milk, consoles himself with the thought that it was four fifths water anyway.

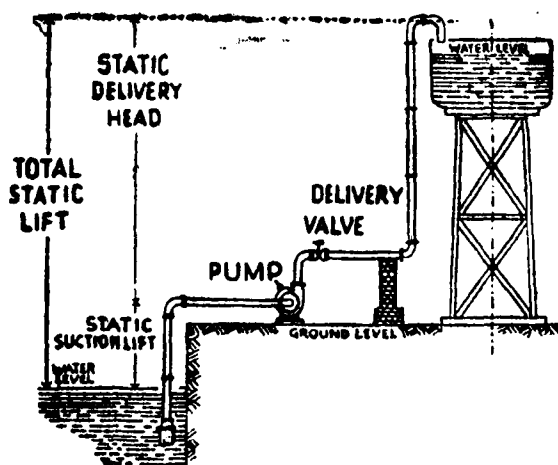
## The Engineer's role :—

The engineer's good management consists in treating those under him as human beings with hopes and fears, thought and feeling, pride and prejudice, muscle and mind, similar to his own.

### THE HEAD & THE LIFT :

India depends on Agriculture and Agriculture depends on irrigation. Apart from the huge Government controlled irrigation projects over rivers by means of dams, irrigation water is mostly pumped out from wells and tanks from the smallest peasant to the biggest landowner with the help of centrifugal pump—a powerful and pioneer engineering design, when coupled with motive power.

The pumping layout provides many problems which are overcome after detailed study. The total Head comprises of Total Static Lift plus extra head due to frictional loss in pipes and fittings. This extra head needs to be calculated and is to be added on the total static head in a typical pump installation.



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### DOWER OF DEMOCRACY :

Democracy has its own methods as well as its own ideals. One of the favourite methods of democracy for inculcating and propagating Truth is, according to Horace, through a laugh. Under monarchy or oligarchy, the gulf between superiors and inferiors is too wide to be covered by social commerce and the beautiful plant of laughter never thrives except under the general atmosphere of social equality. The taste for laughter has been natural to mankind. It is impossible for the king to enjoy a laugh openly—to enjoy the healthy laugh which has been the poor man's salt of life since the beginning of the world.

The advancing spirit of Democracy has changed all this. Healthy laughter has always been the rich dower of democracy. It has been identified and gets itself legitimised by the public. Wit and Humour have been raised in status. The service of laughter to democracy has been gratefully meritorious: for it has succeeded in rounding off the angularities of character, in levelling up assumed and artificial barriers of position and facilitating the realisation of doctrinal equality of men and women.

Laughter when enjoyed in common is the most potent instrument of creating sympathy and the transmission of the qualities of heart from one human being to another. Poets and Physicians have paid compliments to laughter which "will sweep away more cob-webs than all the logic of the world" and "which is a sunshine in a house".

Within limitations laughter is not only legitimate but is useful to the physical, intellectual and moral well being of mankind.



(Thoughtful & laughing mood)

Special Article—4**WATER RESOURCES**

By

**A. N. R. CHANDRAN, A.C.A.***(Mls. Chandra Foundries Ltd., Madras.)*

Water—what an indispensable convenience. Next to food and air, the most vital necessity of life is water; good health depends upon use of clean, uncontaminated water; joy and comfort you get in your home from the use of water; verdant lawns and colourful gardens are assured through the supply of ample water; the cattle and the cows require good and plentiful water; and above all your fields are rich only through proper and plentiful supply of water. In ancient times much ingenuity and thought were expended in developing vast irrigation and water supply schemes on gigantic scale with full knowledge of importance. In recent years geophysical methods have been widely used with great success in the exploration of latest water resources. In certain cases this has met with astonishing success.

The operation is very simple; any person who has sensitiveness to underground water has to take a "V" shaped twig and hold each side of "V" in each hand and proceed slowly step by step at a place where the spring is to be located. As soon as the person is on the spring the "V" point of the twig rises up. This rising is dependent on the sensitiveness each person has.

To tell my experiment and experience; during last summer my help to locate springs

was sought for by many people. Almost all the cases I tried proved to be of splendid success—a few instances on the point in the City limits being the tube wells working at the American Embassy Buildings, Mount Road, the one at Mr. Inderson's; the third at the Gemini Studio. There are good water diviners in the City of Madras as Mr. M. S. Sivaraman, Director of Agriculture, Mr. T. S. Ramachandran, Collector of Madras, Mr. Sakki Gopal, Mr. S. R. Ramadoss, L. F. Audits, whose help and guidance can be sought for before blindly digging wells.

