

~~Feb.~~

People's Health

Feb 1947



1005

SL
L:Sm2,N46
N47.1.5

160780

96
PEOPLE'S HEALTH

THE PRITHVI INSURANCE COMPANY, LIMITED,

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.



A General View of the Tower of Victory.

Here is a chance for *You* to spend your holidays with profit to *Your* physical and mental health.

Visit Ghittorgarh and pay your homage to the memory of the Great Queen Padmani who flung herself into a burning fire to save her honour.

Then visit Udaipur the city on which Nature has showered all her beauty. Feast your eyes. Here you have the lovely lakes in their natural setting among beautiful hills. And the glorious sunset is also there.

Remember that a stay at Udaipur means an additional lease of healthy life for *You*.

For particulars apply to:

**THE TRAFFIC SUPERINTENDENT,
Mewar State Railway, Udaipur.**

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 EXCEED 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.

MODERN
PRINTING

for 1947 through

HOE & CO

THE PREMIER PRESS
STRINGER'S STREET, MADRAS

We have great pleasure to announce that **MR. F. H. RAULEDER** has joined **HOE & CO.**, the Premier Press, Madras. With many years of active and practical experience in up-to-date planning, designing and handling of printing he can serve you in all your printing and create the best sales force.

HOE & CO., with over 60 years in service can justly claim to be real experts in all lines of printing in India. In the new year with new ideas, new machinery, a copy and layout department - **ALL UNDER ONE ROOF**; we are able to offer you the finest and most attractive quality printing.

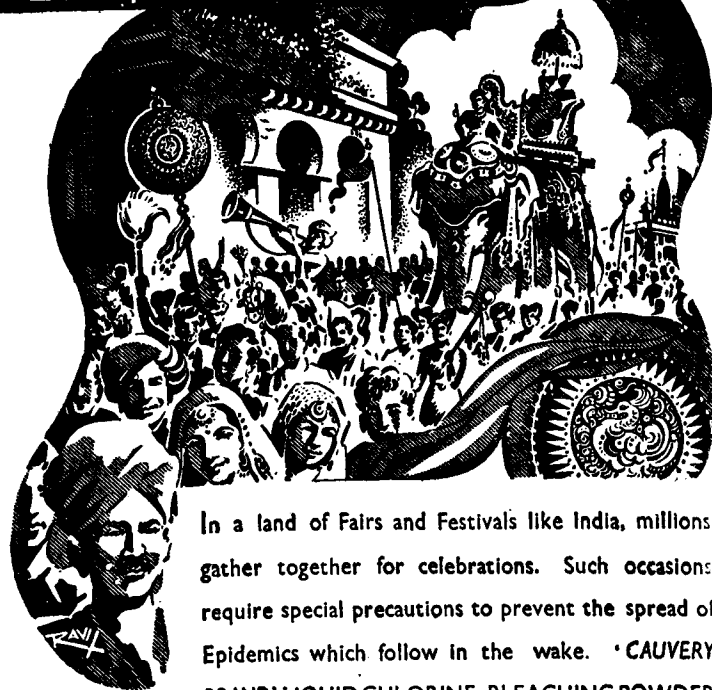
We will design and plan all your printing requirements from the smallest introduction card upto the biggest colour poster.

It is time to get in touch with us and leave your advertising and all printing problems to our expert who will do the rest.

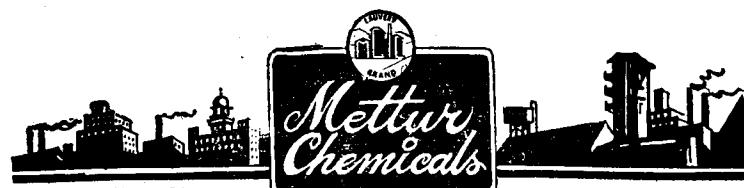
OUR BEST WISHES FOR 1947

PEOPLE'S HEALTH.

FESTIVALS EPIDEMICS



In a land of Fairs and Festivals like India, millions gather together for celebrations. Such occasions require special precautions to prevent the spread of Epidemics which follow in the wake. 'CAUVERY BRAND' LIQUID CHLORINE, BLEACHING POWDER manufactured by THE M. C. I. C. Ltd. have always played an important role in the fight against Epidemics and to preserve the health of the Nation.



ISSUED BY:
THE METTUR CHEMICAL & INDUSTRIAL CORPORATION LTD. ★ Managing Agents:
METTUR DAM South India SESHASAYEE BROTHERS LTD.
TRICHINOPOLY

Sole Selling Agents
THE ALLIED INDUSTRIAL DISTRIBUTORS,
H. O.: 120 Armenian Street, MADRAS 1

Branches at: BEZWADA, COIMBATORE, CALICUT, HYDERABAD, SALEM, TRICHY & TRIVANDRUM

Bull's eye
or Humbug..



Take your choice. Or try any of our other varieties. Sovereign sweets are guaranteed pure—your own palate will prove that they are delicious.



PEOPLE'S HEALTH
A Pioneer in the Field of Public Health

Vol. I FEBRUARY No. 5

CONTENTS

	PAGE
Editorial—	.. 227
The Elements of Industrial Well-being—By Sir Wilfrid Garrett	.. 231
Vaccination Against Smallpox—By Dr. K. V. Venkatraman	.. 234
The Health of the State is the State of Your Health—By Mr. Purtej Singh	.. 238
The Problem of Malnutrition—By Dr. A. S. Sundara Ramayya	.. 241
The Way to People's Health—By Dr. C. Ramamurthi	.. 245
A Design for an Economic Kitchen Range—By Mr. C. S. Ramu	.. 249
Life in a Village—By T. S. Radhakrishna Aiyar	.. 251
Health Workers!—By 'One of You'	.. 253
Readers' Forum	.. 260
Law and People's Health	.. 264
Book Shelf	.. 269
What Do They Say About It?	.. 274

In Every Branch of Indian Industry



Ajax quality coated abrasives are in demand in all industries where quality counts. Wood, metal and leather Industries use Ajax abrasives extensively.

Flint (Sand), Garnet, Emery, Silcarb, Ajaxite Paper, Cloth, Discs, Rolls, Bells, Tapes, etc., etc.

AJAX PRODUCTS, LTD.,
106, Armenian Street, Madras

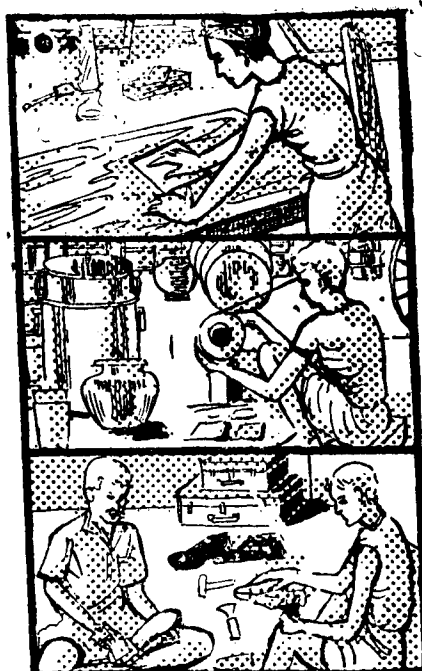
Managing Agents :

MURUGAPPA & SONS, MADRAS.

SOLE SELLING AGENTS FOR S. INDIA.

M/s. MARSHALL SONS & CO. (INDIA), LTD., MADRAS.

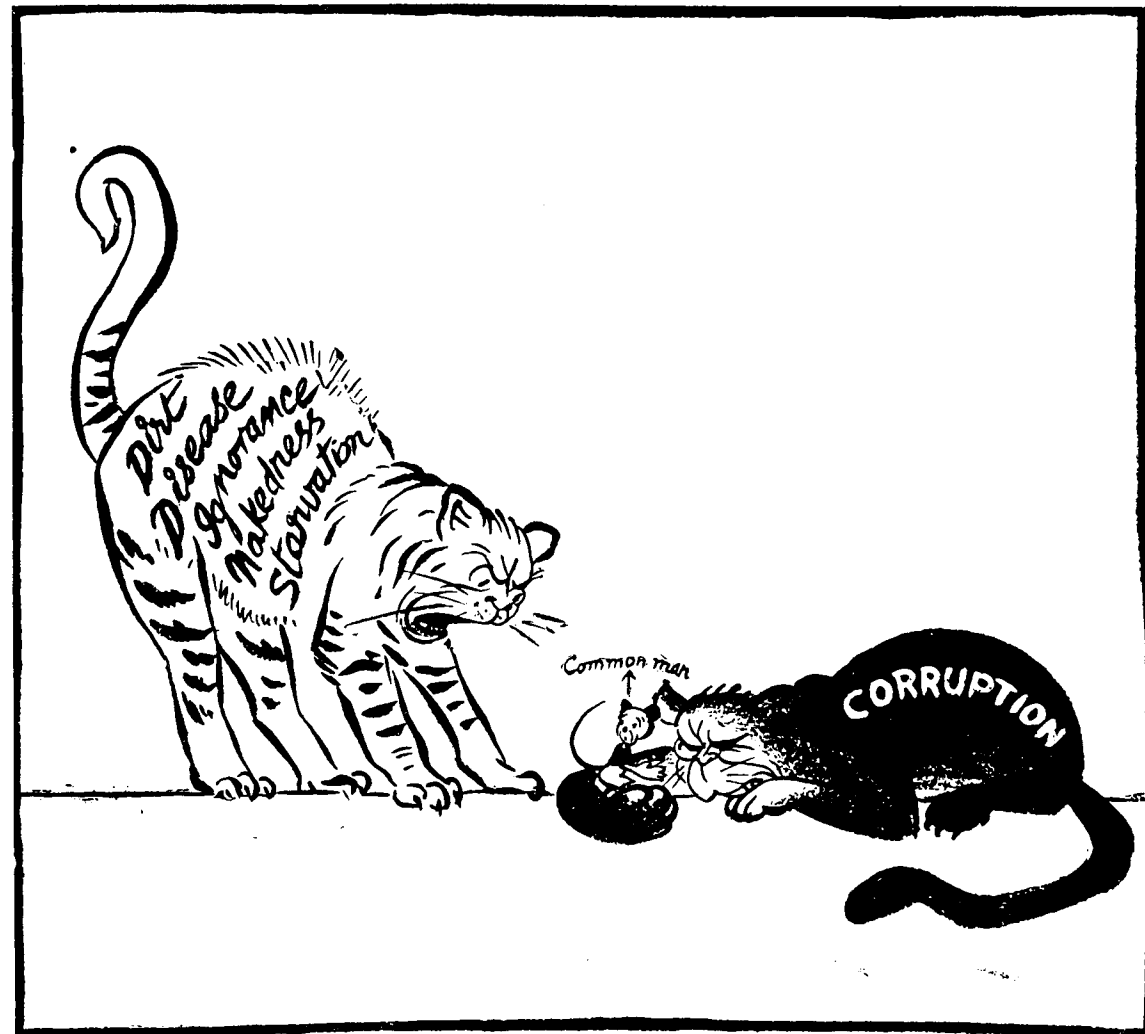
P. O. Box No. 141



READERS OF "PEOPLE'S HEALTH".

Without the active assistance of the readers, this pioneer in the field of Public Health, cannot achieve its aims and objects. Have you offered **your** suggestions to make the magazine a power for social good? Remember that the health of the people is above political, communal, linguistic, religious, territorial and other such consideration.

Please check up whether the back numbers of the magazine are with you. They should be bound together at the end of the current volume. So soon requisitions for back numbers are coming in!



MICKEY MOUSE SEEKS PROTECTION!

(After Low's under this caption.)

PEOPLE'S HEALTH

A Pioneer in the Field of Public Health

VOL. I
No. 5

FEBRUARY, 1947

ISSUED
MONTHLY

'A healthy nation tends to be happy, and a happy nation tends to be healthy.'
Lord Horder.

EDITORIAL

A CURE FOR CORRUPTION!

*"Most base is he who 'neath the shade
Of Freedom's ensign plies Corruption's
trade."—T. Moore.*

That there is corruption, corruption everywhere, all the world over, does not make corruption at home any the less deplorable. It matters not whether you are in the company of a select circle of friends in the secluded corner of a fashionable club, or whether you travel in buses or trams, or whether you trudge along the pavements—the talk of corruption rings in your ears. The rich who glide along in modern luxury motor cars talk of corruption. Even a humble housemaid complains of the bribe she had to give before she could secure her meagre ration! Our medical men who shed tears over the misery of the sick would not admit a common man without money or influence in hospitals which are maintained at public expense. These so-called public institutions which are supposed to cater to the needs of the poor, are looked upon by the men in charge of them as if they were their private nursing homes! Engineering

and corruption are reputed to go hand in hand. Indeed, corruption is said to be the handmaid of Engineers. Where are we drifting to? God knows where! 'Rich honesty dwells like a miser, sir, in a poor house; as your pearl in your foul oyster.'

If the sufferings of the sick are to be relieved, our medical men should develop a spirit of social service in keeping with their 'noble calling.' But will they? If environmental diseases are to be eliminated, the environment in which people live should first be improved. Inoculation, vaccination, segregation and the other weapons which are available in the armoury of our public health medical workers *cannot bring about lasting results*. The services of specially trained engineers are required to improve our living conditions. These engineers should be impelled by a genuine spirit of service to society. Will our engineers shake off their old traditions and realise their responsibilities to society?

Mr. H. J. Mulleneux, Chairman, Institution of Engineers, India, explained recently at Bombay, the reasons for the allegations of bribery and corrup-

tion levelled against Engineers. He said one of the psychological reasons for such "moral depravity" as may exist among Engineers was the failure to give due recognition to talent and merit. The only cure for the malady he said, was "*the shifting of the centre of social values from money to character and talent.*" It is just these qualities which are held at a great discount today, if not viewed with utter contempt! How can corruption be rooted out from our midst in the conditions which we see around us? But unless this essential task is achieved, until the canker of corruption is exterminated wherever it is found, whether in all its nakedness or insidiously active in dark corners, the common man has alas to bear the brunt of it all. How long can he be expected to bear the burden? Perhaps, the fates have decreed that the rot should progress further and further before the suppressed, suffocating fumes of fermentation burst forth!

In the myopia of corruption, the corrupt mind refuses to realise the fundamental truth '*Corruption wins not more than honesty.*'

WHAT DOES THIS SILENCE MEAN?

In our issue of December, 1946, (pp. 115-116), we welcomed the initiative of the Madras Minister of Health and the unanimous decision of the Conference of Health Ministers, which struck an obituary note on the civil side of that sheltered service, the I. M. S. The decision came none too soon. We felt rightly that our welcome to the resolution was equally timely. For, soon after came a surprisingly pleasant announcement that the Secretary of State has decided to take effective steps to transfer his control over the

I.C.S. and the Indian Police to the Indian Government. Compared with I.M.S. these two services were raised to such dizzy heights of superiority that they came to regard themselves as "untouchables" by the people's administration of the country. Even this untouchability is shortly to be removed at one stroke. Events move at such a fast pace that the Under-Secretary of State for India flew to Delhi to finalise the details of 'surrender.' This was just the opportunity to settle the I.M.S. question also in a similar summary way. Unlike the 'lofty services' the total extinction of the I.M.S. was not demanded. All that was asked for was only that they should be made to do what they are meant for. The service is a purely Military one. It was never intended to become surreptitiously civilian. And yet it has secured by fair means or otherwise such a strangle-hold on the civilian Medical Service that nothing short of its wholesale eradication will save our countrymen. That the popular ministries realised this is creditable; that they boldly and unanimously moved in the matter is commendable; that they should have lost a good opportunity to settle it with the Under-Secretary of State for India when he was here on the spot is lamentable. Why should there be any delay or hesitation to settle this vexed question we cannot comprehend. The War Department went to all imaginable and unimaginable lengths to coax our medical men into temporary commissions. Despite the demobilisation after the War, there are still many temporary commissioned medical officers catering to the needs of the Army. Instead of sending them back to settle down in civilian life in their homes in the country, many European I.M.S. officers were hastily released from Military duties last year and quickly thrust

into all available civilian jobs which during the period of the War was creditably filled by our own countrymen. We are tempted to ask whether this is the much boasted 'British Justice,' whether the powers that be could discover any lurking conscience to justify this large scale fraud on the public. Will our Ministers take a firm stand and see that their unanimous resolution in this behalf is implemented forthwith? The days of passing pious resolutions by the impotent public are all gone. Now the people are in a position to demand wrongs being righted through their popular representatives. Unless the Ministers take immediate and effective steps in the matter, they stand to lose the confidence of the public.

TRUST NOT HIM THAT HATH ONCE BROKEN FAITH.

The Madras City Improvement Trust is reported to have held its second meeting, again, *in camera*. But somehow the purport of the proceedings gets published in the press. The Trust is a *statutory body*. Why should it hold its meeting behind barred doors? Surely, the Trust is not plotting against the public! The press should not be forced to depend upon some member or members committing a breach of trust for getting notes of its proceedings. The Trust as a statutory body should normally admit the press to its meetings. It is of course open to it, should necessity arise occasionally, to exclude the press for the time being to give freedom of discussion on subjects of a confidential nature.

It is obvious that some member or members should have committed a breach of trust. How then did a purport of the proceedings appear in the press? How can the Trust be trusted to transact public business,

should it consist of members who are *prima facie* guilty of such gross misbehaviour? "Trust that man in nothing who has not a conscience in everything" says Sterne. The Trust should now introspect at its next meeting and exclude from it the person or persons who are responsible for such dishonest conduct. If the Trust finds that the guilty person is an official of the State, it should not hesitate to report him to Government. If he is a non-official, steps should be taken to remove him altogether from the Trust. No legal quibblings should be allowed to stand in the way. While on the subject we should caution the Trust that special vigilance should be exercised to avoid any member of the Trust exploiting the information which may be available to him for selfish ends. Exploitation seems to be nowadays the sole motive power of public service.

We seem to live in an atmosphere surcharged with corruption. The evil appears to have permeated everywhere. Our Ministers have powers to constitute Committees to examine any subject. This power should be exercised by the Ministry to help the administration in the solution of large questions of policy. It is to enable the State to secure a dispassionate examination of specific problems. It is intended to get the benefit of the best talent which can usefully assist the Ministry and the people alike. Our Ministers will be doing the proper thing if they use this power in the right way. The men who are invited to sit in such Committees should be chosen with utmost care. They should be men of integrity and talent, men with established reputation for competency and character, men imbued with lofty ideals of service, men with transparent honesty and

sincere motives. If the Ministers' right to form Committees and appoint persons to them is misused or rather abused to boost up the wrong men, men without talent, men without character, men devoid of merit or standing, then it is prostitution of a sacred trust and privilege. It would then be a fraud played on the public by power-blind forces. No one with an unknown or doubtful past, none whose personal and professional worthiness is open to question should ever be sponsored by the Ministries into such Committees. If, however, a Minister stoops to do such a thing, he lets himself to be judged by the standard of his proteges. Anyone who hugs pitch paints himself black. Our Ministers should never let themselves be blackened even to the slightest extent by misuse of their powers and privileges.

HOMES FOR THE PEOPLE.

Shortage of houses for the people stares at the States all the world over. The administrations are staggered at the magnitude and the complexity of the problem. The mighty government of Churchill came to grief by mishandling the situation. The very best brains of the world are now engaged in finding a satisfactory solution for the problem. Here in India, we have not set about the solution in anything like a systematic way. Indeed we do not seem to have assessed the magnitude of the subject. We have not decided as to what should be the absolute minimum requirements of a dwelling to satisfy the elementary requirements of health and sanitation. All other countries have come to a decision on this

fundamental point. We do not even seem to know this fact. The other day when the Madras Legislative Council discussed a resolution recommending the constitution of a committee to examine the housing problem, a Minister attempted to cut short the debate in a manner worthy of a foreign bureaucrat. Another Minister with an air of superiority announced that the "government" was sympathetically considering the question of a grant and loan for a housing scheme undertaken by the Madras Corporation and a five lakh scheme for providing 4,000 plinths. These plinths are intended to provide for housing the poor! What an exhibition of a slum mentality in our administration! How can the provision of plinths meet the minimum requirements of a house for human habitation? Why waste public funds in rearing kennels? A member rightly retorted that these plinths would become plague spots like slums. Common sense should dictate that people's money should not be frittered away in this manner.

The problem is a big one and big brains should tackle it. We hope that the ministry would deal with the business in the right way. We shall not on this occasion dilate on the question. Let us conclude with the words of Aneurin Bevan:—

"In the face of so enormous a problem there is a temptation to cut standards, to reduce size, to eliminate planning and design—anything for speed—but this would be a crime for which we, our children and our grandchildren would pay for fifty years to come; it is a crime we must not commit."

