

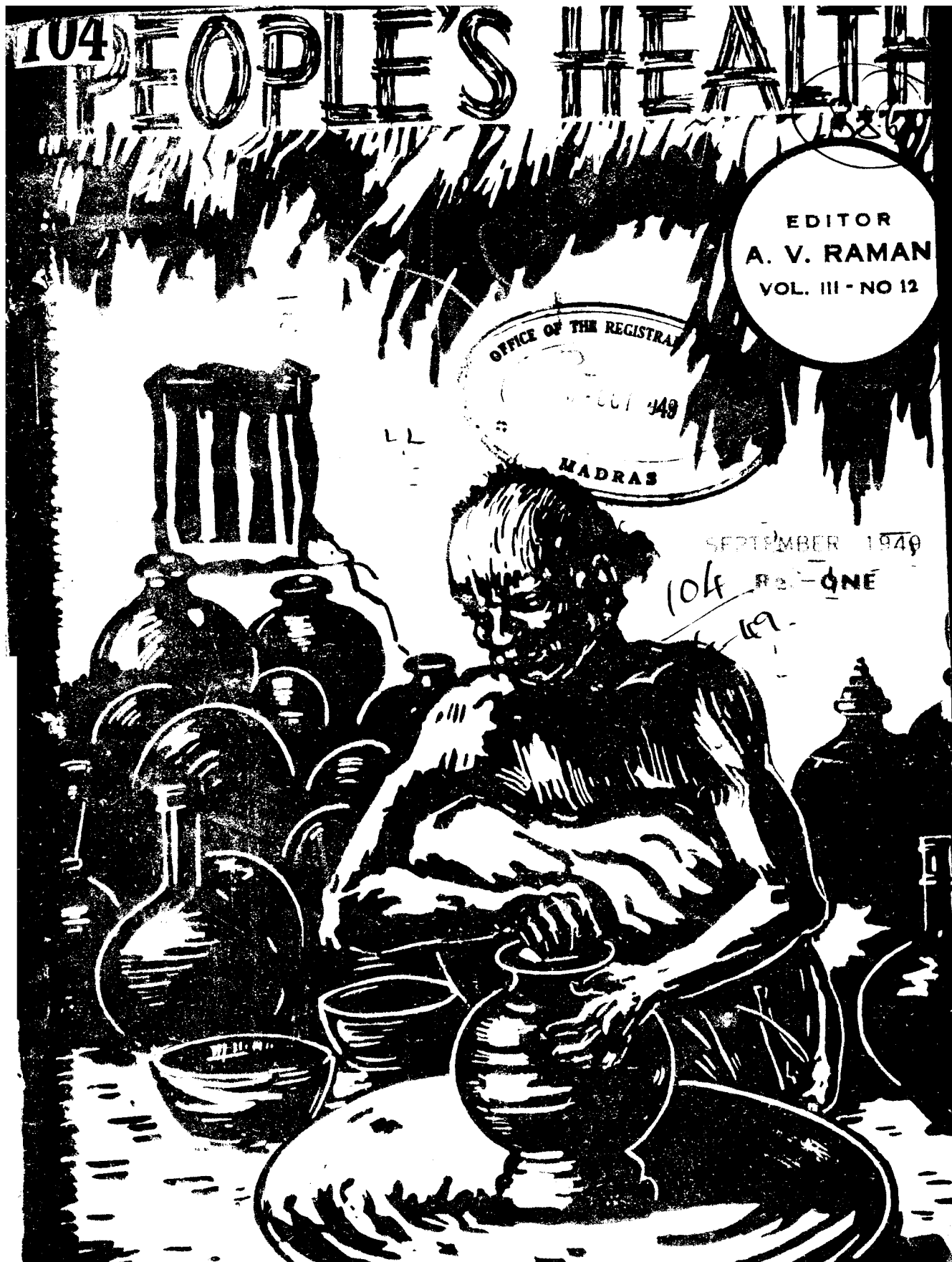
PEOPLE'S HEALTH

Vol. III



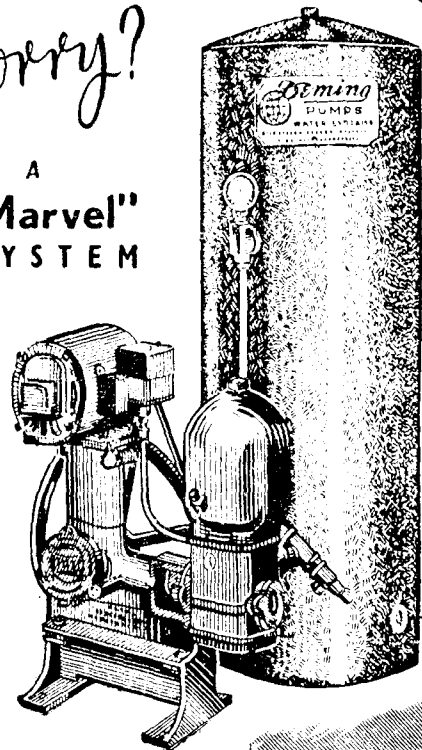
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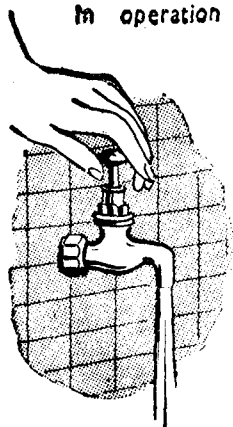


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AN APPEAL TO OUR SUBSCRIBERS

"People's Health" is being published in a spirit of crusadership without minding the financial losses involved. By now, our subscribers would have understood that the magazine is not a commercial venture and that it is primarily a propaganda magazine to educate public opinion and make the people health-conscious. While thanking our subscribers for the support they have given us, we appeal to them to continue to lend their support in publishing this magazine.

Vol. IV of the magazine commences from October, 1949. We cannot afford to print copies indiscriminately without precisely assessing the demand for it. We would therefore appeal to those who desire to discontinue subscribing for the magazine to favour us by giving us advance intimation not later than 20th October, 1949. If no intimation is received, we would assume that they are agreeable to continue as subscribers and we shall despatch copies of the magazine, as usual, regularly to them.

Kindly note that we do not enrol subscribers for part of the year.

The annual subscription is Rs. 12 payable at Madras. Those who send cheques in payment of the subscription, are requested to add the bankers' commission also.

ROYAPETTAH,
Madras, 14.

MANAGER,
People's Health.

PEOPLE'S HEALTH

A Pioneer in the Field of Public Health

Vol. III SEPTEMBER, 1949 No. 12

CONTENTS

Subject and Author	PAGE
Editorial	527
Organisation of a Health Service in Industry— By DR. M. N. GUPTA	533
Utilisation of City's Sewage— By A. P. H. E. AND M. O. H. ..	539
The Neighbourhood Concept in Town Planning— By K. K. NAMBIAR	542
An Experiment in Industrial Health— By ARTHUR BUSH	545
Blood Pressure—Its Meaning .. By JENNIE Q. ADATTO	549
Industrial Medicine— By K. S. KRISHNAN	551
Book-Shelf	560
What Do They Say About It? ..	564



VOL. III No. 12

SEPTEMBER, 1949

ISSUED MONTHLY

EDITORIAL . . .

"Engineering is the art of doing that well with one dollar which any bungler can do with two after a fashion."

—WELLINGTON.

A HAPPY AUGURY

The Madras Ministry of Health appointed a Committee in June 1947 to consider the question of expediting the investigation, design and execution of all water-supply and drainage schemes, urban and rural, comprehensively taking into consideration all aspects of the problems such as paucity of technical men, dearth of materials of construction, the limited state finance which would be available for the purpose. The Committee submitted the report by the end of August, 1947. The Committee made many important and far-reaching recommendations. One of them was to utilise the Army Engineering Division and Labour Corps stationed in any area during peacetime for the execution of water-supply

and drainage schemes in the neighbouring localities.

According to a recent press note, the Government of Madras have accepted, with the concurrence of the Government of India, the recommendations of the Committee in this respect. The Committee urged as an argument in favour of the proposal that the employment of army on such works would lead to public appreciation of the work of the National Army for the benefit of the people and it would also develop better relationship and cordiality between them and the people, which is highly essential. Apart from these considerations, there is one other aspect i.e., the training so obtained in the execution of specialised works like water

supply, drainage and improving the environmental sanitation, would be of considerable utility to the Army also, when engaged in active service.

We therefore commend this procedure being adopted all over the country for the mutual advantage of the Army and the people. It is now for the technical authorities in the Provinces to co-operate with the new agencies which would be available for them in the execution of works. The success of the scheme is largely dependent upon the willing and active co-operation of the Government technical officers and the Army officers. We are sure that it would be forthcoming in an abundant measure.

WHO AND ENVIRONMENTAL SANITATION

We have already drawn attention to the fact that WHO is not interested in improving the environmental sanitation of the countries where it is at present at the lowest level. Environmental sanitation is essentially an engineering problem—a public health engineering problem. Neither WHO nor the Government of India thought fit to depute a few engineers to attend the famous public health exhibition and engineering congress held in December 1948, at London.

It is recognised by one and all including WHO, that more than three

quarters of the world population are still victims of diseases resulting from poor environmental sanitation. It is also recognised that no permanent advance could be made in combating diseases which are brought about by poor environmental conditions, without first removing the root causes of such ill-health.

SERVICE OR PROPAGANDA?

We are told that WHO has set up a committee to go into the question of environmental sanitation. The object appears to be the "education and preparation of both town and country people for a change in their sanitary practices." Which is to come first? Is it service through improving sanitation or education? Tons of educative propaganda to use safe water for drinking purposes cannot provide an ounce of that precious commodity to the thirsty masses!

NOT INTERESTED TO SERVE PEOPLE

The Government have decided to send a nominee of theirs to the Sub-Committee on Environmental Sanitation, set up by WHO. But the interest the Government of India has in it, is but skin deep, and why? When the WHO pays the cost of travel from India to Geneva and back, cannot the Government of India depute their nominee to visit certain other places in Europe also, and get some first-hand knowledge

of the extent to which the environmental sanitation has progressed in those countries? It so happens that this very nominee is a member of the Environmental Hygiene Committee set up by the Government of India! We are sure the usual 'stringency of finance' would have been adduced as the reason for the Government of India refusing permission to that officer to visit other places. The cost would not have been prohibitive. It may involve a few thousands of rupees, at the most Rs. 4,000 in all. Look at the other picture! When the Minister of Health, Government of India, went to attend a meeting of the WHO, a team of medical experts followed her. And what would have been the cost involved? Recently, when nutrition laboratories were started in Calcutta, a number of nutrition experts from all over the country congregated there. What is the purpose served and again what was the cost involved? We maintain that our ministries of health, especially the Central, are not really sincere in improving the living conditions of the masses. They seem to move, only when vested interests motivate them to act. In improving environmental sanitation, no such interests are involved. Naturally, it has no charms for those in authority. We think there can be no salvation at all for the masses, unless the mentality of those who are in harness today changes.

If their mentality cannot be changed, they must be replaced by popular will, by others who have a zest for service in the right direction.

WHY DRAG IN MAHATMAJI?

The mere invocation of the magic name of Mahatmaji and appeals to the people to follow his ideals, mean nothing concrete. Mahatmaji was a sanitarian first and sanitarian last. The high ideals which he set up before the nation are all based upon improving the living conditions of the people and the other good results, which he referred to, do arise only from such improvements. It is most tragic that people who talk so much about Mahatmaji and his ideals, talk with their tongues in their cheeks. How long should this state of affairs continue in our so-called Independent India? To instil in our minds the importance of sanitation, Mahatmaji did not hesitate to do even scavenging work himself! His followers today, tasting the fruits of his penance, do not evince the same zeal in such matters. How can his soul rest in peace?

HISTORY REPEATS ITSELF!

We understand that in December 1950, another exhibition and congress connected with public health and engineering will be held in London. We are sure that the Government of India and the provincial governments would not

think of deputing a few engineers to visit the exhibition and attend the congress for the simple reason that no vested interest would be served by their doing so.

We understand that the Minister of Health, Government of India, is proposing to visit the City of Madras for laying the foundation stone for a College to train nurses to be started by the *Andhra Mahila Sabha*. We congratulate the *Andhra Mahila Sabha* on their move; but we fail to understand the logic of how the very financial considerations, pleaded as an excuse for not permitting the engineer-officer to the WHO to visit the other portions of Europe, can now allow an expensive trip from Delhi to Madras and back, by the Minister of Health with her entourage?

FIGHT AGAINST POLIOMYELITIS

The City of Bombay was, sometime back, in the grip of an epidemic of poliomyelitis, popularly known as infantile paralysis. It was apprehended that it may take the form of an epidemic throughout the country. When there were a few cases of Polio, in Delhi, Rajkumari Amrit Kaur, Health Minister, Government of India, issued a statement on the precautions to be taken to nip the threatened epidemic in the bud. We have not had the benefit of knowing the full text of her

statement. We wish that statements of this nature are published *in extenso* in the Press, especially in such newspapers and magazines as are specialising in public health propaganda, like the *People's Health*. But the authorities do not seem to see the need for full publicity!

POOR FLIES!

In the August 49 issue of *People's Health*, even before the Minister of Health, Government of India, issued a statement on the subject, we extracted for public information the clinical features of the disease, its infectivity, action by the medical officers of health and laboratory investigations, from the well known medical magazine—*The Lancet*. The Minister's statement makes out that the fly is the villain of the piece. Poor flies! Had they a voice in the matter, they would have questioned whether they are wholly responsible for the dissemination of the disease. Scientific investigations have so far established *only that polio virus was isolated in the stomach of the fly*. From this fact, it was inferred that fly *may* be responsible for the spread of polio. We do not, however, question the necessity for the prevention of fly-breeding. As a precautionary measure, people are advised that all dustbins should be sprayed with 5 to 10 per cent DDT-solution. Are there dustbins at all worth the name

in this country? Have any efforts been made so far to manufacture dustbins satisfying hygienic requirements? So far as Madras is concerned, it is nearly five years, perhaps more, since the Government decided to have sanitary dustbins manufactured for domestic as well as for public use. This duty was thrust upon the Director of Public Health, as though he were an authority in the manufacture of conservancy tools and plants. So far nothing has been done in this direction. It did not occur to our ministry of health that the proper technical officer who should be called upon to design one is, the Sanitary Engineer to Government. This is however, by the way.

IS IT WATER-BORNE OR FLY-BORNE?

Coming to the point, polio is considered more a *water-borne disease* rather than a disease communicated through flies. What is the good of talking about preventive measures against polio and other water-borne diseases without first taking steps to provide the people with safe drinking water? In these columns we have been urging times without number that the first and foremost step to be taken up by our ministries of health is the improvement of the living conditions of the masses, and more particularly, the provision of safe and abundant drinking water. What is the good of shedding crocodile tears over the deplorable condi-

tions in which our people live and asking them to keep their environment clean to avoid breeding of flies? This is one of the many instances to show that our health ministries should reorient their policy towards promotion and maintenance of public health.

INVESTIGATION INDEED!