Although a spring is struck, the supply is dependent on underground strata. Unless you strike at water bearing sand no copious supply can be had in delta area; the problem gets more complicated if the underground strata is rocky. It has to be noted that in some cases spots giving the best sensitiveness during the divining process are not able to supply water till 100 feet to 180 feet is bored down.

Let us pass to the practical aspect of the problem. The best way of developing water supply is by sinking bore holes through water bearing strata and fixing of filter points. Filter points are fixed in Tanjore District (South India) for Agricultural purposes and

even during the dry season, they have proved to be of success. Such arrangements are found to be convenient for domestic supply and are economical in cost and occupy minimum space besides supply of pure water. They are guaranteed in working for at least four years after which time they require cleaning and dressing to serve for the next same period. An artisan well may also be located on coastal plain where water passes downwards through porous stratum covered top and bottom by impervious layer of rock or clay. Such of these wells are seen so far only in South Arcot District (South India).

Food for thought is thought for food at the present hour in our big country with vast

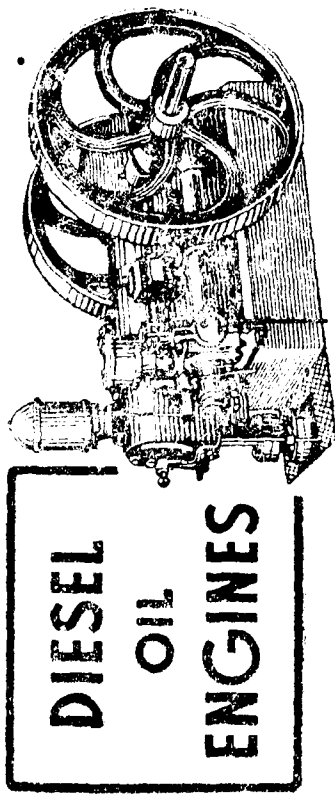
but barren land. The task of exploring the possibility of getting more water resources and thereby making our fields shaded by the waving grain rest with the State both Central and Provincial. For instance what the Government had done to explore the water in the Palar river (in the South India), which has very good supply of water a few feet or so below its bed? This source when tapped at different places can supply water for major portions of the South Arcot, North Arcot and Chengleput Districts. By such efforts and endeavours only the problem of plenty of water apart from what Nature bestows by way of rain, can be solved as to make our land one of peace and plenty.



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#### World's Wealth—

The world's wealth is not evenly distributed. The key to human aggression lies in this fact : communism thrives due to this factor. It is impossible to achieve a perfect balance of the scale of wealth, though more equitable distribution may be aimed at. Added to this, the world population rapidly increases and outruns supplies of food. This unhappy state of affairs exists in greater measure in Asia and the Middle East which consists 14 of the 25 countries of the world.

The rich countries are U.S.A., Canada, New Zealand, Sweden, U.K. They possess half the total world income while their population is only one-tenth of the total of the world.

Poverty is the underlying cause of the communist revolution in China : it is the basic reason of unrest in Persia and Egypt.

The remedy lies in the greater output of food and in the better improvement of the standard of living.

### THE WORLD.

|              |                                            |
|--------------|--------------------------------------------|
| Population } | 2,400 millions                             |
| Total Area } | 197,214,000 Sq. Miles.                     |
| Land }       | 57,468,272 Sq. Miles.                      |
| Water }      | 139,745,728 Sq. Miles.                     |
| Note :       | Rate of growth of population—60,000 a day. |

#### DISTRIBUTION OF POPULATION :

|                       |                  |     |
|-----------------------|------------------|-----|
| Asia                  | 1/5 of land area | 50% |
| Africa                | do               | 8%  |
| North & South America | 1/3 of land area | 13% |
| other parts           |                  | 29% |

#### PER CAPITA INCOME :

|                                   |     |
|-----------------------------------|-----|
| Europe & Commonwealth Countries : | £   |
| U.S.A.                            | 519 |
| Canada                            | 311 |
| New-Zealand                       | 315 |
| Sweden                            | 279 |
| U.K.                              | 276 |
| Australia                         | 242 |
| Belgium                           | 208 |
| Middle East countries :           |     |
| Isreal                            | 138 |
| Turkey                            | 44  |
| Egypt                             | 39  |
| Persia                            | 30  |
| Iraq                              | 30  |
| Far East Countries :              |     |
| Japan                             | 39  |
| India                             | 20  |
| Pakistan                          | 18  |
| Burma                             | 13  |
| South Korea                       | 12  |
| China                             | 10  |

## Law & Life :

One of the obligations of Freedom (vide Art. 14 of the Indian Constitution) is equal protection of the laws. Ordinarily speaking, no citizen is above the law of the land.