THE ELEMENTS OF INDUSTRIAL WELL-BEING

BY

SIR WILFRID GARRETT, *Chief Adviser, Factories, Government of India.*

It is an engrossing experience to be able to study on the spot the troubles of a nation where industry has expanded during the war years and is likely to expand much more rapidly in the future and to compare them with those revealed in the history of a Western nation at the time when it was going through similar experiences. This I am able to do from the fact that I have spent forty years of my life as a Factory Inspector in the United Kingdom in close contact with conditions and developments in all types of factories and now have been honoured by the great opportunity to come to India to advise on matters concerned with Factory Inspection.

The first point that strikes one is how alike we all are in the essentials of human nature. I hear here the same excuses for the use of a dangerous machine or for the continuance of bad conditions as I have listened to for forty years in England. I see the same oppression of the weak by the strong particularly where women and children are concerned and where Trade Unionism is weak or inoperative; I see the same neglect of first principles that has occurred in other countries concerning elementary matters without which a sound and efficient industrial structure cannot be built. I see the State taking action as it was bound to do in the West, and I see the necessity of this State action, perhaps alone, until such time as the public opinion of the country is awake to the defects. I see how easy it is for all of us to make the same mistakes in spite of the warnings of history.

In this article I wish to deal with the two elementary matters of Food and Shelter only.



It is a serious matter when a nation, with or without thought, brings its countrybred people for the purposes of work from the villages into centres that quickly develop into large towns without proper provision in the way of housing, drinking water and proper methods for the disposal of sewage. In the United Kingdom this was done without thought at the end of Eighteenth Century and we have suffered ever since in that conglomeration of slums that goes to make up such a large part of our industrial towns, a mistake which three generations of active legislation and massive sanitary engineering has not fully eradicated.

It is so easy for India to make the same mistake; a factory with the best intentions is put down well outside a large town and draws its labour from neighbouring villages. First one and then another gets tired of the journey to work and puts up temporary huts of few pieces of galvanized iron near the Works, and before the danger is realised there is a centre with a popu-

lation too great to be able to get rid of its filth or to draw its drinking water from the neighbourhood as the same population is able to do when scattered over a wide area in villages. By this I do not mean that these amenities are not needed in the villages, they often are sadly needed, all I do mean is that scattered population can deal with these matters without that great risk of those diseases that are the results of insanitation and impure water that is inevitable in congested areas.

A first necessity then for a nation that intends to become industrialised is to see that decent provision is made for the housing of the workers that may be brought together in large masses to work in its factories and to see that these houses are provided with the proper amenities for cleanliness and health. How these houses are to be built or who is to build them is not for me to say. I only say that a sound industrial system cannot exist without them. The requirements have been considered and the details worked out in such reports as that of the Royal Commission on Labour in India, the Health Survey and Development Committee known as the BHOORE Report and in the report of the Industrial Housing Sub-Committee of the Standing Labour Committee, and perhaps my only excuse for referring to the matter is that I feel that the contents of these reports and of others, as well as knowledge of the actual conditions of some of the present houses, are not known to those who make up that collected opinion of India that must be available to help the State in dealing with these matters.

There is much to be done, first in putting right the centres of population that are still without these amenities and secondly in giving thought to real planning to avoid the mistakes that

have been made here and in other countries in the new centres that may come into being. India has this advantage that still ninety per cent. of its population live away from large centres of population while eighty per cent. of the population of the United Kingdom live in towns, but it is also well to remember that, because of the immense total population of India, this does not mean a very great divergence in actual numbers in the two countries. The United Kingdom also suffered, in this respect, from the fact that it was first in the Industrial Revolution when, under the doctrine of *laissez-faire* not only was no attempt made to plan the towns but it was actually thought wrong for any government to interfere in such matters. As a consequence the factories took the best sites and houses were crowded round them just as the jerry builder pleased to erect them and without thought of planning on amenities by any one. India can avoid this by planning now.

It is an equally elementary fact that no workman can produce good and efficient work without food of sufficient quantity and of the right kind. This is such an immense question throughout India that it is engaging the attention of the best brains in the country, I have only to point out here the fact that other nations also ignored this fact. Western industrial nations, at the time of the Industrial Revolution were so enamoured by the machines they were inventing that they almost turned them into gods. They gave to these machines all the oil, cleaning and repair that was necessary for efficient work, but few gave any thought to the fact that even greater attention was necessary (even from the lowest motive of obtaining efficiency), to be given to that most delicate, most complicated and most precious—the human machine,

On the question of the actual provision of food, though it had been solved to some degree by the gradual rise in wages, it is remarkable that it was only in the war years that the necessity of making real provision of food available for workers was realised. In fact the war brought us back to the realisation of the two elementary facts dealt with in this article. Many hostels had to be built for the housing of the workers transferred to work in large munition factories and a deliberate plan was set on foot and given legal sanction to set up canteens in every factory employing more than two hundred and fifty persons. As result, canteens supplying a hot cooked mid-day meal as well as snacks and tea in the breaks were set up in ninety eight per cent. of the factories where they were required by law and so successful were the results that this led to the voluntary initiation of canteens in about six thousand other factories employing less than the legal number. With the canteens set

up in docks and building sites there were in use in the last year of the war about 12,000 canteens on places under the jurisdiction of the Factory Department, besides those on mines and railways and in addition to the provision made for isolated workers through British Restaurants. The object of the provision of all these canteens was to ensure that those engaged in manual labour should have an opportunity of getting extra food in addition to the meagre ration that they were entitled to as citizens, but there was also the sound principle behind it that good manual work cannot be done without good food. These facts are given to show what can be done under the urge of war and of legal pressure, because it is doubtful if more than 1,500 canteens were in use in factories before the outbreak of the last war in spite of the testimony as to their value of the good employers who supplied them. (By special permission of the Author and Labour Bureau, Government of India.).

GOOD HEALTH AND LONGER LIFE

Insufficient supply of protective foods in the diet may not cause definite ailments but the consumers of such badly balanced diets just manage to exist on the borderland of health. Such persons may not be actually ill but never enjoy the advantage of first class physique and stamina. Numerous feeding experiments have conclusively proved that if protective foods are included in generous amounts in the diet, the consumers become less prone to diseases or other bodily infirmities. Countries with *per capita* consumption of protective foods on a high level report lowered disease incidence, fewer infant deaths and reduced general mortality rate; also the people therein enjoy a longer span of life.

IGNORANCE OF HEALTHY FOOD HABITS

In India *per capita* consumption of protective foods is very small. One could argue that protective foods are costly and that our country does not produce enough of them. But records of dietary surveys show clearly enough that there are other equally powerful reasons which militate against inclusion of protective foods in adequate amounts in the daily diet. One of them is the ignorance of healthy food habits. Otherwise, why is not the food eaten by upper middle class and rich families duly balanced? It has often been noticed during family enquiries that a rise in income has not always been followed by a proportionate increase in the consumption of milk, flesh foods or vegetables, on the other hand more of fats and oils have been consumed. The *chapathi* has been replaced by *Puri* fried in *ghee*, rice by *Pulao* and extra cooking fat has been used in the preparation of pulse gruel and vegetable surry.

VACCINATION AGAINST SMALLPOX

BY

DR. K. V. VENKATRAMAN, M.D.,

(Assistant Director, King Institute, Guindy, Madras.)

Over a hundred and fifty years ago, on the 14th of May, 1796, Edward Jenner inoculated young James Phipps with the material taken from a small lesion on the hand of Sarah Nelmes, a dairy maid who had become casually infected with cowpox while milking her master's cows. This was not a mere routine of a busy physician's office, nor had Jenner embarked on this lightly. Twenty years of careful observation and searching inquiries and the application of a logical and accurate mind were back of it. It was the beginning of the campaign for "extirpating from the earth a disease which is every hour devouring its victims—a disease that had ever been considered the severest scourge of the human race." It was the first effective step in the great fight against smallpox.

Many attempts had previously been made to deprive smallpox of its terrors. Smallpox was looked upon as inevitable and it was reasoned that as long as one must have the disease, it was better to have it in full health and at a propitious time than to await its natural coming. The knowledge that people who had been fortunate to escape with life after an attack of the disease were seldom afflicted a second time was the basis of the practice of smallpox inoculation, which had obtained in India and China, probably from very ancient times. Some of these practitioners of the East had, in time, acquired great skill in the procedure and very often succeeded in communicating to their subjects a mild form of the disease which, anticipated and controlled, was preferable to a fortuitous and virulent



attack. The method was introduced into England and other European countries early in the 18th century and soon gained great vogue. It has to be emphasised that the introduced disease was true smallpox, which sometimes ran a typical and fatal course, and was always attended with the danger of the spread of infection in the community. Thus while the individual purchased immunity against virulent natural infection of smallpox at some risk to himself, he exposed the community in which he lived to a much greater danger of an outbreak of severe smallpox. This could never be the way to rid the world of smallpox.

It was known in the country districts in which Jenner practised that milkmen frequently had pustular eruptions on their hands contracted from cows having similar eruptions on their udder and the belief was widespread among them that such individuals would escape smallpox even when directly exposed

to it. Jenner conceived the idea that it might be possible, by artificially transferring the infection from cow to man to establish the same protection which seemed to follow the accidental infection; this protection was to be extended to the community by transmitting the protective infection from man to man in uninterrupted series. There is evidence that Jenner was not the first one to try cowpox vaccination, but he was the first to realise the enormous significance of the fact and to arouse the world to take an interest in the subject; by his enthusiasm and persistence he established the practice of vaccination.

There was much opposition at first; perhaps Jenner's jealous and aggressive behaviour irritated many; the crusading spirit of Jenner and his friends which was intolerant of all but unreserved acceptance of Jenner's contentions was no doubt responsible for much of the early opposition. The factor of personality entered to provoke hostility to vaccination; misconceptions and ignorance of the nature of cowpox, and deliberate dishonesty on the part of some of his opponents no doubt delayed the general acceptance of the procedure. It is unnecessary here to traverse the entire ground of the controversy regarding vaccination. *The experience of a 150 years of the practice in most countries of the world has definitely established that vaccination and revaccination, effectively performed is the most efficacious means of affording immunity from smallpox.* That smallpox has decreased from one of the most dreaded and widespread of diseases to one of comparative rarity in the Western countries since the introduction of vaccination should be evident to the most casual investigator.

It cannot be denied that the Jennerian method of transfer of the protective

infection from man to man in series or the early use of animal vaccine was not without their faults. The source and quality of the vaccine were far from satisfactory and the operation itself was frequently crudely performed. But great improvements have since been effected in the processes of preparing vaccine and methods of vaccination. It has also to be admitted that the protection afforded an individual by vaccination against a subsequent attack of smallpox does not always last throughout his lifetime; but the resistance which tends to diminish with the lapse of years *can be successfully reinforced by revaccination performed at suitable intervals.* By a strict enforcement of universal infantile vaccination and revaccinations at school age and again in early adult life smallpox has been almost entirely banished in several of the European Countries and in many of the States of U.S.A. Occasional introduction of infection from outside, particularly in the neighbourhood of the major ports, sometimes results in a few small outbreaks, but these remain localised and seldom assume the proportions of a major public health problem; indeed such localised outbreaks serve a useful purpose in breaking down any complacency which may have been allowed to develop in the matter of enforcement of vaccination.

But here in India, smallpox is still one of the three major epidemic diseases and the average annual mortality for British India alone runs up to 70,000. Indeed, India has the unenviable notoriety of reporting the highest incidence of smallpox among the countries for which statistics are published in the annual epidemiological report of the League of Nations. The following table taken from the report of the Health Survey and Development Com-

mittee gives the average annual number of deaths from smallpox in British India excluding Burma during 1902-41:

Period.	Average Annual mortality.
1902 - 1906 ..	84,914
1907 - 1911 ..	94,534
1912 - 1916 ..	79,214
1917 - 1921 ..	84,828
1922 - 1926 ..	66,075
1927 - 1931 ..	77,902
1932 - 1936 ..	83,959
1937 - 1941 ..	54,989

The toll of death is still appalling, though there has been a fall in the death rate during this period. Seventy thousand unnecessary deaths and the still larger amount of suffering! What then, must we do about it?

The experience of other countries which have succeeded in stamping out the disease to a large extent has been that the usual methods of control of some of the other diseases, like sanitation, notification and isolation of cases, quarantine and surveillance of contacts have only been of limited application in the case of smallpox. They are useful aids but reliance has to be placed largely on vaccination as a simple and sure means of protection of the community against this scourge. This arises from the nature of the disease, which has a high transmissibility even before the attack in the individual can be recognised and throughout its course and well into convalescence. Adequate vaccination of all individuals in the community raises the resistance to the disease and prevents its spread.

Vaccination was the first preventive health measure which was introduced in India and practised on a large scale but not on a large enough scale; certainly not on an effective scale. It is known that cowpox vaccine was intro-

duced into Bombay as early as 1802 and arm-to-arm vaccination extended to the other provinces and continued in large parts of the country. Calf vaccine virus later superseded the older method and vaccination departments have been in existence for over 75 years. Yet vaccination remains on a voluntary basis in considerable areas. Primary vaccination is compulsory only in about 81 per cent. of the towns of India and 62 per cent. of the rural circles, and it is only in the Madras Province that revaccination also has been made compulsory. It is essential that primary vaccination should be made compulsory throughout the country without delay. It is a fundamental biological characteristic of the virus of these epidemic diseases that in their rapid successive passages through susceptible peoples the virulence of the causative organism is raised. *The presence of large numbers of unvaccinated people in the community helps to maintain the severity of the periodic outbreaks of smallpox.* The first essential step is therefore to get them all vaccinated, and this can be effected only through compulsion by law.

The problem of providing for the effective vaccination of India's 400 million people and the recurring annual arrivals of approximately another 10 million has necessarily to be vast and complicated. This involves the preparation of large quantities of vaccine of adequate potency and purity, storage, distribution and application to individuals scattered in 700,000 villages; many of them stand out as islands unconnected with the main roads. Manufacture is at present undertaken at 7 provincial centres and a recent inquiry into the methods of production adopted in these 7 institutions has shown that production follows generally accepted lines and that the authorities of these institutions are fully alive to the need

for continuous investigation and research to maintain and to improve the quality and usefulness of the product. Storage conditions however, in some of these institutions can be greatly improved. The distribution of vaccine raises vast problems because the vaccine rapidly deteriorates outside cold storage and arrangements for transit in cold storage are not available yet. But in these days of increased facilities for refrigeration, it should certainly be possible to overcome this difficulty and arrange for the transport of vaccine under conditions

best suited to maintain its potency during transit and use. The provision of subsidiary storage facilities in district headquarters may be the first and essential step in the extension of these services.

The immediate responsibility to search out the enormous numbers of unvaccinated persons in India's vast rural areas and to apply the vaccine to them under conditions of maximum protection and safety falls on the Vaccinator. He is the bearer of the Jennerian tradition.

"Smallpox arises solely from the infection of a previous case, and although its prevalence may be intensified by uncleanly and overcrowded houses and insanitary surroundings, as is the case with all infectious diseases, it cannot be originated by any such conditions. It is probable that during epidemic periods smallpox is very frequently spread by the number of mild and not easily recognizable cases of the modified disease in vaccinated persons, and the failure to distinguish this type from chicken-pox. The virus from such mild forms is capable of imparting a very virulent form to unvaccinated persons and the same holds true of nearly all infectious diseases."

* * * * *

"Compulsory vaccination in infancy has saved the lives of an enormous number of children, who formerly died of smallpox, whilst the death-rate from smallpox at all ages has of recent years greatly diminished. The mortality from smallpox amongst infants under one year of age, is due entirely to the readiness with which the disease attacks unvaccinated babies, and its frequently fatal effect. After the age of fifteen the protective influence of the primary vaccination has to a large extent disappeared; and unprotected adults form a larger proportion of the population than those in the earlier periods, when an attack of smallpox in childhood was far more common and, as a rule, gave immunity from the disease for the rest of life."

(Kenwood and Kerr—"Hygiene and Public Health.")

The Health of the State is the State of your Health

BY

PURTEJ SINGH, M.S., (Harvard).

[The author of this article was deputed by the Government of Central Provinces and Berar, as a Rockefeller scholar to study Sanitary Engineering in America and England. His experience and observations are bound to be interesting to the common man for whose benefit he has written this article. He has taken care to avoid technical jargon. —Ed., P.H.]

I. INTRODUCTORY.

The diagram below shows the various possibilities of a short circuit between man's excreta and his mouth. This diagram is worth very serious study. In fact a full realisation by the general public, of the various possibilities of this short circuit is the first important step in public health, education and improvement.

The main function of a Sanitary Engineer is to break this short circuit.

I shall, in subsequent articles, endeavour to describe some of the modern methods of attacking this problem.

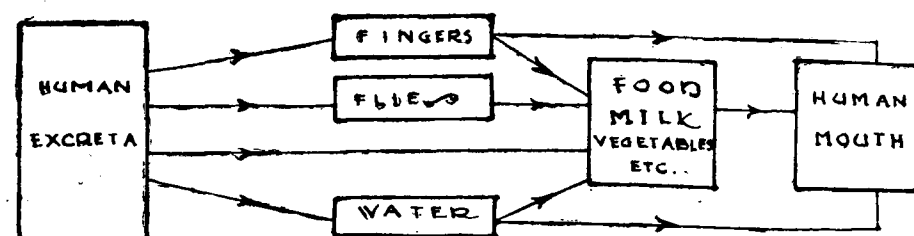
The objection to a man eating food contaminated by his own excreta or that of other men is not merely æsthetic. We have now more or less complete knowledge of the methods by



which diseases are communicated. Each disease is caused by a specific germ. These disease germs do not originate in man's environment, but are communicated from person to person by direct contact, or through the agency of certain vehicles.

Of all the communicable diseases those communicated through human excreta should be given first importance, because their transmission is so easy. As already pointed out, control of these diseases is the main field of sanitation.

Diseases communicated through human excreta are typhoid fever, the



(Diagram—After LUMSDEN, U. S. Public Health Service.)

paratyphoids, cholera, dysentery, hook-worm disease, and a few other parasitic infections. All these diseases are endemic in India, that is they are always present, and due to poor sanitation flare up at times and become epidemics.

On an average each human being discharges between 2 to 4 billion different germs in his excreta daily. All of them are by no means harmful. But this will give an idea as to how little human excreta is necessary to contaminate milk, water, or food supplies. If a person is suffering from any of the intestinal diseases mentioned above, his excreta will also contain germs of that disease. In the case of typhoid, unfortunately, 2 to 5 per cent. patients continue to discharge the disease germs even after they have recovered. Such persons are called carriers, and as can be readily seen are highly dangerous. They are required to be registered in the U. S. A. Female carriers are especially dangerous owing to the fact that they are more likely to be engaged in the preparation of food.

The typhoid epidemics that are not traceable to water are usually due to carriers infecting milk or other foods.

Let us put this knowledge in proper perspective under sanitary conditions in our country. You will find many families in India which harbour a typhoid carrier. If that carrier happens to be a woman, there is constant risk of her not washing her hands properly after defecation and handling food for the family. Serious as it is for that family, it is not yet a public health hazard.

Next take our facilities for disposal of human excreta. These are practically non-existent. The usual way is to defecate near a water storage, because of availability of water for washing afterwards. Even if the excreta does

not wholesale wash into the water storage, the person washing himself will cause a high degree of fecal contamination.

We do not have protected water supplies, that is supplies which disinfect the water and keep constant check on the quality of the disinfected water. It should be free at all times from germs originating in human intestines.

Even where we have put in modern water treatment plants, we exercise no control on the quality of treatment. No visual test can tell if the water is safe to drink. No amount of chlorination can be taken as the final step. Bacteriological examination to determine presence of fecal contamination is necessary as a daily routine, after disinfection and at several points of supply to the consumer selected at random. There can be no question of slackness in this respect.

It will therefore be readily seen how important is a sanitary laboratory in public health protection.

Each province must have a Central Sanitary Laboratory. This laboratory as a routine should examine water samples from all public water supplies. The results of such examinations would show supplies which are unsafe and require immediate attention.

We do not have many public water supplies, supplying whole towns. Where such a water supply system exists, there is either no laboratory control on the quality of water supplied to the consumer, or the control is perfunctory. With a Government Central Laboratory, examining samples of public water supplies, as a routine, there will be effective control on such supplies as exist.

The laboratory is the backbone of sanitation. It is the eyes of the sani-

tarian. Only some disease germs can be seen when magnified one thousand times. Even these are detected by indirect tests. How can then any sanitary control of public environments be exercised without a sanitary laboratory?