Another interesting feature is the publication of the news that the Director-General of Health Services in India had decided to start investigations, as soon as possible, into the methods of the spread and control of poliomyelitis at the Haffkine Institute, Bombay, under the supervision of the Indian Institute of Research, New Delhi. Are we to understand that the accretion of knowledge on the subject as a result of investigations conducted all over the world is not adequate enough for the Director-General of Health Services, to take an effective drive against polio?

WHERE ARE THEY HIDING?

We ask our public health medical experts to come out with a statement as to where the cholera vibrios hide themselves during the non-epidemic seasons and flare up into an epidemic all of a sudden. If they could throw some light on this aspect of the subject, it may lead to the eradication of this annual epidemic in this country and elsewhere. How is it that in western

countries, they had been able to eradicate cholera altogether? The conditions in Russia were perhaps infinitely worse than those obtaining in this country today and how was it that Russia had been able to liquidate it?

AN EFFECTIVE STEP

We may perhaps, in this connection, draw attention to the fact that Hon. Dr. T. S. S. Rajan, when he was the Minister of Health in the first Congress Ministry in 1937-39, was faced with an epidemic of meningitis in the city of Madras. The infection started in Egmore. What Dr. Rajan ordered *peremptorily* was the removal of the tiles of the roof of the house and exposing the building to sun's rays, in respect of each house where a case of meningitis had occurred. The result was the threatening epidemic was effectively checked. We leave it to the public health medical experts to draw their inferences.

Does it not occur to them that, after all, the key to eradication of all these diseases is the improvement in environmental sanitation? Has not the experience in other parts of the world proved this, beyond doubt?

DIRECTOR OF PUBLIC HEALTH, MADRAS

From the 4th October 1949, Madras Province will have a new Director of Public Health.

The new Director has no easy task ahead of him. In these columns, we have repeatedly drawn attention to the fact that the *morale* of the Madras Public Health Department has degenerated to such an extent that service to the public, has become almost impossible. It is not because the department has *not* in it, competent and zealous workers down to the Health Inspectors who are toiling in our remote rural areas. The demoralisation and inefficiency have filtered down from the highest levels. It is not, however, impossible to lift up the *morale* and efficiency of the department, provided the directing head shows an all-out drive to make the department useful to the public. We hope the new Director will win the active and willing cooperation of one and all, in his efforts.

Any public health administrator, worth the name, should welcome public criticisms and should not fight shy of them. It is only those public health administrators who have no confidence in themselves of their competency, would dread public criticisms and brush them aside, characterising them as *ignorant* and *ill-informed*. They would even attribute motives to the critics as though they are *interested persons*, who seldom offer *constructive criticisms*. Yes, of course, criticisms are from interested persons,—interested in demanding services from the department for

(Continued on page 538)

ORGANISATION OF A HEALTH SERVICE IN INDUSTRY

3. THE GROWTH OF FACTORY LEGISLATION IN INDIA

by

Dr. M. N. Gupta,

M.B., B.S. (Pb.), D.P.H. (Lond.), D.I.H. (Eng.),
Deputy Chief Adviser, Factories (Medl.),
Ministry of Labour, Govt. of India.



An attempt was made in the two previous articles (Modern Trends in Public Health and Modern Trends in Industrial Health) to show the importance of the subject of Public Health and *inter alia* that of industrial health. It was emphasised that much must be done to serve more adequately, comprehensively and efficiently, the requirements of the community in respect of industrial health, safety and welfare. Such services should not be denied to anyone who leaves his home each day to work for you and for me. How shall this be done?

To understand this one must have some knowledge of the background and development of Factory Legislation in India.

The student of modern industrial history in other countries sees in the story of Indian Factory Legislation an intimate linkage with British History. England was the first country to adopt modern industrial methods. Other countries have benefited by her experience. The period from 1850 to 1880 saw great expansion in industry in India. By 1880, there were 58 cotton spinning and weaving mills in India with an aggregate of 13,307 looms and 1,470,830 spindles and a daily average employment of 39,537 persons. Meantime, the other great textile industry of jute manufacture had also made rapid advances in

Bengal. By 1880, 22 jute mills existed in India with 4,946 looms and 70,840 spindles and employing an average of 27,494 persons daily.

It was during this period that the question of factory legislation was paramount in the United Kingdom. The first Factories Act of 1833 was quickly followed by one in 1847 and another in 1878 which stood till 1901 when the Factory and Workshops Consolidation Act was passed.

In 1874, the attention of Marquis of Salisbury, then Secretary of State for India, was drawn to the dangers which might arise from the ill-treatment of little children in the growing cotton industry of India.

In 1875, at the instigation of the Secretary of State for India, Marquis of Salisbury, the Government of Bombay undertook an enquiry and a Commission was appointed. The Select Committee of the Council of Governor General undertook to frame a Bill. The Bill was presented to the Council of the Governor General on 9th April 1881 and the Act was finally passed. This attenuated Act has been described as "a triumph for conservative opinion." Its application was limited to factories employing a hundred or more persons, using mechanical power and working more than 4 months in the year. The

employment of children under 7 was forbidden and those between 7 and 12 years of age were only allowed to work 9 hours a day, subject to local rules as to rest-periods. They were also allowed 4 holidays a month. Provision was made for the reporting of injuries and for the appointment of Inspectors.

Important amendments were made in 1891. The number of persons necessary to constitute a factory was reduced to 50, with permissive power to local government to reduce this number to 20. The new Act also extended the provision for weekly holiday to all operatives and enforced mid-day rest period of half an hour. The working age of children was raised to 9 and their working time was restricted to 7 day-light hours until they reached the age of 14. The Act of 1881, however, did not attempt to regulate adult labour—male or female. It is further interesting to note that what forms so important a chapter in the 1911 Act, i.e., dealing with provision for the protection and advancement of health and safety, found no place in the Act of 1881. In 1884, the Government of Bombay directed a small medical committee to investigate the subject of the general health and physical conditions of mill operatives as compared with other labourers in the City of Bombay.

Mr. Mead King made much of the total absence of all sanitary provisions in the Factories Act of 1881 and the Medical Commission turning its attention to this matter considered some such provision urgently necessary. The subjects dealt with by the Sanitary Commission related to the following:—

- (1) the site,
- (2) the surroundings,
- (3) the latrine arrangements and the sanitary conditions of the yard,
- (4) mill tanks and reservoirs,
- (5) construction of the buildings,
- (6) lime-washing,
- (7) internal arrangements,

- (8) ventilation and appliances for the removal of dust.

A note may be added here regarding the method of inspection under the Act. Under Section 3 of the Act of 1881 provision was made for the appointment of special Factory Inspectors, but only in Bombay was a special appointment made. Regarding this matter the Bombay Government decided that the inspection of factories be given to the District Magistrates, but later on, it was found that the inspection of factories by Magistrates can never be so effective as an inspection by trained experts. They also thought that hereafter it may be feasible to combine the functions of Factory Inspectors with those of Inspectors of Boilers, but this for some time to come was to be in addition to the inspecting machinery than supercession of the Magistrates.

Up to this time the question of the need for factory legislation in India had centred primarily round the cotton industry of Bombay. But the jute industry in Bengal had also been developing very rapidly and in 1895 the Dundee Chamber of Commerce drew attention to the need for further statutory regulations of the conditions of industry in India.

In 1906 the Government of India on the recommendation of the Secretary of State for India took steps for further enquiry into the conditions of factory labour in India. It was during this enquiry that for the first time the question of a separate staff of Medical Factory Inspectors, was entertained. The Committee appointed was of the opinion that a number of medical officers should be assigned to separate areas. This to depend on the number of works and the facilities for reaching them, and that their whole-time should be devoted to the work of factory inspection.

THE INDIAN FACTORY LABOUR COMMISSION OF 1908 AND THE ACT OF 1911

The Government of India awaited the recommendations of the Textile Factories Labour

Committee of 1906 and then of the Indian Factory Labour Commission of 1908 before they took the step in 1909 to make further amendments to the Factories Act. One of the recommendations of the Labour Commission was that the present staff of full-time inspectors be increased to a strength sufficient to cope with the work of inspecting all the factories in India. The suggestion was also made that a Chief Inspector of Factories in India be appointed by the Imperial Government, his duties being purely advisory. This suggestion could not, however, be implemented till 1945 when the Office of the Chief Adviser Factories under the Ministry of Labour was created.

The Commission also pointed out that the Act did not contain any substantive provisions providing for the health and safety of the operatives except one section dealing with the fencing of the machinery. In accordance with their recommendations, a number of provisions for securing the health and safety of the operatives were included in the Factories Bill, 1909. These provisions are in some cases borrowed from the English Factories and Workshops Act of 1901 and in others are based on rules which were already in force in several Provinces. The Act of 1911 contains two sections showing great originality in comparison with the British Act of 1901: Section 11 of this Act with regard to the sufficient lighting of a factory and No. 14 with regard to the supply of good drinking water.

WELFARE PROVISIONS

With the rise of industrialism in the first decade of the 20th century, it was thought necessary to foresee enough and to take in hand any measures which may establish on a sure basis of good will, the relations of the employer and the employed in order that India's industrial development may not be retarded by disputes, the grounds of which by its action in time be altogether removed. As regards the welfare provisions, it may be said that they could be of definite benefit to the employer

and the employed alike, so long as they were not conducted in a spirit of patronage or superficial philanthropy. In India the industrial worker maintains his connection with the country and is influenced directly against any rapid rise of his standard of living as might be expected. He is likely to gain decidedly in general efficiency by any wise endeavour which is made to settle him in one place and to stimulate the advance—moral and physical, and the standard of living of the community to which he belongs. It is, therefore, necessary that the industrial population of the towns should progressively raise the standard of living and the standard of comfort and that in such a matter its progress should not be determined by more conservative conditions of country life. The question of industrial efficiency is definitely bound up with the standard of life of the operatives and the efforts by which it is hoped that the former can be increased, will, if wisely directed, accomplish their purpose by raising the latter. The provision for the industrial worker of facilities for health, recreation and opportunities for a useful spending of leisure hours is one direction in which welfare work amongst adults was profoundly lacking and does lack even to this day. It is not out of place to stress that welfare work is ultimately an economic proposition, for perhaps only now have we been awakened since the dawn of independence in our country, to the effect of the interdependence of efficiency output on the welfare of the human machine. The modern legislator cannot afford to retard wise labour legislation when he sees the importance of and the benefits of welfare work in the community as a whole.

With the coming into existence of International Labour Conventions which formed a part of the Treaty of Versailles and India's being a signatory and Member of the League of Nations, India was committed to the agreements reached by the International Conference to the extent that the various conventions could be ratified by her

own Government. The various conventions are an International demand upon India for the provision of labour conditions in industries which shall make for the betterment and welfare of her millions of operatives in the 14,000 factories in the country.

FACTORIES ACT, 1934

The first Factories Act in India was passed in 1881, substantially amended 10 years later and again in 1911 following a report of the Factories Commission when the Act was replaced by a more comprehensive measure. This was overhauled in several respects in 1922 and improved in respect of specific provisions in 1923, 1926 and 1931. The Government of India considered the numerous recommendations of the Royal Commission and introduced a new Factories Act in 1934, which came into force in January 1935. This measure which consists of 84 sections was undoubtedly an enormous improvement on its predecessors.

The Factories Act, 1934, consolidated the existing law and introduced extensive changes some of which were of considerable importance. The Act was not only limited in scope but it left many important matters to the rule making powers of the Provincial Governments.

POST-WORLD-WAR I DEVELOPMENTS IN LABOUR LEGISLATION

Labour Legislation is a most dynamic institution in modern society. From a simple restraint on child labour about 80 years ago, labour legislation has become an important agency of the State for the regulation of working—and often living—conditions of men and women throughout the world as indicated by the rising number and variety of International Labour Conventions and also by the adherence thereto of most important nations. This rapid development of labour legislation is due to the fact that it is an integral part of modern social organisation.

Legislative measures so far enacted to regulate the work and living condition of the workers may be divided into 2 categories—

(a) Specific labour legislation, as in,

(1) Plantations, where the main need was the control of contract between planters and labourers as seen in the Tea Districts, Emigrant Labour Act of 1932.

(2) Factory Legislation, which had the main effect of giving protection to children and regulating women labour for their hours of work—Factories Act, 1934.

(3) Mining, where the increasing employment of labourers, especially of women and children in an industry which is specially subject to insanitary conditions and accident and to regulate their hours of work.

(4) Transport, legislation as for Railways, Shipping and Indian Dock Labourers' Act.

(b) General Labour Legislation applicable to all workers alike, irrespective of the industry in which they are used. These relate to such subjects as :—

(1) Social welfare as seen in

Employment of Children Act, 1933.

Land Acquisition Act, 1933.

The Punjab Pure Food Act, 1929.

(2) Protection of Wages Legislation with a view to regulating the delay in payment of and the deductions by way of fines and other provisions as seen in the Payment of Wages Act, 1936.

(3) Social Insurance Legislation in the case of Workmen's Compensation and Maternity Benefit, old age pension, as the Workmen's Compensation Act of 1923.

(4) Trade Union Legislation (Act of 1926) with the object of granting immunity from civil suits and from prosecution for criminal conspiracy to all unions which were registered under the Act.

(5) Industrial Dispute Legislation Act of 1936 with a view to provide machinery

for the speedy and summary disposal of disputes between employers and employees. This provides for :

(i) appointment of Labour Officers to look after the interest of labourers ;

(ii) creation of a Conciliatory Board and Court of Enquiry to enquire into the disputes.

The above general survey of Labour Legislation in India is thus seen to embody four principal objects, namely (1) Social justice ; (2) Social welfare ; (3) National economy ; and (4) International Solidarity.

We, as doctors, are concerned mainly with the problem of social welfare which has in its concept two underlying principles (1) the conservation and development of physical and mental resources of men and women and specially of children employed as wage earners and (2) the amelioration of the moral and material condition of the workers, both inside and outside their industrial activities.

THE FACTORIES ACT, 1948

An overhaul of the Act of 1934 has now been made in the more detailed provisions of Act of 1948. The provisions which were lacking in the 1934 Act, particularly in respect of health, safety and welfare have been provided for in the Act itself. In this Act a wider conception of social legislation has been incorporated. The safety provisions have been made more specific and elaborate. Health, welfare and various other measures have been thoroughly overhauled. Since the Act extends to all provinces of India and to the acceding states, the health, welfare and safety of a bigger industrial population is envisaged.