For a couple of centuries India was under the British system of Jurisprudence, as a result of which she has accepted the supremacy of the rule of law. But British Jurisprudence which has derived from many sources such as Roman Law, has not been assimilated into the cultural life of the Indian community for India's own legal tradition derives from remote antiquity—the law of the Smritis. And Indian Law has stagnated due to ignorance of the language of texts and of the traditional modes of interpretation; religion and customs stood in the way of progress in this direction.

Law should not be allowed to fall too much out of step with the changing conditions of ordinary life nor it should be continually subject to alterations. In short it must be careful not to jump. Taking bits from the very different ideologies of the Welfare State, the totalitarian regimes and making an indigestible melange of them is a wrong move in the study, codification and then application of law to life.

Ingenuity of counsel and intelligence of judges should come to the rescue of meeting any intricate problems for the proper administration of justice to the citizens of the land.



Judge : Will the plaintiff take his stand in the witness-box ?

Lawyer : Yes, Mi'lord.

## Special Article—5

# FLOODLIGHTING BY FLOURESCENT LAMPS

BY

V. K. SUNDARAM, B.SC.

The applications of electricity in modern society and the jobs thereby created are so numerous that a large volume could be written on these aspects alone. The main categories of electrical devices are motive power, heating, lighting, research and so forth.

In this short article I deal about one aspect of lighting. Generally speaking the sole purpose of lighting is to serve vision; the development of lighting methods of lighting equipment must be directed towards that end. In recent years the study of vision has influenced lighting practice to a great extent. The method of lighting reveal or conceal fine details; the eye may be protected or strained; the place of lighting cheerful, depressing or even distressing as the case may be.

Lighting engineering differs from other branches of engineering in that designs must be based upon physiological and psychological consideration, and the ultimate aim and success of design cannot be stated in simple numerical terms. To understand the changing practice and status of lighting engineering, it is important to realise that increasing attention is being given to the effectiveness of lighting as judged on the basis of the utilisation and conservation of human resources, rather than of electrical and radiant energy. The most significant development in lamp design is in the form of tubular fluorescent lamp which is now used for domestic and commercial purposes on a large scale especially in the United States of America.

Floodlighting has been developed as an efficient method for architectural features. The object of floodlighting is to bring into being as far as possible the effect of natural daylight

on a building or tree. There are certain difficulties met with while achieving this. Contrasting shadows are absolutely essential in producing the "effect" on the human eye to establish the impression of 'form'. This is particularly so in the case of buildings with architectural designs as cornices, projections etc. In the case of natural sunlight the source of light is from above and consequently shades are caused in the undersurfaces of cornices, window sills, corners and etc., and thus causing the contrasts. The human eye accustomed to discern objects in relation to the contrasting shadows is able to "see" the buildings in its proper perspective. Floodlighting is done from below and naturally the shades in the undersurfaces would not be there. Unless care is taken to produce the contrasts here and there, the effect would be "flat". Careful arrangement of lights with different intensities would produce the desired contrasts.

Flourescent lamps have a great advantage over ordinary filament lamps in floodlighting. In a proper housing a fluorescent lamp can be made to give a better effect than the filament lamp with the usual reflector. Especially when colour is needed fluorescent excel by far compared to the filament lamp. The advantage can be explained thus.

Colour floodlighting by ordinary filament lamps necessitates the use of "filters" to produce the desired colour. Light while passing through colour media loses its intensity owing to the 'absorption' of light by the coloured filter. This relative 'absorption' varies according to the colour of the filter. So in essence if a thousand watt filament lamp is

provided with a colour filter, the 'coloured' light that emerges will not have the same intensity of the 1000 watt capacity. Naturally the wattage has to be stepped up to bring the full effect. This is a great increase on the general load of the system apart from the lack of economy. In the case of fluorescent lamps however the matter is quite different. These lamps can generate the colour without the use of the conventional filters. This is an advantage in cutting down operational costs. Apart from this, using the three primary colours, and a carefully designed dimmer circuit, in concernably different 'hues' can be created which would be pleasing to the eye and at the same time lessening the strain of load on the system.

