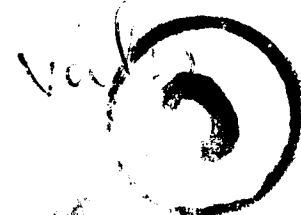


Peoples Health

August 1947



1000

JL
L: 5m211, N47 HE.
N47, 11.9.

142.731

hno

hbb⁽³⁾

PEOPLE'S

HEALTH

EDITOR: A.V. RAMAN



FHR

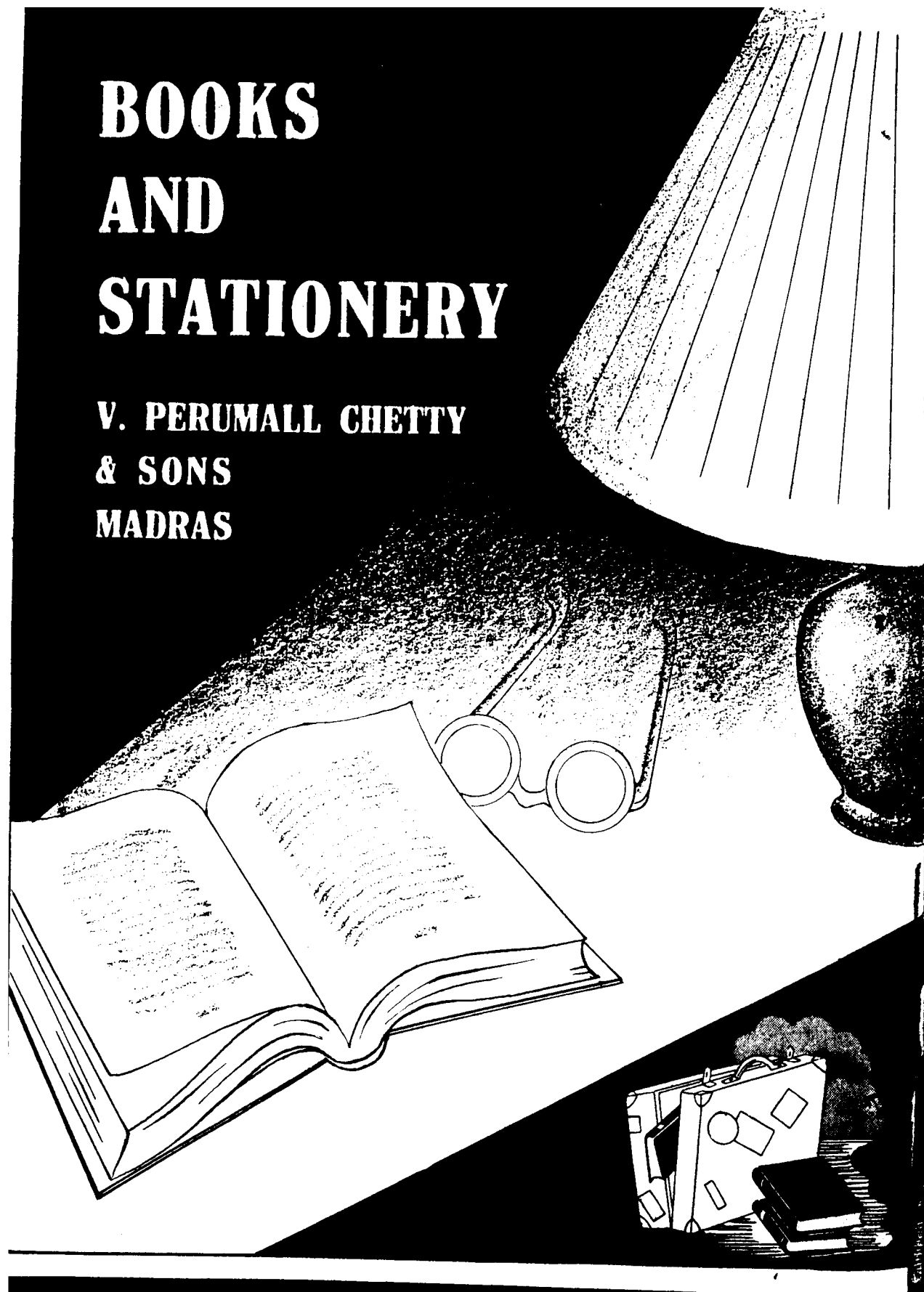
AUGUST 194

VOL. 1 No. 11

ONE RUPEE

BOOKS AND STATIONERY

V. PERUMALL CHETTY
& SONS
MADRAS



The Prithvi Insurance Company, Ltd.

12/13, ANGAPPA NAICKEN STREET, MADRAS, 1

An Announcement

We have pleasure in announcing for the information of our policyholders the following arrangements that we have made:—

1. We have made provision for *free medical treatment* as in-patient for one person at a time in the following institutions:

- (a) Tuberculosis Sanatorium, Perundurai;
- (b) Missionary Medical College, Vellore;
- (c) Harley Nursing Home, Madura.

This service is available to all life policyholders and their wives and children and members of our organisation. Application should be made to the Head Office in case of need.

2. A pamphlet has been prepared by an expert authority on "**Tuberculosis and its Prevention**" in Tamil and Telugu. Copies will be distributed free to policyholders on application. An English edition of the pamphlet will also be available very shortly.

It is the intention of the Company, as time goes on, to afford these facilities, viz., institutional treatment and health advice in an increasing measure.

The measure of public support shall hereafter be the measure of our service.

S. PARTHASARATHY, *Managing Director.*

MOSQUITO CONTROL WITH GEIGY MALARIA SPRAY

See how easy it is -

- 1 **Mix** Geigy Malaria Spray in the proportion of one heaped cigarette tin to one bucket of water (about 2½ gallons). 
- 2 **Apply** by spraying with a stirrup pump and lance or a knapsack sprayer on all indoor wall surfaces at the rate of one gallon to 1,200-1,500 sq. ft. 
- 3 **Result** Six weeks of death for mosquitoes. Six weeks of malaria control from only one application. 

GEIGY DDT MALARIA SPRAY

Full particulars from:
GEIGY INSECTICIDES LIMITED
NEVILLE HOUSE NICOL ROAD BALLARD ESTATE BOMBAY

DDT  DDT

DISTRIBUTORS FOR SOUTH INDIA :
MESSRS. ADDISON & CO., LTD.
MOUNT ROAD,
MADRAS.

DISTRIBUTORS FOR MYSORE STATE
AND CEDED DISTRICTS:
**MESSRS. MOHAMED RAHIM
KAELEELI,**
99-B, USMAN KHAN ROAD,
BANGALORE CITY.

Vanguards' Onward March

The end of the year 1946 has disclosed yet another year of rapid progress for the VANGUARDS, the pioneer and leading composite insurance companies of South India. These repositories of public confidence have earned for them premium income, far surpassing the previous year's record, thereby drawing into their fold a larger and wider section of the insuring public. Our motto being service, we are happy to note that we have been able to meet the innumerable insurance demands of our countrymen to their entire satisfaction. High efficiency and attractive rates of premium are our watchwords in our onward march.

LIFE BUSINESS IN FORCE EXCEEDS Rs. ONE CRORE
TOTAL INCOME EXCEEDS RUPEES FIFTEEN LAKHS
TOTAL ASSETS EXCEEDS RUPEES THIRTY LAKHS

WE STRIVE, SERVE AND ENABLE YOU TO SAVE

The Vanguard Insurance Co., Ltd.
The Vanguard Fire & General Insurance Co., Ltd.,
308/309, Linghi Chetty Street, Madras.

H. D. RAJAH,
General Manager.

Sundaram Motors Ltd.

Mount Road - Madras, 2.

Dealers in Buick, Vauxhall, Cheverolet

CARS AND TRUCKS.

We are running a modern service station.

WE UNDERTAKE

automobile repairs of every
description. We carry a large stock
of spare parts.

SPECIALISED SHELL - LUBRICATION

A SPECIALITY.

'Phone : 86486, 86487, for Sales and Service
„ 86661 for Spare Parts.

Construction of Cement Concrete- Roads, is a Specialised Job.

WE MAKE MODERN ROADS.

WE BUILD BRIDGES AND BUILDINGS.

OUR REINFORCED CONCRETE

AND

STRUCTURAL STEEL WORKS—A SPECIALITY.

**ECONOMY AND EFFICIENCY ARE OUR
WATCHWORDS.**

Our services are at your disposal.

CONSULT :

Messrs. TARAPORE & CO.

ENGINEERS AND CONTRACTORS.

10, MOUNT ROAD - MADRAS, No. 2.

Telephone : No. 84128.

Telegrams : "TARAPORECO" Madras.



Of course we should all eat so much of this and so much of that so as to balance the essential food-elements—proteins, vitamins, minerals, fats and carbohydrates. What really happens? We go on eating what we are used to—though we know there will be a deficiency somewhere!

It's nearly always the protective vitamin group and one or two mineral salts that are short. These can be supplied in Meclec's Multi-Vitamin tablets. There are Meclec concentrated foods to provide against protein or other deficiencies. So you can eat what you like—and make up shortages with Meclec Nutriment.



Ask for explanatory literature from:

Meclec Nutriment & Pharmaceuticals, Ltd., 99-A, Armenian St., G.T., Madras

Fresh Cane Sugar...

Fresh Cane Sugar and Pure Glucose are the most important ingredients in sweets. And in Sovereign sweets only the very best and purest sugar and Glucose are used. As to

flavour, we suggest you try some of our many varieties for yourself. Many thousands of young people tell us all our sweets are delicious... they should know!



KCK 4

PEOPLE'S HEALTH

A Pioneer in the Field of Public Health

Vol. 1

AUGUST, 1947

No. 11

CONTENTS

Subject & Author	PAGE
Cartoon	552
Editorial . . . , . . .	553
Our Village Roads—by M. K. Ranganathan	560
Gospel of Health—by V. V. Srinivasa Aiyangar	567
Medical Education—by Dr. M. R. Guruswami Mudaliar	575
Whither Medicine?	578
Pioneers in Public Health—To Our Young Friends—By Mohan	580
Readers' Forum	584
Law and People's Health—By Claude H. Mc Fadden	586
The specialists' Blind Eye—by Ben Ames Williams	591
Book shelf	594
What do they say about it?	596



People's voice :—" FIRST drive that demon of dirt, disease and death."

A PIONEER IN THE FIELD OF PUBLIC HEALTH

!PEOPLE'S HEALTH!

VOL. I
No. 11

AUGUST, 1947

ISSUED
MONTHLY

What is Freedom, but the unfettered use
Of all the powers which God for use had given.

—S. T. Coleridge—*Destiny of Nations.*

EDITORIAL . . .

THE FREEDOM OF OUR MOTHERLAND

THE fight for the freedom of our Motherland lasted for over sixty years. All honour and glory to those valiant fighters, known and unknown, who suffered indescribable miseries in that great, and unique bloodless struggle. India has, after all, broken her shackles of slavery. On the midnight of the 14th August, 1947, the administration of our country has come into the hands of the people.

India's freedom is won. How to retain it for all time to come? And how to acquire India's rightful place as the leader of ASIA and as an honourable member in the comity of nations? We do not differentiate between the Indian Dominion and the Dominion of Pakistan. In our eyes, they are but ONE. Epidemics do not respect man-made territorial boundaries; nor do the mosquitoes

discriminate between the citizens of one area and those of another. Intimate co-operation between the two Dominions is indispensable, to drive out from our midst the demon of dirt, disease and death which stares us in the face as the gate of Free India is opened.

THE LEADERS' RESPONSIBILITIES

The leaders of the people are fully alive to the fact that freedom carries with it immense and onerous responsibilities. Several of them have made public statements in evidence of their realization of it. Pandit Nehru, while moving the resolution on the National Flag for India, said :

"There will be no freedom in this country or in the world, so long as a single human being is unfree. There will be no complete freedom, so long as there is starvation, hunger, lack of clothing, lack of necessities of life and lack of opportunities for growth for a single human being, man, woman or child in this country."

While replying to the speech of the Governor-General to the Indian Constituent Assembly, Dr. Rajendra Prasad declared:

"We want the peasant to grow more food, we want the workers to produce more goods, we want our industrialists to use their intelligence, tact and resourcefulness for the common good. To all we must assure conditions of decent and healthy life and opportunities for self-improvement and self-realization."

Platitudes and slogans have had their days. The leaders should now make the life of the common man worth living and living usefully for the benefit of the country. The leaders can then expect the followers to follow loyally their lead. Where justice begins, it is freedom to obey.

PROVIDE FIRST THE PRIMARY NECESSARIES OF LIFE

Indeed, terrific is the task which lies ahead in planning for the people. In carrying out that great task, a sense of values should prevail. The highest priority should be given to the primary necessities of life. The State might plan for a great agricultural and industrial expansion. The State might take steps to ensure adequacy of food and clothing; but if the people have to continue to live in the dangerously insanitary and squalid surroundings in which they live at present, no good can come out of all the plans and programmes of expansion.

The provision of safe drinking water for every citizen in the country is an urgent necessity. No time should be lost in providing this ele-

mentary and essential necessity of life. If the people are fed even with the delicious nectar and if they are compelled to wash it down their throat with unwholesome water, far from assimilating the nectar, they would succumb to one or the other of the dangerous water-borne diseases. Even if people are fed with specially selected balanced food, they cannot develop an immunity against epidemics caused by unsafe water-supply and insanitary surroundings. Food is important, no doubt. But safe water-supply and sanitary surroundings are more important for promoting people's health. The provision of safe drinking water-supply should therefore be given the highest priority in any programme, calculated to ameliorate the atrocious conditions in which our people live today. At the same time, it is equally essential to drain away the waste-water from the immediate vicinity of habitations so that stagnant, stinking, septic pools may not be formed in and around the dwellings. Drainage should therefore be given an equally high priority.

The Premier of India has promised that he would give *first* preference to the poor for providing habitations for them. It is the poor who are in dire need of it. In practice, we find efforts are made to build houses for those who have money and influence.

This policy results in the denial of houses to those who cannot afford to pay an economic rent. This vicious circle should be broken and broken with firm determination. The exploitation which goes on today unchecked should be stopped peremptorily.

THE ROOT CAUSES OF ILL-HEALTH

Our administrators should show, at least now, a bit of imagination to visualize how many hundreds of thousands of people die of epidemics of preventable water-borne diseases and how few, comparatively, succumb for want of medical attendance, leave alone those who die despite medical aid! Leaving alone the root causes, multiplication of hospitals and medical men amounts to waging war against dirt, disease and death, in the wrong front. It is sad to note that even persons in high authority speak glibly, nay, irresponsibly, about the gross inadequacy of medical facilities, medical institutions and medical personnel. They appeal to the public for funds to provide more and more of them. Thus, they are but repeating the master's voice! They do not even make a passing reference to the root causes of the low standard of health of our people! Our men's minds have been so warped by vested interests all these years of exploitation that when they think of health, they really mean disease; hence, they think of medical men when talking of health. In their eyes, health and disease are but synonymous! Vested interests have all along led our administrators and statesmen with blinkers on! With the dawn of freedom to our country, can we not expect them to cast away the blinkers which blinded their vision all these years?

Experience has proved beyond doubt that the improvement of the environment in which people live, automatically improves and promotes their health. We are compelled to

reiterate repeatedly this fundamental fact, seeing that the recognition of this truth is not translated into action by those in charge of our administration. In the name of the masses, we earnestly appeal to the new crew which have taken up the responsibility of steering the ship of State to ponder over this aspect of the question and *put first things first*.

TRAIN TECHNICIANS

We may here sound a note of caution that the provision of funds alone cannot achieve results. Budget provision does not necessarily represent useful expenditure of funds. It is easier to waste money in the name of nation-building than to spend it usefully. We should immediately train technical men to prepare and execute schemes of sanitary improvement. Public Health Engineering as a profession is still unknown in this country. Although the Bhole Committee have emphasized the importance of environmental sanitation at every turn, nothing has been done so far to examine their recommendations in this behalf. The committee have admitted that the question is of great complexity and that they have had no time to go into it in detail. No further thought has been bestowed on the subject.

The All-India Board of Technical Studies in Engineering and Metallurgy works under the aegis of an All-India Council of Technical Education. Their aim is to attain uniform standards in engineering education. Recently, the Government of India announced that the Board has instituted in the first instance Diploma

and Certificate courses in electrical engineering. There are already institutions affiliated to universities offering training in electrical engineering. Why then, multiply the training ground for this class of engineers?

We do not know whether this committee has also been charged with the responsibility of standardizing the training of Public Health Engineers as well; if so, whether there are any Public Health Engineers in it and why they have not given preference to the training of specialists in this field of work. This is one of the many instances to show that even the Government of India render but lip service to this important subject.

OUR NATIONAL SELF-RESPECT.

If our nationals should get that measure of esteem and respect which other nationals enjoy in foreign lands, we should first rouse the sanitary conscience of our people, not by giving class-room lectures or by distributing broadcast propaganda pamphlets in tons; but by providing facilities to inculcate in them sanitary habits and ideals. Much mischievous propaganda has already been done that we as a nation, have no regard for sanitation. For instance, Miss Mayo, in her notorious book, referred to the banks of the sacred Ganges being littered with solid filth and her waters containing but liquid sewage. In truth, our other sacred rivers such as the Cauvery, the Godavari and the Kistna are maintained in no better condition. One idea of sacredness of these rivers reduce themselves to

mere mockery! We use them for draining the cities and towns dotted along their banks!

In South Africa, our nationals are segregated somewhat on the lines in which patients suffering from infectious diseases are segregated in isolation hospitals! We are thus treated as though we are sub-human. Apparently, the white settlers there feel that we Indians, with our sub-human and sub-normal standards of sanitation, would contaminate their surroundings, should we be permitted to live in their midst! This is an additional reason why we should first develop the sanitary conscience in our people. When this is done, a sense of self-respect is kindled in the masses and this in its turn reflects on the self-respect of the nation. It is only then, the self-respect of our nationals would be recognized abroad.

ENSURE THE NATION'S HEALTH.