INDUSTRIAL POPULATION AND MORTALITY DATA

As in other countries, industrial progress in India is characterised by a growing concentration

of population in industrial towns and during the last two decades, the population of some of the towns which have become the chief centres of Indian industries has increased by leaps and bounds. This can be seen from the figures given below :—

Growth of Population of certain large towns (1921—41)

	Population (000).		Net variation 1921—1941.	Percentage increase over 1921.
	1921.	1941.		
Ahmedabad ..	271	591	+ 320	118.1
Sholapur ..	120	213	+ 93	77.5
Calcutta ..	1,046	2,109	+ 1,063	101.6
Howrah ..	195	379	+ 184	94.4
Coimbatore ..	66	130	+ 64	97.0
Cawnpore ..	216	487	+ 271	125.5
Nagpur ..	145	302	+ 157	108.3
Jubbulpore ..	109	178	+ 69	63.3
Jamshedpur ..	57	149	+ 92	161.4
Delhi ..	248	522	+ 274	110.5
Lahore ..	282	672	+ 390	138.3
Amritsar ..	160	391	+ 231	144.4
Karachi ..	202	359	+ 157	77.7

It will be observed that between 1921 and 1941, the population of Ahmedabad, Calcutta, Cawnpore, Nagpur, Jamshedpur, Delhi, Lahore and Amritsar increased by more than 100 per cent. An over-rapid rate of increase is itself fraught with evil possibilities, because it places an excessive strain on housing, transport and the various social services provided in the town which often fail to keep pace with the increase in population. Some of the towns mentioned above, which are the bee-hives of industrial activity in India, are also the most fertile breeding grounds of poverty and disease. In a varying measure, they display the same evil features as have characterised the industrial towns of the West, namely, slums, overcrowding, smoke,

noise, the absence of adequate provision for open air, recreation and games and transport congestion

in paving the way for reform by his pioneer experiments in welfare.

SOME OUTSTANDING DIFFICULTIES

In the organisation of an industrial medical service the outstanding difficulties that complicate the problem are :

(1) Lack of appreciation of the health problems arising in the community environments, by the physicians, industrialists, health administrators, social welfare workers and the general public at large.

(2) Lack of appreciation of the hazards which are found in the working environment.

(3) Acute shortage in medical man power and in other professions whose job it is to devise means to conserve health in industry.

The previous articles in the series have made a rapid survey of the above problems. The requirements of an industrial medical service will be discussed in the next article.

INDEX OF TRADE MORTALITY

A fair measure of the hygiene status of a trade or district is the relation its death rate bears to the best standard of the country. In the fourth article in tables II and III data on Infant Mortality and mortality rates (ratio of deaths per 1,000 of the population) were given for big industrial areas and towns, the inhabitants of which are known to have been mostly employed in factory industry and the ruinous effect on the health of these people due to excessive congestion in industrial towns was shown.

For a period of two decades much was done by way of amending acts and improved administration to raise the standard of working conditions. The enlightened employer has borne his share

Editorial . . .

(Continued from page 532)

the benefit of the people. Critics are like brushers of noblemen's clothes !

The success of the administration of the new Director would depend very largely on the support which the Ministry extends in his drive to restore the department to its normal level of efficiency. We have no doubt in our mind

that the Ministry would not only lend him support to make the department useful to the public but also give directives to him on large matters of policy. With Hon'ble Dr. T. S. S. Rajan as the Minister of Health, the new Director would have the benefit of his rich and wide experience in public health administration.

UTILISATION OF CITY'S SEWAGE

by

A. P. H. E. and M. O. H.

People's Health has already pleaded that in our anxiety to secure a grant from the Central Government in the name of Grow More Food, we should not commit ourselves to schemes which are inherently defective. A note of caution was struck in good time—*Vide* pp. 438-439 of Vol. 3, No. 10 of *People's Health*.

From a Press report (*vide The Hindu*, dated, 14th September, 1949, page 4, Column 2) it would appear that a conference of departmental officials decided to 'go ahead' with the scheme outlined by the expert of the Government of India. The first point made out as a merit of the scheme is that 'it decentralises the sewage pumping systems of the city.'

What exactly it means is not clear. It is a matter of sewerage engineering. Those, who know the principles on which the Madras City sewerage was designed, know that the designer put forward excellent reasons why the sewage of the city should be taken to the northernmost limit. Doubtless, the sewerage system has become inadequate for the needs of the city. The remedy does not certainly lie in what is said to be decentralising pumping stations. By such decentralisation, the carrying capacity of the sewers already laid cannot be increased. If the pumping plant is inadequate to pump the peak flow, the remedy lies in suitably increasing the pumping plant, multiplying the number of units. Determination of the calibre of the pumping main is a study in economics. What is the rate of velocity in the existing main when the pumps lift maximum quantity and to what extent the velocity would be increased to convey additional quantity and by so doing what is the cost involved in pumping? There are many such

engineering details which should be worked out by those who know their job. Claptrap may pay in politics in working up people's temper; but such a method is unbecoming of the engineering profession. We demand that the fullest technical detail should be made available to the public before the Ministry go forward with what we consider an ill-conceived and ill-digested scheme.

As regards the crops to be raised in a sewage farm, there is enough knowledge on the subject. The consensus of opinion among experts is that foodcrops, particularly those which are likely to be consumed raw, should not be raised in a sewage farm. If any expert challenges this view, the Government should call upon that expert to put down his opinion in writing tersely and precisely. He should be made to realise that he will be held personally responsible for the opinion so expressed. Thereafter, we shall have occasion to go into such opinion and demolish it quoting chapter and verse.

THE PRECEDENT OF POONA

We know that the precedent of Poona is often quoted. It is also said during the war that the bulk of the vegetables raised in the farm was supplied to the military authorities. It is therefore argued that raising of foodcrops on sewage farms is innocuous; but those who advance this argument, deplorably forget the fact that the military authorities had taken enormous precautions before the vegetables raised in sewage farm were brought to their kitchen. Such meticulous precautions would be well nigh impossible in this case. The difficulty is aggravated by the fact that the fields would be under the control of

individual owners and no co-ordinated control would be feasible. It is said that the Madras public health experts opined that cooking would destroy any pathogenic organisms which might get lodged in the crops raised in the sewage farm. This opinion is not original. It should have been known to those high authorities that cooking might destroy such organisms; but, still, the highest authorities have maintained that food crops should not be raised.

NATURE OF CROPS

The Royal Commission on sewage disposal has significantly remarked as under :

"As regards the nature of the crops, cereals are practically speaking, inadmissible, on that portion of the irrigable areas, which at sometime or other during the years working of the farm, is meant to be sewaged. The best crops are those which can be more or less continuously sewaged without detriment, e.g., quick-growing plants like Rye-grass, Mangold Wurzel, Pickly comfrey, etc."

We need not go outside the Province to show how successfully the Mathurai Sewage Farm is working, wherein grass is grown. There is a great demand for it. It is a paying proposition, so far as the municipality is concerned. Fodder is scarce for the cattle, especially green fodder, which is so vital to improve the quality of milk. Why should Grow More Food Campaign confine itself to the raising of cereals? Our nutrition experts hammer at every turn that protective foods like milk should be taken by the people; but there is a deplorable shortage of this precious commodity. Why not produce more milk by feeding the starving cattle with green fodder? This would also fall under the category of Grow More Food.

SELECTION OF SITE

The Chief Engineer (Public Health) seems to have raised a pertinent point in regard to the

selection of the sites for sewage farming. It would seem from the report that his objection was countered by the Corporation Health Officer, who is reported to have stated that smell would not be noticed half-a-mile away from the lands. It does not require a public health medical expert to give an expression of opinion on this subject. Commonsense can decide it. Experience has proved in the case of Tondiarpet sewage farm that the smell wafted long distances under favourable wind. As against the Corporation Health Officer's opinion, we may quote that Major Gorman, the former Director of Public Health, Madras, reported that the minimum distance between the sewage farm and the city limit should be at least three miles. Had Major Gorman continued to be the Director of Public Health today, whose opinion would the Government have accepted? In this country, the chair which a man occupies, gives him the authority to express professional opinions binding on the Government. The moment the person leaves the post, his opinion counts for nothing. Supposing another Director of Public Health expresses the view that the opinion of Major Gorman was right, what will be the position of Government then? The administrative authorities can very well brush aside these so-called expert opinions and apply their commonsense and come to conclusions.

FAILURE WRIT LARGE

The failure of the scheme is writ large on its face for another reason :

"Good results in the treatment and purification of the effluent and the avoidance of nuisance would be combined with good results in the production of crops, keeping the ground in good order and economy in working, unless the irrigation areas it is worked under a regular scheme which will provide at all times, under all weather conditions, a sufficient area for the disposal of the effluent, suitable crops,

appropriate rotation of crops and the fullest possible utilisation of the whole area."

This opinion is expressed by the highest military engineering authorities. On the civil side, the Royal Commission on Sewage Disposal has stressed that the management of the farm should be through departmental agencies and not through contract. In this case, it would seem that the individual owners of plots will be permitted to take sewage as and when necessary according to their needs. If they do not take sewage during any period, what is to happen to the sewage dumped in that area, where land is not owned by the Corporation? Is it the intention to discharge the crude sewage with impunity into the nearest water-course? It would be wise to recall in this connection why the Madras-Tondiarpet Sewage Farm proved a failure. It was because the land was leased to contractors and they mismanaged the utilisation of sewage rendering the soil sewage-sick, with the result that excruciating stench permeated Tondiarpet and its neighbourhood. It eventually resulted in the farm itself being abandoned.

ANOTHER DANGER

There is still another point which does not appear to have been given due consideration. It should be remembered that if sewage is allowed to mix with ground water table, it would be only a question of time before all the water, in the vicinity becomes saline. In this case, we do not know whether the experts have examined

this aspect of the question and what steps they propose to take to avert this catastrophe.

TECHNICAL SUBJECTS : NOT ADMINISTRATIVE QUESTIONS

There is a deplorable tendency to over-simplify matters of technical importance and reduce the highly technical problems into mere administrative questions. This tendency had the effect of damping the enthusiasm of the technical experts. If progress in technical branches is unsatisfactory, it is due to the fact that technical men are not given a free field. In keeping with the policy of reducing technical departments to mere administrative departments, the Government of Madras have an I.C.S. officer as the Director of Industries, another I.C.S.-officer as the Director of Agriculture and recently another I.C.S.-officer as the Director of Fisheries. It is only a question of time before an I.C.S.-officer becomes the Director of Engineering! This tendency is also due to the fact that our popular ministers have not either the time or the inclination or the capacity to take up decisions with courage on the administrative sides of technical problems and they appoint administrative officers as heads of technical departments. This is deplorable in the extreme.

Has the Minister of Health any say at all in this matter? We would appeal to him to bring to bear his independent judgment on the question of the utilisation of sewage which is essentially a public health problem and secondarily an aspect of agriculture.

WHY FARMING A FAILURE ?

"Good management is of the greatest importance in any system, and the want of it always leads to failure. Local authorities are often slow to recognise this part, and loath to give the wages necessary to secure a competent man. (Tatton, 6625).

"Economy," so-called is undoubtedly at the root of a large proportion of the failures of sewage farms, while others have been due to the practice, at one time common, of letting the land to farmers to deal with as they thought fit.

"I should like to state here the difficulties which the two Joint Committees have in many instances been met with where land has been purchased, namely, that at one time many Authorities sublet the farms which have been obtained for irrigation purposes. Of course these, as soon as they were in the hands of tenants, were farmed more for profit than for sewage disposal."

(Royal Commission on Sewage Disposal, Interim Report, Vol. II., p. 51).

THE NEIGHBOURHOOD CONCEPT IN TOWN PLANNING

by

K. K. Nambiar,

*B.E., M.I.E. (Ind), F. Inst. H.E. (Lon), M.I.Mun.E.,
M.Am.Soc.C.F., M.R.San.I.,
Chairman, Madras City Improvement Trust.*



"To go to London to be alone" is an old saying. Much the same could be said of some of our large cities in India to-day. How often has the writer been told by officials and others, who having spent the best part of their lives in mofussil towns shift their homes to Madras due to exigencies of service or for other reasons that they feel lonely and neglected in the City? Two families may live as neighbours for years and still their members may not come to know each other. Their places of work may be different; may be they buy their provisions from different stores, the clubs they visit may be at two corners of the city and their children may be attending schools situated wide apart and playing in different play-fields. Their homes have physical contiguity, but if facilities for "neighbouring" are absent, sociologically they remain distant and naturally complain of want of friendliness in city life. Whereas a citizen of a small mofussil town has many friends in all cross sections of the urban community and thereby derives a sense of group support and self importance, an inhabitant of this metropolitan city feels himself just one insignificant member in a vast impersonal society.

This is true of all megalopolitan cities of to-day that have grown sprawling over extensive areas without sociological planning.

Ancient towns in India were different. Built around a temple or other focal point of common interest the townships generally comprised of social groups of a high order of cohesion. Their inhabitants lived together, played together and knew one another for their whole life time. The towns were generally of a manageable size. But with the recent advances in science, methods of locomotion and communication, the need for grouping together in self-contained units became less and less essential with the result that cities of to-day are fast losing their cohesion and compactness much to the detriment of organised social life of their citizens.

Great emphasis is laid by all town planners on health, safety and convenience of the inhabitants. While the physical needs of the community such as open spaces, schools, playgrounds, housing, shops, roads, etc., were properly catered for in all planning schemes, its social needs did not at times receive adequate attention. It was the formulation of the neighbourhood concept in

Town Planning that brought to the forefront the need for making provision for the social amenities of the citizens as well, in planning new townships or redesigning of built up areas of existing cities.

Twenty-five years ago Clarence Arthur Perry enunciated the neighbourhood unit concept for the New York Regional Plan. He defined the neighbourhood unit as an area of community usually bounded by main traffic roads with the elementary school as the focus of activities and containing all necessary recreational and shopping facilities. Perry's four classic pre-requisites for a neighbourhood unit were,

- (i) Aesthetic environments
- (ii) Safe access to a centrally located school
- (iii) Safe access to congenial playgrounds and
- (iv) Safe access to shops.

The evolution of the neighbourhood concept is one of the most important developments in the history of town planning. There have been also opponents to this new theory. Some of them characterised it as impracticable for replanning of existing cities; some considered that the adult club instead of the elementary school should be the focal point of the neighbourhood and some others foreshadowed the danger of segregational tendencies being developed in detached and self-contained units. There was also the danger of its being misused for class discrimination. But twenty-five years of experience has shown that planning on neighbourhood unit system has been quite successful in the case of new housing areas, even though the benefits have been less marked in the case of replanning of central congested parts of cities.

It is now universally accepted that in planning new housing estates, townships, etc., the neighbourhood unit is the best pattern for adoption. There have been differences of opinion regarding the size of a neighbourhood unit but the consensus of opinion seems to favour a population

of ten thousand for a unit which is enough to sustain all the communal facilities required for full social life. This figure is also justified from the point of view of the maintenance of the school as educationists have shown that a population of 10,000 can feed an elementary school for boys and one for girls. A secondary school can also be managed if it be a combined one for boys and girls.

Each neighbourhood should have adequate facilities to meet all the social needs of its citizens. For ordinary day to day activities, one need not have to go beyond the neighbourhood. A community centre as the focal point, well laid out and properly equipped could be the meeting place for all its citizens. An "Ashoka Vihar" in every neighbourhood will be a very desirable feature. Apart from a centrally located shopping centre, there should also be a few shops of the "Cornershop" variety within a quarter mile distance from every home. It is doubtful whether a population of 10,000 can patronise a cinema. At any rate, a large cinema or theatre cannot thrive on this population and people will have to go beyond the precincts of the neighbourhood for such occasional amusements. There should also be an Improvement Association for each neighbourhood to chalk out schemes and to contact the civic authorities for getting the needs of the locality attended to expeditiously. Arterial roads should not run through the neighbourhood but should separate such units. There should also be green belt reservations on both sides of such arterial roads acting as buffer between the units. Number of entries from such arterial roads to the neighbourhoods should be reduced to the minimum and it is needless to say that direct frontage of a house site to an arterial road should be strictly forbidden.