The next thing in the rational development of a sound sanitary programme is the installation in small communities of public water supplies and sewage disposal plants. It would pay to put in plants of different design in a dozen selected villages. That is plants designed and executed by us. There can be no development if we are going to

depend for ever on the 'mail order' designing. The existing practice is to call in commercial firms, that is, place an order for a plant through mail. The result is that our men learn nothing, and the plant remains a show of the commercial firm who installed it.

There is another very strong argument for putting in plants of different designs in small communities. We are woefully lacking in basic data for our conditions. Before we venture on large schemes we must have data collected from plants operated under our conditions.

COLLECTION AND DISPOSAL OF MUNICIPAL REFUSE.

"Functionally, who can dispute that the collection and disposal of garbage, ashes, waste paper, bottles, tinware and other metals naturally falls to the public works or engineering rather than to the health department? Even those who seek a material health menace in garbage, rubbish, and ashes must in reason admit that sewerage and sewage disposal have a more, and water supply an infinitely more, vital relation to public health than does the scavenging or cleansing service; yet in not one city out of a thousand is a sewerage system, and in no American city to my knowledge is a water works plant, operated by a health department.

"Perhaps all who hear or read these words agree with me that, as a matter of municipal administration, garbage and refuse collection and disposal should not be conducted by the health department, but some may believe that, nevertheless, the goodness or badness of the service, by whomsoever rendered, vitally affects the public health. Substitute *vaguely* for vitally and I agree. In parts of the country where there is material danger of plague dissemination by rats, I might waive the qualifying word vaguely. I willingly agree, also, with those who claim that garbage, improperly collected and dumped, attracts flies; and that the assemblage of flies where open privies are also tolerated may spread typhoid and less serious intestinal disturbances. Rarely, in my opinion, would the assemblage of rats and flies, due to garbage, affect the public health to a degree that could be scientifically reported in terms of vital statistics, as two or three decades back it was commonly, and as it still is occasionally, possible to measure the effects of a polluted water supply by sharp rises in the typhoid curve."

(M. N. Baker of Engineering News-Record.)

THE PROBLEM OF MALNUTRITION

BY

DR. A. S. SUNDARA RAMAYYA, L.M. & S.,

Medical Officer, The Meclec Nutrimentals and Pharmaceuticals, Limited.

We are now living in an era of scientific advancement. Prominent among the advances in knowledge of life and health and the resulting improvements in the way of living, has been the science of nutrition and its influence on the daily choice and use of food. Recent studies in nutrition have shown that better growth and development, higher attainment of stamina and working efficiency and a longer lease of healthier and more useful life may all be realised through proper nutrition; and that through diet a new level of health can be attained enabling mankind to develop inherited tendencies and other internal environment to the greatest extent possible.

All these prospects should stimulate more interest in us in formulating our daily dietaries on a scientific basis. We must try as best as we can with the new methods at our disposal to detect any signs of malnutrition, study and estimate our dietary defects, plan diets conforming to the principles of satisfactory nutrition, and eradicate any effects of nutritional deficiency that may be present.

In the brief review that follows let us consider some aspects of this problem in the light of modern knowledge. What is Malnutrition? What are its manifestations? What are the methods of evaluating the nutritional status? These are some of the questions that one may ask. In answering these questions, it will be seen that all these criteria are inseparably linked and our knowledge of them has undergone evolutionary changes.

It had long been known that calories were necessary for growth and maintenance; for insufficient calory intake impaired growth, and loss of weight ensued. Advanced studies in diet and nutrition have shown that:

- (1) Foods contain a number of essential substances—proteins, vitamins and minerals.
- (2) A deficiency of any of these essential food factors in the diet interferes with growth and maintenance and results in disease.
- (3) The relationship between the nature of dietary deficiency and of the resulting disease is characterised by specificity.

Later vitamins have been produced in pure form and their functions defined and a more

intimate knowledge of the intricacies of metabolism gained. Though minerals were known to be essential for nutrition, recent work has brought to light their far-reaching potentialities in metabolism. All these advances have had a pronounced effect on our concept of nutritional status and the means of appraising it.

In the past malnutrition has been judged by physical measurements or by presence of assorted gross physical signs. But these are found to be defective as mild deficiency states and chronic tissue changes have escaped detection by them. In recent times new and scientific delicate diagnostic methods have enabled the diagnosis of even the slightest degree of deficiency. The mild and border line cases of malnutrition are now being detected, their immediate and long range effects are studied and the importance of examining these marginally nourished is being recognised. These new methods of diagnosis have made the entire world increasingly aware of the enormous amount of ill-health, poor development, disease and disability due either directly or indirectly to malnutrition.

According to modern concept, the term malnutrition signifies a tissue deficiency of an essential nutrient. Malnutrition may be (1) primary or (2) secondary or conditioned. If a tissue deficiency arises from an inadequate diet it is known as primary deficiency or primary malnutrition. If the tissue deficiency is caused by factors other than an inadequate diet alone, it is known as secondary or conditioned malnutrition.

These conditioning factors are—

- (1) factors which interfere with (a) ingestion, (b) absorption, (c) utilisation of essential nutrients;
- (2) factors that increase (a) the requirement for vitamins, (b) their destruction or excretion.

The effects of malnutrition are well known. Some of the general evidences are underweight, underheight, oedema, pallor, etc. Xerosis, various forms of glossitis, stomatitis, dermatitis, neutritis, bony deformities, etc., are some of the gross evidences of malnutrition affecting the various systems of the body. The various deficiency diseases and the serious crippling

results that follow them are given in detail in many books on nutrition. The new methods that are used in evaluating malnutrition comprise biochemical, microbiologic, biophysical, special clinical and morphologic including biomicroscopic.

EXAMPLES :—Examination :

X-Ray photo of hand, wrist, elbow, hip.
Electrocardiogram.
Serum Protein and Albumin.
Blood examination :
Differential count.
R. B. C. Count and Volume.
Hæmoglobin of age.
Serum Calcium.
,, Phosphorous.

Condition it may detect :

Rickets, scurvy in children, Osteomalacia and scurvy in adults.
Changes suggestive of Vit. B₁ deficiency.
Protein deficiency.
Primary.
Anaemia or Iron deficiency.
Vit. D deficiency.

The causes of malnutrition are many but the primary cause is an inadequate diet either due to poverty or non-availability. As measured by any modern standard of adequate nutrition much of the world's population is subsisting on inadequate food. Faulty diets, ignorance of the rules of good diet plus indifference to the consequences, bad dietary habits, are all contributory factors.
From what has been said above, it is obvious that the recorded evidence of the prevalence of malnutrition depends upon the concept,

criteria and means of recognising it. The prevalence of malnutrition in India is stated to be high according to the nutritional surveys done in particular localities in the country. But the actual prevalence when examined by modern improved methods can only be imagined than stated as many of our people are now living on very inadequate diets, mostly on the verge of starvation. An example of the diet eaten by the average adult among the poorer classes of people in South India will illustrate how inadequate and defective the diet is.

TABLE I

Articles of food.	Example of balanced and adequate diet.	South Indian diet of average adult among the poorer classes before rationing.	South Indian diet of average adult among the poorer classes under present rationing.
	Ozs.	Ozs.	Ozs.
Rice ..	10	16	8
Wheat or Millets ..	5	..	4
Pulses ..	3	1	1
Vegetables ..	10	2.5	2.5
Milk and milk products ..	8	1.5	1.5
Fats and oils ..	2	.5	.5
Sugar and jaggery ..	2	..	..
Condiments ..	.5	.5	.5
Fruits ..	2	..	..

TABLE II

When these foods are expressed in terms of their proximate principles.

Composition.	Balanced diet.	Diet noted above before rationing.	Under present conditions.
Protein ..	73 gms.	40 gms.	30 gms.
Fat ..	74 "	20 "	15 "
Carbohydrate ..	408 "	370 "	270 "
Calcium ..	1.02 "	.15 "	.15 "
Phosphorus ..	1.47 "	.6 "	.6 "
Iron ..	44 "	9.0 "	9.0 "
Vit. A ..	7000 I.U.	500 I.U.	500 I.U.
Vit. B ₁ ..	400 I.U.	160 I.U.	150 I.U.
Vit. C ..	170 mg.	15 mg.	15 mg.
Total Calories ..	2600	1800	1400

An examination of the above tables shows how inadequate and ill-balanced the diets are. The diets fail to supply the daily requirements of any of the essential food factors necessary for normal health. But human bodies have the peculiar power of adopting themselves, at a low level of vitality, to the insufficient rations scarcely realising that they are being underfed. This seems to be the cause of our indifference towards the problem of better feeding.

Even in higher economic groups there are few people in absolutely perfect nutrition as very few people have consistently followed throughout life a diet satisfactory in all essentials or escaped the many other causes contributing to a deficiency state.

From the point of view of prevention, the problem of adequate nutrition is very vast and includes such other diverse problems as agriculture, farm machinery, food industry, food distribution, transportation, storage, food preparation, nutritional education, etc., and the diagnosis, prevention and treatment of deficiency diseases. A problem of this range and magnitude must fire the imagination and attract the attention of everyone concerned and the prevention depends upon the co-operation of the various departments concerned with the maintenance and improvement of national health and welfare.

But inasmuch as individuals are concerned, each must try to improve the quantity and quality of his diet in accordance with the principles of a balanced diet in the light of modern nutritional knowledge. We must eat such foods everyday as would contribute to optimum nutrition which in turn contributes

to optimal health. Food fads depending on the clamor to satisfy the palate should be discarded. We must change the old wasteful methods of cooking and storage to new methods which will preserve the food values to the maximum. A combination of foods which can meet the physiological needs should be taken.

The following are some of the natural foods necessary for optimum nutrition :

- (1) Milk and milk products.
- (2) Bread, flour and cereals, whole grain enriched.
- (3) Vegetables leafy green, green and yellow ordinary.
- (4) Fruits—oranges, tomatoes, grapes, lemons, plantain, etc.
- (5) Meat, fish, eggs or dried beans, peas, nuts or peanut products.
- (6) Butter, oils and other fats.

We must eat some food from each group every day. We must substitute hand-poured, under milled, or par boiled rice for milled rice. A portion of the rice consumed may profitably be replaced by whole wheat or atta and millets like ragi.

The quantity of pulses taken must be increased as they contain more protein. If milled rice forms the basis of the diet, more use should be made of the so called protective foods as milk, eggs, vegetables and fruits as they contain more of protein, calcium, Vit. A, Riboflavin, etc., which are essential for proper nutrition.

In many countries abroad who are more advanced in scientific knowledge, foods and food products are being 'enriched' or 'fortified' with essential nutrients manufactured

synthetically. In Britain and America for example, foods are being fortified with cheap manufactured vitamin preparations. Vit. B-1 is being added to refined wheat flour in bread manufacture, oleomargarine is being enriched with fish oil; Iodine is being added to salt. We can also supplement our diets with concentrated and easily digestible nutritious food products and vitamin preparations that are being manufactured. As yet they are scarce in India.

As for the treatment of malnutrition, it is an individual medical problem requiring exact diagnosis and therapeutic measures. The family doctor, or the available nutrition research worker should be consulted who will examine the members concerned for the presence of deficiency signs and symptoms, study the diet, note the necessary dietary changes or prescribe appropriate nutritive dietary supplements or remedies.

CONSIDER WHAT YOU EAT.

The reason for a balanced diet is very simple. Your body needs certain substances to supply energy, to build and repair cells, and to give the system tone. One food contains substances of one kind and another food, substances of another kind. Two foods may be as different in content as are two courses, such as algebra and history, in school. Accordingly in order to maintain normal body functions, you must select foods which satisfy your body needs. Balancing your diet requires little sacrifice; the most that you may be called upon to do is to eat a little more of this and a little less of that.

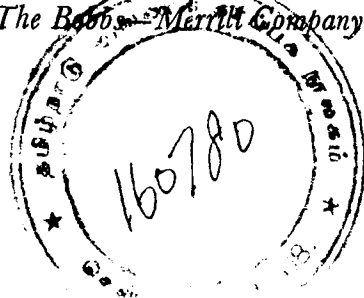
* * * *

SCIENCE POINTS THE WAY.

Physicians and other scientists have long recognized the fact that many illnesses occur because of malnutrition. Through ignorance and carelessness in the selection of diets, persons allow their bodies to "run down". They become too weak to fight invading bacteria and consequently become victims of disease. Because of the importance of diet scientists have spent years of research in determining what substances are required by the body and what substances are contained in foods. From their findings they recommend diets suited to body needs.

* * * *

(From "Life and Health," by Wilson—Bracken—Almack.
Publishers: The Bobbs-Merrill Company—Indianapolis—New York).



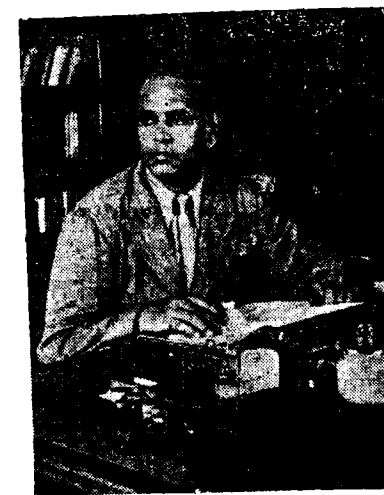
THE WAY TO PEOPLE'S HEALTH

BY

RAO BAHADUR DR. C. RAMAMURTHI, B.A., M.B., B.S., B.S.SC.

Every child of two years has had already laid in it the foundations of those characteristics which will show themselves later in adult life. These characteristics are timidity, shyness, sociability exclusiveness, temper and the like. Almost all the emotional patterns of behaviour we find in the adult are implanted at this age. Usually, most parents have no knowledge of how the child forms its early impressions and in what manner it acquires all its habits. The only test by which the parents judge the normality of their child nowadays is by his weight! If the child gains weight it is the joy of the parent; and conversely, if the child loses weight it is a matter for the parents' anxiety. As the child grows older, the punishments for its misdeeds and rewards for its merits begin. But its behaviour is seldom understood rightly. The older the child is, the harder it is to understand it. Yet these early impressionable years are the most critical of his whole life; for the foundations of its character are being laid then.

FEAR: This is one of the emotional states which the child requires to be cured of. It has been experimentally determined that there are only two causes of fear in a newborn infant, they are: (1) a loud noise by which it is startled; and (2) the sudden withdrawal of support from under it when it is frightened. Nothing else will evoke fear in the new-born. Darkness, furry animals, snakes, frogs and such other objects which cause fear in an older child will not affect the new-born. This fact has been experimentally determined. But we all know that children brought up ordinarily in



[This is the fifth of the series of articles by the author. This series is intended to educate the 'educated' and the 'common man' on the fundamentals of the health of the people.]

—Ed., P.H.]

our homes show a great many fears not only of the above mentioned objects but also of many others besides. To explain such fears it was the custom, hitherto, to fall back on "instinct." It used to be said that the child would begin to fear those objects as soon as instinct ripened or developed. But experimental studies in child psychology show that this idea is wrong. It has been proved that these fears have been built in by the happenings in the home. The parents are generally unaware of them as they are ignorant of the relation, to fear, of such happenings at home. These fears are what are

known as "conditioned reflexes," in psychology. The parents must not think that this expression is another technical or scientific term employed to confound them or to scare them away; nor is the expression intended to show off learning. It is a very simple psychological phenomenon. An example will make clear how these fears begin. Here I quote the very words of the experimental psychologist (Dr. Watson of Johns Hopkins University):

"I have before me a healthy nine-month-old youngster, brought up in hospital. I have a complete record of all the happenings during his infancy. He never showed the slightest fear, for instance, when I brought a rabbit to him. The moment the rabbit was shown him he began to reach for it, to pull its ears and poke his fingers into its mouth. The one thing the baby had been afraid of since infancy was a loud sound. Even at 9 months, if a steel bar was banged behind his head (not on his head!) he would begin to cry, roll over on the mattress and crawl away. Now, show him the rabbit and, at the same time, bang the steel bar behind his head, and what is the result? After the first experience of this kind, the rabbit was shown him without the accompanying noise. He hesitated but finally reached for the animal. The experiment with the noise was repeated. In just four such experiments the sight of the rabbit alone, without the noise, was sufficient to bring out the same pronounced reaction of fear that the banging of the steel bar alone always brought out. This process of the fear being roused by the rabbit instead of by the noise of the banging of the steel bar is called "conditioning" and the new fear is a "conditioned fear response or reflex." Now the bearing of this "conditioned reflex" upon the home is very important. And

every parent must realise it as this kind of thing happens almost every day in the home.

BEHAVIOURISM: Till the first decade of this century it was thought that there was no other method of studying psychology than by looking into one's own mind. But the theory of behaviourism completely altered this method of study. According to the behaviourist, he sees the child active, moving about and doing things. As a psychologist, he wants to know the best way of controlling the child's activities in such a way as to make them acceptable to the society in which it has to exist, grow and have its being. If the child should get on well in its group, we must be able to control its behaviour in some way and make it adopt those activities which enable it to adjust or adapt itself to the group. In this connection we have to take into account the children of three kinds of parents: (1) Those that do not like any interference with the child but want to leave it alone to grow and develop in any haphazard manner; (2) those that love their children too much—so much as to spoil them by too much kindness and indulgence and without exercising control of any kind on their activities; and (3) those who think that the bringing up of their children is the most serious and important business of life. These parents feel that everything that is to be known about the child comes from tradition; and that all one can do is to bring it up after their own fashion. Luckily, however, there are two parents (the father and the mother) and between them the one may help the other in choosing the right way of bringing up the child.

The first two kinds of parents seldom give their children the chance of being brought up in the right way. It is the third kind of parent that may be influenced to adopt the right way of

bringing up the child. No child, at first, is afraid of being alone in the dark. The fear of darkness begins with an unpleasant experience associated with darkness. If the wind blows hard and causes the door of a window or doorway of the room slam against its sill with a loud bang, when you leave the child in darkness in the room and go out, you have an ideal condition for making the child fear darkness. The loud banging sound is responsible for the feeling of fear being roused in it. Again children who grow up without even the slightest fear of darkness, suddenly develop fear of darkness after hearing a loud crack of thunder one night when they scream out of bed and shudder to get back into bed until, with proper steps taken, this fear is dispelled. Of course, ignorant parents may scold or spank the child and put it to bed. But under these conditions, the child cannot sleep and derive the rest it should; on the other hand it will be in bed trembling with fear. Surely this is not the aim of the parent. To remove the fear must be the parents' purpose. In other words, the child must be re-conditioned. Similarly some children develop fear of strangers. This is due to the child, when a baby, being taken into the midst of adults who are shouting, laughing and boisterously noisy. The child begins to cry when it sees a stranger, after such an experience. This is due to the thoughtless mishandling of the child when it is a baby. The child will have to be cured of this state by the process of "reconditioning" it. Another common fear that the children have is the fear of water. An unpleasant condition associated with water, as for example, an accident or slipping and falling against the bath tub, a too hot or a too cold dip in the water for a bath, the falling of soapsuds into the eyes during the bath or some

such unpleasant experience associated with the bath or contact with water, causes the fear. The fear roused under such conditions are "conditioned reflexes." The children must be "re-conditioned" to drive the fear out of them. For all this, the greatest patience is necessary. No parent should grudge the time and effort necessary to spend on the child to help it overcome such fears as it is essential to build the future of the child on a safe foundation.

As the child grows older, and before its sixth year ends, the next higher stage of its education and training is reached. It is now eligible to be put into the kindergarten school. In this school the child is trained to use its eyes and develop muscular co-ordination. The nervous energy also of the child is exercised. It is taught to make free movements of the limbs. Much of the time in this school is spent in the open air and under the shade of trees telling stories, gathering flowers and playing games that do not tire the child. Such an education gives health along with knowledge. During this period the children are runabouts. And by this time they have made such progress on the highroad to health, if properly brought up, that they no longer depend *absolutely* on others though they still require considerable help to maintain the progress. At four years of age the runabout gradually acquires more and more independence and becomes susceptible to beneficial health influence.