It is a notorious fact that bitterness, hatred and jealousy as between community and community, caste and caste, reign supreme even in our day to day life. Parochial prejudices stand in the way of national progress. In certain parts of this great country, the mental make-up of certain groups of persons has degenerated to madness. They are burning towns and villages and cutting each other's throat. It is sad to reflect on them. All these are due to the fact that our nation is suffering under a sub-standard health. We are afraid we may not be able to retain the freedom of our country, if our administrations continue to be apathetic to and oblivious of the

fundamental and root causes of our ills. Should the present state of affairs continue, our country cannot expect to lead ASIA as she is entitled to by virtue of her tradition, culture, resources—physical and mineral—and above all the lofty ideals which she has set before her.

We therefore most respectfully appeal to our Statesman who are shouldering the responsibility of running the administration of our country, to take immediate steps to improve the nation's health by providing in the very first instance the very elementary and essential needs of life. They should remember that they can no longer point their fingers at the foreigner and escape their own responsibility.

The key to the nation's future is the promotion of people's health.

HEALTH EDUCATION OF YOUNG INDIA

"Health Education is the sum of the processes by which what is known about Health is translated into effective personal and community living."—*Fred V. Hein.*

The Bhoire Committee were in general agreement with the recommendations of a special committee of the Central Advisory Boards of Health and Education, that instructions to school children in hygiene should begin at the earliest possible stage and should not be left as is largely left at present to the Secondary and High School period. The committee further said that in the early stages, such instruction should be entirely practical and devoted to the formation of healthy habits and promotion of personal hygiene.

Formal class-room instruction to primary school children in health matters should be reduced to the minimum. What is essential is that the hygienic habits should be inculcated in them early enough to be life-lasting.

IMPROVE SCHOOL ENVIRONMENT

The committee also specially emphasised that the improvement of environmental hygiene is a problem of the highest importance. They apparently felt the need for specially emphasising this point, seeing that many so-called school buildings in the country are but models of insanitation and structural instability. A divorce of practice from precept, as rightly stressed by the committee, will be detrimental to the proper outlook of the growing child. The committee therefore recommended that in order to emphasise the practical aspect of health, every effort should be made to improve the existing conditions in regard to class rooms, compounds, latrines and other components of a school, so that the student may see in actual operation the sort of sanitary arrangements he is taught and encouraged to demand for himself. Improving the school environment should therefore be the first step towards Health Education.

MINISTRY OF EDUCATION ISSUES A 'G.O.'

The recent Madras Government Order reminds one that popular ministers—even those who can lay claim to some personal experience of running educational institutions—are unable to get out of the rut. Popular Ministers should not rest

content with the disposal of case files. Popular Ministers are there to enunciate and to initiate major policies. In keeping with the traditional Secretariat procedure, isolated extracts from the Bhore Committee's report must have been taken up and the remarks of the Director of Public Instruction obtained. The Madras Office system lays its heavy and withering hand on it in the shape of 'office notes' which are invariably initiated by a lower division clerk and piled on by the various grades of the Secretariat Staff! Result—the latest Government Order referred to above! And what does the 'G.O.' say? It asks the Director of Public Instruction to bring the Bhore Committee's observations on the subject to the notice of the management of all Elementary and Secondary schools! It further says that the Government agree with the Director that the provision made for health instruction in the syllabuses of study for Elementary and Secondary schools is adequate. Thus a psychological satisfaction is secured that the recommendations of the Bhore Committee in this behalf have been implemented. Such disposals may be useful to submit 'returns' to any outside authority. But, as a practical step towards the implementation of the recommendations of the committee, it is depressing! The Grant-in-aid Code is not the last word on the sanitary requirements of an educational institution. Even assuming that it is, its provisions are only presumed to have been complied with just for the purpose of earning a grant! What should be done is, to lay down the minimum requirements of environmental sanitation of

our educational institutions and to *compel* the management of these institutions, whether owned by private individuals or public bodies, to satisfy them within a specified time. It is only thereafter that attempts should be made to give "Health Education" to the children.

ADEQUACY OF THE SYLLABUS OF STUDIES

The syllabus of study referred to in the famous Government of India Resolution of 1888 was as perfect as the syllabus of today. If the mere inclusion of certain subjects in the study can be expected to perform the miracle of transferring the taught into a virile healthy nation, then the present generation should not be what it is today. Even the so-called 'educated' are blissfully ignorant of the fundamentals of sanitation. Why is there apathy? Why does ignorance reign supreme? We ignore the existing institutions which are disgracefully insanitary and clamour for new ones to spring up like mushrooms on a dung heap! And yet, the school environment is expected to reflect what is said to be taught in the class-room! We all know the sort of training the Elementary and Secondary school teachers themselves have on the subject. If the health education of our school children should prove to be of practical utility, the teachers should be so trained that their own life should be a model for the boys to copy. The Bhore Committee says that it is particularly important that the primary school-teacher should be a practical enthusiast as regards personal and environmental hygiene; for, on his teaching and example,

will largely depend the formation of all those habits of development and of those ideas and aptitudes which are essential for healthful living. But can our teachers develop enthusiasm for the subject, even granting for the moment that they are properly trained to impart health education to our children, when they are put on semi-starvation salary and housed in hovels worse than kennels? The teacher's own home environment is bound to react on his outlook of healthy life. No wonder he does not see the incongruity between precept and practice.

INFLUENCE OF HOME ENVIRONMENT

Closely associated with their health education is the home environment of the children. Unless their houses satisfy the minimal requirements of health and sanitation, they cannot be expected to practice what they are taught. The school attempts, says Fred V. Hein, to provide healthful experience for the child which will lead towards desirable healthy behaviour. But all the experiences outside the school also operate powerfully to activate healthy practices. It has been estimated that the child spends eighty-five per cent of his time during the calendar year outside the environs of the school. Much of the healthy behaviour, which the school programmes demand, may be conditioned in a greater measure by extra-scholastic environment. For these reasons, the necessity for harmonising the influence of the Home and the School is obvious. Healthy guidance in the school and intelligent

home supervision must supplement each other. Neither can completely replace the other.

PHYSICAL EDUCATION.

Under the bureaucratic dispensation, departments work in separate water-tight compartments and files are disposed off without co-ordination. The disposal of a sub-case file may not have any relationship to the main case file! Closely linked up with the problem of health education is that of physical education, say the Bhore Committee. It does not appear that the Minister of Education has considered this aspect of the question in the disposal of the case file. Many institutions exist today without even an apology for a play ground. Either adequate playground should be provided for, or the institutions should be shifted to a neighbourhood where adequate open space is available for the purpose.

OUR SUGGESTION

There are many other aspects which should be examined with a view to formulating a comprehensive policy on the subject. The Minister of Health, Madras, recently convened a conference of officials and non-officials to thrash out certain other points arising out of the Bhore Committee's report which relate to Medical and Health Departments. We suggest that a similar conference be convened by the Ministers of Education, Health and Housing to discuss the problem from *all aspects* with a view to arriving at definite conclusions for immediate implementation.

OUR VILLAGE ROADS

A PLEA FOR BETTER AND CHEAPER
ROADS UTILIZING LOCAL MATERIALS

BY

M. K. RANGANATHAN

Chief Engineer, P.W.D., Madras
(General, Buildings and Highways)



THE dawn of self-government has infused into our scheme of Post-war Development a new life of reality and solemnity. All eyes are naturally directed on the rural side. Poverty, hunger, disease and squalor overwhelmed the villager and he cannot think of a better life than his miserable lot in the ill-ventilated smoky hut with the cattle crowding in and around his hut. Even air and water are not available to him in their natural purity since they are subjected to all sorts of contamination before he gets them. His misery can be best expressed in the words that "If God made the world and man made the town, the devil made the village hut and its environment". The tragedy of it is that the common villager is disinterested in the moves of others to improve his living conditions, because he cannot believe that anything better is possible. He does not want education; he does not like to be disturbed with vaccination, inoculation, etc.; he does not want advice from

experts in agriculture or instructions on the advantages of co-operative system. He wants to be left to himself. Nevertheless, he has generally two boons to ask for: (1) An access road to his village, and (2) a well for drinking water. If the co-operation of the villagers is to be secured for rural development schemes, we must do what he wants first. The village road is to be considered first under rural development. It is 100 to 1 a certainty that enormous stress on rural improvements will be immediately put in Governmental planning.

The real wealth of the village consists in its available labour and livestock: without an efficient husbanding of these, it would be a mockery to attempt village reconstruction, nor would the free inflow of luxury articles be an unmixed boon to a village population "rolling in wealth" due to an artificially inflated currency in the face of a total depletion of consumer goods stocks. To enable the village double-bullock cart to reach the fields and markets with a

full pay load of three-fourth to one ton, it is essential that the roadway should be free from ruts, out-crops and pot holes: otherwise, at the village ends, the cart starts with only about half pay-loads and two or three helpers follow it up to the main road to push it through gaps of slush, sandy patches, unbridged streamlets and steep ascents. It is not difficult to see what a waste of energy and time this results in, not to mention the avoidable cruelty to draught animals and the risk on their being disabled—more so, when, in a mad and unrestrained rush to raise food and cash crops, the modern villager is neglecting the raising of fodder crops.

It is not unusual to see convoys of country carts toiling through wasted hours in trying to get out of ruts and slushy stretches, when a little co-operative effort at mending the same by a few basketfuls of roadside earth would ease the situation for the season. Psychologically the only explanation would appear to be the apathy of the villager to think and act in terms of the good of the community; and a deep-rooted tendency to look upon every petty public work as the business of a remote and unseen Governmental agency. The villager would not believe you if he is told that in a way, the roads and avenues of the village are his own property, having been made and maintained out of taxes contributed by him. Thus there seems to be an urgent need to create a real and abiding interest in the villager's mind in the well-being of his roads and avenue trees, by the levy of a direct and tangible contri-

bution towards their cost, this payment being either in cash or by a fixed number of work days of labour—(such a system, I understand, is being followed successfully in certain parts of Turkey); also, to create a sense of responsibility by transferring the onus of proper maintenance to the villagers as a first charge on the Village Common Good Fund.

There are 35,430 villages in our Province, and the Rural population is 41,479,000 i.e., 84 per cent of the total population. At present we have about 37,000 miles of roads i.e., about 17,000 miles of rural roads and about 20,000 miles of District and other main roads traversing an area of 1,26,166 square miles. This works out to 0.29 mile of road per square mile, or every mile of road serves 3.41 square miles. Our target in the Post-war scheme is to provide an access road for every village, with a population of over 500, and to form adequate length of minor district roads, so as to bring each village within 3 to 5 miles of it. This involves the formation of about 13,000 miles of village roads, and about 5,400 miles of minor district roads. Apart from this all the existing village roads and minor district roads will be improved to a reasonably fair standard. This is expected to cost about Rs. 30 crores. In the first 15 years, at least half the programme is expected to be covered by taking up the more important cases. Our immediate objective is to execute the five-year plan under which an allotment of Rs. 2.8 crores has been ear-marked for rural communications. It is an accepted fact that "we will have to pay for

good roads whether they exist or not", and that "we will have to pay more for those that do not exist." This applies with greater force to rural communications. Hence it is of paramount importance, that we should push through these schemes successfully, and thus pave the way for other developments.

GENERAL CONSIDERATIONS

Germany under Hitler won the admiration of competent observers by a splendid net-work of first-rate highways and bye-ways constructed as a "First Preference", so that extremely heavy mechanised units of the Army could be moved to pre-arranged points at lightning speed. America with the imagination and organisation of a Henry Ford could keep moving on the road an automobile for one in every five citizens—a feat, among other things, impossible without a web and woof of reliable all-weather roadways.

India, free from a foreign control, will have many intricate problems to solve in its own peculiar way to suit the resources, outlook and limitations of her vast population. But whatever may be the future socio-economic system of India, the fact remains that all reform, reconstruction, rehabilitation and revolution have to start with the village as the unit, and among the very first items of planning MUST come the Village Roadways.

To make the villager road-minded, and to instil into him both an economic proprietorship and a sentimental ownership in his communications, a sound plan has to be evolved whereby he sees his money well spent before his very eyes and

his own labour willingly contributed, makes for him a useful road—(such a system was, under our village panchayats, to some extent in vogue several years past, and was found satisfactory for the then conditions). Wherever feasible, if the village has hills yielding granite boulders round about, it may be worthwhile supplying "boulders" to the villagers and inducing them to break them up into useful cubes and chips in their leisure hours (on petty contract basis), so that road metal may be readily available for use at site. A mobile unit of trained workmen and maistries with moulds and other gadgets can be arranged to tour the villages by a well-planned programme, so that lintels, jalli work and other pre-cast units may be made for the villager's use without his having to make all these different arrangements on his own individual initiative. This would ensure considerable economy, speed of execution and guarantee of production. Cement concrete as a material of construction has come to stay for quite a long time and a co-operative scheme of this kind may not only make for better houses and more improved sanitary surroundings, but also pave the way for better roads.

THE PRESENT VILLAGE ROADS

Whatever the reasons may be, it cannot be denied that village roads have, all these many years past, been allowed to fall into disgraceful disrepair. The voice of the villager did not reach the highly centralised Governmental authority, and the long suffering peasantry was assumed to have resources of its own to make the best of what they got and to ask

for nothing better. Most villages had no more than an earthen road, a mere cart track with a few basketfuls of earth thrown on it once in a decade and this was euphemistically styled a "Fair Weather road". The development of ruts, pot holes and slush patches was inevitable and there was no organisation to remedy the defects with reasonable speed. Hill streams, gullies and other water ways were without culverts and bridges, and in deltaic tracts the canals had only a few bridges across them at long intervals. This condition led to an inescapable waste of traction power and time: the village bullock cart usually capable of $\frac{3}{4}$ to 1 ton pay load could only be loaded to half its capacity and requires the assistance of 2 to 3 men to reach the nearest metalled road without a mechanical breakdown or a permanent disablement of the ill-fed, under-sized and over-worked bulls. The manuring of fields, the transport of crops from field to village and from village to market town was thus a chain of uneconomic and arduous difficulties which the villager was left to solve for himself. Though a slight improvement did occur with the advent of village representation in local bodies, the change was nothing effective nothing tangible, nothing comparable in achievement with the real needs of the situation. For many varied and complex reasons, the efficiency of Local Board Administration left much to be desired and there was neither planned administrative effort nor technical executive efficiency in husbanding the all too meagre resources of the Dist. Boards to the best advantage of the villagers. The average villager has become a

confirmed pessimist in that he has given up all hopes to improve his living conditions, in utter despair! He sadly lacks organisational initiative for sustained constructive work and it is patent that, taxed as he is to the utmost limits of his forbearance, he hopes (and probably very correctly) that a benign Government will, one distant day, realise its responsibility towards the proper care of the Golden Goose, if the fiscal structure is not one day to collapse to irreparable ruin by a reckless top-heavy administration and a starving voiceless peasantry at the foundation.

THE SOCIO-ECONOMIC VILLAGE STRUCTURE

Volumes have been written and spoken about the "Evils" of the Caste system. Exhortations have been made from the Press and the platform for "Self-help and Self-reliance", and yet nothing has come out of this cry in the wilderness, nothing by way of measurable results. Even the "Revival" of the Charka in the Gandhian era with all its implications has not "caught" the imagination of the villager—notwithstanding an All India Organisation to promote hand-spinning and weaving. The reasons, mainly speaking can be traced to chronic under-feeding of the working population; the pathetic inadaptability of the socially higher strata who may be economically paupers; and the wasteful habits and criminal indifference of the highest economic strata to the wellbeing of the common man. It is true the village worker has 3 to 5 months of enforced idleness and inevitable semi-starvation to face, but it is poor compensation to appeal to him to give

his labour "free" during such periods for the wellbeing of the community. Moreover, the land-owning class was always a non-working class and better roads benefitted the land owner and not the landless wage-earner. Why should the already exploited toiler for wages work "free" for his "Master"? It would require the stress of an agrarian revolt to make the villager a manual worker for the common good of the community, before it can be achieved, much levelling down of privileges, prejudices and predatoriness will have to be ruthlessly practised.

A SOLUTION IN GENERAL TERMS

Which way, then, does a solution lie? Probably no standardized solution applicable universally can ever be evolved. The problem varies from village to village and from district to district. The Post-War planning now available aims at an all-weather connecting road for every village of 500 inhabitants. Until the per capita income of the villager is raised to 3 times the 1942 level, and that, NOT by an artificial inflated paper currency, but a sound economy of productive drive—can the village of 500 people hope to get a pucca road, unless, by a well-planned propaganda and demonstration, the benefits of good roads can be established to the satisfaction of the villagers. A much higher percentage of the tax contribution of every village will have to be earmarked for local expenditure and the villagers should be "educated" to include road-making for public good among the list of accepted charities—choultries, reading rooms, radios and parks. But such sentimental contributions do not

really touch the fringe of the problem. It almost seems inevitable that a 2 per cent tax or six days of skilled and unskilled labour, should be levied by law from all citizens, irrespective of caste and creed, of the ages of 18 to 50 towards the betterment of the village sanitation, water supply and road-making. The village common good fund should be utilised for communal amenities in preference to festivals and fairs.

The manufacture of cement is now a centralised industry involving the erection of large factories with imported machinery whose up-keep by way of spare parts and skilled supervision imported from foreign countries drains the country of many lakhs of rupees annually. After all, cement of the British standard is not essential for cheap constructional work where no extraordinary stresses have to be provided for. If only a cheap furnace can be devised to calcine the clay and lime stone in small quantities, and if the clinker so got is ground by hand, it should be possible to evolve a cheap cement (or a crude substitute of the more standardised product) which can be made by the village potter. An urgent call would seem advisable to Research Workers to evolve a suitable furnace wherein clay and lime stone can be calcined at suitable temperatures and the resulting clinker could be ground in small units propelled by hand or low powered oil engine units, or electric drive. This decentralisation of cement to a level where the village potter can handle it for immediate local needs would not only relieve the miserable conditions of village roads, houses and other social amenities, but it would be a welcome relief to

the factories who can divert all their product to large Engineering Projects requiring highly standardised cement of B. S. Specification. For most of the ordinary routine needs of the village, a handy material, preferably ready-mixed with sand, which can be used as cementing and plastering material for his ground-moulded brick masonry should be an extremely welcome feature. Clay and lime stone from quarries or sea-shells in coastal villages being the basic materials, and their distribution in all but the very hilly tracts being fairly uniform, this suggestion may prove a blessing of great potentialities, if only a suitable furnace is designed which can be installed at a reasonable cost in every village or group of small hamlets. Even a few lakhs of rupees spent on this investigation of sources of material and research into suitable designs of equipment would be an investment capable of yielding high dividends and immense improvements of village works. Research on these lines would appear to be an urgent necessity with vast potentialities to revolutionise the methods of construction in villages. At present nearly half the cost of cement at the consumer end is transport charges from factory. The availability of lime stone of sorts, clay and sea-side lime shells should make almost every tract of our Province self-sufficient for raw materials to make cement a cottage industry product.