* Ashok Vihar is the name of a Health Centre started in Madras about a year ago. It is modelled on the lines of the Peckham Health Centre in England.

The layout of the Gandhinagar Colony at Adyar was planned by the writer on the neighbourhood unit pattern with certain modifications necessitated by geographical and topographical features of the place. The housing schemes being formulated by the City Improvement Trust are also modelled on the same concept. If the entire residential parts of the city could be replanned and grouped into several neighbourhood units of manageable size, people will have better opportunities for knowing and befriending one another. This is a very important point which the architects of the City's Master Plan should bear in mind. The division of the city into municipal divisions is only for administrative purposes and has no special significance for the planner to whom the sociological problems of urban life should be as important as the physical problems of town planning. If in replanning the city all the residential wards could be rearranged to function as self-contained neighbourhood units as envisioned by Perry for the New York Regional Plan, Madras will be a much more friendly and convenient place to live in.

THE ONLY ANSWER

If this democratic way of living results, it will require other cities than those we know today. We must ask ourselves *right now, whom do we intend to plan for?* In a democracy there can be *only one answer: we should plan for the people, or the community as a whole.* The moment that we agree on this premise, *the human factor becomes the main guiding element in our plans.*

In the past, especially since the coming of the machine, planning for economic and industrial values has taken the upper hand. In a democracy we should *first plan for human values.* Previous generations by putting industrial and economic values before human values have given us the type of cities in which we live today. As they stand, they speak for themselves. As centres of business life, and as sources of speculative benefits they are something unprecedented in human history. But as an insult to elemental human respect, they have proved to be something also unheard of before.

If, as we hope, we are going to live in a better world after this war, our cities, exponents of this better way of living will have to become something radically different from what they are today. When creating new communities, when scrapping blight and slums from old cities, when bringing back natural elements (open spaces, trees, light and sun) to their congested centres, when building new civic centres, etc., *we will have to take man's welfare as our measure and govern our plans by a human module. The humanization of cities, old and new, appears as one of the main tasks of the coming decades.*

—JOSE LUIS SERT from *New Architecture And City Planning* By Paul Zucker

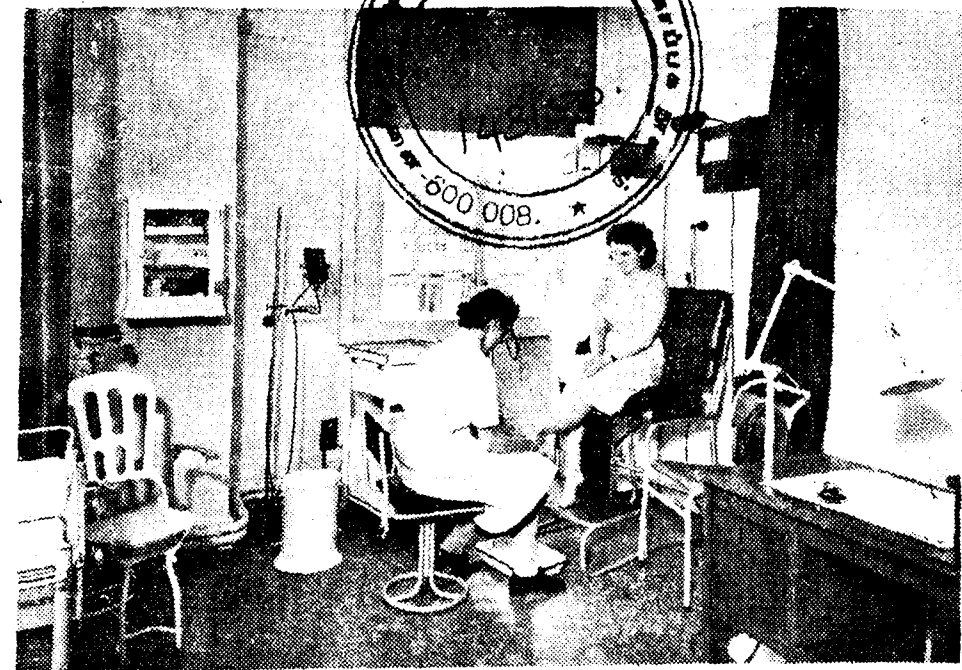
AN EXPERIMENT IN INDUSTRIAL HEALTH

by

Arthur Bush

A number of firms on the Slough Trading Estate, Buckinghamshire, are co-operating in the organisation of a comprehensive medical service for their workers.

The Slough Industrial Health Service is an attempt to solve the problem of how small firms, which cannot afford to employ their own medical and nursing staffs, may secure the benefits of a comprehensive industrial health service for their employees. The Slough Trading Estate—about 20 miles from London—was chosen for this experiment because there are concentrated here some 300 different firms engaged in a wide diversity of trades and very few of them employ more than 50 workers. The Service is also greatly concerned in the study of preventive medicine and research into the incidence of disease among work people.



Central Clinic Chiropody and Ophthalmic Department.

Originated in May, 1947, and sponsored by the Nuffield Provincial Hospitals Trust with a number of the larger local firms, the Service had an opening membership of 52 firms with a total of 6,324 employees; within a year this figure had grown to 99 firms with 10,849 employees and the latest figures available show that 114 firms have now joined, embracing 11,528 workers. Each member firm pays 14 shillings yearly for each of its employees. At present

nurse, and has also a mobile dressing station, with full medical facilities, which daily tours those factories in the more scattered parts of the area. This mobile dressing-station is the first of its kind in Britain. It has two compartments divided by a sliding door; one is a treatment room in which sterile dressings, drugs and all necessary surgical instruments are readily available; the other an examination room so equipped that complete physical examinations can be carried



Mobile dressing station

this payment covers only about 50 per cent of the total expenditure, the balance being made up by various grants. As, however, the Service extends, it should become self-supporting—it has already proved that the cost per head decreases as the total membership increases.

The Service operates from a fully equipped central clinic, staffs two strategically placed first aid or casualty stations, provides, on immediate call, a stand-by accident van with doctor and

out as in a normal consulting room. In its regular visits to the factories, the mobile dressing-station attends to about 715 cases a month, thus saving an incalculable number of man-hours that otherwise would be spent in travelling to and from hospitals and doctors for re-dressings and examinations.

The central clinic, which also includes the administrative offices, suffers slightly from being an adapted building, but even so, has already

nearly a dozen different departments including those for X-ray, Orthopaedic, Resuscitation and Physiotherapy treatment.

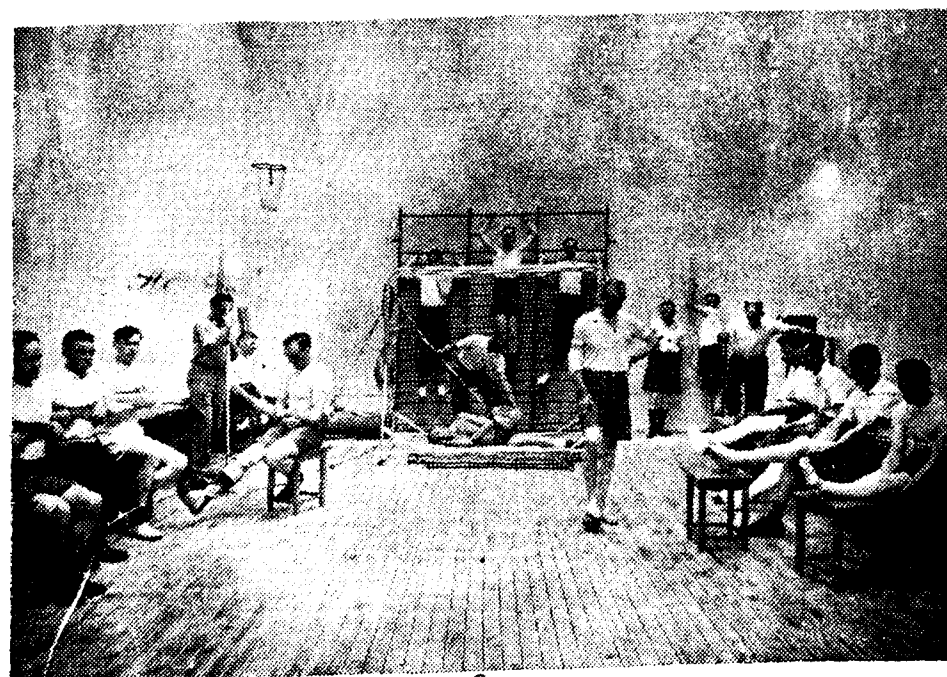
TRIBUTE

During the first year's working the Service dealt with a monthly average of 2,680 cases, a figure which has grown continually until to-day it stands at 3,650. This, in itself, is a tribute to the enthusiasm and organising ability of

such as ventilation, overcrowding, lighting, canteen facilities and general conditions of work.

TREATED IN TIME

Again, as the Service is, in a sense, the servant of the employer, the worker's fear that he will be regarded as a slacker by reporting sick or having a slight injury attended to, is eliminated and consequently, many minor cases, which, otherwise, might become serious through neglect, are



Farnham Park Remedial class in gymnasium

the Medical Director, Dr. Austin Eagger, and his staff; no less than a proof that the difficulties which beset a pioneer effort such as this are being successfully overcome.

A firm, on joining the Service, is visited by the Medical Director or his Deputy, Dr. Herford, who explains the full benefits available to the management and workers and inspects the premises to observe and advise on anything that might affect the sickness and accident ratio,

treated in time. The fact that a doctor and a trained nurse are always immediately available means that the employee no longer tends to postpone a routine visit to his own doctor and thus many ailments are prevented from assuming grave proportions.

The Service has also instituted a system of regular medical overhauls. At first these were mostly regarded by the worker as unnecessary; the early attendances from each firm were only

one or two rather self-conscious employees, but when they told their friends of the advice they had received, and of the unfounded fears that had been removed, the few soon grew into dozens. The same thing happened in the case of the Chiropody clinic. The majority of the workers, even those standing for long spells, were not aware that their feet needed regular care, but during the first year that this clinic was open, the average monthly attendance was 78, which has since grown to 140 and is increasing month by month.

An important feature of the Service is that it neither supplants the hospital nor usurps the patient's own medical attendant. Although it is not part of the National Health Service, it receives from it every co-operation. Such treatment as the Slough Industrial Health Service gives except, of course in emergency—is always undertaken in conjunction with a patient's own doctor, and its regular attention to the many minor cuts and ailments inseparable from modern industry, assists considerably to relieve the pressure on hospital out-patient departments and overcrowded doctors' surgeries.

Apart from prevention and treatment, the Service also operates a rehabilitation and recuperative centre. This is situated about two miles away at Farnham Park, a former private country mansion standing in seven acres of grounds, where everything is done to remove the atmosphere of a hospital or a convalescent home. Although run by the Service, its benefits are available to a much wider area that includes some three-and-a-half million people. The centre's capacity of 47 patients—soon to be increased

to nearly 70—is always fully utilised and there is usually a waiting list. The type of patient for whom the centre is intended is one who is capable of being restored to earning capacity, within 12 weeks (although in certain cases this has been extended), and the minimum length of stay is three weeks.

COMMITTEE OF PATIENTS

Full facilities are available at this centre for occupational therapy and physical training in the grounds, gymnasium and workshops. Social activities are organised by a committee of the patients. The same spirit of friendly approach, unhurried attention and sympathetic discussion is as evident at Farnham Park as it is throughout the Service. The privileges granted, the lack of restraint imposed and the absence of institutional discipline help to effect speedy cures, and for the organisers the lack of abuse of these amenities has been one of the most encouraging features.

It is still early days to assess the full benefits of the Slough Industrial Health Service. The statistics that are being gathered and collated will, in time, prove of inestimable value to industry generally and particularly to those people concerned with the problem of industrial health and welfare. Two of the main problems—the gaining of the employers' approval and the winning of the employees' confidence—have already been solved in large measure. It may well be that the Slough Industrial Health Service will serve as the model upon which future schemes of industrial health will be based in Britain and in overseas countries.

BLOOD PRESSURE

by

Jennie Q. Adatto



ITS MEANING

Remember the last time you ran for a bus, or got excited at the ball game when a home run was unexpectedly scored? Your heart pounded and you could feel the blood pulsating through your body. This reaction didn't worry you for you knew from past experience that you would calm down in a few moments, and you did. What had happened was perfectly normal. Your blood pressure was showing.

Everyone has blood pressure. It may be high, low or, as is the case with most of us, normal. Each time our heart beats it exerts a force that may increase at a ball game or decrease later at night when we are quietly asleep. The measure of the force is expressed in the figures known as blood pressure. It has little if anything to do with size. A mouse may have the same blood pressure as an elephant. The measurement indicates how hard the heart is working to circulate blood in the body. Your physician finds this information useful as a screening test,

for with it he can more quickly and accurately determine your state of health.

How does he measure the working force of your heart? The method is simple and most of us have seen it during a routine physical examination. An instrument, based on one invented in 1828 by a French scientist, is used. The method by which it works is one of balancing air pressure against the blood pressure of an artery in the arm.

The instrument itself is made up of two connected parts. One is a small, flat rubber bag covered with cloth that extends beyond it like a shirt tail. This is called the cuff. The other part is a dial or a tall glass cylinder that somewhat resembles a large mercury thermometer and has markings to show the height of the mercury column up to 300 millimeters. It is called a manometer.

Let us see how this instrument works. Mrs. Kay, who has been feeling run-down and tired

is in her physician's office this morning for a check-up. Although she is not ill, she feels a thorough examination would be wise. Her last examination two years ago showed her blood pressure to be normal, but since then changes affecting the blood pressure may have occurred. As Mrs. Kay sits back comfortably in a chair with arm outstretched, the physician wraps the cuff about her upper arm. The part with the flat bag goes on first with the rest of the cloth secured snugly around it. Two rubber tubes lead into the bag. One is attached to the manometer to record the pressure. The other, equipped with a small bulb, is used by the physician to pump air into the cuff.

With the cuff firmly fastened on Mrs. Kay's arm, the physician squeezes the bulb a few times to force air into the bag. Mrs. Kay feels it tighten about her arm. The manometer also "feels" the pressure through the connecting tube, for the mercury is forced upward by the weight of the air.

What is happening to Mrs. Kay's circulation? The air-filled cuff presses against the artery in her arm and blocks off the flow of blood. The air pressure is greater than her blood pressure. Her heart continues beating of course but the work it does is not strong enough, has not enough force behind it, to push the blood past that cuff and beyond it the artery now has no pulse. When that occurs, the physician slowly releases air from the cuff—in other words, lowers the air pressure—by turning a tiny valve on the pump. The mercury sinks a little in the manometer. With his stethoscope placed against the artery on Mrs. Kay's arm below the cuff, the doctor listens for the first release of blood through the blocked artery. He hears it as a tiny click. At the precise second the physician hears the click, he notes the reading on the manometer. This is the point at which the blood pressure is just a little stronger than the air pressure. This is the pressure at which Mrs. Kay's heart contracts as

it pushes blood through an artery. It is called the systolic pressure.