The growing child at this period requires an adequate diet of good food, with at least a pint of milk a day. The child must have plenty of fresh open air and in this country the morning and evening sunshine. Nothing can excel these two as tonics. Clothes that are healthful, comfortable and protecting must be worn by them. Their

living conditions should be sanitary and cheerful. They must have plenty of good opportunity for play. Now is the period when their imagination should be exercised and cultivated; stories help exercise the children's imagination, especially fairy tales. Exercise of their memory should be commenced now and strengthened as years go by. All these should take place in the life of the child with regularity and rhythm so that it may develop wholesomely and to the best advantage. At this age the child should master the "alphabet of life" though it may not yet learn to read and write. The child of this age should derive its hygienic supervision chiefly from its parents. During the pre-school period the parents should attempt systematically to assure such conditions to the child as would keep

it in excellent health. This is done by teaching the child many habits of living conducive to good health; by getting the child examined at least once every year by a competent physician to discover any defect in their early stages and to get the children treated for their correction and by preventing the children from being exposed to communicable diseases. A home planned on a programme of health in regard to diet, exercise, recreation, rest and clothing for the child, will tend to bring up the child in good health. For the formation of a good character a similar atmosphere for its development must be ensured. Freedom without indulgence, and encouragement without discouragement, nagging and worry are fundamental factors that help to develop good character.

CHART A COURSE OF LIFE.

Like the navigator, you too must chart a course, the course of your life. To chart this course you need to "shoot" your health star, to find your "location" with reference to health. You are concerned with health because it reveals what you have to work with in building for the future. When you study your health, you study yourself, your total self—all that you are. You consider not only your physical characteristics but also your mental and emotional characteristics. What subject could be more interesting and what could be more important at this time of your life?

Since the study of health deals with your total self, it is natural that you start by considering your goals. These goals represent what you hope to accomplish and to become in later years. You cannot set suitable goals, however, without taking an inventory of yourself—of such important factors as your health, your abilities, and your interest. These are your sources and resources. Some of them you inherited when you came into the world; others you have obtained over a period of years through experiences in your environment in your home, your school, your church and your community. (*From "Life and Health" by Wilson-Bracken-Almack. Publishers: The Bobbs-Merrill Co., Indianapolis, New York.*)

A DESIGN FOR AN ECONOMIC KITCHEN RANGE

BY

G. S. RAMU, B.SC. (MET.), M.I. & S.I.,
Special Officer for Fuel Economy, Government of Madras.

Few persons realise how easily the consumption of fuel can be economised thereby cutting down the domestic expenses to a considerable extent. In this article, I have attempted to give a very simple device by which this object can be achieved.

In the ordinary kitchen oven as much as 94 per cent. of the heat generated by the solid fuel is wasted and only 6 per cent. communicated to the cooking utensils. The transfer of heat is not brought about so much by direct exposure to radiation from the firebed as by contact with the flames and hot gases in their passage. Therefore if the oven is well constructed and is reasonably airtight so that air has no access to the fire except through the firebars as illustrated in the diagram the efficiency will be increased considerably.

Several investigations have been conducted to determine the relative heat consumption by using solid fuel, gas, or electricity for cooking identical meals. The results which are reasonably concordant show that gas and oil can cook a meal for say 6 persons on 1/5th the heat consumption required with solid fuel, and electricity on 1/13th, the heat consumption.

As the requirements of different households in different strata of society vary much it is not possible to lay down any specific recommendation in regard to the types of heating or cooking appliances in order to obtain satisfactory results.

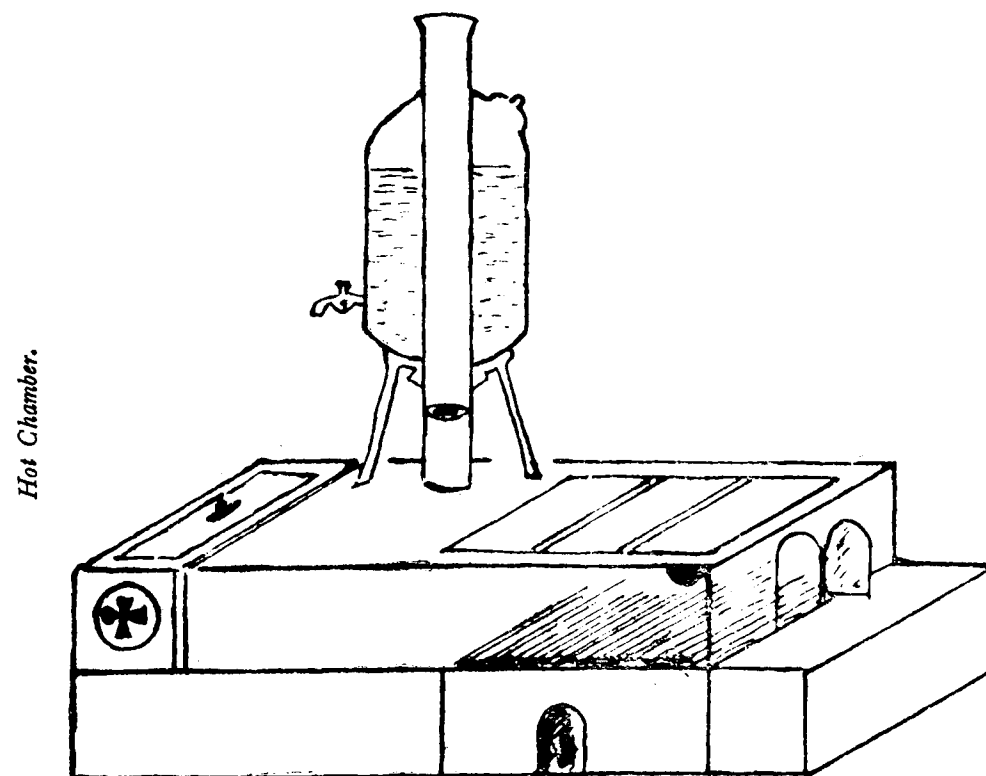
For best efficiency of combustion and for fuel economy it is always advisable to have as large a combustion chamber as possible. This reduces to a great extent the smoke nuisance. Cast-iron kitchen ranges are efficient in this respect and so expensive that the average Indian cannot afford one. The suitable idea would be to construct the fire-place with bricks and give it a lining with fire-clay paste which



makes the oven fire resisting thus preventing cracks.

The design given below shows the firewood charging platform at an elevated level of 6", from ground level. The wood burns on cast iron firebars below which there is ample space for the inrush of air required for combustion. This supply of air can be controlled by a suitable device as shown in the diagram. The air passes through the hot firebars and the red hot embers, thereby itself getting heated. This produces hotter products of combustion and higher heating capacity of the oven.

A short steel pipe at the exhaust end of the oven just fitting the inner fire tube of a water heating boiler (the fire plate having been removed) may be used for heating or boiling water without any additional use of fuel. The smoke nuisance can also be prevented as



Air inlet control.

this arrangement will give a good lead to the gases towards the chimney.

A covered chamber with a lid can also be easily provided at the end of the oven to keep cooked food hot for a few hours.

[Builders can undertake to produce ready-made ovens of this type with the permission of the Editor, P.H. and the Author.]

THE HEALTH ASPECTS OF COOKING.

Most minerals and vitamins which are destroyed easily in cooking may be preserved by the application of a few simple methods. The following directions, if consistently followed, will help to preserve the nutrients:

1. Use as little water as possible in cooking foods; later use this water in preparing soups, gravies and stews.
2. Cook foods only for the length of time necessary to make them safe, digestible, and palatable.
3. Peel, slice or cut foods just before cooking or serving.
4. Use small amounts of water for soaking foods before cooking.
5. When vegetables are to be boiled, place them in water which already has been brought to boiling temperature.

(Extract from "Life and Health", by Wilson—Bracken—Almack.
Publishers: The Bobbs—Merrill Company, Indianapolis & New York.)

LIFE IN A VILLAGE

BY

RAO BAHADUR T. S. RADHAKRISHNA AIYAR,
Indian Audit & Accounts Service (Rtd.).

WATER CONTAMINATION.

As mentioned in my article which appeared in the December, 1946 issue of the 'People's Health,' the Local Panchayat Board, being entrusted with the sanitary administration of the village is expected to prevent contamination of drinking water. A few months ago, the corpse of a Marava youth who died prematurely of some infectious disease was buried instead of being cremated as usual, near the canal, a few feet only from the water level. I came to know of the incident too late to enable me to take any preventive action and therefore wrote to the District Health Officer to inspect the grave and to suggest what action should be taken in the matter, especially as it was reported to me that neither salt nor lime was placed round the dead body to prevent the spread of infection. The District Health Officer inspected the spot and expressed the view that the person responsible for the burial should be prosecuted, as it had been made not only at an unauthorised place, but also very near residential quarters and the District Board School and close to the Village Munsiff's office and the canal which is the only source of supply of drinking water to the village. At my instance, the President, Panchayat Board, reported the matter to the nearest Sub-Inspector of Police requesting him to take action against the father of the deceased boy, as he had infringed the provisions of the Local Board's Act, 1920, under which burial at an unauthorised place and within 300 feet of residential buildings and the source of water supply is an offence. The Police Department took its own time and the matter was reported to be under reference to the Circle Inspector, Deputy Superintendent of Police and the Assistant Public-Prosecutor and it was finally decided, that as the offence was a non-cognizable one, the President, Panchayat Board, should himself report the matter to the Sub-Magistrate direct, with a view to the prosecution of the offender. The Sub-Magistrate was immediately addressed and he had summons issued to the parties concerned to appear before him. The Advocate for the defence pleaded, on the strength of a judgment of the High Court, that as three months had elapsed between the date of the incident and that of the report to



the Magistrate the prosecution was time-barred. The immediate report to the police and the delay in the receipt of reply from that department had no effect on the Proceedings. The Magistrate accepting the defence counsel's plea discharged the accused. It will be seen, that the Police Department was mainly responsible for the delay and that the village could not get any remedy from any authority, although its main source of drinking water supply had been seriously contaminated. Even if the prosecution had been successful, the infliction of a fine on the offender is the only punishment provided by the Act. It is my humble submission to the Ministers for Public Health and Local Boards, that in such cases the Act should contain provision for the exhumation of the corpse and its burial elsewhere than in a prohibited area.

HARIJAN UPLIFT.

There are two sects of Harijans in this village, Pariahs and Pallans, both belonging to the scheduled castes and to the so-called untouchable community. In view of the special provision of a Crore of Rupees by the Government of Madras for Harijan uplift,

it was brought to my notice, as President of the Village Food Committee, that two tube wells should be sunk in the Harijan colony to provide drinking water for the residents thereof, as one of the wells from which they drew water was situated at a distance from the residential quarters in the midst of an irrigation tank and was surrounded by water on all sides while the tank was full. The District Collector was addressed immediately and the matter is still under his consideration. In the meanwhile the Revenue authorities during my absence from the village would appear to have suggested to the Harijans, that only one well could be sunk for use by *all* the Harijans or that one of the existing wells could be repaired and kept in a proper condition if all the Harijans would use it jointly. The Pallans claiming to be a higher class than Pariahs would not allow the latter to draw water from a well used by them and would rather not urge for the sinking of a tube well or for repairs being done to the existing well, if they have to use it jointly with Pariahs. They even molested a Pariah who was bold

enough to walk through their street with sandals on his feet and recently dispersed forcibly the members of a Pariah funeral procession while going through or near their street, even though some members of the procession had come from neighbouring villages. I am publishing these facts with a view to apprise Government of the strong communal feelings among the Harijans themselves, as Government and the general public seem to think that it is the higher castes alone that tyrannise over the depressed classes. As the result of the estranged relationship between the Pariahs and Pallans of this village, it is not likely that any action will be taken by Government to provide certain essential requirements of both the classes of people, notwithstanding the fact, that special provision has been made for Harijan uplift. Is it too much to ask Government to recognise the existing communal differences between the Pallans and Pariahs and to provide them separate wells for obtaining uncontaminated drinking water throughout the year?



You see, Doctor, I have never had an illness in my life; so, sometimes I get frightened that it may mean there is something wrong.

HEALTH WORKERS!

FOR YOUR BENEFIT

BY

ONE OF YOU.

REFER YOUR PROBLEMS TO US. THEY MAY BE BAFFLING OTHER WORKERS ALSO. WE SHALL HELP TO SOLVE THEM. IF YOU HAVE SOLVED ANY OF THEM, LET US KNOW. IT WILL BENEFIT OTHERS.

[Ed., P.H.]

GREETINGS!

In the description of the many devices and instruments to measure ventilation, we saw that the KATA THERMOMETER is the best for the practical health worker in the field. We shall now proceed to learn about it.

Although it is called a thermometer, it is not really one. We all know the ordinary thermometer used to measure the temperature. What the ordinary thermometer shows is its own temperature. It is a static instrument. From it we can know only the average temperature of the atmosphere or of a surface. It cannot show the changes brought about by the atmosphere. The human body is not a static thing like the ordinary thermometer. It is a dynamic structure. It is continually producing and losing heat. It is this dynamic action that must be measured; or rather how the skin of the body is heated from within, and cooled from without by the atmosphere.

Leonard Hill undertook to devise an instrument which will give this measurement in a single value. The earliest ones he constructed were more elaborate. They were a kind of artificial human body reacting to the physical factors of the environment. Finally the instru-

ment became simplified. It is now merely a large alcohol thermometer. This is the ordinary Kata Thermometer. In course of time it was found that this ordinary Kata was not suitable for all places. A modified instrument was introduced to suit tropical and sub-tropical conditions. This is called the High Temperature Kata Thermometer. In cold climates, rooms were artificially heated. This added to the radiant heat of the room. Neither the ordinary Kata nor the High Temperature Kata could measure the effect of this radiation. So, a third modification was introduced, namely, the Radiant Kata Thermometer. So that we now have three kinds of instruments all bearing the name of Kata Thermometer. They are:—

1. The Ordinary Kata, the instrument most commonly used.
2. The High Temperature Kata, the instrument adapted for use in the tropics.
3. The Radiant Kata, the instrument for measuring the effect of radiation.

We shall discuss the construction, working and utility of the ordinary Kata first. We shall then see the difference between it and the High Temperature Kata. We will lastly

Note.—Although this section is addressed primarily for Health Workers who are usually trained for the profession, the 'common-man' would be profited by perusing it. —Ed., P.H.

make a brief reference to the Radiant Kata, since we may not need it at all in our every day work in this country.

The Ordinary Kata is illustrated diagrammatically in the figure below.

It is a large alcohol thermometer. The alcohol is coloured red so that the instrument can be read easily. Alcohol is preferred because it expands much more than other liquids with increase of temperature. The alcohol is contained in the large bulb at the bottom. This bulb is 4 cm. long and 2 cm. in diameter. It presents a definite surface area to the action of the atmosphere. Above the bulb is the stem of the thermometer which is 16 cm. long. The length of the stem is restricted to this to make the instrument handy. Also the length need not be much since the alcohol is to expand or contract only through a short difference in temperature. The stem contains a tiny bore through which the alcohol expands. At the top of the stem is a small bulb. This is for safety. It holds up the expanding alcohol and warns us not to heat up the instrument too much, lest it breaks. At the extreme top is a glass ring through which a thread or wire can be passed. This is for hanging the instrument while taking the reading.

The stem contains two marks. The upper mark represents a temperature of 100°F., the lower one a temperature of 95°F. No other temperature range is marked on the stem. This is to facilitate easy reading and avoid errors. The two marks are deliberately chosen. They have a special significance. The normal temperature of the human body is 98.4°F. What the instrument is to measure is the rate of cooling of the human body. Therefore the cooling between two temperatures which are as near as possible to the normal body temperature must be observed. Hence the marking at 100°F. and at 95°F.

There is another figure marked on the stem. This is a figure of three digits. Each particular instrument made by the manufacturers has its own figure marked on it. The figures of no two instruments are likely to be the same. This is known as the Kata Factor and is usually designated by the letter F. It represents the total amount of heat lost per sq. cm., by the bulb of the instrument when the alcohol in it cools from 100°F. to 95°F. Since the thickness of the glass is likely to vary, the heat lost is likely to differ between two instruments. Hence the total heat loss is determined separately

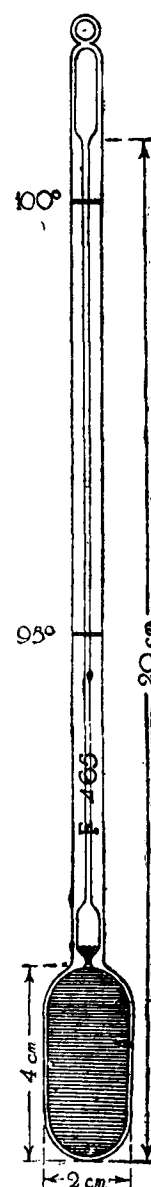
for each instrument. It is noted in millicalories. A millicalorie is one-thousandth part of a large calorie. This is the Factor marked on each instrument. When this Factor is divided by the time taken in seconds for cooling from 100°F. to 95°F., the quotient is the 'cooling power.' It is the Kata Reading. It represents the rate of heat loss in millicalories per sq. cm. per second.

The Kata is used in two ways. One is as a dry-bulb instrument. The observations are

taken with the naked bulb. This is the Dry Kata Reading and is written as D.K. A naked glass bulb cools by conduction and convection. So D.K. will be a good measure of the cooling power in cold climates. For, in such a climate, the body is cooled by conduction and convection in the cold air of rooms. When the atmospheric temperature is much above 75°F. heat loss by conduction and convection is very low. So in warmer places D.K. is not a reliable index of the cooling power. Heat is lost in such places mainly by evaporation. So the Kata must be used in such a way that the effect of evaporation also may be measured by it. This is achieved by artificially simulating a sweating clothed body. The bulb is covered by a small finger glove made usually of linen or silk thread. Readings taken with the clothed bulb are called Wet Kata Readings, written as W.K. It represents the heat loss by conduction, convection, and evaporation. W.K. is more reliable and is of greater value in warm climates, and in warm places like textile mills, mines, etc., where sweating comes into play.

The exact procedure to be followed in taking the readings

(With acknowledgement to: The Sanitary Inspector's Handbook by Henry H. Clay., Publishers: H. K. Lewis & Co. Ltd., London.)



is practically the same in D.K., as well as in W.K. For Dry Reading it is as follows:—

1. Suspend the instrument on a stand.
2. Place the stand in a chosen position in the room where the observation is to be made. Readings are best taken at the time of, or soon after maximum, occupation. It is then that ventilation defects are most felt. Observations are taken at body level, that is at a height of 4 to 5 feet from ground level. Observations should also be made separately in different places in a large hall as a cinema or a factory. Wherever there are pockets or corners which are not likely to be as well ventilated as the rest of the room or hall, a separate reading must be taken in that pocket.

3. Warm some water, outside the room, to nearly 150°F. In the field, warming facilities may not be readily available in some places. It is better to take warm water in a thermos flask.

4. Take the warm water in a tumbler or beaker, and immerse the bulb in it. The alcohol will now rise in the stem. It is at this stage that accidents sometimes occur. The warming should be stopped when the alcohol just gets into the top bulb. With very warm water, or if the thermometer is left in the warm water too long, the alcohol may go on expanding in the top bulb, and burst it. If this happens, the thermometer becomes useless. So, watch the rise of alcohol closely and withdraw the cup of warm water from the bottom bulb when the alcohol just comes into the top safety bulb.

5. Wipe the bottom bulb with dry cloth.

6. Keep a stop watch ready and start it when the alcohol comes down to the 100°F. mark. Stop the watch when the alcohol reaches 95°F. mark. Note the time taken in seconds. While doing this do not stand too near the instrument as your body will warm it up and slow the rate of cooling.

One should not be satisfied with one reading in every place. It often takes some time for the atmospheric conditions to act fully on a new surface. Also the atmospheric conditions may vary now and again and one reading may not be the true one. Hence four readings must always be taken. The first reading should be ignored. The average of the three subsequent readings should be taken as the correct one always.

7. The Factor marked on the instrument must be noted. This factor must be divided by the average time in seconds. The quotient

is the Dry Kata Reading. $D.K. = \frac{F}{T}$ —where F is the factor and T is the average time in seconds for the Dry Kata to cool from 100°F. to 95°F.

For taking a Wet Kata Reading, either the same or a different instrument can be used. The procedure is as follows:—

1. Cover the lower bulb of the thermometer with the finger stall glove.

2. Set it up in the place of observation as in the case of the Dry Kata.

3. Warm a little water and immerse the clothed bulb in the warm water, till the alcohol just rises up to the top bulb. Adopt the same precautions as for Dry Kata.

4. Remove the warm water cup, and squeeze out excess water from the cloth cover, by hand, or with a dry towel.

5. Take readings as in the case of the Dry Kata. Here also four observations must be made. The first should be ignored and the average of the next three taken for calculation.

6. Divide the factor of the instrument by the average time (in seconds). The quotient is the Wet Kata Reading or W.K.

Having learnt how to use the Kata we must now learn what the Kata Reading denotes. As already mentioned, it denotes the cooling power of the air on surfaces. The heat loss resulting from the cooling is given in millicalories per sq. cm. per second. So, D.K. 5 means that any surface exposed to that atmosphere loses heat at the rate of 5 millicalories per sq. cm. per second. W.K. 12 means that in a sweating state the surface loses heat at the rate of 12 millicalories per sq. cm. per second.