SPECIFIC LINES OF INVESTIGATION HINTED

The practice now obtaining is, for rural areas, only two main kinds of road-making—(1) Earthen roads

without a hard surface, (2) Water bound Macadam roads. As indicated earlier, the least that can be done to better the rural communications is to make the earthen roads, capable of functioning as all weather roads. If hill or pit quarries are within a reasonable distance, say 6 miles of cart track, it should be feasible to collect enough stone for road making for the year, during the off-season of agricultural operations when labour and transport charges will be relatively low. Where sand is not easily available "Quarry rubbish" may prove a useful substitute. It may not be a bad idea to supply granite boulders of handy sizes to the working section in the village, so that they may be broken into cubes and chips in their leisure hours and thus provide a very useful product for roadmaking as well as precast cement concrete products. In such localities, a mobile unit of trained workmen could tour the villages to cast cement concrete units for local needs.

Similarly a very urgent necessity is to improve the different specifications for road making now in use. In the delta tracts of Godavari, Kistna and Cauvery, road making is one of the worst head-aches of the Road Engineer. The soil is not quite satisfactory and drainage problems crop up. River sand is often the only top dressing material, available, and its conveyance over several miles by canal and by road makes it an absurdly costly commodity. As for road metal, a sort of soft Deccan trap, simulating granite but not half as good, is about the best road metal but its cost at quarry often pit quarry—is prohibitive at source;

add to that the enormous transport charges, and the result is that road making in the delta areas is a constant irritation to the authorities, a source of constant complaint by the tax-payer. A fruitful avenue for research and redesigning of roads awaits the Engineer of the future here. Can a specification be evolved whereby the use of locally available earth with a minimum imported material can ensure a reasonably satisfactory surface? Results of experiments in this direction are recently published in some journals. We also hear of other countries experimenting with rubber, glass, peat and hard wood as road surfacing material. It would be worth our while to experiment with the delta soils to obtain a useful road surface for moderate traffic needs.

With cheap hydro-electric power from Machkhand, Ramapadasagar, Mettur, Pykara and Papanasam, and the large amount of seasonal power that could be had from these stations if we could only use the power, resorting to electric stabilisation of the soil (especially clayey soils) will be possible: such stabilisation has been recently attempted successfully in Soviet Russia and literature on the same is available. This process which I had been dreaming of in my younger days (1918 when I was roaming about in the Koraput Agency tracts) may become a real achievement even in backward South India.

BRIDGES, CULVERTS AND PIPES

An immediate reorientation of Government Policy in resorting to the old methods of Brick masonry

for arches and Retaining walls may soon be the ONLY available method, as neither steel nor cement fit for R. C. C. works would be anywhere procurable during the next half a decade or longer. The results of experiments by the Research Workers to ensure strength, stability and long life of local timbers (suitably treated) for bridge members, for canal crossings is an equally welcome addition to the Road Engineer's knowledge of available material for designing bridges; nor need they be designed for more than 4 to 5 ton loads, with arrangements being made to divert occasional heavier units to places provided with stronger bridges.

CONCLUSION

The villager and the Administrator should equally appreciate the urgency of the problem and the utility of a well assured solution. As a trite saying has it, "Roads will have to be paid for, whether they are made or not. In fact, the roads that have never been made are the surest that have been paid for". The benefits of good roads are patent and bear no doubtful cynicism; the urgency of the solution will be realised equally quick whether rural reconstruction or industrial centralised planning are under scrutiny. A swing over to experimentation, research and bold planning essentially to make the village parts a self-sufficient area is a step in the right direction. A road from the village to the market is a road to prosperity; a road from the village to the cultivated field is a road to Plenty.

GOSPEL OF HEALTH

BY

V. V. SRINIVASA AIYANGAR, B.A., B.L.,

Advocate

(Continued from page 515, Vol. I., No. 10)

III. Health—The normal condition of the body:—

There can be little doubt that health is the normal condition of this delicate and wonderful body of ours to which we made reference in a previous section. There is an ancient Sanskrit stanza in which the human body is described as broken and gone to pieces even like a crumbling house, and as if it is a prey caught in the mouth of the innumerable wild beasts of diseases. This view is utterly wrong. We cannot deny the possibility of a lay man especially one who had lead an unwise life all his years looking like the picture of the dilapidated house described above. But the natural and normal condition of the human body is health—brimming and bubbling health—robust health. The story of Hanuman immediately after his birth feeling enormously hungry and jumping up to the heavens mistaking the sun for a big



fruit is only indicative of the overflowing health of a normal human being.

The dramatist has no doubt spoken of the thousand ills that flesh is heir to. The reference to man being the heir is not I believe intended to refer to his inheriting diseases from his ancestors. That again is an important and interesting question. It would appear that even now the question as to whether any and if so what diseases are inherited from any of its parents by the child at its birth has not been definitely and satisfactorily solved. If the child is born of the blood of the parents, grand-parents, etc., and if in this process of continuous reproduction we discover various characteristics and features of parents, it seems that it cannot be denied dogmatically that the diseases are and can also be inherited. But at best the inheritance could properly be described only as a dominant tendency or proclivity. Even assuming it to

be so, there can be no question whatsoever that most of the diseases men and women suffer from during life are almost always the result of leading unwise lives indulging in bad habits and of not being properly careful. At any rate it seems most probable that even if certain diseases should be found to be inherited the virulence of such diseases, the force of such tendencies could be checked very much more efficiently than is supposed. The point however to be considered here is the realisation by every one both in theory and in practice that the normal condition of the human body is one only of health. It is the foolish man and foolish woman that by doing innumerable foolish things both for themselves and for their progeny that cause and bring about the diseased condition of the body. The wrong feeding of the infant and the child is perhaps the most fertile source of most illnesses from which human being suffer in after life. The foremost of bad habits, the over-indulgence in sexual and other pleasures supposed or otherwise have all been the cause for the ruin of the health of most people. If we should find a grown up man or woman falling short of the standard of perfect health he or she should be maintaining at the particular age, we may be sure of being able to trace the diseases and infirmities which may be besetting them, to their true causes in the unwise lives lead by the persons in the past. At first sight it may no doubt appear that this body of ours which has been compared by the poet to a harp of a thousand strings should be in tune for any appreciable period of time seeing how

often the Veena or the Violin with a few strings gets out of tune. In that view no doubt it cannot be considered as surprising that the human body should become ill so often. But that is not the correct view. It may after all be the difference between man made instrument and god made bodies. There is that in the human body and system which is always making for more health. But it is we wretched men who submit this body of ours to all kinds of misfeasance malfeasance and non-feasance with the result which is not surprising that it so often gets out of order. In this aspect indeed even the so called automobile is not a real automobile. In this human automobile the moment anything goes wrong, some screw gets loose or some chain is snapped or the Carbtorator gets blocked up, the work of repairing immediately is begun and carried out automatically and does not depend upon the capacity or carefulness of the mechanics in the workshop.

It is therefore absolutely necessary that this truth that the normal condition of the human body is one of health and even perfect health behoves to be borne in mind by every one and always. In the very word disease we find it indicated that health is ease of body and the opposite alone is disease.

IV. The kinds and sources of diseases :—

I am not a medical man and do not propose to deal with this subject in any technical manner. Apart from any wounds or breakages caused by external forces which are classed as accidents, diseases of the human

body are ultimately traceable to the various organs of the human body not functioning properly. Thus if the stomach is unable to digest the food that is eaten there is disease. If both the lungs do not help in the process of respiration there is disease. If the heart does not pump the blood with the proper force then there is disease. If for instance the excretory organs do not function as they should, then there is disease. An enquiry however to the further cause of these causes may enable us to realise that such a lack of function or wrong functioning is more often than not due to some abuse by the person himself. For instance though physical exercise is good, it should never be overdone or for example in inordinate running or cycling, the concerned organs and especially the heart becomes affected. It is an old Sanskrit saying that excess of every kind is reprehensible. Diseases are also traceable to lack in the human body and blood, of ingredients necessary for health or to the presence in the human body and blood of germs or poisonous ingredients being present, whatever may be the manner by which they have succeeded in so entering. For instance at times the epidemic diseases are ranging in a particular locality and persons there come one by one to be affected by contagion or infection.

We are told and we may also be sure that there may be poison and potential disease in the food that we eat, in the water that we drink, in the air that we breath, in the floor that we tread on, or in the hands that we shake or even in the cloths

that we may wear. But these considerations and apprehensions should not be allowed to make us hypochondriacs. I remember reading in some English magazine many decades ago that a family which was happy and healthy at one time, turned hypochondriac and sorry specimens of humanity after they read some article about "Bacilli and Germs"; and thereupon became very apprehensive and haunted with fears. Knowledge of the sources of diseases is undoubtedly necessary. But it is only intended to make us careful in our movements and activities. They should not, however, be allowed to over-power us. If what we learn from medical and sanitary sciences is true, perhaps there is nothing in the world which cannot become a source of danger to our health. But if there be germs in the air that we breath, there is also at the same time the antiseptic in our blood which may be capable of destroying those very germs. If there is anything poisonous in the food that we eat or in the water that we drink, there is that in this marvellous human body of ours which is capable of overmastering their tendencies or of securing their exclusion from the human body as gaseous, liquid or solid excretions.

There are no doubt diseases and diseases and it almost seems that diseases have multiplied in recent decades in proportion to the increase in the number of doctors and also to the development of medical science. The contemplation therefore of the infinite kinds of diseases to which the human body may become subject should only be directed to make us as careful as we

may possibly be in the circumstances of our life. It ought not, however, to be allowed to multiply our fears about health and life. A strong and unshakeable belief in the capacity of this human body of ours to overcome all possible diseases goes a long a very long way to help it in so overcoming. If there was not in every human body a most perfect hospital for the treatment of itself, if there was not in this body of ours a perfect insurance subject of course as usual to conditions against disease and death, life will not be worth living.

A compound fracture of the leg or hand is cured not by the doctors who merely set the bones, but only by the human body itself by its own wonderful operations. If the body is not disabled or deliberately rendered incapable of functioning properly, it seems to me that there is no disease which cannot be conquered or cured by this admirable God-created body of ours.

There are numerous other causes of disease. Apart altogether from the unwise lived we lead and the unwise things we do, modern civilisation with its huzzle and hurry and the total absence of shanti or peace is the direct cause of all nervous weakness and diseases. The mind itself with all its malevolent emotions and supposed cares, worries and feelings turns out to be a fertile cause of many kinds of ailments. These latter diseases are characteristic of modern conditions of life. And for the very reason that except in extreme cases of the kind no hospitals are founded for the treatment of such ailments. It behoves men and

women who would be healthy and happy to take note of our mind and the conditions of our life, may themselves make us invalids.

V. *The Function of doctors.*—Medical Practitioners who are commonly called doctors are those who, having made a special study of the human body and its diseases, are specially engaged in the curing of diseases. In a series of articles on the Gospel of Health it is necessary to determine the exact place occupied by medical practitioners.

There seems to be prevalent in the public mind a fundamental misconception with regard to the function of doctors in peoples lives. The common notion that the doctor should be called in only when there is some illness, some disease to be cured, is undoubtedly faulty. I think the essence of the matter might be explained by analogy.

It is generally supposed that a lawyer is to be called in only when there is a case, civil or criminal, to be conducted on behalf of the client. It is notorious that generally speaking at any rate in this country he is not called upon, as he should be, to advise initially with regard even to important legal transactions such as purchase of property, important contracts, and so on. It is only when trouble arises later on, that persons are willing to pay even enormous sums of money for the purpose of escaping from the consequences of transactions entered into without advice or consultation. It would seem that in the same way the doctor is called in only when there is some serious trouble with the body.

There is an old story about the truth of which I have not been able to obtain correct or definite information, that in China the doctors are paid not with reference to the days or number of times they attend on the patients, but that the remuneration fixed for payment to them is reduced and deducted from with reference to the number of days on which particular persons or members of the particular family fall ill and require the presence of the doctor; in other words we may say that according to that view the doctor is a doctor of health and not of disease. Even as it is absolutely necessary and wise to take the advice of a lawyer before a legal transaction is entered into by any person who is anxious to avoid getting into troubles later, even so it is of paramount importance that a medical practitioner should be consulted and asked to advise upon the course of things in daily human life calculated to affect health. No one human body is exactly like another. Heredity and environment and early habits all tend to make each human body different from the rest, albeit in comparatively small details. I wish the day will come when the doctor as a medical practitioner will be resorted to and be consulted regularly by every person with regard to the manner of life he should lead in order to maintain health, rather than merely for curing a disease which has already come on. There can be no doubt that the true function of those who are called family doctors should be to conduct periodical examination of the general health of all the members and to prescribe the course of life that

should be adopted with special reference to the particular disposition of the body in question. It is most unfortunate that no such general periodical examination of the human body and physical health is even thought of till a person actually falls ill or begins to suffer from some complaint.

There can be no doubt that if our habits of life and conditions of livelihood were ideal and perfect there should be no need for any such resort because if the normal condition of the human body is health, there is no reason to interfere with it under normal conditions. But unfortunately at any rate in modern times and tendencies the conditions in which we live are such that it cannot possibly be considered that any one of us lives moves and has his being under ideal or perfect conditions. Our lives have become very artificial, conventional and the great cities and the breathless hurry of modern civilisation have by no means served to maintain life in normal conditions. Of how many persons, say in a hundred, can it possibly averred that his health is ideally perfect? It is sad to contemplate and undoubtedly unfortunate that every man that lives has some defect or other in the system of his body and is suffering from some kind of predisposition to some ailment or other.

In these circumstances therefore it will be wise and proper for every person to subject himself to periodical examination and advice at the hands of his medical advisor.

I should also wish that in addition to hospitals where persons suffering from diseases are treated for the

purpose of cure, there should be sanatoriums where scientific examination and consultation may be had and where also for periods of time persons who are so inclined may be received, looked after, directed and treated not for the purpose of any cure but solely for the purpose of disciplining themselves into ways and habits of health. In other words homes of health would undoubtedly be required to be provided in the interests of peoples health. This will be realised to be all the more important when we take into consideration that the real function of a doctor even with regard to the cure of very serious and dangerous ailments is, when we come to think of it, very limited. The fundamental truth should always be borne in mind that the body and body alone that can cure itself and that the doctor or medical practitioner by his art and science merely helps the body to effect its own cure. If for instance there is a cut in some portion of the body the work of repairing the cut is begun almost instantaneously by a healthy body which, if not unwisely interfered with, will effect the cure in an amazingly shorter time than we imagine. What the medical men does in such cases is merely to see that the body in its operation of curing itself does not get handicapped or deferred by any extraneous impediments or complication.

The removal from the body of injurious or poisonous things and the introduction through the mouth or by injection of the ingredients necessary for making for health is all that the doctor does. His art therefore is never direct but is always indirect.

Even in the case of major operations that may be performed the process is exactly the same. If there is an abscess it is the function of the human body and health to exude the poisonous matter in the system which has been gathered into an abscess, only for the purpose of being exuded, and it is therefore only in cases where the system is for any special reasons unable to effect such exudation that an operation to remove such source of contamination becomes necessary. It may almost be said that even major surgical operations are mainly only for the purpose of restoring the body to its normal condition either by putting back or by the removal of what is offensive and unnatural. The function therefore of the medical practitioners, whether it be that of a physician or surgeon, is limited. It is limited merely to help the constitution to effect its own cure by helping in the process either by giving it what it wants or by the artificial removal of what it does not want. It behoves us all therefore to remember that the function of a medical practitioner consists mainly if not exclusively in helping the body and the natural resources of the body to effect its own cure. But because we have said that the function of the doctor is so limited, it does not mean that it is unimportant or negligible. After all man's function in the universe itself is so limited and is largely confined to bringing about contacts and effect separations. We have heard it said that an operation was successful but the patient died. We have also often heard it observed that though the proper drugs were

administered the body failed to assimilate or react to it. It will be of great value to remember the relative functions of the body and the doctor with regard to the health of the body and the cure of diseases, when we have occasion in the sequel to discuss the influence of mind on the body.

VI. Mind and Body :—The interdependence of the mind and body is at once a conclusive fact of psychology and of medicine—at any rate at the present day. There was a book published in the Contemporary Science series during the later part of the last century entitled "Mind and Body" and in the last sentence of that book the learned author concludes by speaking of mind and body as a double faced Unity. It is also a fact of common experience with every one. That the functions of the mind depend on the health of the body is a truth realised long ago. When one is ill, one is unable to think or sometimes even to remember. The converse however, does not appear to have been realised at any rate to the same extent. The fact that the health of the body is in turn dependent on the mind, has come to be realised by Western doctors only in recent decades but it was a principle known to ancient Indians and put into practice by them. Two instances of it may be referred to here. The duty and necessity of keeping girls during at any rate the first pregnancy in a happy state of mind was recognised from the earliest times by requiring that they should always be kept happy by being given whatever they want, by being adorned, by

music and so on. I feel also no doubt in my mind that the elaborate and prolonged funeral ceremonies enjoined on the death of a person were so enjoined, apart from any spiritual benefits altogether, because of the necessity for taking the mind off from the bereavement by engaging it in various activities. In a recent article in an English Magazine, I came across proofs of how suppressed emotions, especially bad and malevolent, generally made for serious illness of the body. It is true that this aspect of bodily health has not been subjected to scientific and systematic research. But the general fact cannot be gainsaid. I remember especially in my younger days of numerous persons retiring from Government service passing away within a short time after their retirement. At one time I thought that it was due to absence of work or regular activity that was responsible for their disease and death. But on further thought it strikes me that in most of those cases as on retirement those persons find themselves bereft of all power, pomp and circumstance of official prestige and position. They became sore at heart and ill in body as a consequence. I remember that an Indian Judge of the High Court a gentleman of high culture and sociability saying, "who cares for me now? I have been put away on the shelf." I have also known and experienced personally several cases in which the converse has been demonstrated.