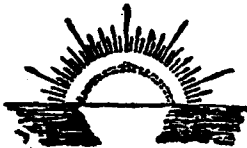
Judicious use of these colour fluorescent lamps with a dimmer circuit would come in handy for many jobs, particularly while flood-lighting trees. The trunk and foliage have different colours, and the foliage itself differs in the shades of its basic colour, depending on the season. The leaves in Spring have a different hue from that of those in Summer.

A planned system of flood lighting can bring in the subtle colour changes of the foliage and the effects of autumn, spring, winter and summer could be had. So, within a few minutes one could discern the changing colour of the leaves as they would in natural season. What could be more novel and pleasing than this? In quick or slow succession the individual could arrange for the colour change of the leaves.

The dimmer circuit which is necessary for this is in fact only a modification of the other usual types. The principle is the maintenance of the cathodes at emission temperatures through a specially designed transformer which can heat the cathodes, and keeping an independent control or the arc through a choke and variable resistance in series. A small motor would enable the system to operate in an order. The sequence, intensity of light and etc., must be carefully planned by the individual concerned. The adjustment of the speed of the motor through different pulley drives will facilitate as much of variations as possible. Apart from this, of course, the changing of the lamps themselves is there to bring in more variety.

Even in underwater lighting fluorescent lamps can be used with advantage. Special water-tight fittings are not necessary. The lamp ends and the holders could be made water-proof by sleeves and this precaution is ample to prevent any short circuiting. Bathing pools, ponds and fountains could be beautifully illuminated. If this is done in colour the effect is so very pleasing to the eye.

The scope of fluorescent floodlighting is great indeed, and considering the advantages this has over the orthodox filament lamps, it can be expected that before long the filament flood lamp would be completely eliminated. The uses to which these fluorescent lamps can be put is enormous. In the days of acute power cuts and lack of sufficient KW, the employment of fluorescent Floodlighting has a special advantage.



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5. — OT     ...Many people like to save a good thing from this.

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1. All entries should be on forms taken from the Power's Supplement or on our blank entry forms. Fill up each dash with one apt letter in ink only. Pencil entries will be disqualified. All entries should be accompanied by M.O. Receipts or Postal Orders. In all cases the Surname and address must be stated on the back of the cover containing entries.
2. Competitors should carefully and legibly write their names, initials and full address in bold letters and in ink only. Entry or entries in one envelope should be for the same competition and bear the same surname. More than one entry by the same competitor may be paid by a single remittance.
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4. The official Key solution will be deposited with the **Bharatha Lakshmi Bank Ltd., Madras** before the 10th of every month in a sealed cover and a certified copy of the same will be published along with the name or

- names of the prize winners in the succeeding issue of the Power's Supplement.
5. In case of more than one All correct Entry which agrees with the official Key solution, the first prize will be equally divided among such correct entries. In the event of no solution agreeing exactly with the official key solution, the first prize will be awarded or will be distributed among such entries which are nearest to the official solution. In such cases the editor's decision is final. The same rules will apply to the case of Runners-up also. No competitor can get more than one prize in a competition.
6. Any scrutiny claim may be made by registered post only by any competitor within 7 days from the date of publication of the prize list in the Power's Supplement on a payment of scrutiny fees of Rs.3/- which should be by M.O. or postal order to the Power.
7. The competitor is bound by the relevant rules and conditions of the competition. All legal disputes if any regarding the competition shall lie in the jurisdiction of the Madras city courts only. Any claim for a prize money under the competition should be made in writing within 15 days after the publication of the prize list of the competition. In no case shall a claim for a prize be made after expiration of three months from the date of publication of the prize-list.
8. Employees of the Power are debarred from taking part in this competition.