More air is released from the cuff and Mrs. Kay's physician continues to listen through his stethoscope. When no further clicks are heard, he makes a second reading from the manometer. This indicates the lowest level at which the sounds resulting from blood flowing through the artery are audible. In other words, it is the lowest measurable force of the heart as it rests between beats. It is called the diastolic pressure.

These are the only two readings made. The test is over and the physician unwraps the cuff from Mrs. Kay's arm. In five minutes or less her blood pressure has been measured. Result? Mrs. Kay learns the readings have not changed in the past two years.

On her physician's note pad is jotted "120 millimeters over 80 millimeters." These figures represent the systolic over the diastolic pressure and are commonly recorded in this manner. The figures fall within the range that is considered normal for a woman of Mrs. Kay's age. Readings consistently above the normal range are considered evidence of hypertension. There are many causes of hypertension. The two most common are kidney disease and narrowing of the blood vessels. Low blood pressure is known as hypotension. It is less common and may be associated with shock or diseases which affect the suprarenal glands.

Most of us, like Mrs. Kay, have "normal" blood pressure. If it changes it is a valuable clue to our physician, for he knows the heart is being called upon to exert a greater amount of force. Finding the reason for this requires further examination.

Fortunately for Mrs. Kay the rest of the examination revealed nothing that proper diet and more rest could not correct. Measuring of her blood pressure took but a few minutes, yet it was an indispensable part of her complete physical examination, for it mirrored the working of her heart and the condition of her blood vessels.

(Courtesy—H. H. H.)

INDUSTRIAL MEDICINE

by

K. S. Krishnan, M.B.B.S.,

Hony. Surgeon, Erskine Hospital, Mathurai, and
Chief Medical Officer, the T. V. S. Workers,
Hospital, Mathurai.



The author had acquired wide experience in T. V. S. Workers' Hospital, Mathurai. Col. S. L. Bhatia, Surgeon-General with the Govt. of Madras, had given an excellent foreword to the first Annual Report of the institution.

The House of T. V. S. is well known for their pioneer work in transport. Apart from it, the house of T. V. S. had always taken an abiding interest in the welfare of the workers. So much so, the workers have developed a special attachment to the institution. The example set by T. V. S. should be emulated by other industrial institutions. If they do, the relationship between the employer and the employee would be more cordial and it would be to their mutual advantage.

—Ed., P. H.

Industrial Medicine is now a vast subject. Since the time allotted for this paper is very short I have had to apply the guillotine mercilessly and the paper now emerges in a somewhat mutilated form. I have tried my best to make it most interesting and least scrappy. Before I proceed with the paper I have to clarify my position with reference to this paper. Any

observation I make about an industrial concern does not mean that I am referring to the conditions in the T. V. S. workshop and transports with which I am connected, unless, I make specific mention. This paper is the result of personal experiences, visits to some other factories and information collected from other industrial medical officers and books.

I. HISTORICAL INTRODUCTION

The earliest reference to something of industrial medicine was in the Greek and Roman periods. Aristotle seemed to have interested himself in the investigation of certain disabilities resulting from certain sports. Pliny, and latter Hippocrates described the toxic effects of sulphur, zinc and lead. It appears Galen described the symptoms of lead poisoning in the 2nd Century A.D. Herodotus is said to have written about the nourishment of industrial workers. The study of compensation of injuries dates back to 643 A.D. A serious attempt to study the toxic action of chemicals and vapours was made in the 15th century. With the advancement of chemistry more and more substances in relation to industrial hazards were investigated in the 16th and 17th centuries. In 1551 George Agricola investigated and reported on the health hazards in mining. For example, he said that "in the mines of the Carpathian mountains women were found who had married seven husbands, all of whom the terrible Consumption had carried off to a premature death." In the earliest of the 18th century Bernardo Ramazzini, an Italian, who is considered even today as the father of industrial medicine had produced an excellent treatise on the hazards to industrial workers engaged in nearly one hundred common trades and professions of his day. For a century thereafter the book was translated into English, French and German. Even today this work is considered to be classical. The nineteenth century found England, France and Germany entering the field and producing concrete literature on the subject. To Germany goes the credit for carrying out animal experiments on the toxic effects of gases and vapours and to put the pathology of industrial diseases on a firmer basis. The industrial revolution in England exposed workers to more risks and consequently some physicians made individual studies of occupational diseases. The results of their labour was the passage of the

Factories Act preceded by the reports of the Factory Commissions. America has been a new comer, as her first contribution to the literature was in 1837 but today she stands foremost among the few countries which have raised industrial hygiene to a high pedestal. In Russia within the past quarter of a century great strides had been made in industrial medicine in all its aspects and the industrial workers get better medical aid than the rest of the population.

II. THE BACK GROUND OF INDUSTRIAL MEDICINE IN INDIA

Though Russia, Sweden, America and England had been practicing Social Medicine in some form or other, our erstwhile rulers did not think it worth-while putting us in the way during the 100 years of their rule. I think many among you have not taken any interest in this new branch of medicine. I may say briefly that this is an application of the social implication of medicine to the industrial community, besides giving medical aid in the usual way. This is but one aspect of the so-called "Social Medicine" about which alas! very little is known to the medical profession in India. It is wrong to think that this type of medicine is applicable only to the industrial classes. The principles underlying can be most advantageously applied to the general medical practice as well. We have at the helm of affairs in India, highly seasoned statesmen who have proved to be second to none in the world. Within the very first year of our freedom they have very successfully handled many problems which no other part of the world had faced in all their history. They are imaginative, unconventional and bold and having toiled among the masses, they have an insight into humanity at large. They have great visions of the future. The Hon'ble Shri Jagjivan Ram is the first Minister in the world to get legislation passed for the institution of Provident Fund for the benefit of casual workers. It may well be

that our country is going to lead the world in solving intricate problems of labour. The Hon'ble Dr. S. P. Mookerjee in his presidential address at the Indian Industries Conference in December last, said that India was a land of villages and the Government must attach the greatest importance to the development of cottage and small scale industries in order to ensure a balanced national economy. The agricultural industry and agricultural labour have yet to gain any kind of recognition for medical relief in respect of diseases, arising out of agricultural operations. The problem in India will therefore be more complex than it is in other countries, on account of the diverse kind of work to be done and relief to be afforded to the larger sized, medium-sized, cottage and agricultural industries. In our country it will be possible to provide a small and successful health and social centre in every industrial village. If doctors are not available for this work, the employment of trained industrial nurses will go a long way in administering social medicine to the industrial population in villages.

The greatest experiment in social service and medical relief has been started in England by the plan formulated by Sir William Beveridge. In India a beginning has also been made in this direction by the Workers State Insurance Scheme now put into operation. The success of such large schemes depend to a very great extent upon the proper application of the principles of industrial medicine and side by side with making progress in social service, the state has got a paramount duty to see that there is proper development of this aspect of medicine. Industrial medicine is almost entirely a new science in our country. In our free India we should not copy the mistakes of other countries. We are living in a country with appalling illiteracy, ignorance, poverty and diseases and we should approach the problems with a really social mind. "Success in social life lies in the path of the man who

can make himself valuable to those who are all too frequently overlooked in the mad rush of the machine age."¹ For us industrial medicine should be but an inauguration of social medicine for the masses. The workers are comparatively more disciplined than the common folk and so a beginning in social medicine is best made among them. Once we start, we can develop it on our own lines after studying the experiences of more advanced countries like Russia and America. In Russia, social workers are among the most highly paid and honoured but unfortunately in India they are neglected in every possible way. Nevertheless, today we require an innumerable number of socially-minded individuals to develop the India of our dreams. Our top leaders are toiling hard towards the same goal. The general practitioners who form the foundation for the building of the nation will have to help them to the utmost. This help will certainly be forthcoming if the Government will encourage only efficiency, abolish caste system in our profession such as licentiates, graduates and post-graduate diploma-holders, and make the best use of the medical personnel already available.

In other countries, industrial medicine first came into existence not out of philanthropic motives but out of the selfish interest of the industrialists, to reduce the hidden cost of sickness to industry and to appease the workers. Diseases had not been considered in relation to the whole body, its environment, physical, social, economical and psychological. In the words of Ryle, they have not thought of the patient as a whole man or woman with a home and anxieties and economic problems and a past and a future and a job to be held or lost.² The mental make-up of the patient which is a resultant of social and economic forces has an important influence in the causation and cure of diseases. We have to educate the workers to correct them to remove their prejudices and superstitions and give them intellectual help in the solution

of these problems. Socio-medical work has got to be carried out to improve the standards of health among a population living under the stress and strain of a civilised life. It is not meant that this form of service is to take the place of clinical and laboratory methods of investigation of diseases but that it should greatly supplement them. Housing of industrial population must get top priority in industrial schemes, if certain diseases, particularly venereal diseases, are to be avoided. A socio-medical inquiry which is being conducted by our hospital staff (T. V. S. Workers' Hospital) at Madura has already started revealing, interesting facts about the social pathology of diseases.

INDUSTRIAL DISABILITIES AND REHABILITATION

We are yet to produce statistics on industrial accidents, occupational diseases, industrial mortality and morbidity and social conditions among our workers. Mechanisation of industry presents many hazards for which preventive methods have to be found. Many chemicals with known and unknown composition will be used in many of the manufacturing processes. There are the noxious dusts and vapours which emanate from many mechanical processes. X-rays will be used increasingly in industrial testing operations. Atomic research will introduce newer problems of health hazards. We have already large mining industries which have claimed a high toll of deaths and disabilities. We shall have to start a safety engineering movement and institutes for research in industrial psychology and toxicology. The susceptibility to accidents, the so-called "Accident-proneness", in most cases, has been proved to have a psychological basis and can be avoided only by a careful job analysis and a proper placement of the workers. Our national Government is no doubt highly concerned about this state of affairs and we shall hope that as a first step they will very soon open

labour welfare schools as in the Soviet Russia, to properly train the present and the future labour inspectors.

Most of our industrialists think that the disabled workers are inefficient. So the problems of rehabilitation and resettlement have not entered their minds. There are American statistics to show that accident and absenteeism rates and the production figures do not differ appreciably between the handicapped and able bodied workers. There is even some evidence that the disabled is slightly more efficient if properly rehabilitated and resettled. "Rehabilitation pays economic dividends" Donald Stewart³ points out, "The Austin Motor Company has shown the value of a planned scheme for industrial rehabilitation. Here a special rehabilitation workshop was set up some four years ago as part of the general scheme of health supervision at the factory. During this time over 1000 disabled employees have passed through the shop The 1000 workers who now belong to the shop group exert a significant influence on the attitudes and morale of their 16,000 colleagues in the firm". To this statement I may add that improvement of morale is the *sine qua non* of all our efforts. Programmes for the rehabilitation of the diseased and the injured must include training for new and suitable vocations and prosthesis. In the United States the cost of the complete administrative machinery and 50% of the cost of the rehabilitation of the disabled workers are borne by the state. Even cardiacs are of late resettled in industries.

INDUSTRIAL MEDICAL SERVICE IN INDIA

While the usual diagnostic and curative work is done, the most important function of the service is the prevention of both industrial and non-industrial diseases among the workers. The worker in India has to be taught a good deal about personal hygiene. His mental hygiene

and nutrition should receive special attention from us, if his output is to be increased. He is most superstitious. He requires education on environmental hygiene, social hygiene, diet, home economics, family responsibilities, recreation and in fact on all problems which stand in the way of a healthy and a satisfactory social living. The services of at least three specialists must be available to him namely dermatologist, ophthalmologist and dentist. The oral hygiene programme cannot be too much emphasised. The habit of indiscriminate betel chewing among our workers, while it may supply a little more calcium to the body, is a potent cause of dental sepsis and is directly and indirectly responsible for a considerable number of man-days lost to industry.

THE INDUSTRIAL MEDICAL OFFICER

May be full-time or part-time, depending on the size of industry and finance allotted for the service. Even in the United States some large and many medium sized industries employ only part-time medical officers. The functions of the officer may be advisory or executive. It is difficult to demarcate either of them. Much depends on the relationship between the doctor and the management. In small industries, an ideal medical officer must be something of a safety engineer and a psychologist. The essential functions of an industrial physician may be mentioned here.

(1) Pre-employment or pre-placement examination and certification of fitness for jobs according to physical and psychological standards. The object of this examination is not to select sturdy individuals but to see that the applicants are not below certain minimum standards and to decide for them the jobs suitable to their constitution and temperament. When there is manpower shortage as in times of war, the standards may have to be brought down to a low level. But always in the case of certain types of workers such as the drivers of public transport

vehicles, a high standard of physical and mental efficiency must be insisted on.

(2) Examinations when a worker returns to duty after illness to ascertain whether he is fit enough to resume work.

(3) Rescue and resuscitation in accidents.

(4) Diagnosis of the medical and psychological causes of accidents.

(5) Diagnosis, treatment and prophylaxis of occupational diseases.

(6) Periodical examinations for health maintenance.

(7) Practice of preventive medicine including the study of nutrition of workers.

(8) Carrying out the usual diagnostic and curative work of non-industrial diseases.

(9) Control of the sanitation of the plant.

(10) Psychological study of men at work.

(11) Health education and propaganda.

(12) Maintenance of records and statistics.

Henry S. Brown, President of the American Association of Industrial Physicians and Surgeons summarises the attributes of an industrial doctor thus:—"The modern well-trained industrial medical man should be a physician, surgeon, psychiatrist, toxicologist, hygienist, dermatologist, engineer, writer and teacher—a very large order for any human being, but he must at least be very proficient in one or two and surround himself by or have access to those who can round out the requirements of his job." "Even with those qualifications, in our country the present position of the industrial medical man is not a bed of roses. There are many difficulties facing him in his relationship between the management and the workers. And in the discharge of his duties the medical officer fails in his task for reasons absolutely beyond his control.

INDUSTRIAL PSYCHOLOGY

Industrial psychology forms an integral part of industrial medicine and in its proper application depends the morale and health of any factory.

The increased tempo of life everywhere produces many psychiatric problems. The men at work require a proper handling and guidance if human waste in industry is to be avoided. In our country they are becoming rapidly conscious more of their rights than their responsibilities. "There can be no rights without responsibilities." All prospective industrial workers must pass through a school where a short preliminary training in various jobs is given. Here frequent appeals must be made to their patriotic sentiments to make them realise their responsibilities to society at large. They should be given a general idea of the health and physical hazards in industry and should be impressed that the avoidance of such hazards largely depends on themselves. Then, in the industrial establishments when the men are recruited they must be given, as in other advanced countries, psychological tests for intelligence, mechanical aptitude and emotional stability. Unless they are properly selected and placed in jobs suited to their temperaments and capacity, a group of malcontents will result and become a menace in the plant. After the recruitment they must be made to work under enlightened supervision. Unfortunately the foremen in our country are not sufficiently educated and I know many are illiterate. The training that is generally given to persons before they occupy positions as foremen and the scientific principles on which they are selected are particularly absent in our country. They have to be the liaison between the operatives and the management and should hold the scales evenly between them. But, they are bad psychologists. Remember, a bad foreman can produce not only many types of neuroses but also discontentment among the men under his supervision. He may be instrumental in bringing about labour unrest. He can make and mar progress. So it is imperative that he should be provided with facilities for good training in foremanship. He must develop in himself

qualities of leadership and must realise that his work is not merely to guide men at jobs but to correctly and convincingly interpret the view points of the management and workers vis-a-vis. He must be able to inspire and to infuse a sense of responsibility among the operatives under his care. Such a training of foremen is the responsibility of both Government and Industry.