I knew of a child that was seriously ill, so ill indeed that the doctors were unable even to diagnose the disease. That child when once it

happened to see some money in my hands showed eagerness and pleasure at the mere sight of money. Then it struck me to try and find out what the sight of a large quantity of money will produce on her and when shortly thereafter I poured into her bed a stream of tinkling coin of various kinds the pleasure created in her was so marked as to distinctly become a turning point for improvement in her health. It is unnecessary to multiply instances of the so called psychiatrics. There can be no doubt that the effect a cure is only by operating on the mind or through the mind. The part that psychology plays in medicine has come to be recognised only in comparatively recent times. It is well known that if a patient is made to think or believe that his condition is serious, his end is hastened, and conversely if he should be made to feel assured that there is nothing serious with him and that he will get all right in a few days, his body also reacts to the state of mind.

A friend of mine many years ago wrote a play in Telugu represen-

ting how a person in perfect health was made gradually to fall ill by cleverly manoeuvred question directed to his being supposed to look very ill and thereby being actually brought to the point of death. We may be still far very far away from a scientific application of this theory in the treatment of illness.

But apart altogether from the comparative influence of body on mind and of mind on body there remains the ultimate fact, that is still awaiting to be recognised and realised, viz., the supremacy of the influence of the mind on the body. There is nothing that a strong and determined mind cannot achieve in the matter of health. The will to be well is the greatest insurance against all illness and disease and I for my part have reason to believe, that even though a man may not grow an inch by taking thought, there are few diseases which he cannot conquer by a determinate resolution on his part and by earnest prayers to the God Almighty within him.

(To be continued)

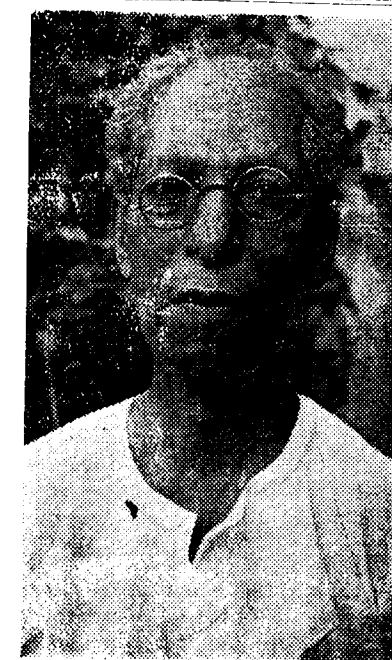
Infectious disease is one of the great tragedies of living things—the struggle for existence between different forms of life. Man sees it from his own prejudiced point of view; but clams, oysters, insects, fish, flowers, tobacco, potatoes, tomatoes, fruit, shrubs, trees, have their own varieties of smallpox, measles, cancer, or tuberculosis. Incessantly the pitiless war goes on, without quarter or armistice—a nationalism of species against species. Usually, however, among the so-called “lower” forms of life, there is a solidarity of class relationship which prevents them from preying upon their own kind by that excess of ferocity which appears to prevail only among human beings, rats, and some of the more savage varieties of fish.

(Extract from “Rats Lice and History” by Zinseer).

MEDICAL EDUCATION

BY

DR. M. R. GURUSWAMI MUDALIAR,
B.A., M.D. & C.M.,
First President of the Association of the
Physicians of India



[We extract some of the valuable suggestions put forward by Dr. M. R. Guruswami Mudaliar in his presidential address at the first annual conference of the Association of Physicians of India. They do not seem to have received that measure of consideration which they merit at the hands of those who shape the medical education in the country. We hope, however, that at least the sub-committee appointed recently by the Madras Ministry of Health to examine the medical education in the province, will take note of the suggestions and take steps to implement them in practice. We feel that it is the main task of this sub-committee to clarify and define the objectives first, which should underlie the future policy of the Ministry. Having done this first, the sub-committee should inform the Ministry of Health how best the objectives could be achieved effectively and expeditiously. The committee cannot of course, turn a deaf ear to the helpful suggestions coming from the medical students themselves (extracted elsewhere in these pages) and those from an eminent consultant of the standing and experience as the author. It is remarkable in that in many instances the suggestions coincide. (Ed., P.H.)]

THE ideal is “every citizen must have free medical aid, and no medical man must be expected to work for nothing.” This proposition involves two things: (1) An adequate number of well qualified medical personnel and (2) enough funds to finance the scheme. The finance must be found by the State. . . .

The present medical education cannot be said to be anywhere near the ideal. General education as imparted at present requires to be radically altered. It is at present mainly a preparation for various examinations, which

are mere tests of cram and memory power. Very little is done to foster the spirit of inquisitiveness that is inherent in every child. The Educationist must see that childhood's inquisitiveness becomes youth's spirit of enquiry and matures into the adult's individuality and vision. The future medical man has to be eminently a man of vision. Therefore, the general education itself must be such that the pupil will be fit to receive the medical education. As there will be a need for a large number of men in the medical

service of the near future, the main aim of basic medical education must be to train efficient general Practitioners and not Specialists. Hence the importance of adjusting the medical syllabus, so that the period of training may be shortened and preventive medicine may get as much attention as curative medicine.

The Medical Education can be conveniently divided into five categories:

- (1) The Preliminary Scientific Education.
- (2) The Pre-Clinical Scientific Education.
- (3) The Clinical Education.
- (4) Apprenticeship as House Surgeon or House Physician.
- (5) Post-Graduate Education including those for higher degrees or diplomas.

Taking the above categories one by one, we find the standard of general education required at present for admission to a Medical College in the Indian Universities is the Intermediate in Science or other equivalent qualification. The so-called Natural Science group, viz., Physics, Chemistry, and Natural Science is considered to be the appropriate group. I consider that the syllabus of this group should be slightly modified so as to fit the candidates for the Medical College. At present the Intermediate Science group is to enable the candidates to proceed to B.A. and other higher studies in the same group. Hence, much of the knowledge imparted is general and advanced; for example in Zoology, the students have to learn in detail about the various species, etc. This is as it should be because it helps the candidate to continue his course in B.A. but this detailed knowledge is unnecessary for the student entering the Medical College. Hence I believe in the institution of a medical group for Intermediate Examination, the syllabus of the three subjects of which will be drawn up by a Committee of Biologists, Physicists, and Chemists, along with the Physiologists, Anatomists and Physicians. This arrangement will take away six months from the curriculum of the Medical College course and the Pre-Registration course can be abolished and the time utilized with advantage in some other ways. To summarise, these subjects should be taught with the necessary vocational bias, viz. (1) Applied Physics with Physiology;

- (2) Biology with Anatomy and Physiology;
- (3) Organic and Physical Chemistry with Bio-Chemistry.

PRE-CLINICAL TRAINING

This should cover a course of two academic years and the subjects should include Anatomy including Embryology and Histology; (2) Physiology including experimental Physiology; (3) Bio-Chemistry and (4) Pharmacology.

It has been recognised here in India and elsewhere that the student is taught too much detail and hence does not have a sound knowledge of Fundamentals. Also, the practical application of these subjects to later studies in clinical subjects is not brought home to the students. Indeed it has been estimated that about a 1,000 hours are spent in teaching pure Anatomy and pure Physiology. It is desirable that the number of hours should be halved and that Applied Anatomy and Applied Physiology should be taught during this period. It is here necessary to emphasise that there should be collaboration between the Professors of Anatomy, Physiology, Pharmacology and Bio-Chemistry. I shall illustrate what I mean by collaboration. When the Professor of Anatomy is teaching the gross and minute Anatomy of the nervous system, the Professor of Physiology should teach Physiology of the nervous system, while the Professor of Applied Anatomy and Applied Physiology should take the students in the same subjects at the same time. The Professor of Pharmacology should at the same time lecture on drugs having an action on the nervous system. Thus the nervous system will be studied in all its aspects at one time. The student takes his I.M.B. Examination at the end of this course. It is essential he should have passed Anatomy, Physiology and Bio-Chemistry before he enters the wards. Pharmacology can be offered at the end of the III Year, it has not been offered for the I.M.B.

THE CLINICAL EDUCATION

This course should extend for a period of three years. The main subjects in this course should be Pathology, Bacteriology, Hygiene and Preventive Medicine, Medical Jurisprudence, Medicine, Surgery and Obstetrics & Gynaecology. The student can take the

examination in two parts; the first Part comprising of Pathology, Bacteriology, Hygiene and Preventive Medicine and Medical Jurisprudence and Part II comprising of Medicine, Surgery and Midwifery including Diseases of children. The special subjects like Ophthalmology need not be taken at a separate examination. One question each in Ophthalmology, E.N.T., and Orthopaedics can be asked in the Surgery Paper while one question each in Skin and Psychological Medicine can be asked in Medicine Paper.

It is admitted on all hands that too many systematic lectures are given in these subjects. It is desirable that the number of these lectures be cut down and more time devoted to the practical side of the subject.

In the III Year Elementary Pathology, Bacteriology, Hygiene and Preventive Medicine, Medical diseases in relation to Preventive Medicine and principles and practice of Surgery must be taught. In the IV Year Advanced Pathology, systematic Medicine and Surgery should be taught. In addition a few lectures in Medical Jurisprudence, Ophthalmology and Advanced Hygiene should be given. Pathology should be taught with a view to correlating the clinical symptoms with pathological changes occurring in the organs. A good liaison service should exist between the Pathological and Clinical side in all aspects of Medicine and Surgery. The fundamentals should be thoroughly taught. The students must have lecture demonstrations and these demonstrations should be purposeful instead of being merely didactic.

Hygiene and Preventive Medicine should be given a more prominent place in the curriculum and it is therefore that I have included Hygiene and Preventive Medicine both in the III & IV Years. The Infectious Diseases and Tropical Medicine should be taught along with these and not in the course of systematic Medicine. There should be more field demonstrations rather than elaborate classroom lectures. During this time, they should put in their attendance in the Infectious Diseases Hospital, Vaccination Depots, etc. A course of lectures in Medical Jurisprudence and Medico-Legal Post Mortems should be included in the Fourth Year's Curriculum.

POST-GRADUATE EDUCATION

Three years should have elapsed between the qualifying examination and the date of his appearing for the Post-Graduate Examination. The I Year is already spent as House Surgeon; in the II Year they should do a senior House Surgency in their own speciality in Hospitals recognised for Post-Graduate Education which need not necessarily be Presidency Hospitals, and in the III Year either he continues as a senior House Surgeon or continues to practise his speciality.

EXAMINATIONS

It is a matter of common knowledge that Examinerships in many cases are not offered to the most suitable persons. It looks as though it was dependent on the sweet will of some dominating personality. To take away this despotism, it is suggested that for Post-Graduate Examination, the Faculty of Medicine, or the Board of Studies as the case may be, should nominate the Examiners for each year. These Examiners should be all from foreign Universities; one observer for each branch from the local University should assist them. The observer acts in an advisory capacity and does not in any way determine the fitness or otherwise of the candidate to receive the degree or diploma. So far as the qualifying Examinations are concerned, it is suggested that 50 per cent of the Examiners should be from other Universities. Financial consideration should not prevent such a course. This Association of Physicians in India must get recognised as a competent examining body, when it has secured at least 300 members, and then I expect the criticism that the Examiners are unfair to some candidates will disappear.

RESEARCH

This branch is new so far as India is concerned, especially in the Provinces. Every Province should have its own Medical Research Board. The moneyed public could be induced to institute research scholarships in addition to those given by the State. These scholarships should be attached to the teaching Institutions. At present there is no equipment or personnel in teaching Institutions to satisfactorily carry on research. Hence the primary need is to furnish equipment in the teaching Colleges and the Public Health

(Continued on page 583.)

WHITHER MEDICINE?

[We reprint hereunder extracts from an article which has appeared under the above caption in the issue of June 1947, of the *Madras Medical College Magazine*. The authorship of the article is not revealed. But the Editor says, "we have printed this article as an example of the very serious thought which a medical student nowadays gives to his education". We commend a perusal of the *whole* article by those who are shouldering the responsibility of moulding the future medical men in our country. Unnecessary prolongation of the course, divorce of theory from practice, lack of integration of related subjects, supreme indifference, if not apathy, to *preventive and social medicine*, are certain sad features which should be remedied at the *earliest possible opportunity*. Unless and until this is done, we cannot hope to bring into existence that particular class of medical men we want for service among the villagers. (Ed., P.H.)]

PRE-REGISTRATION.—My first reaction to this needless grinding was one of complete apathy and disgust. In this course what is taught is a faithful reproduction of what is already taught in the intermediate I could not even in my wildest of dreams, scent an iota of connection between what was taught then and the Medicine that was going to be taught to me. I felt to the very marrow of my bones that this is an intellectual torture to which the students are needlessly subjected. . . .

ANATOMY.—In the beginning I was overjoyed because for the first time I was breathing the air of something so essential to our career after a stifling existence of six months in an atmosphere surcharged with unnecessary details and sometimes nonsense too. . . .

Those fundamentals of anatomy so essential to a surgeon (these assume in final year, the garb of "Surgical Anatomy") and a practising physician, are buried and lost sight of under a morass of unnecessary details constantly dinned into our ears all along those two years which, for many a medical student, are years filled with gristly memory of menacing events. . . . The division of first two years as pre-clinical and the rest clinical is, to my mind highly preposterous and is calculated to do immense harm, for it gives the idea (at any rate it has given me the idea) that Anatomy and physiology are isolated in lands separated from the vast mainland of Medicine by a wide gulf of meaningless sea. . . .

PHYSIOLOGY.—Here again we find the error of teaching too much of that does not

help one to solve an every day problem in his general practice. I remember an eminent examiner asking me in all solemn seriousness the carbonic anhydrase content of the various animals' blood. Like an automaton I vomitted out the figures I have managed to mug up—but to what purpose? To understand the world of disordered physiology that lies behind the dyspnoea of a patient in the throes of an acute pneumonic process is much more useful and profitable than to pretend to appear scholarly by knowing the quantitative variations of an obscure and debated enzyme in different species of animals. . . .

Academic physiologists divorced as they are from the practical side of medicine, may in my opinion, fail to equip the students with necessary and essential facts to combat practical problems. . . . What we suffer from is emphasis on wrong places. A change here may do a world of good. . . .

The number of unemployed graduates in pharmaceutical science is by itself an unimpeachable proof of the imbecility of the system under which medical education and services are run. . . .

To study pharmacology as rigid and isolated subject and take an examination at the end of third year and look at the therapeutic side of it in the final, is a very unhealthy system beset with dangerous consequences.

So long as we in our lack of imagination stick to a system of teaching subjects in their rigid isolation, tincture digitalis will appear as new to us in the final year as it did when we began the clinical course. . . .

PATHOLOGY.—Here too the rigid isolationistic method of teaching plays its

evil role. The examination in pathology can be combined with good results with the final year subjects but there need be no separate paper on pathology. Each subject will take one question in pathology.

The canker of an ill-planned teaching system starts in the first year eats its way like a rodent ulcer right till the end of the course and there you behold a student emerging with all the imperfection that inevitably follow a rigid and secluded type of education. . . .

The powers with whom the sacred trust of medical education is entrusted lack utterly the titanic imagination to tackle the great problems that are facing India. . . .

HYGIENE.—It is very painful to think of the abysmal degradation into which this subject has sunk in India. Taking our own Alma Mater the very site and buildings of the Hygiene Department are unimpeachable evidences of the utter imbecility of the authorities. There must be something utterly rotten in a system which has become so decadent and stagnant that it allows things to drift on unheeded. . . .

The society in which a tuberculous individual moves is viewed upon with more anxiety and care than the individual himself. Medicine has shifted her emphasis from the individual to the group. The west with its characteristic genius for practical wisdom and adaptability to changing times has become fully conscious of this revolutionary change and has embraced with open arms the child of Social Medicine. . . .

Our moorings in the past are very strong and often very sentimental too. But when the problems facing India to-day are mighty and demand a heroic solution, when disease, famine and epidemics are dancing with diabolical glee to the tunes of a decadent Time, the only logical procedure that India can do and should do is to cut off those moorings and march ahead with times. Action is life. Stagnation is death. No part of the world needs preventive medicine more than India. . . .

MORE SURGERY.—Surgeons are to medicine what stunt actors to a drama. . . . Never in a system of education one finds so much strange and almost terrifying divorce between practice and theory as we find in surgical education imparted to us. . . . From the third year till the candidate

emerges out legally qualified, he is expected only to SEE the operations and instruments used. Is there not a world of difference between merely seeing an artery forceps for years from a venerable distance and making a swift approach to it, grasping it firmly and applying it to a bleeding stump? Certain fundamental minor surgical procedures as suturing a skin wound, applying a ligature, releasing an artery forceps and a host of others should be done *By the student while he is a student.* . . .

It is obvious that the best way to learn the use of an instrument is to use it and not memorising their names and shapes from a long inventory towards the end of the final year as is often done under this unimaginative and almost puerile system of education. . . .

CLINICAL MEDICINE.—One harrowing feature of this hospital is its clinical laboratories both in the O. P. and in the main buildings. If the former is managed by a third rate technician with dubious claims to the knowledge of clinical laboratory procedures, then the latter is a veritable Madame Tussaud's chamber littered with instruments and microscopes that have long outlived their utility. . . . Is it not time for the authorities to bestir themselves and sweep away these cobwebs and dust that are disfiguring our medical service due to years of callous negligence and sloth, and blow in the invigorating fresh mountain breeze of efficiency and love of service . . .

EPILOGUE.—Medical science as is taught and made use of at present is wholly barren of utility and service. It has failed miserably to face the exigencies that are confronting India to-day. . . .

The seeds, at least a part of them, lie in the system of medical administration and education. To create artificial struggle for existence in the profession to place unthinkable restrictions on the proper recruitment of men into medical services, establish privileges and luxuries for city practices foster a system that produces men of poor calibre and yet expect the doctors to flock like frenzied missionaries into the lonely villages is, to put it mildly, an example of sophistry in *excelso.* . . .

Something that gives meaning to life and very vital to existence is lacking in the minds of medical men and students of to-day. . . .

Pioneers in Public Health

TO OUR YOUNG FRIENDS

BY

MOHAN

COMRADES!

May all be healthy and happy!

I had promised to deal with the large bulk of letters, this month, if space permitted. Well, I find I have space, but not enough to deal with all letters received. I am therefore tackling only such letters as would be of common interest to you all. As usual many enthusiastic young people have sent in information on Lord Lister. I thank them sincerely and request other youngsters also to follow their example.