Dry Kata measures cooling by conduction and convection; Wet Kata by conduction, convection and evaporation. We already know that evaporation has a much greater cooling effect than conduction and convection. Therefore a Wet Kata will always cool more rapidly than a Dry Kata. Usually the Wet Kata cools thrice as fast as the Dry Kata. Therefore, for the same place, the W.K. will generally be three times the D.K.

If the atmosphere is comfortable, the body cools rapidly. The alcohol in the Kata will fall from 100° to 95° in a shorter time. The Factor divided by a shorter time gives a higher quotient. So a high Kata Reading means

greater cooling power. It indicates that the atmosphere of the room is more comfortable. In ill-ventilated places where we feel uncomfortable, the cooling power of the atmosphere is less. The alcohol will take a longer time to fall from 100° to 95° . The factor divided by a longer time will give a smaller quotient. The Kata Reading will then be low. A low Kata Reading therefore indicates discomfort or bad ventilation. This holds good both in the case of the D.K. and the W. K.

* * * *

The three factors in ventilation are temperature, humidity, and air movement. It is these three together that bring about the heat loss from the body and give us a feeling of comfort. Of these three, air movement is the one which varies most in nature. It is the one factor which is usually controlled and adjusted in effecting ventilation by any natural or artificial means. Being so, the effect of wind or air motion on heat loss is the greatest and the most delicate. Now, this air motion does not produce the same effect on all surfaces. With the same air motion a smaller object, or an object with less surface area cools more rapidly than a larger object. The Kata Thermometer is extremely small as compared with the human body. It is therefore more sensitive to air motion. Even small air currents produce a cooling effect on it. The human body has a larger surface. It is not so delicately sensitive to air currents. So, the actual sensations of the body may be different. Alterations of Kata Readings may not, in some cases, accurately reflect body sensations. If the same Kata Reading is noticed in two different places it may so happen that the sensations of the body may be different in those two places. This only means that we should not always swear by the Kata Reading only. We should not take it literally or as the most accurate mathematical index of our comfort sensation. Yet it is undisputed that the Kata is the best measure of cooling that has been devised so far. Hence it is the one most used. It is the one accepted in applied ventilation. While body sensation may sometimes vary from what the Kata Reading indicates, more often the two correspond closely. For the study of ventilation in ordinary living rooms, offices, schools, etc., in temperate and cold climates, the Dry Kata is more often used. For warm surroundings where sweating occurs, as in the tropics, or in the case of mills and mines in cold climates, the Wet Kata is generally adopted.

* * * *

We now know what a Kata looks like, how it is to be used, and what its readings may mean. The next thing to be learnt is what use we are to make in practice of these readings. For this we should know the standard reading for good ventilation or good cooling power. Which is the Kata Reading which indicates maximum comfort? A lightly clothed man doing sedentary work produces a certain amount of heat. To keep his body temperature constant he has to lose a definite amount of heat. This heat is lost to the surroundings from the entire surface of the body. It amounts to 1.5 millicalories per sq. cm. of the body surface per second. A Dry Kata cools four times as fast as the human body. That is, it loses four times the heat from the same unit area in the same time and under the same conditions. In a room which is comfortable the body will be losing 1.5 millicalories per sq. cm. per second; in the same place the Dry Kata will lose $1.5 \times 4 = 6$ millicalories per sq. cm. per second. In other words Dry Kata Reading or D. K. will be 6 in a room which is comfortable. So D. K. 6 is to be taken as the index of maximum comfort.

The Wet Kata cools thrice as fast as the Dry Kata or twelve times as fast as the human body. Therefore the Wet Kata Reading for maximum comfort should be 1.5×12 (or $6 \times 3 = 18$).

We have already referred to the wonderful adaptability of the human body. It adjusts itself to the surroundings easily within certain limits. It feels comfortable even when there are slight variations in the atmospheric conditions. We called this the "Comfort Zone." It is so even in the Kata Readings. Even if the D. K. varies from 6 and the W. K. from 18, within certain limits the body feels equally comfortable. This range is from 4 to 8 in the case of D. K. and 16 to 20 in the case of W. K. Whenever we find the readings within these values, we are right in concluding that the atmospheric conditions conduce to comfort. Ventilation is reasonably good.

* * * *

It is better that we caution the Health Worker at this stage.

The figures for the comfort zone given above are those worked out for temperate climates. They are deduced from observations made on westerners. It is these figures that are given in books. Any health worker using this instrument in our country is apt to base his decision on the standards quoted in the books.

If he finds the D. K. below 4, or the W. K. below 16 in any place, he will declare the place ill-ventilated. He will be right if the physiology of persons and the atmospheric conditions are the same as in the west. Our conditions and our physiology varies somewhat. We live in warmer surroundings. We are more lightly clad. We take a different kind of food. Our basal metabolism is different. Consequently the heat we produce and the heat we have to get rid of is also slightly less than those of the average westerner. It follows therefore that we may feel comfortable in atmospheres which exhibit somewhat lesser cooling power than what the westerner would like. A lower Kata Reading, Dry as well as Wet, will indicate comfort for us. The "Comfort Zone" also may be slightly lesser than that fixed for western countries. As we pointed out already in our last article, no large scale observations have been made in our country from which we could deduce reliable standards. Stray observations were made in Bombay and in Madras. It was found that a feeling of comfort was present even when the D. K. was between 2.5 and 4, and the W. K. between 10.7 and 13. But since we sweat almost throughout the year, the W. K. is the more reliable index. In testing ventilation particularly in South India, we need not make any D. K. observations. It is enough if we take W. K. readings only. It is possible that the "Comfort Zone" for W. K. for our country will be between 11 and 16. In one instance in our country—perhaps the only one—the Kata Reading has been prescribed by law for ventilation. This is in the rules governing ventilation in factories, under the Indian Factories Act. In textile factories the atmosphere should be rather humid. Otherwise the yarn will snap. High humidity, as we all know, causes discomfort especially in hot climates. The humidity has therefore to be adjusted carefully. It should be kept high enough for the yarn and low enough for the worker's comfort. The rules say that artificial humidification must be stopped when the W. K. is 11. Therefore, W. K. 11 may be regarded as the lowest limit of comfort in our country. Maximum comfort may be with W. K. 13 or 14; the upper limit may be W. K. 16. This is just inferential. Large scale controlled observations alone can give us an authoritative standard.

* * * *

What has been said so far may be interesting. But it helps us only to judge ventilation. By taking the Kata Reading we can say whether

ventilation is adequate or not. How far it is below comfort level can also be judged by comparing the reading with the comfort zone standards. Even so, the practical health worker may feel rather helpless. Merely to know that ventilation is bad does not carry him far. What he would like to know is something more positive. What should be done to bring ventilation to comfort level? Can we know this by the use of the Kata? If we can, then the Kata will indeed be the most useful instrument for the health worker in checking ventilation. Of the three factors affecting ventilation or cooling power of air, temperature and humidity are not easily controlled. In our every day life we take the atmosphere as we find it. Whatever its temperature, whatever its water content or humidity, we just let it pervade our houses. To make it comfortable for us, we adjust by some means or other the rate at which it moves in and out of our rooms. In fact, ventilation consists really in increasing or decreasing the rate of air movement. This is the one factor which we can easily control. So to improve ventilation to comfort level in a given temperature and humidity we should know at what rate air is to be moved in the room. If, for example, D. K. in a place is 2, we know it is uncomfortably warm. We also know that D. K. will be about 4 in a comfortable place in our country.

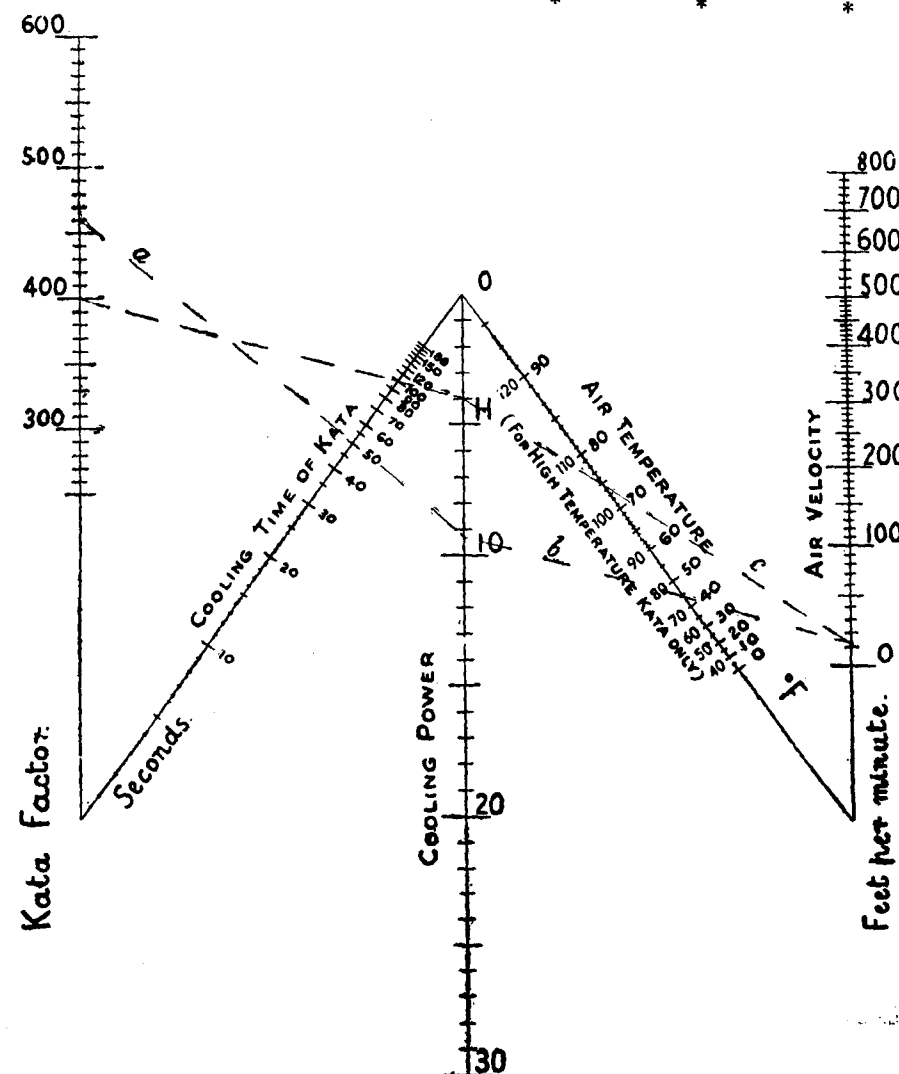
What we should know is to what extent the movement of air should be increased to bring the D. K. to 4. This is easily done with the use of the graph shown below.

Suppose the D. K. is 2 and the ordinary air temperature is 90° . We want to know the air movement needed to bring the D. K. to 4. Draw a line connecting 4 in the centre scale H and 90 in the slanting air temperature scale on the right. Project this line to the right till it cuts the perpendicular air velocity line. Read off 600 at the point of junction. At a temperature of 90°F . if the air movement is increased to 600 feet per minute, the D. K. will be 4 and we will feel comfortable. The worker may have to use the chart in many places. He cannot afford to spoil it by drawing too many lines across it. So the best thing would be to use a thread held taut to read off the connecting line between several points.

This chart is an ingenious one. It helps us to know some more things. Let us give a few examples:—

1. Air temperature 74°F .; Dry Kata cools in 100 seconds; the factor of the instrument is

400; find the Dry Kata cooling power and the air velocity in the room. A line cutting the two left hand scales at the appropriate values and projected to meet the centre line gives a Dry Kata cooling power of 4. A line from D. K. 4 through the air temperature line at 74 meets the air velocity line at 12. The velocity of air in the room is 12 feet per minute.



(With acknowledgement to : Messrs. James J. Hicks, Hatton Garden, London E. C. 1.)

Thus the Kata serves as an Anemometer also. To measure low wind velocities, the Kata is more reliable than an Anemometer.

2. Given an air temperature of 80°F., and air velocity of 200 feet per minute, find the cooling power. A line joining the two right hand scales at given values, projected to the centre scale meets it at 6. The cooling power is 6.

In other words, if we know two of the concerned values we can find the third easily from the chart. There is however one important limitation. The chart can be used only for Dry Kata readings. It is not adapted for working out different values with Wet Kata Readings.

This chart is indispensable for the use of the High Temperature Kata. Before we proceed to consider it, we must refer to one good use which the ordinary Kata can be put to. Among the factors which affect the heat balance, clothing is one. The Wet Kata can tell us something of how different materials, textures or layers of clothing affect heat balance espe-

cially in our country. In taking a Wet Kata reading, we cover the bulb with the usual silk or linen glove. If instead of doing so, we cover it with gloves made of the same material as our clothing, the result will be more accurate. If we repeat the observations in the same place using gloves made of different clothing materials, textures, or layers, the differences in the readings will tell us the differences in cooling power due to the varieties of clothing used. Kata Thermometer has not been put to this use generally till now. It would be interesting if we use it in that way and fashion our clothes scientifically to our comfort.

The High Temperature Kata designed for warmer places is of the same size and shape as the Ordinary Kata. It is also an alcohol thermometer. Each instrument has its own factor marked on it. It differs from the Ordinary Kata in three respects. One is the colour of the alcohol. The Ordinary Kata has red alcohol while the High Temperature Kata has blue alcohol. This difference in colour easily enables the worker to pick up the right instrument from two which otherwise look alike. The second difference is that the High Temperature Kata has two marks on the stem at 130°F. and 125°F. instead of at 100 and 95 as in Ordinary Kata. The third difference is that this can be used only as a Dry Kata and never as a Wet Kata. If the temperature of the atmosphere is much above 75°F. the High Temperature Kata is useful.

It is used in the same way as an Ordinary Kata. The time taken to cool from 130°F. to 125°F. is noted. The cooling power however is not obtained by dividing the factor of the instrument by the cooling time. Since the cooling is observed at a high range, the time taken will be short in most cases. If the factor is divided by this short time it will give a high quotient or high cooling power. But that cooling power is not operating at or near body temperature. The cooling power at or near normal body temperature has to be deduced indirectly with the help of the chart in Fig. 2. This is done as follows :—

Suppose the High Temperature Kata was found to cool in 50 seconds and the factor on the instrument was 460. Suppose also that the air temperature in the room was 74°F. First connect the factor and the cooling time in the left side scales and project it to meet the

centre scale. It cuts it at 9.2 as shown by the dotted line *a* in the figure. Secondly connect 9.2 with 74 on the left side of the High Temperature Kata scale. Project this line to meet the air velocity scale. As seen from the dotted line *b* in the figure, this junction is at 12 feet per minute which is the air velocity. The third step is to connect this air velocity with the given air temperature (on the low scale to the right) and project the line to meet the centre cooling power line *H*. This is shown in the figure by the dotted line *c*. The cooling power of 4 can then be read off. This is the true value of cooling power as would be given by an Ordinary Kata.

We thus see that though we use a High Temperature Kata we have ultimately to derive the true ordinary D.K. value. This is done by first deducing the velocity and then the cooling power from the deduced velocity and the observed air temperature. If the temperature of the atmosphere exceeds 90°F., the ordinary Dry Kata cooling rate is too slow to record. Then a High Temperature Kata must be used and the Ordinary D.K. cooling power derived as above.

Being an indirect method, the High Temperature Kata has not become popular with health workers. In higher temperatures sweating and evaporation plays a greater part. The Wet Kata is deemed by everyone as more appropriate to test such conditions. In our country therefore, the Health Worker may not have much practical use for the High Temperature Kata.

The Radiant Kata also is similar to the Ordinary Kata in shape and size. It contains red coloured alcohol and has marks on the stem at 100°F. and 95°F. The only difference is that the lower bulb is silver coated. This metallic surface enables heat loss from radiation also to be measured. It is used in the same manner and with the same precautions as the Ordinary Dry Kata. The cooling power also is calculated directly by dividing the factor by the time. Since we have no radiant heat in our rooms, we have no use for this instrument in our country.

We feel that we owe an apology to the patient Health Worker for the length of this article. The practical importance of the topic is its only justification.

READERS' FORUM.

This section is open to readers for their frank, free and fearless expression of views on all aspects of people's health.

Type-written letters facilitate work.

Rationing of paper restricts space. Brevity is the soul of wit.

Please remember that "People's Health" is above communal, party or personal politics.

(Ed., P.H.)

MR. T. R. V. SASTRI, C.I.E., writes.—

MR. EDITOR,

You cite the statement that those who pour such a lot of money for fighting and killing can surely find money for fighting disease. Do men willingly pay money and risk their lives? Frenzy of war time demands, extracts and spends lavishly money and human lives. As for money expended, your readers will find it of interest to read the words of a wise man, Dr. Nicholas Murray Butler, who is cited as saying:

"We could have built a £500 house with £200 furniture on 5 acres of land worth £20 per acre for every family in the U.S.A., Canada, Australia, England, Wales, Ireland, Scotland, France, Belgium, Germany and Russia. There would have been enough left over to give every city of 20,000 inhabitants in all these countries a million-pound library and two million pound university. Out of the balance we could have set aside a sum at 5 per cent. interest which would have paid for all time a £200 salary for 125,000 teachers and 125,000 nurses. Having done all this, we could still have bought up all France and Belgium and all they possessed. That was the price we paid twenty years ago. What will be the price next time?"

When the war is over the energy of the frenzy that kept it all up is over and its driving force collapses as in a pricked balloon.

William James the psychologist and philosopher draws attention to the effects of relieved tension. He refers to the defender of Lucknow in 1857 as subsisting on whiskey and soda all the time but collapsing as soon as he received information of succour at the gate.

You may demand but will not get money for reconstruction of what has been destroyed. 1946 has been even more difficult than 1920-21.

I recognise that your programme requires not anything like that amount of money but a great deal of intelligence and knowledge.

* * * *

"To make the ideal and labour for it, knowledge is as necessary as good intentions. It may be that men and women of good will are most admirable, but they are dangerous if they are ignorant. And in political action, knowledge is even more required nowadays than good intentions. It is a wide issue and I cannot here discuss it; one might reasonably prefer to be guided by intelligent villains each seeking his own interest, rather than by well-intentioned fools who continually cared for the interest of others; no man can seek his own real interest without in some way attaining that of others, and no man can make up by good wishes for his ignorance of facts. Political education is what is most needed; political purity may be left to take care of itself." (Delile Burns).

PREVENTION AND CONTROL OF CHOLERA.

DEAR EDITOR,

"I am one of those fools who are fond of reading as many new publications as possible—though I doubt if I benefit by it at all. I was reading your magazine, and was somewhat attracted by the article on cholera in your January issue. Not so much by what it tells us, for we have heard it often before. Your way of getting at things is what struck me as novel. I have seldom seen a journalist asking the 'High Gods' such plain and direct questions. You call it an invitation to them; I would call it a daring assault. It is all the more surprising that the "official source" so meekly and readily responded.

Now I am curious to know what this 'forecast' which you talk about is. When was it given and to whom? How was it given? What did it say? I am a regular reader of the newspapers, and I do not remember to have come across any such announcement or communique or press note or whatever you call it. It would have helped us to understand things better if you had given all this information also

PEOPLE'S HEALTH.

261

in your editorial note at the end of that article.

You asked for two things; but your invitee seems to have given you only one. The 'seriatim' points on which the public are expected to co-operate are set out in the usual fashion of confining us in a lot of "Do's" and "Don't's". But the second thing solicited by you, namely "the measures which the authorities themselves are taking to avert a catastrophe," is not mentioned at all. Why is this omitted? We have not heard recently of any cholera 'catastrophe' in our province. Does this mean that the 'authorities' have taken 'measures' and averted it, and are too modest to publicise it? Some years back, in the midst of the war period, I was talking to a Sanitary Inspector about cholera. The one impression I gained from the talk was that as soon as I see or hear of a suspicious case I must promptly let him know and he will do the rest. Now the Assistant Director does not ask us to do this. Is it because they do not want to take or believe in any "measures to avert a catastrophe"? Perhaps I am unnecessarily speculating. You might be keeping another article from the "official source" on the "measures" up your sleeve for the next time. Let me wait and see.