Neuroses in industry are also due to improper job selection and maladjustments of individuals. The psychopathology of some of the occupational neuroses have been studied in detail. Most of you have read about the neuroses such as writers' cramps, typist cramps, etc., Of similar nature are the occupational cramps, occurring in Industry. There is an interesting condition known as "miners' nystagmus. Though various factors such as defective illumination and changes in atmospheric pressure had been incriminated it is now known that there is a fear complex underlying the condition.

INDUSTRIAL RECREATION

Recreation forms an important part of any industrial health programme. It fosters good employer-employee relationship. It gives a sense of comradeship and certainly improves morale besides the physical well-being. It enables the worker to express his personality. It increases production. May Smith⁵ records that the output increases in a number of ways during weeks preceding annual holidays and Easter holidays and even at the anticipation of a fancy dress dance. Three kinds of recreation are usually provided, namely physical, excursions, and cultural.

Before leaving this subject of industrial psychiatry, I should make a reference to a few other important subjects where a combination of psychological, physiological and pathological factors are concerned—I mean industrial noise, industrial fatigue and industrial sickness absenteeism.

NOISE IN INDUSTRY

I must first tell you about the effects of music on human psychology. Music soothes passions. From time immemorial, it has been associated with safety and comradeship and has been advantageously applied to group activities. Physiologically it reduces fatigue and increases the efficiency of workers, thus stepping up production. Noise, on the other hand, infuses a sense of fear. It inhibits the contractions of the stomach. Long continued noise produces organic changes in the ear and leads to chronic deafness. Noise can be measured and methods of making factories noise-proof have been suggested. In some plants especially in Russia, a form of mild back-ground music during work hours has been provided with pleasing results. Great interest centres round a physiologically allied condition known as "Repetitive ailments" of the hand. Men whose work involves repeated operations of high frequency, e.g., rivetting and handling of vibrating tools suffer from this disability. The hands get cold and numb even if they are gloved. An investigator found that immersion of the hands of two such workmen in water at a temperature between 15 and 20 C—resulted in marked cyanosis and loss of sensation.

INDUSTRIAL FATIGUE

The phenomenon of fatigue has been extensively studied in relation to industry. It results from psychological and physiological causes. Monotony leads to fatigue. Uncongenial surroundings and unenlightened supervision produces in men and women at work, a sense of frustration and early fatigue. Actually no one works continuously and there is always surreptitious ways of taking rest, the *modus operandi* depending upon the temperaments. Periodic changes of work whenever possible are effected to relieve monotony. One useful finding is that the incentive in the so-called piece-rate system—i.e., payment for the number of pieces

turned out, irrespective of the number of hours of work, reduces fatigue. Faulty postures and prolonged hours of work lead to fatigue. It has been found that a light but high carbohydrate diet supplemented by fluids containing sodium chloride tablets taken in the midst of work reduces fatigue and increases work efficiency. In highly industrialised countries, measures have been adopted to counteract fatigue by the provision of small mid-morning and mid-afternoon rest pauses 5 to 10 minutes—during which period the workers are given a snack of carbohydrates and milk while music goes on. Since these pauses have official sanction behind them they are better enjoyed and so are more effective than surreptitious rest in combating fatigue.

INDUSTRIAL SICKNESS ABSENTEEISM

Conditions of work, rest and even the level of wages have a bearing on the incidence of sickness among industrial workers. People on night shifts go down in weight and contribute to sickness absenteeism because they cannot have natural and undisturbed sleep during day time. Lack of sleep leads to lack of resistance to disease. Men who have to walk long distances to the works every day get easily fatigued and yield to the temptation of applying for sick leave. I have already alluded to the part that psychology plays in sickness absenteeism. The capacity of workers to work in spite of minor ailments depends much upon their own mental make-up as well as that of their foremen. Supervisor who scold and find fault with workmen constantly are instrumental in increasing the sickness absenteeism. The young workers are the worst sinners in exaggerating insignificant ailments. A study in the T. V. S. Workshops and Transports at Madura has shown that the unmarried and the lower age groups contribute more towards absenteeism. Further absenteeism is highest on Mondays. This is due to the fact that many

workers especially the young do not take sufficient rest but spend themselves completely on Sundays. May Smith's observation that output is nearly always low on Monday and at the end of the week is significant here. A study of the sickness absenteeism in the T. V. S. Workshops and Transports for the 6 months (March to August 1948) showed the highest figures on Mondays and the lowest on Saturdays. In that period the number of man-days lost were 2,449 out of which absenteeism on Mondays contributed 22.2%, Tuesdays 16.5%, Wednesdays 16.3%, Thursdays 14.9%, Fridays 16.3%, and Saturdays 13.2% 75% of the man-days lost in September this year were due to men who were underweight. As in other countries, the largest single cause of sickness absenteeism is disease of the upper respiratory tract. Then come the so-called rheumatic diseases in which upper respiratory tract infections is considered to be an aetiological factor. In this connection we must remember what Ryle says: "All diseases of high incidence may be said to have a 'social' as well as an 'individual pathology.'" Referring particularly to rheumatic fever he says, "It has been stated that the disease is more common in northern than in hot southern climates but the medical statistics of tropical countries are at present unsatisfactory and the rarity of rheumatic fever in countries such as India should not be over-emphasised. In Madras, in 1944, I was shown a number of cases of grave rheumatic heart disease in a single ward of one hospital. The squalor and poverty in many of the working-class districts of Indian cities are appalling and although seasonal and weather variations may be less favourable there than in our own country to the occurrence and spread of catarrhal infections, density of population and living conditions should be far more so."⁶

THE NUTRITION OF WORKERS

The medical Director of the Caterpillar Tractor Company in America has organised a

"Fat Man's Club" among his workers to bring down the weights of obese individuals and I think we in our country should organise a "Thin Man's Club" to put up weight. Low vitality and poor nutrition have been proved to be important causative factors in industrial accidents. The average worker in India is under-nourished. There is a scarcity of food and nothing much can be done to improve the quantity in view of the inflation of currency. Meat, eggs and fish have become very costly and the animal protein moiety of food is very low. Dairy products have become scarce and even the price of the vegetables is very high. Before we leave the subject of nutrition, mention should be made of the prevalence of gastric and duodenal ulcers among the workers in South India. Large number of workers come to us only when the symptoms have become intolerable. Sickness surveys in factories will unearth a large number of cases of potential and early diseases. These cases should be provided with a subsidiary diet of milk or milk made product at mid-morning and mid-evening intervals. Again, there are the transport worker who cannot take timely meals and the night shift workers who are particularly liable to get peptic ulcers. These men should receive special attention.

OCCUPATIONAL DISEASES

The subject of occupational disease is one of the most important aspects of industrial medicine. It is so vast that it is not possible in a short paper like this to do justice. The occupational diseases that we may have to deal with will depend upon the nature of the industries that we are going to develop in our country. Among the strictly occupational diseases about 60 per cent are dermatoses, about 10 per cent are those affecting the eye and a smaller percentage are due to systemic poisons. We have to carry out environmental surveys within the factory. There is scope for considerable research and we require

the wholehearted co-operation of the industrialists in our country. I have to point out here to a great American institution namely "The Industrial Hygiene Foundation of America" which is the only one of the kind in the world. It is a research organisation run by voluntary contribution from the industries. Its finance is sound and is doing excellent work. Is it too much to expect that we may also have a similar institution in our New India in the near future?

WOMEN IN INDUSTRY

Women in industry present the same problems except that they require smaller hours of work, maternity leave and benefits, creches and other facilities.

INDUSTRIAL MEDICAL EDUCATION

In our country no facility worth mentioning exists. The subject must be introduced in the under-graduate medical curriculum and at least 10 hours with visits to plants must be allotted. Understudy appointments must be made available to doctors in the medical departments of large industrial establishments. A degree course in the subject in our universities should be started

and it should include research in Industrial Toxicology, Industrial Physiology and Psychology Social Medicine and Statistical Research.

Before I finish I have to refer you to the broadcast on the 5th September this year by the Hon'ble Shri Jagjivan Ram, in which he outlined the Government programme to make labour happy and contented and an excellent article in the *British Medical Journal* received a few days ago (September 11th issue) on "Human Relations in Industry" by Sir George Schuster which must be read carefully both by medical men and industrialists.

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(Courtesy—THE MISCELLANY.)

ART OF LIVING

Happiness is a perfume you cannot pour on others without getting a few drops on yourself. The worst bankrupt in the world is the man who has lost his enthusiasm. Let him lose everything else but enthusiasm and he will come through again to success.

—H. W. Arnold.

"Results!" exclaimed Edison to an assistant marveling at the bewildering total of his failures—50,000 experiments, for example, before he succeeded with a new storage battery. "Results? Why, man, I have gotten a lot of results. I know several thousand things that won't work."

—C. Hartley Grattan in *Scribner's*.

Worry is a thin stream of fear trickling through the mind. If encouraged, it cuts a channel into which all other thoughts are drained.

—Arthur Somers Roche.



"Books are Weapons in the War of Ideas." "Some Books are to be tasted, others to be swallowed and some few to be chewed and digested" . . . and some to be eschewed!

HOMOEOPATHY AND COMPARATIVE MEDICINE INDEPENDENCE NUMBER

Editor-in-Chief : Capt. C. Oommen, M.B., B.S.

Publishers : "Sarvodaya Press", Karipuzha, Mavelikara for "The A.I.A. (H & N)."

"Homoeopathy and Comparative Medicine" is published under the auspices of 'The All-India Association of Homoeopaths and Naturopaths.' It is proper that Homoeopathy and Naturopathy should go together as one is complimentary to the other. It is by straying from the paths of Nature that ill-health results, in more than ninety per cent. of cases. Good health cannot be restored until natural laws are established and life regulated by them.

Food is the sustainer of health and life and Nature has laid down different foods for different beings and such foods are expected to be eaten as much in their natural state as possible. But modern civilisation is making us depart from these natural foods by creating more and more delicacies which, when once tasted, is difficult to leave off. We eat things which we should not eat and eat more than what is good for us. This has been well brought out by Mahatmaji in his article "Health and Diet" (reproduced in this issue of *People's Health*) published in the *Journal* under review. We have to pay for these 'pleasures' of gluttony and we pay it in ill-health in addition to money.

Modern medical science is advancing rapidly but unfortunately in a crooked way. By laying stress on these modern scientific ways which are costing us a pretty penny, we are losing sight of the simple and cheap natural ways and diseases are advancing in direct proportion to the advance of scientific methods. These scientific advances should be reorientated to work in the paths of Nature and not away from them.

When ill-health results from any reason whatever, the simplest and least harmful help should be given to the vitality to enable it to restore the body to a healthy state. This can be done best in the homoeopathic way as Homoeopathy works on natural lines. It does not aim at suppressing the symptoms and the disease by administering remedies antagonistic to them. This indiscriminate administration of antagonistic remedies is responsible for the chronic diseases which are on the increase and which are sapping the vitality of the nation. Homoeopathy selects remedies in a natural way and administers them in infinitesimal doses, thus helping the vital force to restore the individual to normal health in an easy, quick and permanent way.

The Government is wasting its energies and money in perpetuating this unsatisfactory state of things and trying to open hospitals and

dispensaries which work on these lines well knowing that the more the hospitals and doctors, the more the diseases and patients. What is more important is to educate the public in the importance of healthy living and in the easy methods of cure. Environmental and personal hygiene are the fundamentals of prevention of disease and it is the knowledge of these simple truths and people, who can educate them in such truths, that are more helpful to the common people than any number of hospitals which only help in perpetuating disease. In this respect the educated lay public can help the Government a great deal, if they themselves study these simple subjects which are easily understood and educating the less educated in these methods. The simple cure by homoeopathic methods also is easy to learn and most of the common simple ailments can be easily remedied by one or two doses of a proper homoeopathic drug. By learning this method of treatment, an educated man can, not only help himself and his family, but also his poor neighbour in most of their simple ailments. Of course, they should not attempt to tackle serious or complicated cases nor should they style themselves "doctors". These should be left to properly educated, trained and experienced doctors, who only should be recognised as "doctors" by the Government. Healing is an ART and it is only a properly trained and experienced artist that should be allowed to tackle the various complicated diseases in all their aspects.

Capt. C. Oommen, the Editor-in-Chief, has had complete education in medical science in all its aspects and has made special study of Naturopathy and Homoeopathy and has devoted his life to the propagation of these two arts. He is best suited for this mission and we wish him all success.

TABLET MAKING

Author : Arthur Little and K. A. Mitchell.

Publishers : The Northern Publishing Co. Ltd.,

37, Victoria St., Liverpool, 1.

Published : In 1949.

Price : 15 sh.

Pages : 121. *Size* : 8" by 5".

Tablets have become such a common and popular form of administering medicines that manufacturers of tablets and students of pharmacy have long felt the need for a guide book describing the intricate processes involved in tablet-making. The authors have therefore to be thanked for having satisfied this need and further deserve to be complimented on the concise and exhaustive manner in which they have covered the entire subject within such a short compass.

The earlier chapters of the book deal with the general principles of tablet-making, the equipment required for the purpose and the installation and care of these machines. Then follow a series of chapters on mixing, granulating, compressing and coating. The difficulties encountered in compressing, e.g., capping, sticking and binding, have been dealt with in great detail and suitable remedial measures have also been suggested which would be specially appreciated by the manufacturers.

However, the chapter on colouring of tablets contains only scanty information regarding the names and kinds of colours to be used for various types of tablets, the proportions in which they have to be used and the methods of retaining the permanency of the colours. A more exhaustive treatment of the subject would have been of invaluable help to the manufacturers in this country.

The concluding chapter gives representative and useful examples to illustrate the principles underlying the formulation of tablets of various kinds. Excellent photographs of the special equipment required to manufacture tablets, of the set up of the tablet-making department of

Col. K. V. RAMANA RAO, I.M.S. (Retd.)

manufacturing chemists and of the specimens of tablets of diverse shapes and sizes form a special feature of the book. The book will be a useful addition to the library of every pharmaceutical institution and manufacturing firm.

A. N. R.

ADMINISTRATION REPORT OF THE MADRAS CITY IMPROVEMENT TRUST FOR THE YEAR 1948-49

A perusal of the Administration Report leaves an irresistible impression that practically the sole duty of the Trust is to build cheap houses for the poor and the lower middle class people. The Chairman seems to think that his Trust alone would be a suitable agency for the same and that there would be "chances for exploitation", if private or even public agencies such as the Corporation, the P.W.D., and industrial concerns like the big textile mills—who have very competent engineers among their staff—take upon themselves the duty of building houses even for their own staff. It is needless to say how unreasonable and unwarranted this claim is.

The Administration Report is not so much the factual narration of the actual achievements of the Trust as the loud thinking of the Trust through the Chairman. It looks as though the Chairman is the sole planner and executor of the Trust with very little original contribution from the other members of the Trust.