T. P. Joseph (Trivandrum) writes to me enquiring whether there is any children's league to which young readers may join: Thank you, Joseph! I never thought of any such



League. Since you suggest it I'll tell you about it. All that you have to do to become a member of this League is this: You must ensure yourself, that you are quite fit, physically and may be mentally also; verify every day whether you transgressed any law of health. If you do these two things, you are eligible for membership to the League!!

M. Ganapathy (Madras) and *L. N. Bose* (Howrah) have independently asked me to write something on sports also in this section! Comrades, think again and if you feel a pioneer in public health would also be an excellent goal-keeper or googlie bowler; do write to me and you'll get an article on "C. S." next time!!

To our Young Friends

581

C. Narayan Lal (Karachi) wishes to know if the twentieth century has not produced a pioneer at all: It has, dear comrade, but don't you think it's better that I go at least approximately in chronological order? By the way, if you try hard, you will have the honour of appearing this series years later!!

Others will please bear with me, till next month. In the mean time, I shall try to reply to you individually.

Coming to the point, I think I have made a mistake in taking up Lister this time. I should have written on James Simpson. I am now putting the cart before the horse, and yet hope the carriage to move. But if you bear in mind, at present, that Simpson was the discoverer of chloroform and lived about a generation before Lister, I presume we can go on. . . .

JOSEPH LISTER was born at Upton, in Essex, on the 4th April, 1827. His father was Joseph Jack Lister, who was a scientist himself. The elder Lister was famous for his discoveries in 'optical' science, or the science that deals with the eye and eye-defects, as also microscopy. Indeed young Joe was born in a family of scientists. Two of his uncles were famous natural scientists. So much so Lister had the scientific blood running in him all through.

Joe received his school education in Quaker Schools, first in Hertfordshire and later in Tottenham, near London. When 17 years old, he

joined the University College, London, as an Arts student and graduated in 1847. In 1852, he obtained his F. R. C. S. and M. B. degrees, through the same College. He then was employed as a house surgeon in the University College itself. He observed the patients carefully and studied the disease, during an epidemic of hospital gangrene. He also investigated cases of another disease called pyaemia. These researches were to help him later in making a great discovery.

Operations were considered almost fatal during the years that preceded 1847 and big operations were never undertaken owing to the unbearable pain caused to the patient. But after the discovery of chloroform in 1847, doctors undertook operations and the patients did not suffer pain so much. But the mortality did not decrease. Though operations were performed, yet patients died by the thousand. In each case, the operation by itself was a grand success, but the patient collapsed some days later. It was found that the skin surrounding the wound putrefied, causing the death. They died in other words of septic poisoning. But no one then knew why it was so.

Lister was appointed to the chair of Surgery at Glasgow. The local hospital was the hot-bed of septic disease. The hospital was kept very clean, and yet patients perished of blood-poisoning. Lister observed these very carefully. He had known about Pasteur's experiment with beer and milk. They turned sour or rotted because *external bacteria*

got into them. Lister wondered why the same theory could not be applied to wounds. He deduced that wounds putrefied merely because bacteria from the atmosphere got into them and poisoned the blood system. He therefore sought to find an "antiseptic" or a substance which would kill the bacteria and at the same time not affect the patient. Carbolic Acid was being used as a deodorant of sewage. Lister thought that it might also be an effective antiseptic. He therefore experimented and was successful. Carbolic Acid when applied undiluted direct to the wound destroyed the bacilli and helped to save the patient from blood-poisoning. This was a great discovery and Lister himself saved many thousands of lives by operation, without the fear of septic poisoning.

Simpson had maintained that the hospital by itself was the cause of many deaths and pleaded for its improvement. Lister proved that the cause of mortality lay not in the hospital but in the operator himself and his tools. Lister therefore in addition to dressing the wound itself with an antiseptic germicide, began to try and keep the *environment* of the operation, bacteria-free, so to say. He introduced the sterilization of the surgeon's instruments. Today an operation is made in the most hygienic conditions possible. The surgeon wears a sterilized cap, mask, apron and gloves and operates only with sterilized instruments; and antiseptics are used liberally. Thus a case of septic poisoning today is as rare as it was common a hundred years ago, thanks to Joseph Lister.

Lister also made headway in the treatment of internal disorders like cut or damaged arteries. Till then, the arteries were tied together by the surgeon with silk or flax threads. The wound festered and enormous quantities of pus oozed out and the patient eventually kicked the bucket. Lister used catgut dipped in antiseptic carbolic acid, in the place of the silk thread, and was remarkably successful. He had of course to counter a number of obstacles. But he unflaggingly worked on, eventually to score another great success.

Lister was an unassuming personality and scarcely betrayed the labour and thought that his mind was undergoing. He was courteous, humble, and very truthful. Like all good doctors he had a good temper and would be very kind to his assistants, encouraging them in their work and ignoring their faults. Lister was also a good speaker and hated rhetorical display. In one of his most emotional speeches after his discovery of the antiseptic, he said as the President of the British Association, at Liverpool, that he had the joy of seeing "formidable injuries follow the same safe course as simple fractures."

Lister married the daughter of Dr. Syme of Edinburgh to whom he was apprenticed earlier. In 1869, he succeeded to the chair of clinical surgery at Edinburgh. The Germans were the first to realize the greatness of his discoveries and he was given a magnificent reception at Munich and Leipzig in 1875. He was appointed to the chair of surgery at King's

College London, in 1877. Six years later, Lister was made a baronet. In 1889, he retired from practice but continued to do research work for many years later. From 1895 to 1900, he was President of the Royal Society. In 1897, he was raised to the peerage as the first Baron of Lyme-Regis and five years later he was awarded the Order of Merit.

It is curious to note that when such honours were being heaped on Lord Lister, a Hungarian physician was starving for food. The name of this Hungarian was Semmelweiss and he had discovered the same thing as Lister about the same time or earlier than Lister. The Hungarians failed to recognize his genius and even the Frenchmen ignored him, as they were busy idolizing Pasteur. Yet, the very same conclusions reached by Lister got the latter universal

applause. No wonder Semmelweiss was broken-hearted. But a certain Dr. Duka brought Semmelweiss to Lister and the baron, true to his name, as a great man, immediately realized the worth of that Magyar and thenceforth treated Semmelweiss as his senior. This story goes on to show how Lister was as much of a 'man' as he was a 'surgeon'.

He died in 1912 at the age of eighty-five. Lister Institutes work to this day, carrying on the famous man's work in the field of surgery.

I am not revealing now, my next hero. But you would usefully spend your time trying to digest these four pioneers already discussed. So, comrades, till next month, cheerio!

Your Loving Comrade,
BROTHER MOHAN.

(Continued from page 577.)

Laboratories such as Haffekins' Institute, Bombay and King Institute, Guindy, Madras, to carry on research.

Selection of candidates for these research scholarships should be purely on aptitude basis, after personal interview to assess the candidate's aptitude and capacity for research. The interview should be conducted by the Provincial Medical Research Board. . . . All heads of departments, for example, Professors of major subjects, should be encouraged and if need be, subsidised to go on foreign tour every four years and be specially deputed to study the method of research in countries abroad.

STATE MEDICAL SERVICE

Two classes of services are essential for the well-being of the community. These have been recognised from time immemorial as (1) Public Health or Preventive Medical Service, and (2) Curative Medical Service. The modern tendency is to lay more and more emphasis on the former and it is as it should

be. No community can be called civilised unless it has an efficient Public Health Service. I do not intend to dilate on this topic further since it is not directly within our province. The Public Health Act of Madras is acknowledged to be one of the best in India and the development of the Service along the lines indicated in that act will, under the existing circumstances of restricted finance, be sufficient.

Coming to Curative Medical Service, the Bhoze Committee has exhaustively gone into the question and has avowedly based its recommendations on the Russian Model. The village has been taken as the unit for the Medical relief and it should be under the charge of a paid doctor who has undergone a six months' training in Elementary Public Health problems also. . . . To maintain continuity of policy and efficiency, it is essential that Public Health should be entirely under the control of the Government, and Local bodies should not be entrusted with such onerous responsibility. . . .

READERS' FORUM

VEGETABLE GHEE

Dr. S. V. Anantakrishnan, writes:

Dear Sir,

I presume that your note on the subject is intended to provoke a discussion on the merits of the case. The Government's statement in the Assembly if allowed to be the last word on the subject, is certainly one that can cause panic. A dispassionate analysis is essential when the present prohibitive cost of ghee is diverting more and more persons to hydrogenated oils and also when it is used for adulteration of ghee. (The different grades of ghee sold in the market is a pointer showing how food adulteration laws are effective). The results reported by the Hon'ble Member for Food, appear to be so much at variance with published results of nutrition workers in other countries, that caution is necessary before killing a new industry, of course with due regard to public health. The extracts I am giving below will not be beside the point in this connection:

"The Food Rationing (Special Diets) Advisory Committee of the Medical Research Council have considered evidence as to the extent to which margarine may be unable to be substituted for butter in human diet. They distinguish carefully between true and apparent sensitivity to food, and, in the case of margarine, believe that in the vast majority of complaints the sensitivity is a matter of prejudice, but they are not prepared to exclude the possibility in rare instances of true sensitivity to margarine, and have arranged further tests in cases which may be supported by full medical data."

(Applied Chemistry Annual Reports, 1941, p. 265).

"Comparative Nutritive Values of Butter and Other Fats.

Further reports on this subject are almost unanimously in favour of the view that edible vegetable fats are at least equal to butter in promoting the growth of rats. H. J. Deuel and co-workers have observed that when lactose is the sole source of carbohydrate rats develop alopecia and ultimately

die, whatever the dietary fat; that the growth of young rats (over 200), fed for twelve weeks from weaning on controlled diets in which the fat was a vitaminised vegetable oil (or margarine) was identical with that of a similar diet in which the fat was butter; and that either fat gave the same results with ten successive generations, so that fats in margarine serve adequately in place of butter both for growth and for reproduction, providing that the diet is otherwise nutritionally satisfactory."

(Applied Chemistry Annual Reports, 1945, p. 274).

"There have recently come to light some very remarkable effects of exceedingly small traces of ions in the water, on the properties and reactions of the films. The packing of condensed films of acid seems to depend on the ions; . . . Adam had found in 1922 that distilled water put freshly into the brass trough gave (temporarily) a larger area than water which had been long in the trough and Myers now attributes this, probably correctly, to the absence of divalent ions usually present . . ."

Even more striking is the effect on chemical reactions in films, particularly various photochemical reactions. The reactions of stearic anilide aliphahydroxy stearic acid, and proteins, all appear to be affected by traces of metallic ions too small to be always identifiable. As yet, the results are preliminary, but they show promise of being well worth further investigation, particularly as traces of heavy metallic ions have a remarkable biological effect (Oligodynamic action)".

Adam: Physics and Chemistry of Surfaces, O.U.P. Third Edition, p. 97.

It is clear that some caution is advisable pending further investigations of a physico-chemical nature as well as on the side of human nutrition but there is as yet no unequivocal evidence for any dogmatic assertion now that the use of Vanaspati will have the disastrous consequences mentioned in the statement on which your note has been written.

TALKIES AND CINEMAS

Dr. H. R. Sadashiva Rao (Retd. D.M.O.), writes:

Talkies and Cinemas have come to say in the scheme of our life here in India. They

are indeed, a source of entertainment and instruction. This question has raised new problems.

On the constructional side, health and sanitary considerations are neglected in many places. The atmosphere gets surcharged with objectionable and unhealthy odours depending on the crowded condition. In spite of standing rules outlets and inlets for free perfation of air are insufficient. I am referring to an average type seen in Mofussil places. It is not an unusual phenomenon to see and hear of sight-seers going back with sore throats and influenzal attacks. This is a matter into which the public and Health authorities should probe taking suitable action with a view to remedy the defects in construction.

On the sanitary side—such structures are located in the midst of crowded and overcrowded quarters with results patent to neighbours. The whole place gets stinky and most insanitary, brothels, hotels, drinking places and all manner of sales-shops spring up nearby. Municipal and Health officers in towns and Panchayat officers in smaller units should not permit the building of these structures in the heart of towns and villages.

They should find a place away from the heart of towns—at least a furlong or more away and should be located in spacious grounds of not less than acre and half or more depending on the size of building. Sanitary urinals and latrines as also a safe water supply should be provided.

This industry is going ahead with all the flair and energy peculiar to these movie shows. The question of poverty does not enter into this field. There is mass appeal for pictures. But the standard and quality of pictures is in most cases anything but desirable. This standard should be improved from the moral code point of view. Whole families with wives and children attend such shows. So no arguments are needed to lay emphasis on the moral side of the pictures, as children and adults learn a lot of bad things from bad undesirable shows. Persons with criminal properties get the chance of improving their criminal technique.

The present trends are towards developing instructional films to suit the young. Teaching institutions of all grades should give shows to students and children once or twice a

week on various topics. We learn more and quickly also from such shows. Government should encourage such films even by subsidies.

Whether children and students below a certain age say 16 should be allowed to see the present day class of low quality pictures is a question that should engage the serious thoughts of elders, parents and teachers. Is any body thinking of this problem at all? No. There is drift here. Looking at the state of present civilization it will take long to realise the bad results of this callousness. At any rate teachers should ban undesirable pictures for students of a certain age. Will they do it? Question? They are not interested, as their pay is quite inadequate. Certainly—it is. It is for Government to take note of it.

It ought to be brought home to young people that very frequent attendance at shows is harmful to eyes and general health.

ALANDOOR,
ST. THOMAS MOUNT,
Dated 27-7-1947.

Mr. T. N. S. Raghavachari, writes:

LEAD VESSELS

Mr. K. V. Sundaram, Government Analyst, Madras, has chosen to misread and misinterpret my observations at pp. 412 and 413 of this journal on the use of lead vessels. I have stated there definitely "I am NOT advocating the use of lead vessels. They are best avoided."

From the controlled researches in America, carried out between 1935 and 1939, it has been clearly laid down, that the "Ingestion of lead ions in normal amounts does not result in a steady accumulation of lead in the body and that apparently an equilibrium is reached after a time, so that a substantially constant concentration of lead remains in the tissues, the daily output of lead being equal to the daily intake." This alone would account for the relative immunity from acute or chronic lead poisoning, enjoyed by Kumbakonam folk. They are not suffering from intoxication of the type detailed by the Government Analyst nor from nervous symptoms or paralysis. I may also mention that I resolutely discarded all lead vessels over 20 years ago and so Mr. Ayyar is wrong in his characterisation of poor me as one of the potential victims to lead poisoning.

LAW AND PEOPLE'S HEALTH

SANITARY LAWS IN RELATION TO PUBLIC HEALTH

BY

CLAUDE H. McFADDEN

Deputy County Counsel, Los Angeles,
California

THE subject "Sanitary Laws in Relation to Public Health," is as broad as the horizon, and one could barely scratch the surface within the time allotted for this talk.

A lengthy discussion could be had on the subject covering the causes which necessitate public health laws, or the particular regulations made necessary by reason of such causes. But these phases of the general subject fall more to the doctors and public health authorities than to the attorney.

Rather than to try to define the subject into specific restricted channels, I believe it will be advantageous simply to discuss certain fundamentals, some of which *all* of you probably know, and some of which *some of you* already know.

The preservation of public health is one of the basic and most important functions of the sovereign. As has been aptly stated by the appellate court of California, "It is the duty of the state to take all steps necessary for the promotion of the health of its inhabitants to protect them against the visitations and prevalence of diseases, and to prosecute such measures as may result in stamping them out; or, by recognized methods

of treatment, in reducing to the minimum the percentage of fatalities. These are duties which the state may perform in the exercise of its sovereignty, even in the absence of direct constitutional authority, under its inherent power of police. (*Co. of Sacramento v. Chambers*, 33 Cal. App. 142.)

The term "police power" embraces a very wide field. Generally, it may be said to be the power of the sovereign to do those things, and to make and enforce those regulations, reasonably necessary for the preservation of the public peace, health, safety, morals and general welfare.

By Section II of Article XI of the State Constitution, power has been delegated to cities and counties to make and enforce within their limits all such local, police, sanitary and other regulations as are not in conflict with general laws. "General laws," of course are laws adopted by the state legislature.

Our courts have held that this section makes a direct grant of police power to municipalities and counties and the power so conferred is as broad as that possessed by the legislature itself, subject to the two exceptions that its exercise by any city

or county must be confined within its boundaries and must not conflict with the general laws of the state. (*Boyd v. City of Sierra Madre*, 41 Cal. App. 520.)

Incidentally, it might be said in passing, the courts have held that a local regulation prohibiting or requiring identically the same act or thing is in conflict with general law and void. (*Ex parte Stephen*, 114 Cal. 278; *In re Sic*, 73 Cal. 142.) The theory behind these decisions is that if a person may be subject to punishment under state law and also under local ordinance, for the same act, he would be placed twice in jeopardy for the same offence. And yet, our courts have upheld convictions under state law for acts also made penal offences under Act of Congress. We shall not attempt here to reconcile the two lines of decisions.

The exercise of police power in health matters is limited to those matters which reasonably may be expected to affect the public generally. Our Supreme Court has held that "only when the public health", safety, convenience or welfare is or may be jeopardized that the police power may in this respect be invoked by restriction or regulation of the private rights of persons and property. (*Abbey Land, etc., Co. v San Mateo*, 167 Cal. 434; *In re Miller*, 162 Cal. 687.)

In line with this rule, it is obvious that a law would be frowned upon, as not relating to *public* health, if it prohibited any person from taking at one time more than a certain number of grains of Aspirin, even though such a dose were lethal. By no stretch of the imagination could

such an overdose be said to affect the health or welfare of the public generally.

Public health and sanitation regulations, as you all well know, cover a wide variety of subjects. Just to name a few, they include: Vaccination, contagious diseases, quarantine, nuisances, cemeteries and burials, sewage disposal, collection and disposition of garbage, milk and other dairy products, food and drink, hospitals, sanitation, including plumbing, ventilation, light and air, tenement houses and other places of residence, food handling places, handling of poisons, air pollution, housing, rodents, and many others too numerous to mention, together with the various matters related to each.

It, obviously, would not serve any useful purpose to attempt to discuss the particular provisions of all, or any, of the great mass of state and local laws bearing upon public health. Each of you knows infinitely more about them than I do. I might, however, profitably discuss some of the more fundamental principles underlying all of them.