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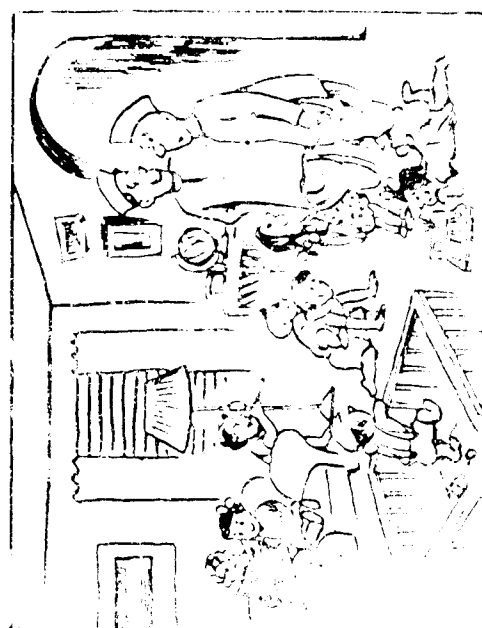
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"Sure, We like Freedom. But watch out for misguiding and mischievous mongers who try to spoil the name of our Freedom. Y'know, our great leaders passed along to us this great wonderful country with all the important freedoms included. Wouldn't we be pretty poor parents if we, in turn, hand over India as bankrupt to our kids?"

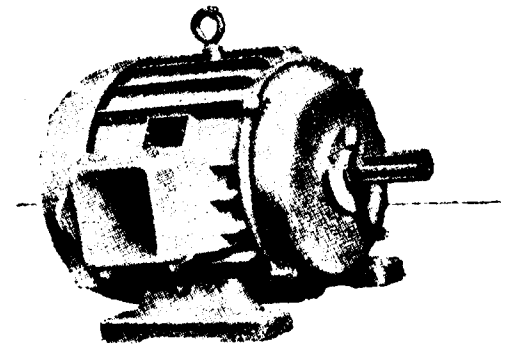
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Special Article—6**TRADE TRIANGLE**

(by Miss K. Saraswathi, B. A.)

The impact of Trade and Industry on the social, political and economic progress of a country is a vital factor in a nation's History. Capital, Management and Labour are the three arms of strength of the trade triangle in an organised industry which is, above all, a social purpose.

The overwhelming part of all capital for industry and trade has been provided by the middle-class man from out of his savings. Statistics prove that 80% of the share holders in any joint enterprise belong to the middle class especially in India which is devoid of many Dupouts, Nuffields and Rock-fellers. To-day the middleman's savings get dried up due to height of inflation and the consequent high cost of living and the few exceptions among them are not educated to invest; therefore the talk about Capital on Strike becomes increasingly aloud. The foreign investor of capital has had plenty of experience of late in investments in the Eastern Countries. To quote one instance, Abadan has taught him morals and maxims. And the little external aid we get may be confined to ad hoc loans by the International Monetary Fund at purely Governmental level.

We have to remember that industries are built to stay for decades and centuries, though premiers, cabinets and parties in power may depart and dwindle quickly. Therefore the sanctity and stability about covenants and guarantees of the Governments are essential for the spirit of safety for the investors. In an agricultural country like India, the agricultural sector is the single biggest available source of capital. The spread of investments by the agriculturists over several trade and industrial sectors guaranteed by reasonable return and supported, supplemented by an Industrial Finance Corporation is the only way for solving the problem of capital.

The term Management is generally used somewhat loosely to describe the general conduct and control of an enterprise, irrespective of the different functions involved. The enlargement of the sphere of management has come about partly through the growth in the size of the industrial units and partly through

the specialization made necessary by increased technicality. In capitalist industry, the scope of managerial discretion is limited by the requirement of whatever is done must be profitable in either the immediate or some more or less reasonable future. The obligations of management involve (1) the state and community (2) service to the producer (3) service to the consumer and (4) fair price.

Management owes the producer a fair return for his effort, skill and ability. Justice in wage matters is a question of relativity. The management has to reward both capital and labour fairly. The duty of management is to manage, that is, to order and dispose materials and persons so that the product of industry may subserve the highest social ends, ensuring good service to the consumer and to the producer a measure of freedom and independence and a reward sufficient to establish and develop him as a man and citizen.

The harmony of Labour with Management is the prime requisite for higher production but the temper of labour to-day is not to help in augmenting the national wealth but to gain more concessions for itself. It can be conclusively proved that the productivity of Indian Labour is four times less than that of its counterpart in some of the industrially advanced countries. And yet no attempt is being made in India to relate labour's remuneration to production. The Labour Wages Bill in the country rose from Rs. 36 crores in 1939 to Rs. 170 crores in 1948. Alas! The Government's labour legislation reckons without the fact that right cannot exist independently of duties.