The public have the right to expect an improvement trust of any city to consist of experts in various branches of engineering, sociology, economics and other allied subjects, who would work as a team and pool all their knowledge and experience to formulate a "Master plan" not merely for housing schemes but also for improving the environmental conditions in the city as a whole. Madras City has grown pell-mell from small beginnings and there has been no regular planning or co-ordination of the various suburbs which have eventually been incorporated

in the Madras Corporation limits. Industrial areas have not been properly laid out nor are there open spaces for recreation, for educational institutions, play grounds and other amenities for the vast population that are now flocking to the city from villages all over the province. If the trust could command the wholehearted co-operation of experts who have the capacity and the imagination to draw a Master Plan for the whole City, then the Trust could do very well to formulate the Plan giving suitable designs for the various structures that they wish to be built in accordance with the plan and encouraging as many agencies as possible to actually execute the works. In fact, the only sensible and practical way of getting a larger number of structures built in a relatively short time would be to enlist the co-operation of all the agencies who are competent and willing to take up such work. To say that there would be 'exploitation' if private agencies like big corporations and industrial concerns and even governmental or quasi-governmental institutions take up the work, is ungenerous and displays lack of appreciation of what is possible beyond the limited achievement of the Trust.

It has also to be remembered that long before this Improvement Trust came into being the South Indian Railway have been making and using hollow cement blocks wherever good bricks could not be obtained at favourable rates and some engineering firms in Madras actually put up model houses of an economical type with hollow cement block walls, in the Congress exhibition grounds.

It is disappointing that no mention has been made in the Report of the Act under which this Trust is functioning. The framers of the Act do not appear to have had the necessary imagination to conceive of what could be achieved by an Improvement Trust. This has naturally been reflected in the actual performance of the Trust. It is hoped that this aspect of the question will

now be seriously considered and effective steps taken to repeal the present Act and then re-constitute the Trust on proper lines. It is nevertheless true that much more than any Act, we need capable men with the imagination, the grit, the character and the drive of Sir Mirza Ismail, to be entrusted with the duty of effecting improvements to our cities. Is it really necessary then to have for Madras a separate Improvement Trust at all? Bombay, as every one knows, is planning and executing gigantic improvement schemes without any separate autonomous body like the Improvement Trust. Can't we follow the Bombay example?

Let me conclude this review by extracting hereunder from an excellent article by Frederick A. Cuthbert which appeared sometime back in the *Journal of American Water Works Association* :—

"Coming from many professions, city planners are prone to reflect their strongest professional heritage in the work they do. The architect as a city planner is likely to be most concerned about plazas, monumental building groupings and the general 'city beautiful'

aspects of planning. The sociologist as a city planner thinks first of the crime, the slums, the poverty and the problems of rehabilitation. The engineer may go statistical, concerning himself principally with percentages, formulas and graphs with such practical matters as traffic, water-supply and sewers. His standards of beauty are apt to be highly individualistic. The utilities engineer may get as much aesthetic satisfaction from a perfectly aligned row of telephone poles as others do from an avenue of arching elms, and these two elements are not compatible. The ideal city planner would be a happy hybrid of engineer, architect and sociologist plus businessman, attorney, economist and diplomat. Until such a perfect combination has been attained in one man, municipalities would do well to employ as their permanent city planner the best qualified person they can hire, while expecting to supplement his services with such specialised assistants or consultants as he may need to do a well-rounded job."

—R. MADHAVACHARI.

DOCTOR'S DILEMMA

A doctor in Suffolk, England, with 4,000 patients on his health panel, has become fed up with nationalized health. To each patient recently he sent the following mimeographed letter :

"Are you bald? Let me give you a certificate for a wig.

"Are your rations proving too much for your waistline? Let me introduce you to the latest in State corsets, with a certificate.

"Are you short of whisky, brandy, fats, meats, glucose? Let me give you a certificate.

"Are you short of petrol? So am I.

"Is your 44-hour week too much strain? Do let me give you a certificate.

"Can I give you an exemption from sitting on jury? Do you want to vote by post in the next election? Let me help you.

"Do you want rubber tyres, utility furniture, extra coal, more paraffin? I have lots of certificates.

"Do you know you must fill in Form 24-A if you want to have a baby?

"Are you ill? For God's sake don't call me in! I'm too busy signing certificates!"

—Mickling in *Cleveland News*.

FROM EVERY WHERE



WHAT DO THEY SAY ABOUT IT?

Readers can contribute to this section. They are requested to send extracts of current literature which, in their view, would interest the people. —Ed., P.H.

EGGS IN MANY BASKETS

What is meant by "mental hygiene"? Admittedly, it is a loose term. There is no single word satisfactorily comprehensive of the fields which it covers. Perhaps "psychiatry" comes closest to the meaning of the Foundation's present program, with the understanding that the word must be given a broad interpretation. It must mean far more than the traditional interests of the clinical psychiatrist. If it is to be truly comprehensive, it must range all the way from anatomy to psychology. It must deal with the function of the nervous system, the role of internal secretions, the factors of heredity, the diseases affecting mental and psychical phenomena—in brief, it must lay a factual foundation for what is often called psychobiology.

The Foundation has no illusion that the complete answer to the problem of mental abnormality lies in any particular approach. In this field of mental behaviour, as in all other fields,

there is no exclusive or predetermined way to knowledge. Amid too much shouting disagreement among the doctors and too many schools of thought, it is best to seek competent, serious workers who offer reasonable hope of adding helpful scaffolding or permanent bricks to the edifice of verifiable knowledge of man and his behaviour.

A Foundation in a situation of this kind can assist scientifically promising work in many directions. Out of the present dissents among the specialists, out of the controversies which now mark the field, the hope is that agreements will emerge and techniques will be developed as more light is shed on factors and phenomena at present unknown or imperfectly understood.

In 1936, as in previous years and in other programs, the Foundation followed a policy of putting its eggs into more than one basket. Appropriations now operative under this Foundation program include such diverse approaches

What Do They Say About It?

as the University of Illinois, for teaching and investigative work in psychiatry; Johns Hopkins University, for the development of neurology; the Institute of Child Welfare of the University of California; the Institute for Psychoanalysis in Chicago; the Institute of Human Genetics at the University of Copenhagen; the National Committee for Mental Hygiene; Galton Laboratory, University of London, for research in genetics; Maudsley Hospital, London, for research in psychiatry; College of Physicians and Surgeons of Columbia University for psychiatric research; Worcester State Hospital, Massachusetts, and the University of Amsterdam, Netherlands, for work in dementia praecox; University of Leiden, Netherlands, for research in child psychology; and other institutions and agencies.

Extract from a review of "The Rockefeller Foundation".

IMPORTANCE OF CLEANLINESS

The mode of life of modern men is profoundly influenced by hygiene and the principles resulting from the discoveries of Pasteur. The promulgation of Pasteurian doctrine has been an event of the highest importance to humanity. Their application rapidly led to the suppression of the great infectious diseases which periodically ravaged the civilised world, and of those endemic in each country. The necessity for cleanliness was demonstrated, infantile mortality at once decreased.

It is evident that men have joyfully welcomed the modern civilisation. They have abandoned the countryside and flocked to cities and the factories. They eagerly adopt the mode of life and the ways of acting and of thinking of the new era. They lay aside their old habits without hesitation, because these habits demand greater effort. It is less fatiguing to work in a factory or office than on a farm but even in the country, new techniques have relieved the harshness of existence. Modern houses make life easier for

everybody. By their comfort, their warmth and their pleasant lighting, they give the inmates a feeling of rest and contentment. Their up-to-date appointments considerably decrease the labour that in bygone days housekeeping demanded from women. Besides the lessening of muscular effort and the possession of comfort, human beings have accepted cheerfully the privilege of never being alone, of enjoying the innumerable distractions of the city, of living among huge crowds and that of never thinking. They also appreciate being released through a purely intellectual education, from the moral restraint imposed upon them by Puritan discipline and religious principles. In truth, modern life has set them free which incites them to acquire wealth by any and every possible means, provided that these means do not lead them to gaol. It opens to them all the countries of the earth. It has liberated them from all superstitions. It allows them the frequent excitation and the easy satisfaction of their sexual appetites. It does away with constraint, discipline, effort and everything that is inconvenient and laborious.

("Man The Unknown" by Dr. Alexis Carrel.)

HOW TO GET CANS CLEAN?

The author discusses the common factors influencing the proper cleaning of milk cans. Personnel, can-washers, sanitizing materials, and methods are discussed in relation to satisfactory results. The author summarises his discussion of the subject as follows: "1. Make some one responsible for the proper operation and care of the can-washer, and see that this responsibility is fully assumed. 2. Keep machine clean, well groomed and lubricated. 3. Use temperatures for all treatments which will provide maximum cleaning, maximum destruction of bacteria and maximum dryness without lime or scale deposit. 4. Never reach or exceed the critical temperature of the cleaning compound being used. 5. Maintain proper strength solution for washing and

rinsing to provide maximum cleaning without formation of lime or scale. 6. Use relatively clean water for washing all cans. 7. Select cleaning compound most suitable for the can-washer being used. 8. Do not alternately use alkaline and acid cleaners if the temperatures used reach or exceed the critical temperature of the alkaline cleaner.

"If this program is followed constantly, clean cans can be had."

—(P. H. Engg. Absts.)

CLIMATE AND WEATHER

The distinction between climate and weather is more or less artificial, since the climate of a place is merely a build-up of all the weather from day to day and the weather is merely a day-by-day break-down of the climate. It seems to be a useful distinction, however, and there will probably continue to be meteorologists concentrating on the daily weather and climateologists concentrating on the longer time range. Climate is of special interest to agriculture primarily because it divides the earth into zones, regions, and smaller areas each of which is suitable for certain crops and not suitable for others.

Climatology, the branch of weather science concerned with climate, feels the stirring of new needs in addition to the ideas that have had such a profound influence on weather science in general. Modern soil conservation work furnishes an example. The conservationists are much concerned with overcoming the hazards of erosion, soil exhaustion, floods. In many cases this involves getting the right kind of plant cover on the land, permanently, temporarily, or in rotation with certain crops. The climate of an area fundamentally determines the kinds of plants that can be used there. This statement is too broad to be useful, however; it means nothing in a particular case until you determine just what

elements in the climate affect the plant and just what the effects are.

(Extract from 'Climate and Man' United States Dept. of Agriculture.)

IMPROVE SANITATION STATUS BY PRACTICAL, ON-THE-JOB ACTION

Official sanitary control in many areas is not satisfactorily established, and it is therefore important to have sanitary practices instituted on a voluntary basis. From the discussion it may be seen that operators of eating places are concerned with two major necessities: (1) prevention of the spread of disease by infected utensils, and (2) prevention of the spread of disease by infected or chemically contaminated food. Diseases spread by infected or contaminated food may be divided into two groups—the saliva-borne and filth-borne. Contamination may be provided by the hands of utensil and food handlers, coughs or sneezes; by flies, rodents, cockroaches, dirt, etc. Two things essential to a successful sanitation program are (1) the belief of the operator that sanitation is important to his business and (2) that he imparts that belief to his employees. An outline is given of what may be done by any operator regarding his building, utensils, and food, to establish proper sanitary procedures.

—(P. H. Engg. Absts.)

PERSONALITY CAN BE IMPROVED

Some characteristics of personality are more or less fixed, but others may be changed. A tall person cannot change the physical characteristics of height, nor can a person with blue eyes change to brown eyes. On the other hand, by giving special attention to his health, he can change for the better many physical characteristics. Likewise he can improve mental and emotional characteristics in his personality. If he is slovenly in his thinking, he can learn to think more clearly, and if he has poor study habits, he can learn to study better. If he is subject to fits of anger,

he can become more even-tempered, and if he is of a gloomy disposition, he can attempt to be cheerful.

Your personality is one of your greatest assets in life. Therefore you can afford to spend considerable time in its analysis and improvement. The first step is to find out what your characteristics are, so you will know which of them need attention. The second step is to embark upon a programme of improvement which will enable you to acquire the characteristics you desire. The improvement will come slowly, for you must take one characteristic at a time and work on it until satisfied.

(Extract from "Life and Health" by Wilson-Bracken —Almack.)

CLEAN DISHES AND CLEAN PANS—HOSPITAL SANITIZATION

The importance of clean dishes in a hospital is emphasized. Dish-washing by machine, both 1-and 2-vat, using a detergent, is described. Time intervals and temperatures used in current practice are discussed in relation to the results to be expected. A rinse is necessary with the single-vat machine but is provided in the 2-vat unit. Racked dishes are subjected to a hot water rinse under pressure of 25 to 50 pounds from a hot water line at a temperature of 180°F. for from 10 to 15 seconds. Drying will result due to evaporation, but warmers are desirable. Water softeners are sometimes desirable to prevent cloudy glassware. The use of towels is avoided. Machine efficiency rests to a great extent on the thorough scraping of dishes. The controlled operation of the machine and its specific characteristics are also important considerations. Easily cleaned machines preferably with stainless steel tanks are recommended. Sinks are discussed briefly. Proper instruction of kitchen help is necessary. Inspection by health authorities would prevent much care-

lessness and avoid difficulties in complying with the law.

C. G. CALDWELL.

—(P. H. Engg. Absts.)

AN EDUCATIONAL PLAN FOR FUTURE SANITARY ENGINEERS

This article states that although the United States prides itself on its high standards of living and education, the country is still subject to backward and dangerous methods of rural, municipal, and industrial sewage disposal. The need for men with practical training in sanitary engineering is self-evident. The author proposes the establishment of a school of practical sanitary engineering with functioning sanitary installations available on the grounds for operation by the students. The need for further personnel emphasis in the field of sanitary engineering is illustrated by the fact that of a total budget of \$104,000,510 in 1947, the Public Health Service allocated only \$2,000,000 for salaries in the field of sanitary investigation stream pollution, etc.

According to the author no school in the United States offers a complete education by practical training of the sanitary engineer, and sanitary engineering in the civil engineering curriculum usually includes only a few hours a week for training. An adequate course in sanitary engineering, it is claimed, should emphasize practical work on actual school installations in the following fields: (1) Plumbing hook-up, installation, and inspection. (2) Septic tanks and appurtenances. Fifty percent of our populations depend on private sewage disposal. (3) Disposal of industrial waste to abate pollution of inland and coastal waters. (4) Municipal sewage disposal systems. (5) Wells and rural water supplies. (6) Municipal water works. (7) Stream and waterways sanitation at the headwaters. (8) Recovery of industrial wastes. (9) Control of malaria drainage and all other

types of vermin. (10) Industrial hygiene. (11) Food handling and processing. (12) Trailer and labour camp sanitation. (13) Dairy sanitation. (14) Hydraulic research. (15) Interstate sanitation.

—(P. H. Engg. Absts.)

FLUORESCENT PAINT BLACK LIGHT MAKES PAINT VISIBLE IN THE DARK

You can have a speedy game of table tennis in a room with the lights turned off. Prepare for the game by painting the ball, the rim of the tennis table, and the entire net with coloured fluorescent paint. When the lights are turned off, the invisible rays of an ultraviolet lamp cause the plastic ball, table rim, and net to glow with sufficient brilliance to enable you to play a swift game.