At the outset, it may be said that all police regulations must be *reasonable*; that the particular regulation must tend in some material way to protect the public, must be uniform in its application to all persons falling within the same general class. But these are matters which need not concern you, as enforcement officers, but concern only the law-making body.

You are concerned, however, with the interpretation of each provision of each regulation under which you

are required to work. In this respect, it is always necessary to determine two things: first, what does the provision prohibit or require; second, is there a failure of compliance in any particular instance. A careful analysis and interpretation of the law is always necessary. An examination of the state law on any subject covered by a local ordinance is essential, to discover a possible conflict. In all cases where a conflict exists, the state law, rather than the local one, should be applied. If both laws prohibit or require the same thing, a prosecution should always be made under the state law.

The mere fact that a state law contains regulations as to a certain *subject* does not mean that a local regulation dealing with the same *subject* is in conflict with the state law. It is only where the two provisions are identical in their effect or the state regulation is more strict that we find a conflict. Our courts have held that a local regulation which is more restrictive than a state law provision is not in conflict with the latter, and therefore valid. (*In re Iverson*, 199 Cal. 582.) The only exception to this rule is in any case where the legislature has completely occupied the field, as in the case of certain phases of state milk regulations, and of the speed provisions of the California Vehicle Act.

In the latter the court held that a provision of the state act requiring operators of motor vehicles at all times to drive in a prudent and careful manner, with due regard for safety, completely occupied the field of speed, and that a city ordinance

prohibiting a greater speed than a certain number of miles per hour was in conflict with it and, therefore void. (*Ex parti Daniels*, 183 Cal. 636.)

A question which sometimes puzzles law enforcement officers is as to whether a particular law or ordinance applies to a governmental agency. And I might add that lawyers are sometimes perplexed by the same question.

Statutes and other laws are ordinarily designed for the government of the people generally, rather than the sovereign or its governmental agencies. The rule is that governmental agencies are not bound by regulatory laws unless they are expressly mentioned, or the language of the law shows a clear intent to include them.

This rule grows out of the legal fiction that "the king can do no wrong." Hence, when the king made a rule his subjects were bound by it but he was not.

So, in your enforcement work, if a law or ordinance does not clearly show, expressly or from the context, the intent of the law to apply to governmental agencies, you may safely conclude that it does not.

Obviously, no law can bind a superior governmental agency even though the intent to do so is clear. For example, no state or local law can apply to the federal government, nor city or county ordinance to the state. As to the former, Mr. Chief Justice Marshall of the U. S. Supreme Court, in 1819, established that fundamental principle in his opinion in the famous case of *McCulloch v. Maryland*, 4, Wheat, 316,

The theory of that line of decisions is that one governmental agency may not trench upon the sovereign rights of another so as injuriously to affect its capacity to perform its functions.

Another question which may confound you in your work, or puzzle you in attempting to devise additional regulations designed to correct a glaring public health evil, is whether a law may be so written as to affect *retroactively* some condition or property already in existence. Many times the confusion involves the meaning of the terms "retroactive" or "restrospective".

It might simplify the matter for us if we realize that laws are not necessarily and in all cases invalid merely because they are *restrospective*.

The rule which causes the confusion is the constitutional prohibition against *ex post facto* laws. Literally, the expression means "from what is done afterwards," and as we are using it here, it is a later adopted law which imposes a punishment for an act which was not punishable when it was committed, or imposes additional punishment after its commission. In other words, a law making it a crime today to have committed an act yesterday, would be an *ex post facto law*, and it would be unconstitutional.

On the other hand, a law adopted today making it unlawful to maintain in the future a condition which has been in existence down to the present would not be *ex post facto* nor would it be retrospective or retroactive. As to future maintenance, it is purely forward-looking or prospective. Many laws which

do not involve an *ex post facto* feature do have a retroactive effect, and are perfectly legal. As an example a state law validating defective proceedings for the voting of bounds or for the formation of garbage disposal or mosquito abatement districts would be retrospective or retroactive, and would be valid.

The rule as to retrospection is one of interpretation only, and stating it simply it is that in the absence of clearly expressed or obvious intention to the contrary, every law will be construed to operate prospectively—that is upon future and not upon past transactions.

So when you serve a notice on a person to fix an insanitary toilet, do not be abashed if he rocks back on his heels and says "You can't touch me, Brother, this toilet was installed the year San Pedro built the harbour, long before your old ordinance was adopted and, as you know, an ordinance cannot be retroactive." All you need to do is to rock back on your own heels and think "O, so?" Remember, it is the future maintenance of the condition you are after. In that respect, the ordinance is purely prospective even though it may be said to be retroactive toward previously installed plumbing.

One of the worst features occasionally presented by some laws, is their uncertainty. If a person of average intelligence, who can read English, cannot determine from a law exactly what is required of him, or prohibited, the uncertain provision should be amended to make it clear.

The courts will refuse to convict under an uncertain statute or

ordinance. In this connection, the rule is that while a law should undoubtedly be as fixed, definite and certain as the nature of the subject and the object to be attained will permit, it will not be held void for uncertainty if any reasonable and practical construction can be given to its language. (*Tulare Co. v. City of Dinuba*, 188 Cal. 664.)

If any legal provision does not measure up to some such standard, particularly when a criminal prosecution is involved, the courts will not hesitate to hold the law to be invalid for uncertainty.

One of the most important features in connection with the duties of an enforcement is the gathering of sufficient evidence upon which to obtain a conviction. A knowledge of the type of evidence, its competency and relevancy will greatly assist in your work. This is a subject, of

course, which of itself covers a wide field and does not belong in a paper of the scope of this one, so I shall not dwell upon it.

In closing, I might speak of your problem in case you are confronted with two conflicting provisions of state laws or of local ordinances. Of course, as already said, when there is a conflict between a state law and a local ordinance, the former controls. When you find a conflict, however, between two state laws, the one last adopted controls, and when the conflict is between two provisions of the same law, the one appearing later in the law controls. The same rule applies to ordinances, so, knowing this, you may be saved some embarrassment at some time.

While this discussion is necessarily rather meager, I hope you may find something in it to help you over a rough spot now and then.

DEATH-RATE AND MENTAL MAKE-UP.

Much emphasis has here been laid on the death-rate, but the tale of lives prematurely ended is but a part of the woe of an unhealthy population. A high death-rate meant a high bereavement rate, which meant a high proportion of families reduced to abject poverty through loss of their bread-winner. A high death-rate also implied a high sickness-rate, and a population of which many are reduced to miserable poverty by unfitness for work.

There were very few of the large families of the day which had not lost a dearly-loved brother or sister; nearly every mother had lost a child. The effect of familiarity which death was sometimes mere callousness; there is no question that many children were insured in several burial clubs and dosed to death with opium and terebinte—the popular Godfrey's cordial. More often, it led to a deepening of religious feeling for there was need to postulate a hereafter for loved ones, if not for oneself.

(Extract from the "Century of Science", by Sherwood Taylor).

(With special permission, reprinted from "The Sanitarian"—A journal of Sanitary Technology, Nov.-Dec., 1945).



THE SPECIALISTS' BLIND EYE

BY

BEN AMES WILLIAMS

According to this well-known author, medical specialists "know more and more about less and less."

AMONG the lesser deities worshipped by the ancient Greeks, there was one who wore the beard, the ears, and the horns of a goat. He looked like the devil. According to the Greeks, when this creature appeared suddenly to human beings, he awoke in them a storm of sudden fear. They called him Pan, and called the fear he evoked, "panic."

The great god Pan has his prototype today. Only we do not call him Pan. We call him "Doctor," and tremble at his name. The old witch doctors who catered to the savage tribes used masks, incantations and every imaginable sort of humbug to frighten their prospective patients. To observe their antics was to conclude that they believed a patient thoroughly frightened was half cured.

The patient has many fears: he is afraid of what the doctor will tell him and consequently often puts off seeing a doctor till it is too late to help him. Basically this is not fear of what the doctor may discover, but fear of the mysterious, terrible and godlike creature himself.

But the doctor that the laymen fears most is the specialist. For one thing, the specialist and he are strangers; for another, he mistrusts him, and with good reason. He knows that a specialist, like a shoe-maker, tends to stick to his last, his speciality.

I heard an instance of this a short while ago. At a certain medical school, specialists came regularly to lecture, and for material to illustrate the points they wished to make, they turned to the wards of the available hospital. The psychiatrist who came to lecture, found in the wards a patient with a proved psychosis and used her as a text for his discourses. A fortnight later, a dermatologist found in the wards a sufferer from numerous skin lesions and used this patient to illustrate his points. Subsequently, an expert on digestive disturbances selected a patient with persistent diarrhoea and since the patient had spent 20 years in China, the students made elaborate studies of her stools to discover the cause. No one noticed that the patient used by each man as an object lesson was the same person, until a general practitioner, an old country doctor, glanced at her history, and cried: "Dementia, dermatitis, diarrhoea! This woman has pellagra." Which was true.

This tendency to wear blinders and see only in his own field, is one of the specialist's handicaps. It has led medicine to follow the example of industry—to establish a production line. The human chassis on a belt conveyor, passes under the eyes of a regiment of specialists, and one does this and another does that each restricting himself to his particular field

And as the mechanic who affixed the bumper thought he had built the car, each doctor when the patient recovers, secretly assures himself that he and he alone accomplished the cure. For the specialists tends to find in his speciality the source of every human ill. To the dentist, it is the teeth; to the oculist, it is the eyes; to the gastroenterologist, the stomach; to the cardiologist, the heart. Just as the successful business man comes to think of his own business—the manufacture of some particular soft drink, the production of rivets, the distilling of alcohol—as the foundation of our economic structure, so the specialist begins to believe that in his field lies every healing virtue.

In addition to the basic handicap of being a specialist he usually has other shortcomings. His great knowledge often leads him contemptuously to dismiss the suggestions of the patient; yet, the patient is often his own best doctor. The human body commonly manifests a sound instinct for self-defence. Does not the omentum, for instance, tend to seal off an intestinal perforation? If the jugular vein is cut, do not other veins take up its burden? If an eye or a kidney or an arm is lost, does not the remaining member rise to the occasion? The brain is as intelligent as the omentum or the jugular vein, or the kidney; and the patient's brain may conceivably know better than any specialist what the patient's body needs. So no matter how certainly the specialist knows that his patient is wrong, he will, if he's wise, give respectful consideration to the patient's ideas.

This suggests the greatest of the many handicaps under which the specialist labors; for he does not know his patient. Lacking knowledge of the individual, he cannot accurately appraise what the patient tells him, nor can the patient's own doctor, the general practitioner, pass on his knowledge to the specialist. He may know what is wrong, yet not know how he knows. There are so many intangibles in medicine. Pain is a symptom, but what is pain? How can one measure it? I know a man who had an abscessed tooth that broke when an attempt was made to extract it—who then allowed the dentist to drill out the fragments without using an anaesthetic. I know another who is deterred only by shame from demanding novocain for an ordinary dental prophylaxis. Obviously pain has one meaning for one of these men, and another

for the other. When a man tells his doctor that something hurts, his family doctor knows—although he cannot always say what the man means; the specialist, on the other hand does not know.

As I have pointed out before, the specialist provokes in the patient a storm of fear, and fear is a poison, the ill-effects of which need to be recognised. Success in quieting the patient's fear will in many cases do more for him than all the medical knowledge accumulated through the ages. But specialists too often accentuate rather than allay the fears of the patients. They do it by putting on an act; summoned to the bedside they hem and haw; they take the pulse and blood pressure with carefully blank faces; they tap here, they tap there, sometimes measuring with their spanned fingers or even with a tap, to choose the next spot to tap, making important marks with blue crayon on the cringing skin. They ask mysterious questions without explaining why they do so. I supposed I was asked two or three score times how often I had to get up at night, before I mustered enough courage to inquire why they wanted to know. And I am not an overly timid man.

Doctors, and specialists, like to be mysterious. They use long words for simple things. They write prescriptions in hieroglyphics over which, after the doctor is gone, the patient and his family puzzle helplessly. They call a consultant and mutter and mumble with him, and then go into the hall and whisper something together.

Then, in tones excessively cheerful, they assure the patient that he's just fine, and they depart; and the patient and his family are left to tell each other over and over that there is nothing to worry about—and to think to themselves: "There must be something they haven't told us! They were so solemn!"

I continue to refer to the patient and his family for a doctor actually treats not only the patient, but those about him. The obstetrician who said he never lost a father may have amused his listeners, but he betrayed his own complete ignorance of the extent of his responsibilities.

And those responsibilities are heavy. Not enough heed is taken by medical men of the

ease with which well persons may be made sick. There are mental as well as physical contagions. When measles or scarlet fever run through a family of children, the doctors find an easy scientific explanation. When a husband, during his wife's pregnancy, has morning sickness, they only smile. But there are emotional as well as physical infections. Hitler spread an emotional infection throughout an entire nation of eighty millions.

And emotional infections may produce physical ills. Many a man, hearing a list of symptoms, imagines he has them, and the imagined becomes the real.

In a large proportion of cases, the good the doctor can do the patient is determined within a few minutes of their meeting. Mistakes made then are hard to remedy. To treat the patient properly the doctor must, within the first moments of contact, study the individual himself, decide how to treat his mind before treating his body. What sort of man is the patient? Contrary or easily led? Intelligent or stupid? Is he a successful husband, father and friend?

The patient is always afraid. Before the doctor starts his scientific tests, he should reassure him. The apparatus, alone, will increase the patient's terror, just the sight of it? If he's a man, the doctor should explain it to him, show him how it works, tell him its mechanics. I know a man with sensitive teeth, who, in the dentist's chair, sometimes holds a mirror so that he can see what the dentist is about. Without the

mirror, the dentist's drill feels as violent as one of those air hammers, with which burly men rip up a street pavement. But the mirror tells him the truth, quiets his fears—and helps him forget his pain.

After making his acquaintance and having soothed his fears, the doctor will already have begun, by observation, the diagnosis. If he has made a good beginning with him, the patient will by this time be eager to help. No matter how alarming his answers, the doctor should always appear to find them reassuring; for the most dangerous drug he can administer the patient is fear. The patient, like the customer, is always right.

To the doctor's most persistent psychiatric problem—how much of the truth to tell the patient—there is no complete answer. The better he knows the patient, the more wisely he can solve the problem.

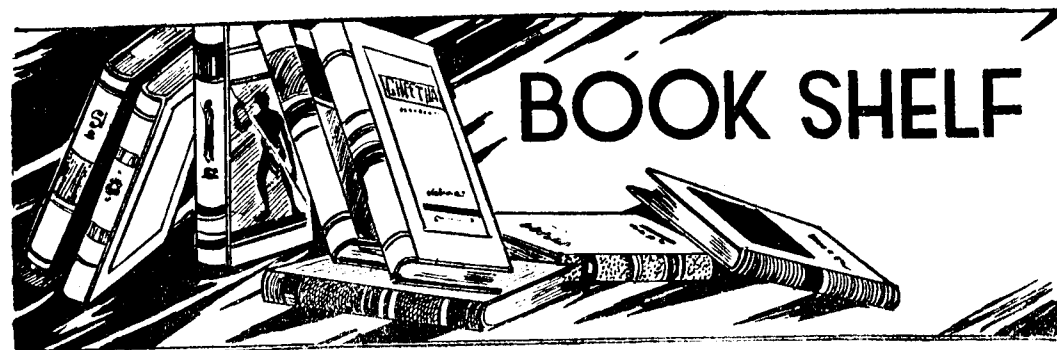
It is the hard lot of the doctor, to know that, in the end, he is always defeated; his victories at best are temporary. Death he can never finally conquer. But death's ally is fear, and this ally the doctor can defeat. Let him help the patient to conquer fear, and he will win many a skirmish; and if he can never hope to win, in the last grim battle, he can at least do much to rob the ultimate defeat for his patient and for his patient's family of the terror that is its most grievous pain.

(With acknowledgement to 'Modern Digest', Toronto.

'Digest of Digests', Sydney.

Few occupations of man, in fact, involve such varied knowledge and skill as farming. It looks simple to drop some seed into the ground, let it grow up under the blessed influence of sun and rain, and then harvest the crops. But at least as far back as the days of the Romans, men realised that the business was not so simple after all. A Roman named Columella wrote a large treatise on agriculture in which he summed up the best knowledge of his time—and it was by no means simple even then. In the 2,000 years since then, it has not become any simpler.

(Extract from "Climate and Man", U.S. Dept. of Agriculture).



“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!

THIS CHEMICAL AGE

THE MIRACLE OF MAN-MADE MATERIAL

Author.—William Haynes.

Publishers.—Secker & Warburg, London.

Re-print—1946.

Pages—288.

Size—8½ x 5½.

Price—12/6.

The role of Chemistry in art, industries and life and the civilisation of a country in general is a far-reaching one. The materials of the Physicist and the Engineer, the medicines and all, the thousand and one small articles like apparel, paint, dyes, finery, soaps, hair-wash are all the work of the Chemists, more often than not, done in seclusion and without any fuss or show. The book ‘Chemical Age’ is written by a well known American, a keen student of Chemistry, Biology and Economics for the American laity. It deserves to be read by every High School or College student and indeed by one and all who have had a general education. In the twentyone Chapters, author delves into the mystery of molecules, black tar to bright dye, sweet smells and tempting aroma, weapons of peace and war, of sulphur drugs and plastics. In fact, the author has dealt with every modern development of Chemistry which every intelligent man ought to know. Very few even among the ‘educated’ realise how this mystery wonder

drug, the sulpho family—a German secret drug—, was unravelled by the great firm Chemist Fourneau of the Paris Pasteur Institute or the urge of destiny which prompted the Belgian Baekeland to leave his motherland which could not afford an outlet for his talents to the United States of America, where eventually he laid the foundation for a bakelite industry, on the possibilities of which much can be said. But we are on the eve of a Plastic Age! The reader of this fascinating book will find the thrill which animated these scientists in their labours. It will create in the young reader a thirst to do something similar in our own country and a desire to know more and more about these Chemists and their ways of achieving results. There is a lamentable dearth of such soul-stirring and useful scientific books in our country. Publishers and scientific workers should feed the avid minds of youngsters with articles, books presented in the manner and spirit of William Haynes, the author of ‘This Chemical Age.’ Our country is now liberated; but hard work lies ahead. In no branch of technical knowledge are we especially so deficient as in Chemical Industries. The Madras Presidency would be, perhaps, the last in India to found a College of Chemical Engineering! There is still neither Private nor State nor City technological Chemical laboratories as one finds in England, France, Switzerland and the United States of America. Had this book been written ten

years ago and had our business magnates and our Administrators read it, I have no doubt that this Presidency would have by now given a lead to the rest of India, even as they say. Madras leads the rest of the country in so many directions.