One more point please. And it is the result of probing, a bad habit of mine which I am not able to get over and which you must put up with, as I have addressed you as "Dear Editor". The last sentence of para. 3 of the article is "contamination of water supplies with cholera excreta is the usual cause of widespread epidemics." Para. 6 wants disinfection and chlorination and boiling. I suppose these three mean the same thing—killing the cholera germ after it has got into the water. But why allow it to creep in and then go about killing it? Why not prevent its entry into the water altogether? Why not have our water guarded against it? When these questions arose in my mind, I turned the pages to the article which, though it looks like a business balance-sheet, tells of our water supplies. I see there that 37 lakhs of our people live in 35,000 villages; and their water supply is yet to be provided. I really don't understand this. And a lot of us common folk are in a similar confusion. Now that you have "offered to assist the authorities and enlist the co-operation of the people," will you please tell in a simple way where we are and what is to be done?"

"IDLE READER."

The Press Communique on the forecast runs as hereunder:—

GOVERNMENT OF MADRAS.

EDUCATION AND P. H. DEPARTMENT.

PRESS COMMUNIQUE, NO. 44.

Dated Fort St. George, the 26th November 1946.

PROBABLE TREND OF CHOLERA EPIDEMIC IN THE PROVINCE DURING THE NEXT THREE MONTHS.

An examination into the trends of cholera epidemic in the Province during the next three months shows that cholera may occur in mild epidemic form in the District of South Arcot, Tanjore and Trichinopoly. The Health Officers and local authorities in these and neighbouring districts have been instructed to take all necessary preventive measures well in advance of expected outbreaks.

P. S. VISWANATHA AYYAR,
Deputy Secretary to Government.

[If and when we receive any further article on the subject from official sources, we shall be happy to publish them.—Ed., P.H.]

MADRAS TRAMWAYS.

DEAR EDITOR,

In a letter which appeared in the December issue of "People's Health" a correspondent under the pen name of "Sufferer" has brought to light the absurdity of the position taken up by the M. E. S. C., Ltd., which owns the Madras Electric Tramway Company also. The Correspondent has also drawn attention to the evil effects of noise caused by the dilapidated tramcars on the health of the people. It is suggested that instead of attempting to repair these dilapidated coaches, trolley buses may be introduced in the City. Public opinion, he says, should assert itself and compel the City Fathers to do their duty to the rate-payers.

In your leading article under the caption "Bankruptcy All Round" you state that 'the Corporation has not a body to be kicked or a soul to be damned.' It may be so; but it seems that it has some life in it. The Deputy Mayor of the City Corporation successfully moved a resolution condemning the state of our tramcars. The resolution recommended that the concern should be brought under State Control or it should be municipalised. How far the suggested remedy of 'State Control' or 'municipalisation' would be successful is open to question. The public have the experience

of the State management of the Madras Telephone Company System. The people should halt and think twice before they press either for State control or for municipalisation. It should be within the experience of most people who have the advantage of the telephone in their premises that several unsuccessful attempts have to be made before getting the correct number at the other end. Instead of straightway calling a number successfully and paying once, one automatically gets several wrong connections. The caller has therefore to pay for every such unsuccessful connection. An increase of revenue of the Telephone Co. should result by the inefficiency of the system under operation. Those who utilise the service that suffer. Before we agitate either for State control or for municipalisation, we should make sure that honest and efficient men are available for taking over the responsibility. Till such time as we are assured on this point, it would be a grave folly to effect any change in the management. What should be done immediately is to take steps to remove inefficiency and avoid exploitation.

Coming to the point, the M. E. T. Co., have challenged the Deputy Mayor of the City Council in a letter which appeared in "The Hindu" dated 1st February, '47, to inform the public how many *fatal accidents* have happened to passengers during the past 6 years and if possible to state for the information of the company the dates of these accidents. Mr. T. G. Lakshmanasami Mudaliar, Deputy Mayor of the Madras City Council, is capable of taking care of himself. I am not holding any brief for him. Why has not the Madras Tramway Company come forward to meet the points urged by the "Sufferer" in his letter referred to above? I challenge the Company in their capacity as the Managers of a Public Utility Concern to state whether the number of '*fatal accidents*' is the yard stick with which the efficiency of a Public Utility Service like Transport is to be measured. Commonsense should have convinced the management the great injury they should have caused to the helpless passengers in the trams. For one thing, respiratory and other infections should have been freely distributed by permitting overcrowding. The vibration and the noise of the tramcars should have caused incalculable and imperceptible damage to the nerves of the passengers. Comfort and convenience in transport are considered essential from the public and health point of view. It is sheer commonsense that overcrowding of trams and in fact in any Public Transport, is a serious health hazard to the public. I take it that the

management is in the hands of people who have come from the West where a high sense of public duty has been developed. Will the conditions prevailing here be tolerated in their own country for a minute even during the War or the postwar period? Should a different standard be adopted in running Public Utility Concerns in India?

When buses are not permitted to overload why should the trams be immune from the operation of a wholesome rule? Further, the Tramway Company defy even the Police Law with impunity. The trams move even during dark nights without any light like huge monsters on the road. It is a wonder how more accidents do not occur. It redounds to the credit of the road users rather than of the Tramway Company.

The Tramway Company have made a point which according to them might be interesting to the public of Madras. It is that the Wage Bill for the Tramway Company has gone up by one lakh of rupees per month and that the other expenses have also gone up proportionately; whereas fares have not been increased! The public would be more interested to know the dividends which this commercial concern has declared for the past two decades. It looks as though the Company should have recouped the capital invested in the concern several times over!

The Tramway Company, like the Corporation of Madras, should not take advantage of the apathy of the people to seek remedy in Courts of Law for public wrongs. At any rate, it does not become a foreign management to capitalise the apathy of the people and to continue to create an obvious public nuisance involving health hazards.

Indeed, the nuisance caused by the trams to the public is so great that it can very well be brought under 'public nuisance,' as defined so comprehensively in the Public Health Act. Our Public Health officials have a peculiar knack of tyrannizing small house-holders. They dare not go anywhere near such powerful business concerns like the Tramway Company. I challenge them to launch a prosecution against the company for causing an obvious public nuisance. The noise is so terrible that children simply tremble in their cradles as the tram moves in the neighbourhood. These very health officials talk of dangers of noise to the health of the people!

In conclusion, I wish to draw the attention of the Corporation and that of the Government

that mending the conditions of our Tramway is well nigh impossible. It should prove prohibitively expensive. At best, it would be inefficient. The system itself is ancient. It should be ended once and for all without any compunction. The Transport System should be modernised. Motor Transport should be the rule; if necessary, electrically operated

buses might be introduced. At the worst, electrically operated trolley buses may be tried in place of trams. The matter is important and a decision should be reached within a reasonable time. Will the authorities be good enough to consider the matter in consultation with experts who know their job?

K.V.A.

ARE WE HEALTHIER THAN OUR ANCESTORS?

Certainly, we are far healthier. The death-rate has been falling all over the British Isles for many years.

We know at what ages our ancestors commonly died—even those who had most wealth and knowledge. We know that, long ago, the children of our kings and queens died at much the same rate as the children of the slums do nowadays. We know hideous diseases which raged in England and are now unknown, or very rare. Only a generation ago, for instance, typhus fever was very common, and now it hardly causes ten deaths in the whole of England in a year, though the disease is still sadly common in Ireland.

Nothing is more stupid than to talk of the "good old days", as if every one had been happy, and wise, and strong, long ago. The more we learn of those "good old days", the more we learn how bad they were, and how much better off we are now; though our children's children will think us bad enough, when they have swept away alcohol and consumption and other terrible evils which we could abolish at any time if only we were wise enough.

(Extract from "*The Book of Knowledge*," edited by Arthur Mee, Vol. 2, p. 1183. Publishers: The Standard Literature Co., Ltd., Calcutta).

[This cannot of course, apply to our ancient but unfortunate land where 'good old days' did exist once upon a time. Now, millions die of preventible diseases, every year. The State does next to nothing to improve the living conditions of the people.

—Ed., P.H.]

LAW AND PEOPLE'S HEALTH.

LIABILITY OF LOCAL AUTHORITIES. A SUMMARY OF THE LAW.

By K. S. S.

What is the nature and extent of liability of public authorities, e.g., the Corporation or Municipal Council in suits at the instance of a person who has suffered injury by reason of any act or omission attributable to the Corporation or its servants or contractors? The matter has been considered by the English Courts and there is a large body of decisions on the subject. The Indian Courts follow the English Rulings to a large extent. But it is necessary to note that some of the rules in England are based on the distinction between

predecessors of modern highway authorities were not liable in respect of mere non-feasance, and a transfer to a public authority of the obligation to repair does not of itself create the liability.

"Although, however, the general rule is as stated above there may be exceptional cases in which the Statute transferring the obligation has created a liability even in respect of mere non-feasance.

"On the other hand, a highway authority will be liable, in the absence of contributory negligence, to a passenger for injuries caused by its misfeasance; and this is so where the

Ignorance of law is no excuse. Therefore a person has to act on his peril even though he may not know his legal obligation. Hence, it is necessary to educate the 'Common man' on the subject.

By giving extracts from the decisions of the Courts of Law in these columns, we do not encourage or recommend people to resort to litigation, at the slightest provocation. Our purpose is only to bring to notice the duty which the public authorities or individuals owe to the people and the rights and duties of individual citizen.

At the same time, it can not be gainsaid that a knowledge of their fundamental rights by all citizens and the realisation thereof by public authorities will be the finest check on such authorities which may otherwise be tempted to trample down those rights with impunity.

It should be remembered that litigation is an expensive luxury. But those who can afford to bear the cost and stand the strain of litigation, owe a duty to the public by establishing valuable public rights through Courts of Law.

—Ed., P. H.

indictment and action in regard to what is done in a Highway which is peculiar to the English Law and should not, as was held in *Manzur Hasan v. Mahamad Zaman*, 52 I.A. 61, be applied to India.

The rule of English law has been stated in 16 Halsbury pp. 332-334 as follows:—"In general, no action for damages will lie against a highway authority at the suit of a person who has suffered injury through mere non-feasance of the authority in the discharge of its duties; and in order to establish liability it is necessary to show some act amounting to positive misfeasance as opposed to mere non-feasance. The

misfeasance be attributable to it in its capacity of highway authority or in some other capacity, e.g., as Sanitary authority. Any person who interferes (however lawfully) with the ordinary structure and normal condition of a highway is responsible as for a misfeasance until it is restored to its proper and normal condition, so that it can properly and without undue risk be traversed by the public. Thus an authority has been held liable where it has pulled down and failed to replace a fence protecting passengers from a dangerous ditch; where it has erected a fountain on the highway and not repaired it so as to prevent stones from falling

therefrom; where it has erected a post in the middle of a footpath to prevent cattle straying on it and has allowed an adjacent street land to be unlighted; where its servants, or other persons for whose acts it is responsible, have left heaps of stones or materials upon a highway without guarding or lighting them, or have broken up a highway for repairs and have not guarded or lighted it during the work, or have not properly restored the highway afterwards, or have caused an accident by negligence in executing the work. * * * * *

At page 336, it is stated thus:—"There are also certain cases in which a highway authority has been held liable in its capacity of sanitary authority for negligence in failing to maintain in a proper state some appliance properly placed by it or its predecessors in the street, or to remedy some defective appliance placed there by its predecessors: thus it may be held liable for accidents due to defective sewer gratings, or manholes, or to defective sewers caving in or forming a hole; so, too, where it has placed an iron flap in a street to cover a water meter and allows it to become dangerously slippery. But an authority which, in a proper manner, places a water plug or manhole cover in the street, is not liable merely because as highway authority it subsequently fails to keep the surface of the surrounding roadway level with the plug or cover; and apart from negligence, an authority is not liable where a sewer, though properly constructed by its predecessors had subsequently given way. Where an authority agrees with a tramway company to repair a road primarily repairable by the company, the liability in respect of accidents is transferred to the authority."

That a public body is not liable for non-feasance has been the law in England for a very long time. In *Russell v. The Men of Devon*, 2 T.R. 667, decided in 1788 it was so held following the rule stated in Brooke's Abridgment where it is said that "if a highway be out of repair by which my horse is mired no action lies, 'car est populus et surra reforme per presentment,' which must be understood to mean that as the road ought to be repaired by the public no individual can maintain an action against them for any injury arising from their neglect." And Lord Halsbury said that that has been considered to be the law for more than a hundred years. *Cowley v. New Market Local Board*, (1892) A.C. 345 at 350.

What is misfeasance and what is non-feasance? "The term 'misfeasance' is used to describe the improper performance of some lawful act.

'Non-feasance' indicates a failure or omission to perform some act which there is an obligation to perform. Thus it is a misfeasance for a highway authority which has a duty to repair roads to remake a road and open it to the public with a hole in it, and a non-feasance to permit a road to become worn into a hole, or to fail to repair wood paving which has bulged as a result of heavy rain. The distinction has no application to the question of liability when the duty properly to do the particular act omitted or improperly performed has been established, but the distinction between an injury arising from misfeasance or from mere non-feasance has a material bearing on the question whether a duty does or does not exist towards the individual injured.

"Its bearing on negligence is limited to the cases of injury resulting from (1) the omission to do something in the course of gratuitous services, and (2) the non-performance by public bodies of acts authorised by their statutory powers.

"Non-feasance of gratuitous undertaking does not impose liability; misfeasance, on the contrary, does.

"The failure to exercise statutory powers or to perform statutory duties only renders the body having such powers or duties, liable to a civil action if the statute intended to give a right of action to a person injured by such failure. Thus it is not given in the case of a sanitary authority for failing to remedy a defective system of drainage which it was under a statutory duty to do; nor, in the case of a water company, does the fact that penalties are imposed for the breach of a duty directed by statute, for example, that of furnishing a sufficient supply of water for public purposes at a particular pressure, enable a person injured by the failure to supply water to recover damages. On the other hand, where a duty, imposed, but not sanctioned by a penalty, to indicate the position of fire-plugs in the street by marks on buildings near, was carried out by placing such a mark so as to indicate incorrectly the position of a fire-plug, the defendant was held liable. Similarly, a water-works company placed under a statutory duty to repair stop-cock boxes put up by it in the street, which failed to perform that duty, was held liable for injury caused in consequence. So, too, drainage Acts directing the maintenance of certain works and a statute directing the safe maintenance of lighthouses and buoys in a harbour, a statute providing for the maintenance and repair of a swing-bridge, and the

Railways Clauses Consolidation Act, 1845, by which the duty to maintain a proper gate at a level crossing is imposed, have been held to contemplate a right of action to persons injured by the failure to carry out those duties.

"The wrongful exercise of statutory powers or the negligent performance of statutory duties carries with it liability if injury results". (23 Halsbury, pp. 588 to 590).

As to whether a particular act or default or omission falls properly within the description of misfeasance or non-feasance is a matter of considerable difficulty and in one case, Lord Halsbury was of opinion that in several cases that which was described as an act of non-feasance might be considered misfeasance, within the meaning of the rule above stated. *Shoreditch Corporation v. Bull*, 90 L.T. 210.

We now proceed to consider some of the cases in which the above principles have been applied.

In *The Borough of Bathurst v. William Macpherson*, 4 A.C. 256, the facts were these. The Municipality of B incorporated under the New South Wales Acts and having thereunder the care, construction and management of the roads and streets within their municipality, constructed therein a barrel drain into which ran an open drain, the brick work of which having broken away, and not having been repaired, a hole was caused into which the plaintiff's horse fell, carrying the plaintiff with him, crushing the plaintiff's leg against one side of the hole and causing a compound fracture of the leg. In an action claiming damages against the municipality, held that the municipality was liable for the reason that not only was the barrel drain made by them, but the sole control and management was vested in them, and by reason of their construction of that drain and their neglect to repair it, a dangerous hole was formed which was left open and unfenced and they caused a nuisance in the highway for which whatever their statutory obligation to repair may have been, they were liable to an indictment and also to an action by the plaintiff who had sustained direct and particular damage from their breach of duty. Sir Barnes Peacock said, "The question upon these facts is, whether the Municipality having constructed the barrel drain was not bound to keep it in a state of repair which would prevent its causing a dangerous hole to be formed in the highway. Having, under the statute, the care, construction, and management of the roads and streets, the construction of the barrel drain by the Appellants was lawful; and the care

and management of the roads being vested in them, the drain was in their control, and they had full power to repair or otherwise deal with it. Their Lordships are of opinion, under these circumstances, the duty was cast upon them of keeping the artificial work which they had created in such a state as to prevent its causing a danger to passengers on the highway which, but for such artificial construction, would not have existed, or at the least, of protecting the public against the danger, when it arose, either by filling up the hole or fencing it."

In *Victoria Corporation v. Patterson*, 1899 A.C. 615, a Corporation took over the care and control of a certain bridge. One of their officers bored certain holes in the beam in the bridge. Four years later a tramcar containing the plaintiff's husband passed over it when the bridge broke down and the plaintiff's husband was drowned. In an action by the plaintiff for damages, it was found that the boring of the hole had materially weakened the beam and that act having been done by the corporation's officer, the corporation was liable for damages caused by the breaking down of the bridge.

In *Hawthorn v. Kannuthluik*, 1906 A.C. 105, a municipality had under its control and management the drains within the district. In course of time it became increasingly insufficient to hold and pass on the mixture of slime and sewage poured into it with the result that the plaintiff's property was flooded thereby. In an action by the plaintiff, it was held that the municipality was liable for negligence, notwithstanding that the drain when first formed was sufficient for the purpose. Lord Macnaghten observed, "As for negligence, it is difficult to imagine a more conspicuous example of negligence than is shewn by repeatedly pouring offensive stuff into a receptacle or channel proved over and over again to be insufficient to hold it and pass it on. The municipal authorities might just as well pour this stuff directly on the plaintiff's land. The damage to the plaintiff cannot be denied. It is nothing to the purpose, even if it be true, to say that the property in the plaintiff's hands and in the hands of his predecessors in title, was often flooded before the municipal authorities turned the watercourse into a public drain. Nor is it enough to prove that the work done in 1898 was sufficient at the time. It is insufficient now. It has been insufficient for sometime past. The mischief grows as building increases, as new roads are made, new channels formed, and more and more of the surface

becomes impervious to rainfall. It is not suggested that there is any real difficulty in remedying the mischief. Indeed, if the evidence of the surveyors called on behalf of the plaintiff may be trusted, the matter can be set right at a very trifling cost."

(To be Continued.)

EVADING BYELAWS.

Recently it was the writer's experience to sit in a Justice Court and observe the handling of an interesting case where an owner apparently willfully forced a tenant to live in a house for approximately five months without connecting the house plumbing to the already dug cesspool.

Early in November, 1945, the defendant purchased an occupied rental house and moved it into another location. The tenant was permitted to leave his furnishings in the house and when he was unable to locate another home he continued to live in the house. The new owner ordered the tenant to vacate and reports are that the O. P. A. prevented eviction.

In the meantime, all sewer connection activities were discontinued and the case came to the attention of the local Health Department.

During the sanitarian's first visit, a gentleman claiming ownership agreed to install the several lengths of cast iron soil pipe needed to connect the house with the cesspool. Several re-inspections were made and finding no progress, the sanitarian again contacted the admitted owner who stated that he would not make the connection. The sanitarian then informed the gentleman, that his refusal would force court action. This gentleman informed the sanitarian that he did not own the property and that his daughter was the owner.

The lady was contacted and reports are that she flatly refused to allow the connection to be made, saying: "It appears silly to me to have to put in facilities for someone whom you are trying to get rid of." That statement is from a lady who, I am informed, is a teacher in one of our public schools. The sanitarian also reports that the father stated while speaking about the O. P. A.: "If this is democracy to h—with it."

On January 10, 1946, the local Health Department served a legal notice to abate the nuisance, and the case was brought to Court on February 5, where the defendant pleaded not guilty and demanded a jury trial. The case was set for February 27. In the meantime, the defence attorney asked for and was granted a continuance until March 19.

On March 19, the defendant changed her plea from not guilty to guilty. The case was set for sentence on March 26, at which time the defense attorney made a plea for probation, stating that war conditions had caused a shortage of materials, and as his client did not have a priority, she was unable to purchase the soil pipe until the last few days, and that the house was then properly connected.

The sanitarians gave testimony that the connections had been completed the evening of March 25.

The Judge gave an excellent charge, stating that such conditions could not be permitted because whole communities could become contaminated by such careless wilful action, and found the defendant guilty assessing a \$50 fine. Upon recommendations from the District Attorney's office, the Judge suspended the fine and placed the defendant on probation for one year providing she complied with all orders of the Health Department.

Let us analyze this case, checking it against another case which violated a sewage disposal ordinance and minor traffic violations such as stop signs, parking, etc.

The next case heard by the Judge was that of a defendant maintaining a privy in a sewer district. He paid a fine and was ordered to dismantle the privy and connect to the sewer.