With an amateur's kit consisting of an assortment of colours and an ultraviolet "black light" lamp, you can paint pictures, or decorated walls, draperies, and doors, so that the room will have an entirely different character under the ultraviolet One preparation may even be used on the skin for theatrical make-up.

—(Science Illustrated.)

AMLA—RESERVOIR OF VITAMIN C

Vitamin C forms a very important item of balanced diet. A well, balanced diet should contain 170 units of Vitamin C.

Dr. Akroyd, pioneer research worker in India, on the nutritive value of Indian foods, mentions of this fruit as follows:—"There is one very cheap and common fruit, namely Amla or *Nellikai* *Phyllanthusemblica*, Linn, which is very rich in vitamin C and which, indeed, is one of the richest natural source, of vitamin C. Amla grows abundantly in all Indian forests and is available in almost unlimited quantities from January to April. The fresh juice contains nearly twenty

times as much vitamin C as orange juice, and a single fruit is equivalent in vitamin C contents to one or two oranges.

"The heating or drying of fresh fruits or vegetables usually leads to the destruction of most or all the vitamin C originally present. Amla is exceptional among fruits because of its very high initial vitamin C contents, because it contains substances which partially protect the vitamin from destruction on heating and drying, and because its juice is very strongly acid. Acidity has a protective action on vitamin C. Hence it is possible to preserve Amla without losing much of the vitamin. An easy and effective method is to mince the fruit and dry it rapidly in the sun, after which the dried pulp is powdered. Amla powder prepared in this way may contain from 10-16 milligrammes of vitamin C per gramme, and considerably higher values have been obtained by various modifications of the drying process. Some loss of vitamin C occurs in the powder on keeping, the loss being accelerated by heat and moisture. But in spite of this, it usually remains a good source of vitamin C for several months. It should be stored in as cool and dry a place as possible."

SALTING AMLA

Another method of preserving the fruit is to salt it. Well ripe fresh and healthy fruits are washed, crushed into small pieces and their stones removed. To this one half to equal proportion (by weight) of salt is added. Mix it well and keep its container in the sun for a few days. Always use non-metallic container. For that matter, earthen pots are the best. After sunning, the salted product may be kept in glass jars or smaller earthen pots and stored in dry and cool place. This generally becomes damp in the rainy season; so at this time seal the container air-tight. This may be used for making *chutney* in the off season; when fresh Amla fruits are not available. Pills made from this are used for

promoting, digestion and as an antidote to vomiting and billousness. They are the best vitamin C. pills.

—(Hindustan Standard.)

WHY "APPLE-A-DAY" RULE WON'T WORK

The old cure-all adage, "an apple a day will keep the doctor away" will have to be discarded.

Reason: too few apples.

During the past 40 years, population has gone up and apple production has gone down, points out Prof. L. E. Slater of Cornell University. The supply of apples has been reduced more than half in that time.

This has left only about a bushel of apples for each one of us each year for the past decade—too small a number for one-a-day consumption.

On the other hand, citrus, fruits such as oranges and grapefruit have increased in supply more rapidly than the population. This, Prof. Slater adds, is why apples cost more than they once did in comparison with other fruits.

—(Science Digest.)

RODENT PREVENTION ABOUT DAIRY PLANTS

"Means of preventing rodents in dairy plants are: (1) Rodent proof the plant. (2) Select a bait the rodent wants. (3) Trap systematically

—get an adequate number of traps and bait them all; set all of the traps the same evening; pick up all the traps the next morning, removing the bait and storing them away during the day; continue fresh baiting of traps, setting them each evening and picking them up the next morning until no rodents are caught for two successive nights; then pick up the traps and store them for 2 weeks, unless rodents are seen in the meantime; resume the procedure at the end of each 2 weeks regardless of whether rodents are seen. (4) Do not permit traps to remain in place about the plant during the day. (5) Do not use poisons."

—(P. H. Engg. Absts.)

DDT PROTECTS WOOL

For the protection of wool against damage by moths and other insects, a five percent solution of DDT proves far more effective than any of the currently used agents, according to results of an Army-sponsored research project described by Major Frederick W. Whittemore, an Army entomologist.

"This discovery, made by a Department of Agriculture scientist, will mean an inestimable saving to the government in preserving its woollen goods in storage as well as to individuals in civilian life," said Major Whittemore.

—(Science Digest.)

KEEP COOL

All right, so it's hot out. But don't rely entirely on air conditioners, fans, and other mechanical aids, even if you have them. There are simpler ways to comfort during dog days.

Most important are the right food, drink and clothing. Stay away from proteins, stimulants and iced beverages. The psychological effect of one iced drink is fine, but more than that reduces the blood circulation in the skin area and interferes with radiation of excess body heat. Wear light clothing of smooth, porous weaves. In a pinch, try running cold water, or putting a cold washcloth, on your wrists. The blood comes close to the surface there and will be readily cooled.

Science Illustrated.

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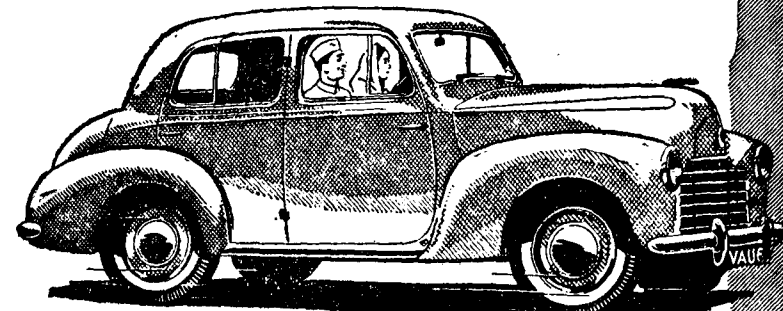
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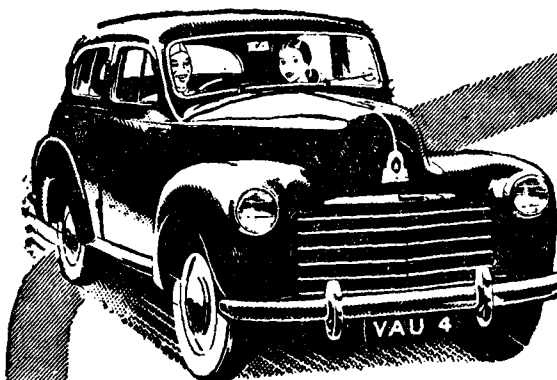
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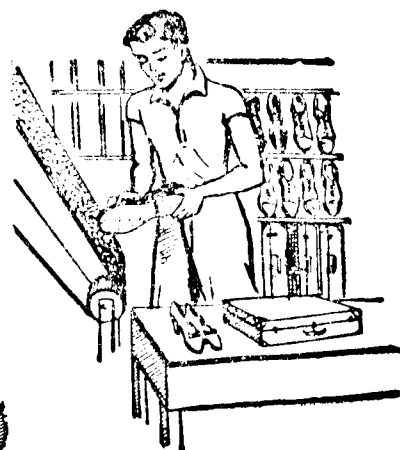
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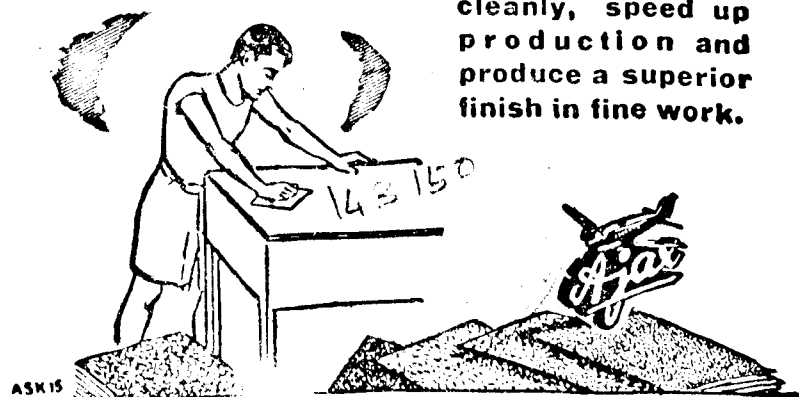
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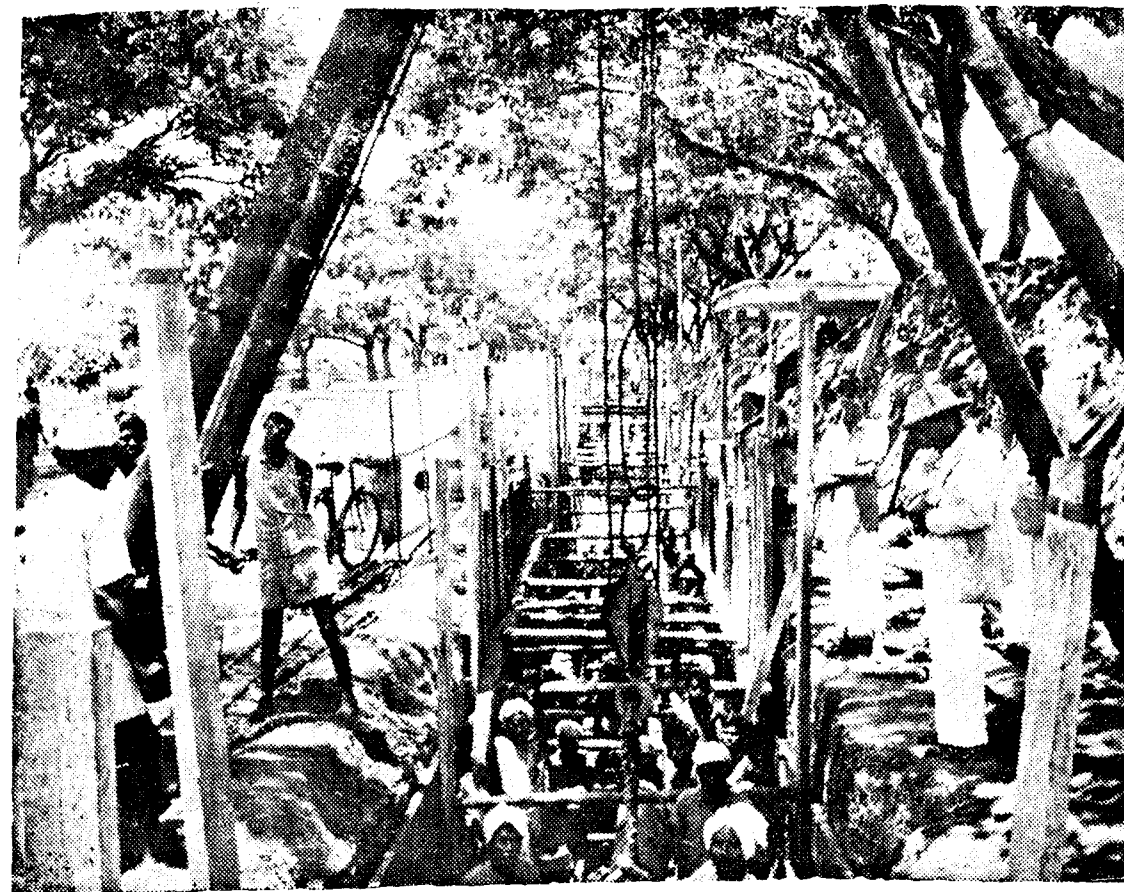


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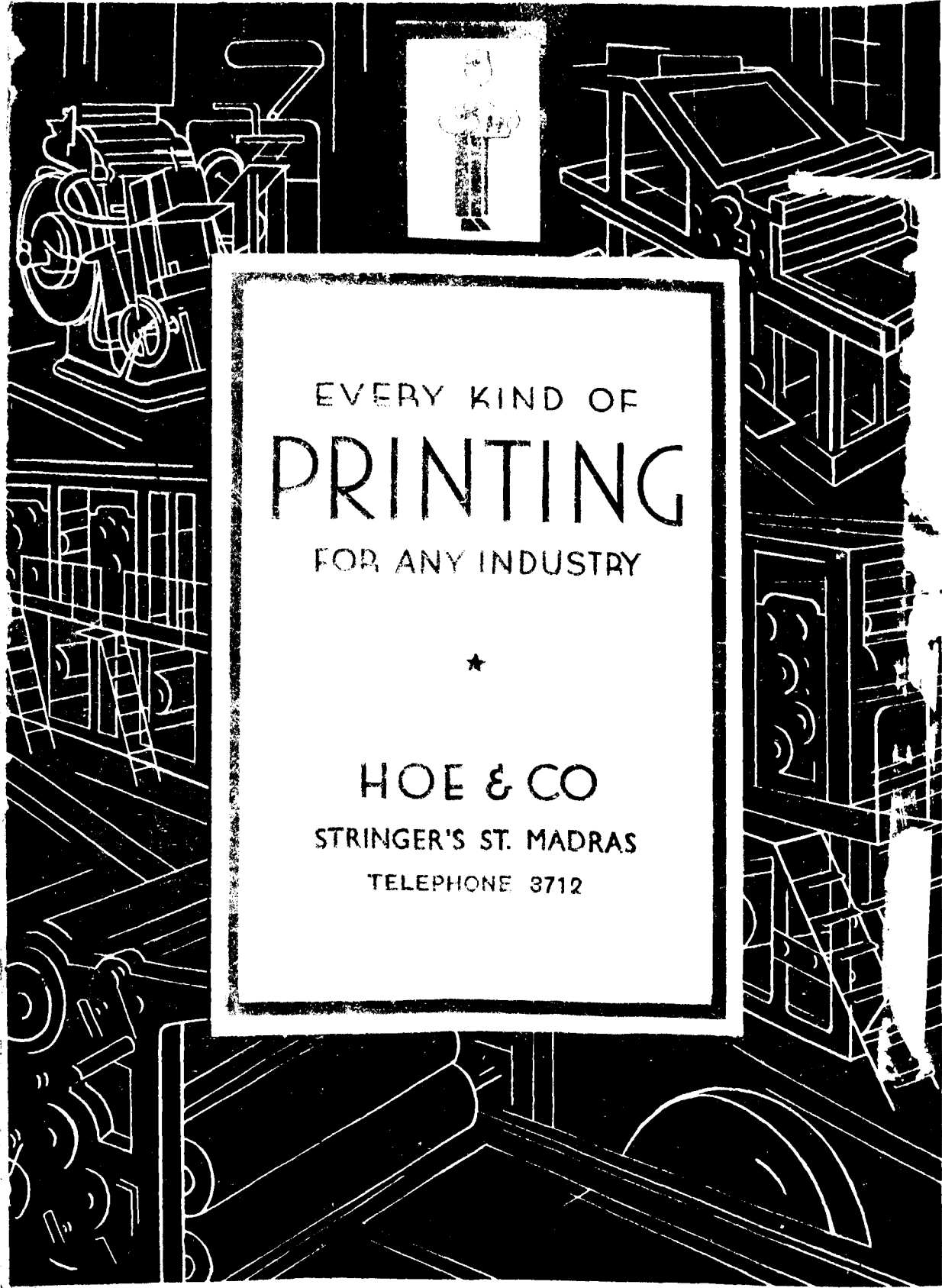
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