The United States of America is a leading example of holding the balance between Agriculture and Industry in general and of three requisities of the Trade Triangle. This has helped the country to achieve astonishing results as being reflected in the rise in the national income from about 100 billion dollars in 1941 to about 250 billion dollars in 1951.

As such it is hoped that all national plans will be of fine and feasible nature for the development of Trade and Industry in a country like India which ranks among the first seven industrial nations of the world.

Pastime in Pictures :—5**MEMORIES OF MEN & MATTERS:**

Great names and events are kept alive by the appearance on Postage Stamps. A link with Literature, Art and History is established thereby. The West is earnest, but the East is apathetic in the field of philately.

Lord Nelson appeared in the stamps of Barbados (1906). Can we mention a more famous name?

A Trinidad and Tobago issue of stamp (1935) shows the discovery of Lake Asphalt by Sir Walter Raleigh.

An Australian stamp appeared (1930) honouring Capt. Charles Stuart, the explorer.

The architect of Indian Freedom, Gandhiji is also remembered at the sight of Indian stamps.

"Nato"—the North Atlantic Treaty Organization—has been honoured by the United States with a commemoration stamp. The central design depicts a torch, symbolising freedom and peace, being held aloft by human hands. The stamp bears the inscription "Peace-Strength-Freedom" in its bottom panel.

Look up as much as you possibly can about the famous people and events; it will add tremendously to the interest you already get from your hobby.



(First Day cover from the U.S.A. honouring the North Atlantic Treaty Organization)

## SWITCHES & SWITCHING

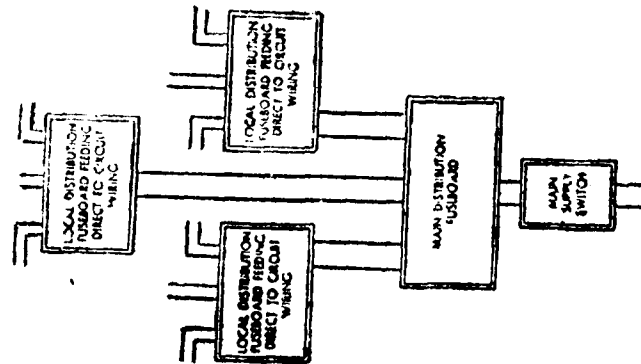
Switches and Switching form the main control in any electrical installation whose primary object is to distribute the electrical energy to the various points at which it is required and which involves wiring, switching, fitting, testing and etc.

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## News & Notes

### THE WORLD AT A GLANCE.

(Jan—July '52.)

#### INSIDE INDIA

India's first elections under adult suffrage have ended in the early part of the year. The event passed into history as the world's biggest General Election, with the largest electorates of 176 million men and women. 17,000 candidates representing nearly 75 political parties contested. 3,278 members to the 22 State Assemblies and 489 to the House of People were chosen. The congress party returned with absolute majority in 18 out of the 22 states and in three Electoral colleges and also at the centre. In the four remaining states—Orissa, Travancore-Cochin, Pepsu and Madras—the biggest single party, the Congress—but short of absolute majority has assumed power. Dr. Rajendra Prasad and Dr. S. Radhakrishnan were elected president and vice-president of the Republic India. Pundit Jawaharlal Nehru formed his cabinet at the centre.

Kashmir or no Kashmir, the relations between India & Pakistan should be normal—that was the concern of the common man in both the countries. The new attitude that Kashmir has taken under the guidance of Sheik Mohamed Abdullah has complicated the problem—the idea of limited accession. India has lost men and money over Kashmir and should not lose any more on Independent Kashmir which appears to be the agitation to-day.

India has taken an active part in the United Nations Organisation which was formed with the object of preserving peace, fostering freedom and promoting international co-operation in social, cultural and econo-

mic matters. India believes that the United Nations is to-day the only hope and aspiration of mankind. India served in the principal organs of the United Nations, namely the General Assembly, the Security Council and the Economic and Social Council. In all her activities in the council of the United Nations, her aim was to secure, in the interest of peace and human betterment, the maximum agreement possible and all reasonable proposals and in conformity with the spirit of the Charter,

A Film Festival in India—the first of its kind in Asia—was organized by the Government of India. Delegations from leading countries all over the world were invited. The Festival for the first time brought together film stars, producers and technicians of international repute. It is worthy of mention that India occupies now the second place in the world as a film-maker.