Both cases were potential public health hazards and could spread disease. In the first case the defendant was permitted to perpetuate the health hazard over a long period of time.

The defendant was permitted to flout and evade the law, thereby belittling the health authority.

Would this be tolerated in the case of traffic violations? They are only potential safety hazards.

The defendant, through the defence attorney, claimed war conditions caused shortages of materials and being without a priority purchases were impossible. Is that true? The war is over and the steel strike didn't start until the last of November. Materials were more plentiful then than in March. Yet between March 19 and 25, the defendant was able to purchase and have the material installed. Bear in mind the purchase was made after the steel strike had been in progress for five months.

The case cost the County several hundred dollars in time and mileage of the sanitarians, to say nothing of the Judge, jury and other court costs. For what! The lady was told

that she was a bad girl and to go home and be good.

Now who was on trial? The property owner or the sanitarian?

The public agencies employ sanitarians, charging them with certain duties and demand that they know their business. They are held responsible for many ills which can develop

from lack of sanitation. Yet when they recognize potential health hazards they do not receive the proper support.

Isn't it time that authorities properly inform themselves of the importance and reasons for the various public health laws? ROSCOE C. DAVIS, R. S. (From "The Sanitarian", Vol. 8, 1946.)

IMMUNITY OF HIGHWAY AUTHORITY FOR DAMAGE CAUSED BY NON-REPAIR OF A HIGHWAY.

"There is also no basis in principle for the immunity of highway authorities for non-repair and there is no reason why they should not be liable on the ground : first, of breach of statutory duty leading to damage ; second, of the breach of a common law duty to avoid a public nuisance arising in property under their control. This liability would appear to follow from well-established principles, unless it is excluded expressly or impliedly by a particular statute. The rule of immunity has been rendered tolerable by courts recognising the qualifications that a highway authority is liable for misfeasance. As modern roads are by reason of artificial and extraneous works and structures in them very different from old ones and dangers usually arise by neglect in respect of such works and structures, road authorities are held liable by regarding such neglect as a misfeasance. The rule is to be limited to non-repair of a road *qua* road by a highway authority *qua* such authority."

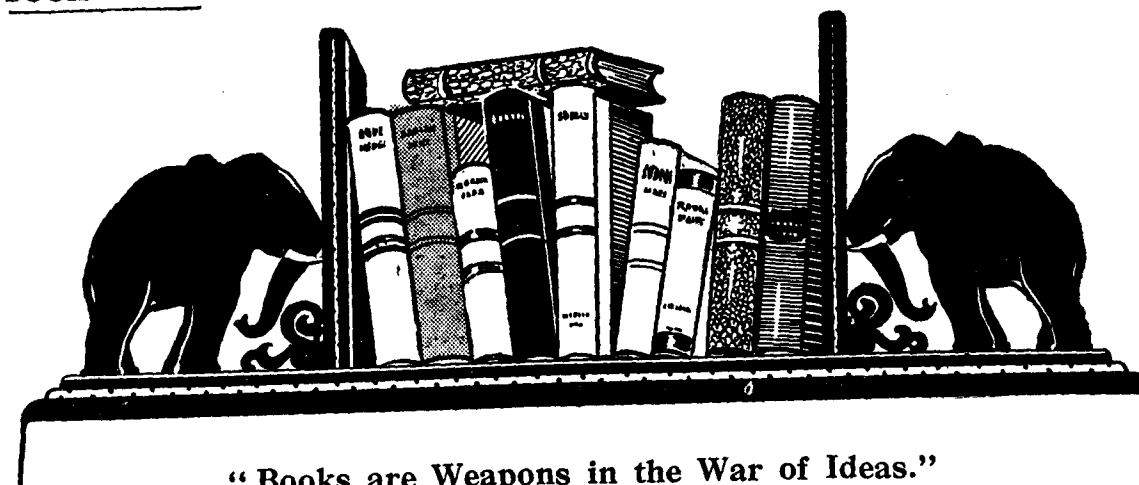
(Extract from "The Law of Torts", by S. Ramaswamy Iyer, p. 168, 3rd Edn.)

GENERAL CONDITIONS OF LIABILITY IN TORT.

There are certain conditions which must be satisfied before liability in tort can arise. They are :

- (i) An act or omission on the part of the defendant.
- (ii) Intention, or negligence, or the breach of a strict duty on the part of the defendant.
- (iii) Damage resulting to the plaintiff which is not too remote a consequence of the defendant's conduct.

(Extract from "The Law of Torts", by P.H. Winfield, p. 22).



"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 !

FARMING AND MECHANISED AGRICULTURE, 1946.

Advisory Editor. Sir R. George Stapledon.

Publishers.—Todd Publishing Company, Ltd., London and New York.

Size.—9½" X 5½".

Pages.—491.

Farming and Mechanised Agriculture for 1946 is a reference book on British agriculture and its aim is to furnish the average Britisher with valuable information on the agricultural activities of his country so that he can play his part in shaping the agriculture policy of post-war Britain.

The present world-wide food crisis has brought agriculture into the lime light as never before and helped to focus attention on the food and agricultural problems of the world. The first section of the book contains a number of articles on current agricultural topics by well-known experts and emphasis is laid on the global nature of the problems. The conservation of the productive soils and water resources of the world is a necessary pre-requisite for keeping out starvation. Hunger has to be ended if we are to hope for a permanent peace in the world ; for hungry people wherever they may be make fertile ground for discontent, disorder and dictators.

In one of the articles Lowdermilk has stressed the fact that increase in agricultural production can be had mainly by improving the lands already under cultivation rather than by clearing or reclaiming new lands, however, important that may be. He has referred to the

need for a comprehensive and thorough examination of the uses of forest and cultivated lands with a view to secure the well being of the people.

Easterbrook of the Ministry of Agriculture and Fisheries has put forward the view that by increasing the number of people who are getting sufficient food of the right kind to keep them healthy and resistant to disease we are lessening the likelihood of future wars. The emphasis on securing adequate food of the proper quality as a measure of keeping the people contented has particular significance to India. The problem of raising the standard of life in India so as to allow every one to enjoy adequate diet without at the same time accelerating the rate of increase in the population which is already growing too fast, is complicated. A solution has to be found if civil disorder is to be avoided.

The article on 'Humus and Fertilisers' by Hopkins is critical of the unconscious tendency in the last few decades of under-rating humus as a factor in soil fertility. This is of special interest to India where one of the limiting factors of crop production is the deficiency of humus. The incorporation of humus into the soil is the foremost step in any system of permanent agriculture but unfortunately sufficient attention is not being paid to this aspect in the present day craze for building up fertilizer factories.

The article on English Village by Gardner and the emphasis on the community spirit in the village is very interesting. According to Gardner it is never difficult in Great Britain to

enlist a band of volunteers to carry out any job or work of communal benefit and the secret of this successful community life is the presence of natural leaders in the villages. The following remarks of Gardner will be of interest in view of the measures taken for Firka development in Madras :

"The provision of adequate social life in the villages is not a question of money or urban sympathy but of keen personal interest and spirit of public service. In this connection one thing is certain. A vigorous communal life cannot be maintained without a suitable communal centre. Next to rural housing the building up of village hall should be given high priority."

The eleven other sections in this book deal essentially with information useful to the British farmer. Particulars of the various institutions and organisations behind the agricultural activities in British are given. The details will not interest the average Indian reader except to indicate what measures can be taken by the Government and the public to foster agriculture.

M. S. SIVARAMAN,
Indian Civil Service.

BACILLARY AND RICKETTSIAL INFECTIONS.

Author.—William H. Holmes, M.D.

Publishers.—The Macmillan Company, New York.

Price.—\$ 7.00.

Size.—6½"×9½".

Pages.—676.

America is slowly but relentlessly forcing itself to a leading position in medical literature in the English language. In number, in variety, in range and scope as well, American productions are earning a good reputation among medical readers. The book under review is one that goes a long way to keep up and enhance that reputation.

Dr. Holmes is the Professor of Medicine in the North-Western University of Chicago ; and he has chosen to characterise his production as "a text-book." Lest one may be tempted to take it as a text book of Medicine the author says in the penultimate paragraph of his 'Preface,' that he has confined himself to Bacterial and Rickettsial infections to avoid the production of "an exceedingly bulky and expensive volume." He promises another interesting volume on virus, coccal, spiro-chætal, and protozoal infections. Even so, it is only

the infectious diseases that are proposed to be dealt with. This is not therefore a text book of general medicine which the student of the final M.B. class can avidly turn to help him over the graduation hurdle. It will help him half way and help him very well indeed to get the best grasp of the subject that a teacher can ever hope to achieve.

From its limited scope, it is more a text-book of Epidemiology of Infectious Diseases. As such it will be quite a valuable addition to the library of every health student and health worker. There are not many productions in the field in this subject ; among the few that are available, Dr. Holmes's book will certainly gain a front rank. Its popularity is unquestionable. No one who reads the book will be tempted to stop half-way or refrain from enjoying it again and again.

The novelty about the book is that it is not what it professes to be. It is not a "text book" as text books are now understood. There is no conventional assembling of information, routine method of dealing with the topics, nor the inclusion of factual and statistical data which one always associates with a text book. And yet the book gives a complete picture omitting nothing of importance. To achieve this result in a professional text book is an art in itself. Dr. Holmes must be congratulated on being a genius in it.

The trick looks too simple to be adequately appreciated. Dr. Holmes is a practitioner and a teacher of medicine. He says this book is the result of his efforts to attain proficiency as a teacher. To do this he has chosen to look at every disease in a way opposed to establish tradition. He has preferred a mode of presentation which is quite unconventional in a book or in the class-room. This departure is the charm of the book. It is the unique way in which he deals with diseases that makes it so attractive. The evolution of every disease, with spicy anecdotes from ancient history stimulates the curiosity of the reader and student. The story of the causative agent, its limitations, the way it works its havoc, the biopathology, the disfunctions of the body which form the symptoms are all described more after the fashion of a novel rather than a sedate dry treatise.

It is this which grips the attention of the reader and helps to leave an unforgettable impression in the mind of the total picture of the whole disease process. Curiosity is roused, interest is stimulated, and the reader learns more about things in a better way.

The author acknowledges his gratitude in advance to constructive critics. There is only one criticism to be made. Constructive or otherwise. The author says he has had no compunction in calling to his aid the great teachers of the past. He is one of those who believe, with Voltaire that "dictionaries are made from other dictionaries." And yet, all rights, even to quote parts of this book—except in a review is reserved for the publishers. It is not right that the work of such a good writer like Dr. Holmes should be treated as a closely guarded monopoly. In the interest of science and for the benefit of those who are anxious to learn, this ban on the free use of a good book should be lifted.

"BELL."

THE CONDITION OF MAN.

Author.—Lewis Mumford.

Publishers.—Martin Secker & Warburg, Ltd., London.

Price.—25 Sh. net.

Size.—9½"×6½"

Pages.—467.

This book is the third in the series which Lewis Mumford has written. He started with *Technics and Civilisation* and went on to the *Culture of Cities* and has rounded off the series with the present book.

2. 'The Condition of Man' attempts a diagnosis by way of historical analysis of the causes which have led to rapid social disintegration in a world in which science has enlarged human powers beyond all conception. This book was written before the discovery of the Atomic Bomb was made public and is clear and logical enough to convince any intelligent observer that the elements that might lead to a complete disintegration of civilisation were already at hand. The actual invention and use of the atomic bomb, perhaps, provides the surest proof of the correctness of his prognostications.

3. His psychological approach which is very well blended with a sense of the historical and true appreciation of the philosophical analysis leads the reader into the rare regions of realisation where the march of civilization through centuries opens out into a clear panorama of life with its rise, decay and resurgence. And in the process he gives a correct evaluation of the works of philosophers and historians. His work is the first sociological analysis ever attempted of the present symptoms of disintegration of modern civilization.

4. He discusses Greek and Roman civilisations, their rise and decay and the causes which led to their decay ; the rise of Christianity and its peculiar development in the early Christian Era leading to what he calls the 'Organisation of Retreat.' He goes on to the synthesis achieved in the medieval period which gave rise to Scholasticism by reason of the peculiar sociological conditions which prevailed during the period. Scholasticism was in turn replaced by the growth of Rationalism which later developed into Naturalism. He shows how the ultimate agents in man's self-transformation—religion, art, ethics, philosophy, poetry and science—began to be appreciated and culminated in such masterpieces as have been produced by Dante and others. He goes on to say that 'to aim at unity is the prime condition of life ; to hold on to this unity, to immobilise it, is the prelude to death.' He finally traces its disruption and the rise of Capitalism, Absolutism and Protestantism and shows how the Church which regarded pride as a vice itself became the pillar of the economic and political order based on Capitalism, Absolutism, and Protestantism. Thus has risen our 'Economic Man,' aspiring to Power which has led gradually to corruption. Man changed from a human being to an Automaton, the idea of slavery gave place to exploitation until finally Man found himself the slave of his own creation.

5. He shows how Science became a fashion in thought and assumed moral authority in spite of the fact that scientific reasoning rested upon a floating foundation. This is followed by the Mechanisation of Education and the emergence of Modern Man.

6. The Industrial Revolution and the changes which it has brought about the rise of the cult of Marx and its limitations arising out of the leader's own limitations who 'had no plan for the deliberate projection of democratic methods into industry or of communistic processes and ideals into the art and science and morals of society.

7. He goes on to the period of Empire building which gradually developed into 'Natural Selection' theory under the influence of Darwin. The rise of Psychology via a study of the 'mechanism' of sex brought us to the First World War and the theory advanced by Spengler a respecter of physical force. And so the pageant moves on through barbarism to dissolution while those like Geddes who stood for life cried themselves hoarse in an attempt to 'revamp out of nature's original materials'

with the help of nature's original pattern, a more harmonised, a more finely attuned, a more complexly balanced expression of both personality and community' wherein mechanism would have a constant place as the servant of life rather than as its master. He pleads for a harmonious inter-relation of scientific investigation with social need of which Geddes was an exponent. And so we move inexorably to the Second World War and the destruction which it has wrought.

8. As the final conclusion, Mumford pleads for organic society through organic man, a re-orientation of the principles which must govern every political and economic measure, a harmonious blending of the opposing forces directed towards the creation of an individual and a universal society in which art and science, truth and beauty, religion and sanctity enrich mankind and fructify in an abundant life. We may as well wish with him that society will revalue values and attempt at the re-education of the individual by attempting at a co-ordination of the head, the heart and the hand rather than pin its faith in the three Rs.

9. On the whole the author has arrived at no conclusion and promises a postscript to the book for which we may wait with interest. He has shown himself as a master of the art of critical analysis, scientific synthesis and psychological approach and we may well be thankful to him for having produced a work which will assume greater and greater importance in the future by a reason of correct diagnosis of the pathology of disintegration of civilisation. It is, perhaps, the first work of its kind which has shown the way to a better future world.

M. B. CHABLANI,

Chairman, Madras City Improvement Trust.

LIFE AND HEALTH.

Authors.—Charles C. Wilson, John L. Bracken and John C. Almack.

Publishers.—The Bobbs-Merrill Company, New York, 1945.

Size.—9½" X 6½". *Pages.*—547.

"The child is the father of the Man," "Catch them young," "Implant health habits early in life"—such and other platitudes come easily to the lips of every one who professes to be interested in the country's health and welfare. Health education in schools is readily accepted as important and necessary. But precious little is done to implement it. Not even enough thought is bestowed on it by the

professional 'loudspeakers' or by powers that be. An intangible task not easy to accomplish, it suffers from the additional handicap of having two supposed godfathers. Educationists claim it as their sphere undeterred by the obscurity of a technical subject. Health workers deem themselves experts at it not knowing even the elements of the difficult art of teaching. This is well reflected in the paucity of text-books which could be used for such education at every grade from the lowest to the highest. To produce one is no light task. The educationist who does not know the subject cannot undertake to produce one; the health worker who knows the subject does not know how to impart his knowledge to the young. The difficulty is greatest if a good book is to be produced for the use of the high-school pupil; for it is at this stage that too little and too much are equally undesirable and inappropriate. It is therefore all the more refreshing to see a book produced conjointly by educationists and health workers specifically for the high school classes. The joint authorship has surmounted the initial handicap and the result is a volume which is easily one of the best of its kind.

The book is comprehensive in its scope. The structure and functions of the body, the hygiene of environment, health habits and practices, diseases and their prevention, first aid, and a glimpse of community, health and state participation have all been covered within a short compass. In every one of these fields, the basic facts are presented in a setting familiar to the student in his every day life and which he can grasp with the least effort and with a real interest. Every section starts with a resume and smoothly glides on to the essentials to be known. Each chapter has three suffixes one a 'quiz' which helps the individual to refresh his knowledge the second "worth talking about" which the pupils of the class can benefit by a mutual discussion, a sort of group revision and the third "Learning by doing" as its title expresses, is a set of topics on which are exercises suggested with the object of augmenting the practical knowledge of the pupil. A selected bibliography at the end of every chapter, and a glossary at the end of the book add to the interest of the reader.

The format of the book, its size, and weight make it attractive and handy. Profuse illustrations, chosen from real life and set in appropriate places will certainly induce the young reader to make full use of the book. For

such pupils nothing is so deterrent to intelligent study as a badly got up, ill printed, picture-less wordful volume which he is made to cram up as a hard task. In this respect the production has all the good features which a high school book should possess.

All that is said above is appropriate if it is remembered that the book is in English language and that it is meant for American schools. With high school education given in the multifarious local languages, and with our home and social conditions being so different from those

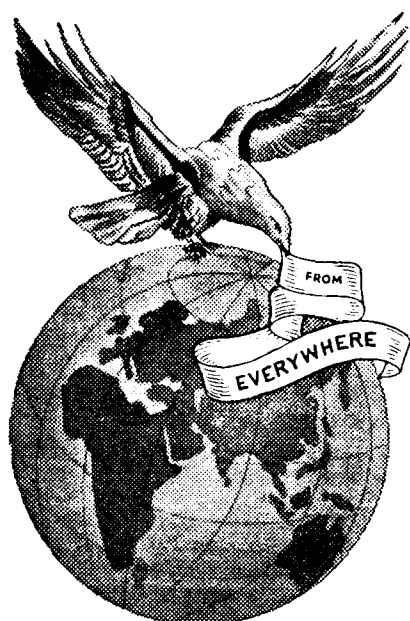
of western countries, we cannot straightaway make use of this excellent book in our schools. The chief merit of the book for us is the fact that it serves as a very good model. We should produce a similar one for our schools, written in our language, depicting our own conditions, presenting our pictures, and telling the pupil how we live and what we do about it. It should be a production more attractive—if possible—than the one under review. It is hoped that those who 'talk' will now 'act.'

"BELL."

THE BROAD AIMS OF LIVING.

Health of foremost importance.—Foremost of all the factors to consider is health because of its relation to everything that you hope to do or to become. From past experiences you realise how health dominates situations in life with it you can carry out many cherished ambitions, but without it, you are stranded. Doubtless you recall some occasion when a minor illness kept you from carrying out a coveted plan. Your plight would be immeasurably worse if ill health were to keep you from carrying out plans for life. Health must be guarded day after day; you cannot neglect it to-day with the calm assurance that you will have it tomorrow.

In safeguarding your health you face both personal and group responsibilities. You are responsible personally for the direct care of your body in such matters as diet, exercise and rest. The better you understand how your body functions and what it needs, the more intelligently you can establish a good health code. You face group responsibilities in your health programme because the problem of health is of public concern. People everywhere realise that by co-operative effort they can achieve far more in certain phases of health than any one person can achieve alone. Thus through voluntary and governmental agencies they pool their interests to the end that all are benefited. Among the many co-operative activities which benefit the public are the purification of drinking water, the inspection of meat, the pasteurization of milk, and the disposal of sewage. Although you may have no direct part in carrying on these activities, you will wish to lend them support because of their general good. (From "Life and Health," by Wilson-Bracken-Almack. Publishers: The Bobbs-Merrill Company, Indianapolis, New York).



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.)

ANIMALS DOCTOR THEMSELVES!

A fawn which has been wounded will lie on the ground with the wound exposed to the air and sun. Some instinct apparently tells it that the sun and air are healing elements. But the fawn even goes farther than that. It keeps the wound clean by licking it.

It is also known that many kinds of birds and animals eat certain herbs containing chemicals which their systems need. The herbs are eaten only at certain times, not as foods, but as medicine. Again, we say that 'instinct' tells the animal what to do. Instinct in our language, describes some controlling force which we cannot explain.

Some observers have seen a wolf, which was bitten by a rattlesnake, chew snakeroor.