KING INSTITUTE, } K. V. SUNDARAM
GUINDY, MADRAS. } AYYAR,
Government Analyst.

CHEMICAL ELEMENTS

Author.—I. Nechaev

Publishers.—Messrs. Lindsay Drummond Ltd.

Second Edition—1946.

Pages—151.

Size—8½ x 5½.

Price—8s. 6d.

The rapid progress of science has relegated the once famous stalwarts of science into things of the dim past. Nechaev in his ‘Chemical Elements’ has resurrected them from their forgotten graves as living *dramatis personae* that walk the stage of the great ballet that may be called ‘The March of Science.’

In this book, Scheele, Cavendish, Ramsay, Mendeleyev, Davy and Madame Curie stand out as living beings toiling with matter to unravel its mysteries and prove that there is no limit to man’s mastery over Nature!

The aspiring youngster who starts on the difficult path of research in science very often gets disheartened and even disgusted by the difficulties that thwart him at every turn. The struggles of Scheele down to Curie who worked in laboratories scraped from scrap and from whatever they could lay their hands upon, will serve as a pointer to what may await a young research worker. The worst fate of all is the jeer of the contemporary, that Mendeleyev the famous expounder of ‘Periodic Law’ had to face. The triumphs of Periodic Law brought Mendeleyev world wide fame. All the civilized countries of the

world honoured the author of the Periodic Law and vied with one another in acclaiming him for his scientific work. But in his country not only did he fail to receive the recognition which he so richly deserved but he was even exposed to insults and humiliation. He was even driven out of the University for having ‘dared’ to present a Student petition for improving the condition at the University. For many years this world famous Scientist has no laboratory to work in. Thus Mendeleyev was ‘a prophet without honour in his own country.’ But his patriotism gave him an undaunted courage. He devoted all his energy and talents to benefit his country.

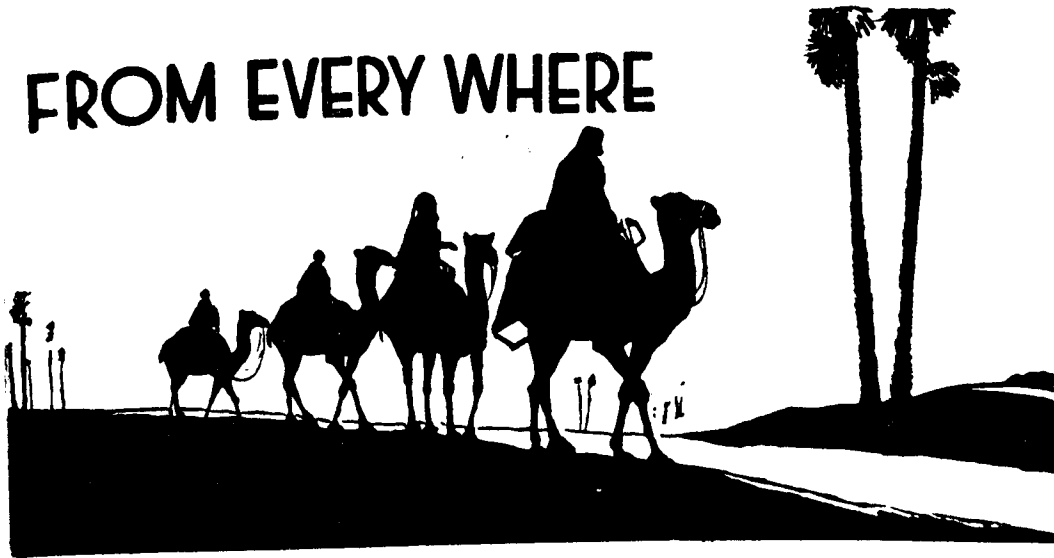
His brilliant proposals and projects found no support. It was only after Mendeleyev’s death, when a new life began in Russia, that the Five Year Plan for economic and technological development of the U.S.S.R. began to put in practise many of the great Scientist’s ideas. The experience of this great scientist would help to infuse courage and tenacity of purpose in the minds of workers in our own country. Those who scoffed the scientist do not live to-day, to worship him!

Nechaev has breathed a personality into lifeless matter and made the elements live thereby adding zest to a study that in incapable hands often flags to a drowsy drone that drives youngsters to sleep even in the University Classes.

‘Chemical Elements’ is a book for the teachers and the taught alike. Both would be profited by a perusal of this little book written in so genial a style which grips attention. The teachers will learn how to present lessons in chemistry to our youngsters and the pupils far from learning the subject with tears in their eyes, will develop a taste for it and an enthusiasm to emulate the great research workers of the past.

MAHARANA’S COLLEGE, } A. B. MALKANI,
UDAIPUR. } Prof. of Chemistry.

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.)

SOME MICROBES ARE FRIENDLY

To most of us the term 'microbe' or 'germ' has a sinister significance; it suggests disease and death. But in actual fact, not only are most of the microbes quite harmless, but many of them are of great economic importance and play a striking role in our everyday life. The second popular misconception of microbes is that they are animals: that they are a rather small type of insect, say, a microspic flea. Really, of course, microbes are members of the plant kingdom, much simpler in structure, it is true, than the cabbage or the rose, but nevertheless, they are plants. The scientist, who uses the term "micro-organism" for microbe, divides the group into bacteria, yeasts and micro-fungi or moulds.

In the soil, bacterial activity is of immense importance; it is upon the good earth that we ultimately depend for our existence, and it is the activity of microbes that makes the soil a fertile medium for the cultivation of crops. The soil is a kind of Botanic Gardens for microbes, containing as it does innumerable different types, performing many useful and often interdependent functions. Thus, every year vast quantities of so-called "waste vegetation" are broken down by microbes

and converted into nutrient substances which can be taken up by green plants.

Apart from the microbes' role as the real farmers, they minister to our daily needs in a host of other directions. Thus it is not always appreciated that we owe to microbes our bread and cheese, our beer and our tobacco. It is the tiny yeast plant that gives us our bread and converts sugar into alcohol to make our beer—or wines, or cider. All cheeses owe their particular characteristics to the activity of various microbes, both bacteria and moulds, which operate in their ripening. Tobacco would indeed be a "noxious weed" were it not for the fact that the leaves are subjected to fermentation after picking. Then cocoa and coffee beans are obtained by a fermentation which loosens the beans from their surrounding tissue and at the same time helps to increase the palatability of the contents.

Just as the preparation of fermented beverages goes back to pre-history, so also, apparently, does the rotting of flax; a process of breaking down by bacteria or by mould fungi of the cementing "pectin" which binds the bast fibres of the flax stem. These long strong fibres when thus loosened make our fine linen.

In many other directions the activities of microbes are beneficial; they play an important part in the work of digestion and may also assist in the formation of vitamins in the stomach and intestines. They are responsible for many food flavours and are utilized in the manufacture of glycerin, organic acids such as citric and acetic, and other chemicals. The production by some of them of antibacterial substances such as penicillin is now well known. Microbes also assist in sewage disposal and even in the formation of peat and coal.

So next time you hear the fearsome microbe mentioned remember that there is another side to the balance sheet.

(By H. J. Bunker, *Science Broadcasts*, Vol. 2).

THE CHARACTER OF PUBLIC HEALTH PROBLEMS

In considering the matter of health and disease there naturally arises a question as to when a health problem becomes a public health problem. In an attempt to answer this question, a number of factors, possibly for the moment apparently irrelevant, must be recognized.

Unfortunately there is no commonly accepted definition of the phrase "public health" for the word "public" and the word "health" is each a relative term. Their principal meanings are fairly clear-cut, but around their respective and specific cores both have ill-defined borders, each being qualified or influenced by the word with which it happens to be linked in any given instance. Thus there are public schools, public lands, public utilities, public acts, public debt, public support, public spirit, public decency, public toilets. It would be difficult to define "public" in these various connections, for there is variation in the degree to which the public uses, participates in, benefits by, or is responsible for these several assets and liabilities.

A similar confusion exists to the meaning of the word "health" in different linkages. There are found such terms as health department, health service, maternal health, child health, dental health, health education and ill health. Again, there are two view points as to health. On the one extreme are those

who consider as healthy any individual who, on any given morning, is able to get out of bed and do a moderately good day's work. Such a concept of health gives no consideration to the possibility that this worker may have a progressive tuberculosis lesion, or a mild case of pellagra, or a positive Wassermann, or dermatophytosis; or that in his particular instance, his domestic or occupational environment might, unless corrected, bring about in him a frank psychosis. On the other extreme and somewhat to the left of science, are those who would consider that the status "health" is only comparative, and that there is a superlative "positive health." This school of thought appears to rely upon personal hygiene and psychology, plus health education, to produce a race with aggressive and abounding vigor, glowing with an ever present consciousness that all is well.

The concept that one is healthy if he is without fever and able to walk is in the tradition of dissecting-room medicine; the ideal that would have every man an extrovert is ultra-modern and perhaps reflects more new thought than could be substantiated medically. These extremes in points of view must be borne in mind in any discussion of public health and public health services.

To return now to the question of when a health problem becomes a public health problem. Here it may be said that the general trend is to consider that a health problem becomes a public health one when, because of its nature or extent it may be solved only by systematized social action. The control of communicable diseases fit easily into such a concept of public health because, obviously, regulations restricting movement of those concerned can be made only by Government, representing society. The provision of public water supplies or of sewerage systems is again a matter wherein there must be a pooling of social resources and, subsequently, organized community effort directed toward the building of water works and disposal systems. Other activities similarly fall easily within this broad definition of public health problems: vital statistics, health education and other efforts where organization and large-scale administration are essential.

It is in relation to problems of the sick individual that questions arise as to the extent

to which organized society, through government, should take action. One wealthy individual with diabetes, or a thousand pregnant women able to pay their way, do not necessitate any organized action for their care, and their problems would not therefore fall within the limits of the concept of a public health problem as set forth above, but a hundred diabetic uneducated as to care of their feet unable to buy insulin or to pay a physician, or a thousand maternity cases with no funds for medical care, would necessitate organized action, whether by hospitals, by health departments, or by a privately operated clinic. The real question at issue, then, is not so much whether the person is well or ill or even, in the last analysis, whether rich or poor—for the rich use the sewerage system—but rather when, or if, a given problem of health and disease can no longer be solved by the unassisted effort of the citizen and the unco-ordinated resources of the community.

By Harry S. Mustard.

(From "Government in Public Health")

PUBLIC HEALTH—THE FOUNDATION OF NATION BUILDING.

SIR A. J. H. RUSSELL.

Preventive medicine includes in its range of activities, 'the whole nature of man, as shaped by his home, his surroundings, his work, his recreation, his struggles and his aspirations'.

"Improvement of environment by the provision of sanitary houses, fresh air, pure water, nourishing food both for humans and cattle".

"It is not enough for the house holder to keep his own restricted environment tidy and clean, if by doing so he creates fresh conditions favourable for the development of ill health in his neighbour or in the community".

MODERN WARS

THE ROLE OF SANITATION

"Experience in the cantonments of 1917 and in the sanitation of active troops convincingly showed that war is today, as much as ever, 75 per cent an engineering and sanitary problem and a little less than 25 per cent a military one. Other things being approximately equal, that army will win which has

the best engineering and sanitary services. The wise general will do what the engineers and sanitary officers let him. The only reason why this is not entirely apparent in wars is because the military minds on both sides are too superb to notice that both armies are simultaneously immobilized by the same diseases".

(Extract from 'Rats, Lice and History', by Zinser).

GARBAGE AND REFUSE

Decomposition of Land-fills.—Rolf Eliassen. Amer. Jour. Pub. Health, 32, 1029-37 (Sep. 1942).—Co-operative studies were made by the Sanitary Engineering Laboratory of New York University, the W.P.A. and the Department of Sanitation of the City of New York at five landfill locations in remote parts of the city. Analyses of the percent distribution by weight of fresh fill material were made by sorting and weighing the contents of many trucks. It was found that the percentage of food particles varied from 43.8 per cent in July to only 3.5 per cent of the total fill material in December. This was caused partly by the decrease in the consumption of fresh vegetables in winter and also by the increased quantity of ashes which varied from 7.8 per cent in July to 80.9 per cent in December. Studies were also made on per cent of oxidizable material in various depths of the fill and at varying times after the fill was placed. Similar analyses were made for the p.p.m. of organic nitrogen, total number of organisms *E. Coli*, and fungi. The latter type predominated in the fill to the extent of 1 billion fungi per gram of dry fill material. Temperature studies indicated that the portions of the fill below 6 feet in depth maintained a temperature of about 70° C., for period of months as anaerobic decomposition proceeded. Then tests were made to determine the effect of moisture content on the rate of land-fill decomposition.

Results indicated that the optimum moisture content of fill material ranged from 40 to 70 per cent. Above and below these values the rate decreased appreciably. The suggestion was advanced that moisture might be added to the fill material as it was being placed in order to accelerate land-fill stabilization.—Rolf Eliassen.

(From P. H. Engng. Abts., Vol. XXIII.)

GARBAGE AND REFUSE.

SHANGHAI EXPERIMENTS WITH SEALING REFUSE

Surveyor, Vol. 90, 1936, 219-20, Bull. of Hygiene, Vol. 12, No. 1, January 1937, p. 51 (Abstracted by H. T. Calvert).

"In an earlier issue the method of covering controlled tips with paper was described and the present paper gives a description of how controlled tips in Shanghai are covered with a special type of plaster. The object of sealing refuse tips is to prevent direct access to the organic matter by insects and vermin, to promote anaerobic fermentation, to prevent fly breeding and to maintain an aesthetic appearance.

"In Great Britain the conventional method of sealing controlled tips is to cover them with a six to nine inch layer of earth. Such cover is not always readily available and in Shanghai cotton mill sweepings containing cotton fibre as mixed with water and clay to form a plaster. The refuse is levelled off and first covered with a three inch layer of earth or ashes. Over this is spread a one inch layer of plaster. On drying the plaster cracks and a second coat is applied. In this way a very effective seal is provided.

"The plaster seal is much more efficient than a paper seal. It is easier of application and produces a stronger surface which does not require frequent repair. The cost of this method of sealing dumps works out at 20 cents (about 3 d.) per 100 sq. ft., as compared with 120 cents (1s. 6d.) for paper covering.

"In Shanghai the average production of refuse is 1,000 tons per day throughout the year rising on occasion to as much as 1,650 tons".

R. E. TARBETT.

(From P. H. Engng. Abts., Vol. XVII.)

FISHES INCRIMINATED AS CHOLERA CARRIERS

Monthly Bulletin, Bureau of Health, Manila, P. I., Vol. 16, No. 8, August 1936, p. 321.

"Otto School and M. Nukata, in 1935, made a study of fishes to determine whether or not, under favourable conditions, they can be incriminated as cholera carriers. The fishes were fed with infected food. Later,

their faeces were examined and showed that cholera vibrios could be detected in their intestines up to the sixth day, which is precisely the period during which the food stays in the body. The vibrio could be isolated in pure state from the stomach, where, as it is known the reaction is alkaline. In one case, the vibrio was isolated up to the tenth day, and in another case, it had been isolated from the gall bladder.

"They conclude that fishes are not only mechanical agents but they are real potential carriers of cholera vibrio".

"The cholera epidemic in Manila in 1925 as well as the epidemic of cholera of 1934 in Bohol, were due to sea-food infection".

R. E. TARBETT

From P. H. Engng. Abts., Vol. XVII.

GARBAGE AND REFUSE

WASTE DISPOSAL AS IT RELATES TO RAT CONTROL

G. C. Oderkirk. Monthly Bulletin, Ind. State Board of Health 45, 140 & 148 (June 1942).

When the waste-disposal system of a town becomes lax or inadequate rat infestation rises until a certain level is reached and then remains at that point until steps are taken to reduce available food and harborage. It has been found in some cities where the rats have ample food and harborage that the per capita loss is more than double the cost of an efficient waste-disposal system. Once a good system of waste disposal has been established, the elimination of rats from properties becomes a relatively simple task.

BERNARD H. JEUP

From P. H. Engng. Abts., Vol. XXII.

WATER SUPPLIES

PROBLEMS OF WATER SUPPLY AND SEWAGE DISPOSAL IN THE SELECTION OF HOUSING SITES

The American City, 56, 67 & 69 (October 1941).

A report from the American Public Health Association Committee on Hygiene of Housing stresses the importance of proper land selection for the development of housing

sites. Land-planning studies should cover flooding, ground-water table, topography and drainage, size and shape of lots, and soil conditions. Failure to consider water supply and sewerage often results in land subdivisions which cannot be properly serviced with those essential utilities.

New York, Wisconsin, and Maryland public health laws require approval of subdivision water and sewage plants. The New York law makes it illegal for a county clerk to register a subdivision plan that has not been approved by the State health department.

The committee suggests the use of the Sanitation Code prepared by the U. S. Public Health Service as a standard for water supplies and sewerage systems.

H. K. GIDLEY.

From *P. H. Engng. Abts.*, Vol. XXII.

WATER SUPPLIES

IMPORTANCE OF SAMPLING AND STUDYING THE WATER IN THE DISTRIBUTION SYSTEM

A. T. Lundberg. *Jour. American Water Works Association*, 32, 649-53 (April 1940).

Discovery of contaminating organisms in a dead-end main of the Arlington County Water Department led to the inauguration of a regular plan for sampling and examining water from the distribution system. Twenty sampling stations were established. Four samples are collected weekly, 8 bi-weekly. A survey was made of sampling practice in 21 public water systems in Virginia. Results are tabulated. Use of uniform bacteriological records for reports to the State health department is advocated.

P. J. COFFEY.

From *P. H. Engng. Abts.*, Vol. XXII.