The downward trend of prices was marked in the whole country and it caused different reactions among different people. The majority of the people who were groaning under the weight of high cost of living, have sought relief in the slump. The Government was watching the situation and seemed to be in favour of the general public. Easy money by easy means—this was gone perhaps for ever. When all is felt and said, there is nothing wrong with low prices from all point of view except that of the speculator.

The Indian Tariff Commission—a statutory body set up by an Act of Parliament—has much scope and functions. It has to examine and review cases of protection to Indian Industry, is empowered to consider claims to protection not only from established industries but also from industries on the point of starting production.

Madras leads, thanks to the chief minister Rajaji, in the abolition of the control and rationing of food grains. The other states in India have begun to follow this courageous

measure. The man in the street feels a sigh of relief at this bold experiment.

### INSIDE EUROPE

The Commonwealth Finance Ministers Conference held in London in January last did not produce any tangible results in the direction of restoring equilibrium in its trade by immediate monetary measures, the free convertibility of sterling etc. The decision arrived to make sterling a free currency promises to go a long way in curing the dollar disease affecting the entire commonwealth trade system. Other steps were planned which would give to sterling the strength it must have to continue as a widely used international currency. Inter alia, the conference discussed the possible means to check inflation, to increase exports, earning power and to cut the imports from dollar areas.

The Marshall Plan has ended. It was initiated by General C. Marshall, America's then Secretary of State. The plan has meant cash, jobs, food, homes, ships and factories to 18 East European Nations threatened with postwar economic collapse. It has spent more than 12,000 million in boosting European industrial production by 64% since 1947. The European main production increases are steel (almost doubled), Coal (up to 27%), Aluminium (up to 69%), Copper (up to 31%), Cement (up to 90%) Food (up to 24%), higher than pre-war level.

A calamity of enormous magnitude befell British people; King George VI of England suddenly passed away on February 6. He lived to share the joys and sufferings of the British people. It is significant that the British Royal House has stood firm in favour of Republic of India. His first daughter Queen Elizabeth II succeeded to the throne.

French politics had become a practical joke, instead of a serious business. The cabinet crisis in France became the order of the day. A detailed survey of the French econo-

mic situation will reveal that France is living beyond her means.

The eyes of the world were attracted at the North Atlantic Alliance (NATO) consisting of the Western Allies and with its headquarters at Paris. The main object was to create one internationalized uniform army of 2,000,000 men and 6,000 war planes—the greatest peacetime and peace policing build up in history.

National revenue in Soviet Union seems to increase from year to year from 302,000 million roubles in 1948 to 419,000 million roubles in 1952. This surplus yield presents an exhilarating picture in a world where deficit budgeting is the general rule. Biggest expenditures are connected with capital investments, industry, agriculture etc. And there are to be no cuts at all in the Social Services provided for the people.

### INSIDE AMERICA

Mr. Churchill's visit to America early January was significant, as it ended with momentous talks with President Truman. The premier and the president discussed about Middle East, South East, Asia, Far East, the defence of the West etc., with emphasis on European Alliance—particularly NATO.

The battle for presidency in the U. S. A. began. President Truman's decision to step down surprised the whole world. The Republican and Democratic conventions were held in Chicago last month. And the Republican Party (a minority party) has nominated Eisenhower in preference to Taft. The Democratic party named Mr. Adlai E. Stevenson, Governor of the State of Illinois, the official candidate for the Presidency. In September, the Republican and the Democratic nominees for the presidency begin extensive speaking tours. And the general elections will be held in November.

Scholars from every continent will contribute to a 3,000,000-word history of mankind.

to be sponsored by the United Nations, Educational, Scientific and Cultural Organizations. The project will trace the development of all peoples from pre-historic man to the present. The basic edition of the new history is scheduled to be completed in 1957 and is expected to cost \$ 600,000 of which UNESCO will contribute \$ 400,000. An international commission headed by Paulo B. Carneiro, an editorial committee headed by Dr. Ralph E. Tunner, a panel of 75 scholars of research and writings, about 1,000 contributors will help in the task. The history will be published in English, French and Spanish and later in Arabic, Hindi and other languages.

### INDIA ASIA, AFRICA & AUSTRALIA

The new born nation in Libya (Africa) after a struggle of 40 years, with the end of Italian colonization, has achieved its status as an independent and sovereign nation through the help of the U. N. General Assembly. Libya may play a great part in the future to come, as one of strategic importance between the Arab world and the West.

Tension arose in Tunisia as a sequel of French Governments refusal to satisfy their legitimate national demands as outlined in the memorandum to the French Government of year. Events assumed a sharper turn in the form of strikes and clashes with the authorities. The French yielded to the growing movement by way of agreements which would give Tunisia its independence.

Iran gave a blow to Britain in the form of Oil Dispute by taking control of the Iran's Oil Fields. The British Government own 53% of the stock of the Anglo-Iranian Oil Company, and has been depending on this fuel to run the British Navy and the Air Force. In spite of the International Bank Mission, the solution of the problem has not been arrived at more due to the extreme methods of Iran's premier Dr. Mossadig.

Events have moved in Egypt with dramatic swiftness. King Farouk was compelled to abdicate and the baby Faud has been proclaimed King instead. General Naguib has caused this event which goes down to history. King Farouk entered on his reign a popular prince and was given wide powers by the Egyptian Constitution. His relations with the Wafd, the most popular political party in Egypt, have been strained. In his attempt of ousting it from power, he failed to carry the country with him. The army has entered politics again after a long lapse. It remains to be seen how soon the handing back to power to civilian authority will take place so that the nations' international problems may be solved.

Japan resumed her status as an Independent and Sovereign Power on April 28. America ratified the Japanese Peace Treaty, thereby ending the Allied occupation of Japan. The Treaty of Peace opens a new era in Japan's history and affords Japan an opportunity to make a great contribution to world peace and progress. Japan now takes her rightful place of equality and honour among the free nations of the world.

The abolition of racial distinctions is the object of fifty and odd nations that make up the United Nations Organisation. But Dr. Malan, the South African Prime Minister, has chosen to stultify in the eyes of the civilised world by his persistence in the policy of racial hatred. The struggle has already started to root out the racial arrogance and the tide of Fascism.

The Korean Tangle is growing bad to worse. Truce talks have been dragging on for months perhaps in vain. The American handling of the situation has made the prospect for peace a distant one. The sudden launching of air attacks on North Korean Power Plants, the crossing of the 38th parallel, all these and many more have provoked the Communists. No one knows where the conflagration may stop.

The death of Don Stephen Senanayake, the Prime Minister of Ceylon, was a great loss to the island. Though he took to politics late in life, he became the foremost statesman and never looked back. The general elections were held in spite of the glaring injustice meted out to Indians on the question of franchise rights and Dudley Senanayake, the son of D. S. Senanayake, has become the Premier.

Australia is undergoing a political crisis in the form of a major clash between the States and Federal Government. One aspect of this crisis which is not only political but to some extent economical and constitutional is the fight over the allocation of funds. The odds seem against Menzies and his supporters. Such developments are visible against a background of faltering prosperity. The fall in

trade and industry has already begun in the country. Australian Agriculture is losing ground both in men and production, thereby making clear that the Government cannot expect an early and spectacular relief of economic pressure from the country side.

### SPORTING SCRAPS

England won the Rubber against India in the Test Matches in Cricket by having three successive victories. In spite of the batting and bowling strength on the Indian side, the series of reverses are most unfortunate. It is unwise to take the defeat to heart too much.

The fifteenth Olympiad at the Olympic Stadium in Helsinki opened with the participation of almost every country in the world. It was inaugurated by the President of Finland.

### In a Few Lines

Dr. Montessori, the Educational Reformer, died on May 6.

Sir B. N. Rao is the first Indian elected Judge of the International Court at the Hague.

Sir Stafford Cripps, the great British Statesman, passed away on April 21.

Dr. John Dewey, the great American Philosopher and Educationist died at the age of 92.

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The foundation stone of the All India Arts and Crafts Society was laid in New Delhi.

An appeal to engineers to face their problems with courage was made by H. E. Sri Prakasa, the Governor of Madras.

The forward contracts (Regulation) Bill providing for the regulation of forward trading, the prohibition of options in goods, was introduced in the House of the People at New Delhi.

### Thought for the Month.

We meet in friendship beneath the sky  
To pledge ourselves to brotherhood  
And to build a better world.

### DO YOU KNOW?

#### Figures Speak !

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