REGULAR, VIGOROUS EXERCISES HELP YOU

So far as health is concerned, the monotony of the tropical climate is more harmful than the heat and humidity. Where climatic variations are slight from day to day and season to season, the body loses its ability to adapt itself to changes and thus becomes more sensitive to whatever changes do occur. Hence the danger, for example, of "chills"

in the Tropics; bodily resistance to cold has been lost. Moreover, if there is enough variation in the climate, it is possible to withstand extreme conditions for a while, even though they might be dangerous if long-continued. Hot days are bearable if the nights are cool enough for sleep, but a long stretch of hot days and nights can be very exhausting. Some of the summer heat waves in the United States are much worse than any weather that ever occurs in parts of the subtropics, but the heat waves have not been a serious drawback to settlement because they are temporary.

The simplest way to maintain physical tone and make up for the lack of variation in a tropical climate is to take regular, vigorous exercise—in spite of contrary opinion in the past. The worst substitute for climatic stimulation but one commonly resorted to—is overindulgence in alcohol.

(Extract from "Climate and Man" Year book of Agriculture—U.S. Dept. of Agriculture—1941.)

ENVIRONMENTAL SANITATION: DEFINED

The Study Section (Sanitation U.S.P.H. Service) defines environmental sanitation broadly as including not only the older phases of activity, such as water, waste and milk and food sanitation, but also the so-called "newer phases" of sanitation such as atmospheric pollution, housing, air disinfection, and home accidents.

(*A.J.P.H.*—Vol. 36).

DIET:

ITS INFLUENCE RE: PLUPICAL AND MENTAL MAKEUP

Man is literally made from the dust of the earth. For this reason his physiological and mental activities are profoundly influenced by the geological constitution of the country where he lives, by the nature of the animals and plants on which he generally feeds. His structure and his functions depend also on the selection he makes of certain elements among the vegetal and animal foods at his disposal. The chiefs always had a diet quite different from that of their slaves. Those who fought, commanded and conquered used chiefly meats and fermented drinks, whereas the peaceful, the weak, and the submissive

were satisfied with milk, vegetables, fruits and cereals. Our aptitudes and our destiny come, in some measure, from the nature of the chemical substances that construct our tissues. It seems as though human beings, like animals, could be artificially given certain bodily and mental characteristics if subjected from childhood to appropriate diets.

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

EFFECT OF LARGE-SCALE METHODS OF PREPARATION ON VITAMIN CONTENT FOODS:

I. POTATOES

J. AMER. DIETETIC ASSN., V. 22, No. 2.

Determination of ascorbic acid, thiamin, riboflavin and nicotinic acid were made on samples of mashed, steamed, boiled and baked potatoes immediately after cooking, and again after being kept hot for varying periods. The values obtained are compared in tables with those of the peeled and unpeeled raw potatoes, and a statistical analysis is given. The vitamin content of different samples of raw potatoes showed considerable variation: riboflavin and nicotinic acid were found in greater concentration in the outer layer of the potatoes.

Keeping peeled raw potatoes in water in the refrigerator for some 22 hours resulted in very little loss of the vitamins studied. Destruction of ascorbic acid was marked with each of the four methods of preparation, and a further notable destruction occurred during the period when the vegetable was kept hot after cooking. Ascorbic acid was also lost during mashing of steamed potatoes.

Potatoes steamed or baked for one hour showed little loss of thiamin or nicotinic acid: increasing the time of cooking led to significant loss of both vitamins. Boiled potatoes lost a large amount of these two vitamins into the cooking water.

Maximum retention of the vitamins examined has obtained by steaming the potatoes, and next by baking them in their jackets for the shortest possible time. Potatoes should be eaten as soon as possible after cooking.

H. E. HARDING
(*Bulletin of Hygiene*).

THE B VITAMIN CONTENT OF RAW AND COOKED SWEET POTATOES

PEARSON, P. B. & LUECKE, R. W.

Food Research Campaign, III., V. 10, No.

Thiamin was estimated by a modification of the *Phycomyces* method (Hammer, Stewart and Matrone, *Food Research*, 1943, v. 8, 444) and riboflavin, nicotinic acid and pantothenic acid by microbiological methods. Several roots of each of four varieties of sweet potatoes were studied and only in the case of nicotinic acid was there any definite varietal difference. The average values in Mgm. per 100 gm. raw sweet potatoe were thiamin 1.89, riboflavin 0.46, nicotinic acid 5.56, and pantothenic acid 10.95. Boiled sweet potatoes retained almost all the original B vitamin potency, but baked potatoes lost 12 to 25 per cent of the different factors.

When sweet potatoes were sprouted in about 8 inches of clean sand there was a slight loss of thiamin from the tubers, but the content of the other B vitamins remained unchanged. The shoots contained approximately the same amounts of riboflavin, nicotinic acid and pantothenic acid and slightly less thiamin than the original tubers.

A. M. COOPING.

(*Bulletin of Hygiene*).

HORROCKS' WATER TESTING CASE

Sir,

May I support the findings of Mr. A. N. Burgess set forth in your December 1944 issue.

I have carried out extensive investigations into the efficiency of the Horrocks' box and have invariably found that the error in the size of the drop was negligible when the same pipette was correctly used either by one or by many different individuals. I did find, however, that the diameters of different pipettes issued with the boxes varied sufficiently to produce variations in the size of the drops of as much as 20 per cent plus or minus. The Horrocks' test is based upon the principle that one drop delivered by the pipette should bear the same relation to the content of a white cup as the content of a black cup bears to 100 gal. Only if this is

the case does one drop from a black cup when delivered into a white cup correctly indicate the concentration of chlorine contributed to 100 gal. by one scoop of water sterilising powder. It is therefore important that the dropping pipettes and, indeed, all the measures in the box, should be correctly standardised.

I frequently discussed this variation in the pipettes with the late Sir William Horrocks, who was fully alive to it, and I made higher representations to higher authority, but was unsuccessful in bringing about even a reasonable degree of standardisation although it is possible that this may now have been achieved. It would be unfortunate if the Horrocks' test were to be discredited for reasons which can so easily be remedied. Generally speaking my experiences with the box in other respects indicated variations much less marked than those recorded by Bhaskaran *et. al.* Nevertheless my inability to bring about any high degree of standardisation was one of the many reasons which induced me to devise and to advocate super-chlorination, controlled by the Horrocks' test and followed by dechlorination, for use by the Army. Errors of the magnitude which may occur in the test are unimportant when using super-chlorination and this process was subsequently officially approved for use by units in the field. It has the additional advantage of sterilising the water more rapidly than simple chlorination and in a fraction of the time required by chloramine. It also provides water entirely free from chlorinous tastes which are so objected to by the troops. There is no reason whatever why these tastes should be added to the many necessary hardships endured by our troops.

E. F. W. MACKENZIE

Director of Water Examination, Water Examination Department, Metropolitan Water Board.

(Extract from "Water and Water Engineering", Vol. 48, No. 586).

THE HUMAN PROBLEM OF URBAN DISPERSAL

On the basis of their past behaviour in an ill-planned and depersonalised environment, you cannot judge what people are capable of becoming, in a relatively short time, when

more social opportunities and incentives are present. People do not of course grow wings under such conditions: no fear of that. But most men and women tend to become a little more genial, a little more neighbourly, a little more openly human. Multiply such small changes and you will transform the whole texture of our civilisation.

By Lewis Mumford—(The American City).

SCIENCE FORTIFIES INTELLIGENCE

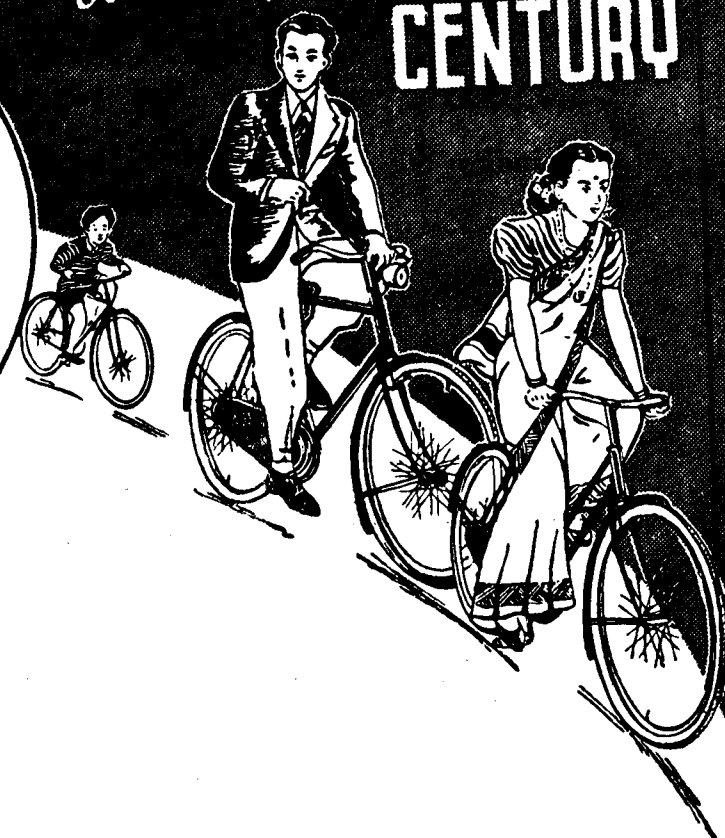
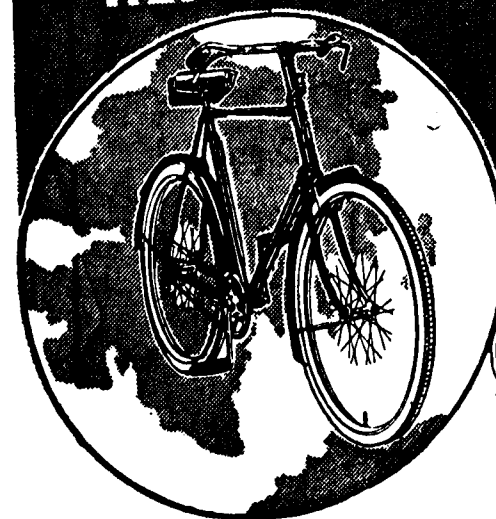
Intelligence alone is not capable of engendering science. But it is an indispensable factor in its creation. Science in its turn, fortifies intelligence. It has brought to humanity a new intellectual attitude, the certainty given by observation, experimentation and logical reasoning. Certainty derived from science is very different from that derived from faith. The latter is more profound. It cannot be shaken by arguments. It resembles the certainty given by clairvoyance. But, strange to say, it is not completely foreign to science. Obviously great discoveries are not the product of intelligence alone. Men of genius, in addition to their powers of observation and comprehension, possess other qualities, such as intuition and creative imagination. Through intuition they learn things ignored by other men, they perceive relations between seemingly isolated phenomena. They unconsciously feel the presence of the unknown treasure. All great men are endowed with intuition. They know without analysis, without reasoning, what is important for them to know. A true leader of men does not need psychological tests, or reference cards, when choosing his subordinates. A good judge without going into the details of legal arguments, and even according to Cardozo, starting from erroneous premises, is capable of rendering a just sentence. A great scientist instinctively takes the path leading to a discovery. This phenomenon in former times was called inspiration.

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

"Sanitarian" means a person trained in the field of Sanitary Science and Technology who is qualified to carry out educational and inspectorial duties and enforce the law in the field of sanitation.

REPUTATION

over a quarter of a
CENTURY



ROYAL CYCLE & MOTOR Co.
13/14, BROADWAY, MADRAS.....
AND
THE PIONEER CYCLE HOUSE.
WEST TOWER STREET, MADURA.....

COTTON YARNS

5,00,000
Spindles

Put to the Highest Test of
Strength and reliability

Madura Mills yarns have
proved the best by their
outstanding Quality

Counts
upto 80s

MADURA MILLS COMPANY LTD.

MILLS AT

MADURA, TUTICORIN & AMBASAMUDRAM

We supply Grey Yarns of all descriptions for Weaving
and Hosiery Factories. We do no Weaving ourselves.

Our Specialities :

SINGLE YARNS — DOUBLE YARNS — CHEESE YARNS — WARP YARNS
CONE YARNS — CORD YARNS — COMBED YARNS Etc.

"As at present, yarn distribution is controlled. Application for yarn
requirements should be addressed to Textile Control Authorities of
your Province or State."

Managers :

A. & F. HARVEY LTD.

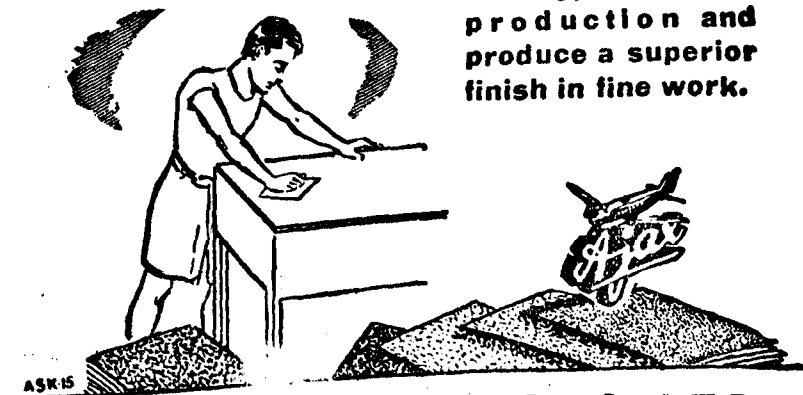
MADURA

AJAX ABRASIVES

- FLINT (Sand)
- GARNET
- EMERY
- SILCARB
- AJAXITE
- PAPERS, CLOTH
- DISC, ROLLS,
- BELTS, ETC.



AJAX quality coat-
ed Abrasives are
used by all branch-
es of Engineering
for metal, leather
and wood work.
AJAX Abrasives
cut quickly and
cleanly, speed up
production and
produce a superior
finish in fine work.



AJAX PRODUCTS LTD.

106, ARMENIAN STREET, MADRAS

Managing Agents: MURUGAPPA & SONS, MADRAS.
Sole selling Agents for South India:
P.O. No. 141, MARSHALL SONS & CO. (INDIA) LTD., Madras.

YOUR PEACE
GUARANTEED



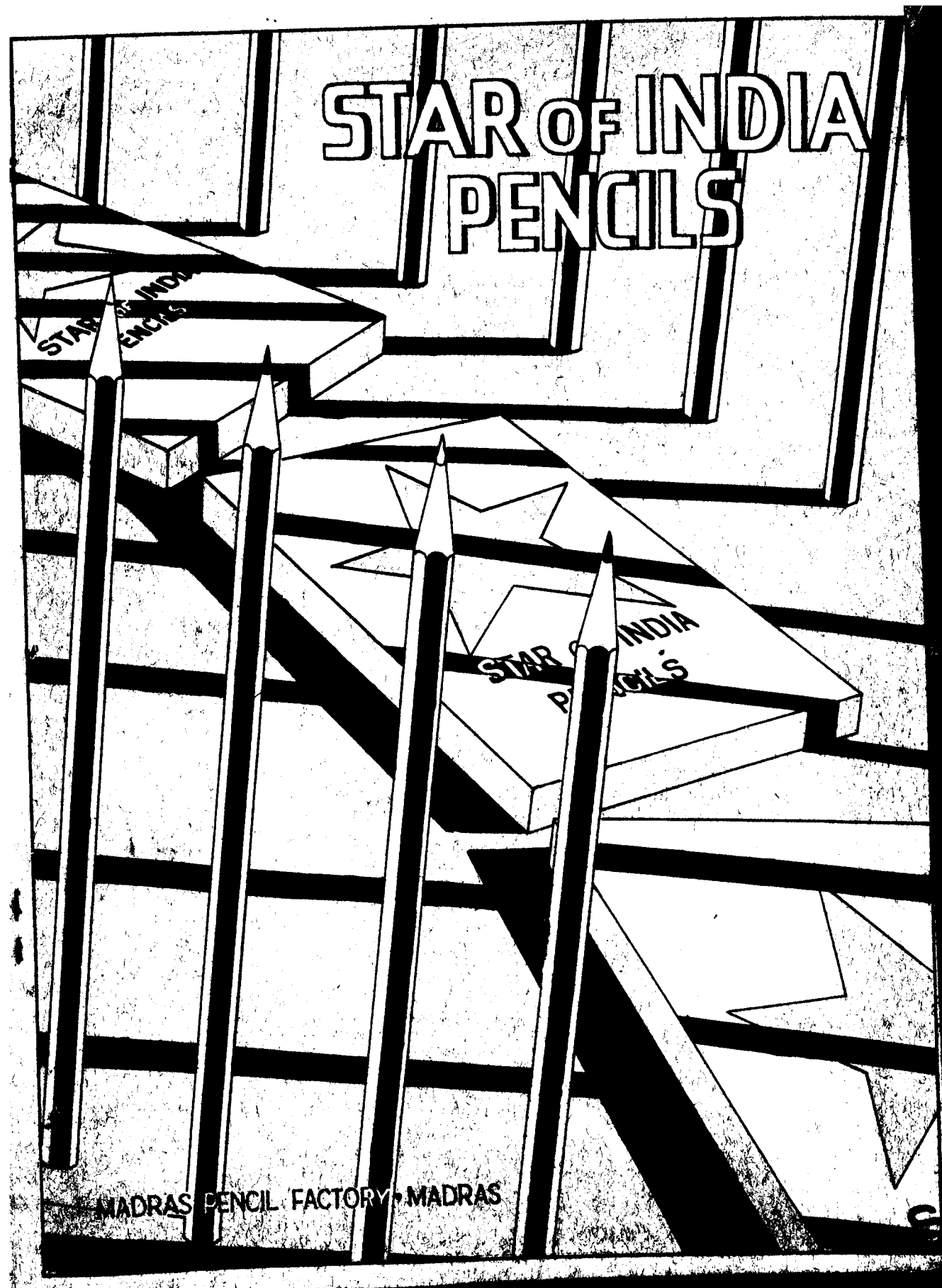
Invest this Easy Way

NATIONAL SAVINGS CERTIFICATES

They are absolutely safe, both interest and capital are guaranteed by Government. Their value increases by 50% in 12 years. Every Re. 1/- thus becomes Rs. 1/8/-, the highest interest on any Government Security. No Income Tax is payable on interest earned. Small Savers can buy Saving Stamps for Re. 1/-, As. 8/- or As. 4/-.

Both Certificates and Stamps are obtainable from Post Offices, Authorised Agents or Savings Bureaux.

STAR OF INDIA PENCILS



MADRAS PENCIL FACTORY • MADRAS

[illegible]