The wild turkey is known to force her poults to eat the leaves of the spice-bush during a rainy spell when they are especially subject to colds.

The purpose of bathing, either in water or in dust, which most of us have observed among birds and animals, is to rid their bodies of parasites. A horse rolling in the dust is not putting on a show for his friends, but is actually taking a therapeutic treatment. Chickens and wild birds take dust baths.

It is said that old grizzly bears find hot sulphur springs in which to bathe, apparently to ease the pain of age. (From "Nature is stronger than Fiction," by John Y. Beaty. Pub-

lishers: George G. Harrap & Co., Ltd., London, Toronto, Bombay, Sydney).

AGRICULTURAL RESEARCH COUNCIL AND INSTITUTE OF SEWAGE PURIFICATION.

Memorandum on the agricultural use of sewage sludge and straw composts.

Since 1940 field experiments have been made in different parts of England, and laboratory and greenhouse experiments have been made at Rothamsted Experimental Station to test the manurial value of sewage sludge. The production of sludge, its physical properties and chemical composition, and the preparation of composts from sludge and straw are described. It is concluded as a result of the experiments that sewage sludge is of value as a source of nitrogen and phosphorus, which slowly become available to plants. Its manurial value is less than that of an equal weight of good farmyard manure but it may have a beneficial physical effect on land. Sludge is markedly deficient in potash. Because of the cost of transport, application to land of sludge containing more than 50 per cent. water is usually uneconomic. Sludge containing activated sludge which has been digested, dried and pulverized, is the most valuable form of sludge for use as a fertilizer. Sludge containing metallic or other industrial wastes may be harmful to crops if applied in large amounts;

the phosphate in such sludge may be unavailable to plants. (From "W.P.R. Summary", Vol. XVII, 1944, No. 1401).

HUMUS IN SOIL FERTILITY.

The Role of Humus in soil Fertility and its maintenance by the utilisation of Agriculture and Habitation wastes. A. R. P. Walker, Pub. Health (S. Africa), 7, 17-30, (1943).

The author summarizes briefly the problem of fertilization of the soil, the need of organic material or humus, and the lack of knowledge thereof a few years ago by the new settlers in South Africa. From the decay of organic material in the soil, humus results, which improves the physical properties of the soil, affects the oxidation of protein compounds to ammonia (and later to ammonium nitrate) and offers a habitat for micro-organisms, mineral salts, and nitrogenous bodies. The chief sources of organic matter are the root system of crops left in the ground, green manuring in which a leguminous crop is grown and turned in, and farmyard manure, either natural or artificial.

In the warmer climates where the average soil temperature exceeds 77° F., humus does not accumulate in the soil but is continually destroyed in arable land by the greater activity of the micro-organisms. Following a plea for the utilization of organic wastes in improving soil fertility, the author points out that compost is not intended to supersede mineral or artificial fertilizers. Humus and artificials supplement one another in a balanced combination.

Recently, Howard proposed a system at Indore, India, for composting. On a prepared floor in the compost pit, 6" of waste vegetable matter is deposited. This is covered with 2" of farmyard manure then sprinkled with earth (urinized if possible), and mixed with wood ashes, if available. The proportion of mixed waste to farmyard manure should not exceed 3:1 by volume. Successive layers of the sandwich are built up until the material in the pit after fermentation is 3" thick. The layers should be kept moist, but not wet. After 2 or 3 weeks, the pit contents should be turned and watered if necessary. A second turn and watering follows at the end of 6 weeks, from the start. The mass has then crumbled and turned black. In 3 mo. from the start, the carbon nitrogen ratio has fallen from 33:1 in the original mix to 12:1. The humus is then ready for the land. In India such compost shows (on an air dry basis) 20 per cent. organic matter, 0.9 per cent. nitrogen, 0.5 per cent. phosphate

(P₂O₅) and 2.2 per cent. potash (K₂O). In Rhodesia the content may be 0.8 per cent. N., 0.4 per cent. P₂O₅, 1.0 per cent. K₂O, and 1.9 per cent. lime. Of this a dressing of 5 tons per acre is used, usually reinforced with phosphate.

Domestic wastes may be handled in a similar manner, in special pits. A layer of refuse 3" to 4" thick is placed in the pit (2' deep, 500 cu. ft. capacity). Another layer is placed on a slope, then night soil is added and raked in. Successive layers are added to a depth of 2' in 2 da. Two ins. of refuse are left on top. After 5 da. the contents of the pit are turned with drag rakes. After 10 da. more, the mix is again turned; after 1 mo. from start the material is removed and stacked in heaps 4' high for ripening. After another mo. it is ready to use.

Compost has been made with refuse (probably garbage) and sewage sludge (applied wet), in the proportion of 2 parts sludge to 1 part refuse. This is turned 2 da., 6 da., and 10 da. from start. After 14 da. the mix is removed and stacked to ripen. After 10 wks. more it is ready for use. At Maidenhead, 6 tons of humus are recovered from 25 tons of refuse. In England, such material sells from 9 shillings (£1.80) per ton.

Other microbiological methods have been applied at Kensington and Harrow (England), where the refuse is sprayed with a bacterial culture and deposited in cells holding 180 tons each, where for 16 da. it ferments.

Warning is given that household refuse may not be suitable for composting unless properly sorted.

Sewage sludge is frequently used the world over for fertilizer when air-dried. In Johannesburg, the demand exceeds the supply.

In the discussion, McLachlan points out the value of compost to gardeners near towns. Wilson points out the value of digestion of sewage sludge in reducing the grease content. Timson claims that in Southern Rhodesia the value of composting is definitely established.

Abstracter's Note: Those interested in compost for garden purposes may refer to "America's Garden Book" by L. and J., Bush-Brown (Edn. 1941), pp. 7-16, in which compost making is described, with a method for hastening decomposition by adding 75 lbs., ammonium sulphate, 50 lbs. superphosphate, and 100 lbs. ground limestone per ton of material. The pile should be kept moist and turned every few mo. Similar artificial composts are recommended by various agricultural experimen

stations (e.g., University of Florida, Agric., Expl. Sta. Press Bul. 517, 1938, "The Production of Artificial Manure on the Farm" by F. B. Smith. He recommends per ton of litter or straw a mix of 67.5 lbs., ammonium sulphate, 22.5 lbs. superphosphate, and 60 lbs. limestone. Another reagent would be a mix of equal parts cyanamid and ground rock phosphate). The reviewer has used the procedure in his garden for a number of years. Under present war conditions, sulphate of ammonia is not obtainable. For those with a permanent garden, manure or sludge can be tried as a substitute to hasten bacterial action. Smith suggests a layer of 4" to 6" of material to be composted, then 2" to 3" of manure on top, then wet thoroughly; continue building up the heap with alternate layer. This compost has the same value as ordinary farm manure. Smith states that the practice of making artificial farm manure cannot be recommended for general farm use: LANGDON PEARSE. (From "P.H. Engg. Absts.", Vol. XXIV.).

BOMBAY BRAINS TRUST.

Advised by Brains Trust this evening at the Y. M. C. A., when a bony gentleman wanted to know how it could grow fat. The Panel of the Trust: REV. H. J. MURLENEUX (Q.M.), Mr. M. R. MASANI (Pol. and Eco.), Mr. N. V. MODAK (Eng.) and Prof. DARUVALA (Gen.).

The questions asked: What is the relation between Science and Music and Science and Poetry? What distinguishes compliment from flattery? Why men alone go bald? Why young men stand erect? and What is Mandrake? ANSWERS: Science views things in sections and will go down even to atoms while music or art takes things as whole, both aiming at the betterment of life, a compliment is paid to something that exists, not so flattery, hair grows upwards and downwards, if it touches gray matter, it grows grey, if it touches vacuum, baldness results. Young men stand erect because they grow that way, the Brains Trust never heard of Mandrake. (Press Cutting).

CIVILIZATION AND DISEASE.

(By Henry E. Sigerist, M.D., D. Litt., LL.D., William H. Welch, Professor of the History of Medicine in the Johns Hopkins University, Baltimore. Cloth. Price £3.75, pp. 255, with 52 illustrations, Ithaca. New York: Cornell University Press, 1943).

This book is based on a series of six lectures delivered by its author at Cornell University in November and December, 1940. It is essentially an introduction to social medicine

beginning with civilization as a factor in the genesis of disease, tracing the various technics by which society has fought disease and concluding with chapters on disease in literature, art and music. Dr. Sigerist's approach to the accomplishments of medicine is one which constantly urges more and more improvement. "We must never say that health conditions are good," he says, "but must rather ask ourselves constantly whether they are as good as they could be." He points out that every society still carries an enormous burden of unnecessary illness. He recognizes that poverty remains the chief cause of disease and that it is a factor which is beyond the immediate control of medicine. He urges, finally, a system of health services that reaches everybody, healthy and sick, rich and poor. "We must break down the artificial barriers between preventive and curative medicine," he says. Medicine, he feels, should be considered a social science and merely as one link in a chain of social welfare institutions that every civilized country must develop. He feels that the civilized society of tomorrow will have for every family a family doctor and also a family health centre. "The physician will become a public servant—scientist, social worker and educator—and medicine will increasingly shift the emphasis from disease to health." (J.M.A.A., Vol. 126, No. 12).

THE CORROSION OF CEMENT AND CONCRETE.

(HAMMERTON, C.: Paper read at a meeting of the Metropolitan and Southern Branch, Institute of Sewage Purification, October, 1944).

A survey of the available information on corrosion of cement and concrete. Soft water may be very destructive to Portland cement and concrete. At Vannes, France, concrete pipes were completely destroyed in 7 years by a pure spring water. Water containing humic acids does not usually attack cement and concrete unless temperatures are high, as in tropical swamps. Of inorganic salts which attack cement, sulphates are the most troublesome. The mechanism of the attack by sulphates is described. Resistance of Portland cement to attack by sulphates may be increased by curing the cement in steam. When concrete is to be placed before the surface of the ground the composition of the soil and of the water in the vicinity of the concrete should be known. The amount of salts in solution determines the degree of aggressiveness of the ground water. Movement of the water due to

fluctuations in the level of the ground water or to the proximity of drainage systems causes an increase in the rate of solution of salts from the soil. Certain soils although not acidic, can give rise to acids by reaction with a solution of salts. This "exchange acidity" is estimated by shaking 100 gm. of soil with 200 ml. of a N solution of sodium acetate for 1 hour and then titrating the solution with N/10 sodium hydroxide solution, using phenolphthalein as an indicator. The exchange acidity is defined as the number of ml. of the solution of alkali required. If the exchange acidity is greater than about 20, the soil is potentially corrosive. The composition and properties of aluminous cement, which is more resistant to corrosion than is Portland cement, are described. The action of sea water or concrete is mainly due to magnesium sulphate. That part of a concrete structure which is alternatively immersed in sea water and exposed to the air is most subject to corrosion. Other cements which are more resistant to corrosion than is Portland cement include pozzuolanic cements, Portland blast-furnace cement and super-sulphate cement. The composition and properties of these cements are described. Concrete is not normally corroded by sewage, unless the sewage is septic, when the hydrogen sulphide produced attacks concrete. Hydrogen sulphide is produced by the action of bacteria on sulphates and on amino-acids containing sulphur. As the bacteria are more active at high temperatures, most of the cases of severe corrosion of sewerage systems have occurred in hot countries. Once septic conditions have become established in a sewerage system, further sewage entering the sewers rapidly turns septic. In the past, long sewers have been laid convey sewage to a considerable distance from a town and severe corrosion of the sewers has occurred. It would be preferable to build the sewage works as near the town as possible and to enclose as much of the works as would be necessary so that objectionable gases from the works could be removed from the air. Under certain conditions chlorination of sewage is the simplest means of preventing septic conditions. When hydrogen sulphide and air are in contact with a moist concrete surface, the hydrogen sulphide is either absorbed on the surface and oxidized to sulphuric acid, which then attacks the concrete with the formation of calcium sulphate, or the hydrogen sulphide reacts with the free lime to form calcium sulphide which is later oxidized to calcium sulphate. There is no information on the relative extents of these two reactions. Coating concrete surfaces delays but does not

prevent corrosion. Aluminous cement is attacked by hydrogen sulphide. Trade waste waters liable to attack concrete are usually rendered harmless in a sewerage system by dilution but corrosion may occur where the trade waste waters enter a public sewer. Sulphur cements, which are mixtures of sulphur and an aggregate, have been used in the United States for jointing cast-iron water mains. The action of a number of acids, alkalis, and other chemicals on sulphur cements is described. Free lime present in hydrated Portland cement attacks wood. (From "W. P. R. Summary", Vol. XVII, No. 11, 1944, No. 1163).

SWIMMING POOLS AND BATHING PLACES.

(Common errors in Planning, Construction, Operation, Use and Administration of Swimming Pools.)

According to the author faulty swimming pools are amazingly common. Ideal or near ideal pools are extremely rare. Some 30 types of errors frequently found in the planning, construction, operation, use or administration of the swimming pool are cited and briefly discussed. These shortcomings "represent avoidable mistakes, mismanagement, and waste of funds, are often irremediable or prohibitively expensive of correction," and may endanger and frustrate the education and recreation of pool users for generations. The article should be of interest to architects, engineers, health officers, pool planning committees, pool operators and administrators, or managers.—F. W. LUEHRING: (From "P. H. Engg. Absts.", Vol. XXII).

PRINCIPLES OF WORLD HEALTH ORGANISATION.

The Report of the Preparatory Committee referred to represent the Committee's views as to the general principles which should govern the constitution of the World Health Organization. It states the aims and objectives of the World Health Organization as:

1. To achieve the highest possible state of physical and mental health for all peoples.
2. To prevent the occurrence and control the spread of disease.
3. To stimulate the development and improvement of health services, both preventive and curative.
4. To provide information, counsel and assistance in the field of health and medical care.
5. To achieve the highest possible level of education and knowledge pertaining to health.

6. To unite for effective action the scientific and professional groups that contribute to the advancement of health.

7. To contribute to the harmony of human relations. (From "A. J., P. H.", Vol. 36).

WORLD HEALTH ORGANISATION A REALITY.

The Representative of the United States on the Economic and Social Council, the Hon'ble John G. Winant, presented a message from President Truman, which read in part:

"It is of great significance that the first international conference to meet at the call of the Economic and Social Council should have for its object the improvement of health, for this indicates the intention of the Council to grapple immediately with basic problems whose solution is essential to the welfare and happiness of mankind Modern transportation makes it necessary to develop strong health services in every country which must be co-ordinated through international action.

. . . . The right to adequate medical care and the opportunity to achieve and enjoy good health should be available to all people. For this objective, I can assure you the interest and the support of the United States." (From "A. J., P. H.", Vol. 36).

DISEASE OUTBREAKS RESULTING FROM FAULTY ENVIRONMENTAL SANITATION.

Heretofore we have not been well informed as to the number of outbreaks of disease resulting from faulty sanitation because of:

- Incomplete reports.
- Inadequate epidemiological studies.
- Failure to report.
- No systematic publication by any national agency.

Last year, the U. S. Public Health Service inaugurated the first nation-wide survey.

It was found in 1938 that there were 48 outbreaks reported due to water, 42 to milk and milk products, 70 from other foods, and 8 by unidentified vehicles, making a total of 168 outbreaks which involved 36,507 cases and 72 deaths. The data indicate the necessity of more intensive sanitary control of ground water supplies, and the inadequacy of control of surface-water supplies. Only 2 of the water-borne outbreaks occurred in communities of

more than 10,000 population, but one of these involved 29,250 persons.

Thirty-seven outbreaks were reported due to raw milk and one to pasteurized milk in which case the pasteurizer "broke down." Typhoid fever caused most outbreaks and deaths, but in the case of water, gastroenteritis caused most cases. Only 5 of the 12 outbreaks were in communities of over 10,000.

Food-borne outbreaks traced to pies and pastry were most numerous and those traced to pork and pork products were second, with fowl, salads, and home-canned vegetables third. Gastroenteritis caused most outbreaks and stray cases. An intensive study of food sanitation is needed.

Previous known incidence of water, milk, and food-borne outbreaks are reported. It is estimated that there are probably 5 to 10 times as many outbreaks, cases, and deaths as reported. The discussion takes no account of typhus fever undulant fever, and malaria with several hundred thousand cases and several thousands deaths per year, all the result of faulty environmental sanitation: PAUL F. KRUEGER: (From "P. H. Engg. Absts.", Vol. XX).

THE INFLUENCE OF "WHITE-METAL" COPPER-NICKEL ALLOYS ON THE FLAVOUR OF MILK.

Investigations at many experiment stations have shown that copper contamination from dairy equipment is the principal cause of oxidized flavour in milk. Recent developments of "white-metal" copper-nickel alloys include additions of other elements that apparently modify their corrosion rate in milk. This paper presents tests conducted with certain of these alloys to determine the rates of corrosion in milk, together with the effect upon milk flavour and upon ascorbic acid destruction. It is concluded that less copper goes into solution from alloys containing tin and zinc, so that the flavour of the milk is less influenced than with alloys in which these elements are absent. However, the influence on ascorbic acid destruction was found to be a more reliable index of the probable effect of the alloys on milk flavour. The effect on ascorbic acid destruction is a specific test for copper in solution; whereas the loss in weight does not necessarily indicate the relative amount of copper going into solution. Nickel, lead, and zinc do not influence the oxidation of ascorbic acid and do not cause an oxidized flavour in milks pasteurized in contact with pure strips

of these elements. M. K. HAVENS: (From "P. H. Engg. Absts.", Vol. XX).

THE NEED OF NOISE ABATEMENT.

Authorities in the fields of medicine, neurology, psychology, and psychiatry say that noises of civilization are causes of many acute and chronic ailments, and contributing factors in deafness, insanity, and heart failure. Noise interferes with the efficiency of workers to the extent that it costs American business \$2,000,000 a day. The elimination of unnecessary noise, or at least its reduction in cities, offices, and homes is the prime objective of the National Noise Abatement Council. JOSEPH L. QUINN, Jr. (From "P. H. Engg. Absts.", Vol. XXI).

FLIES AND INFANTILE PARALYSIS.

This article briefly tabulates eleven facts substantiating the hypothesis that common flies may play a role in epidemiology of poliomyelitis. Although these facts do not prove anything, they suggest that the disease may be controlled by environmental sanitation, similar to typhoid fever, and that the classification of poliomyelitis as a preventable disease may be justified. CHARLES M. MCGILL. (From "P. H. Engg. Absts.", Vol. XXIII).

FOR BETTER HEALTH AND EDUCATION

The Journal recently published information from Moscow about provisions adopted in Russia to encourage large families. In Brazil there is also a legal measure to support healthy childhood and provide a good education. Some institutions are obliged to pay their workers additional wages, a so-called family salary. Each worker receives his own wage for his occupation, plus \$2.50 for each child. This represents nearly a tenth of this normal base minimum salary established by the Government. Thus when a worker has ten children he receives double wages. This measure has a tendency to be adopted by employers in all industries. (J. A. M. A., Vol. 126).

SANITATION OF FOOD MARKETS.

The public market is a spot where there is visible as well as intangible and invisible, evidence to the public various Health services are functioning for its benefit. Following are functioning for its benefit. Following the primary assumption that the markets are clean, it would seem that all filth and disease germs are brought in. To eliminate this possibility, it should be a legal requirement that only healthy individuals

with clean hands, clean clothing, and clean habits be allowed to handle and dispense food for human consumption.

The second source of contribution of filth and disease-spreading germs to food is rats. They are not only carriers of bacteria and parasites but also transmitters of a number of their diseases. Rat-proofing should be a requirement in all food-handling establishments. Roaches are another problem that should be controlled, as well as street dust, faulty refrigeration, and other faulty means of sanitation. There should be authority to fix responsibility of meeting and maintaining standards of sanitation and cleanliness in order to protect the public health. M. K. HAVENS. (From "P. H. Engg. Absts.", Vol. XX).

MUSCLE TISSUE IS VALUABLE.

The rushing by aeroplane of 300 medical students to supervise the feeding with amino acids to thousands of Allied soldiers in German prison camps at the close of the war, brought this new wonder food to the attention of the whole world.

While it has long been known that protein foods are good body builders and repair worn out tissues, it is only recently become known that amino acids, derived from proteins, can build and repair much more rapidly than proteins themselves. I have spoken before of how quickly these starving allied prisoners were restored to normal strength by these amino acids.

It was found during the war that soldiers worn down by wounds, which means the loss of much protein tissue, were able to withstand hardships and recovered in less time when fed with amino acids.

In Surgery, Dr. J. E. Howard states that surgeons have long noted that chronically debilitated patients are poor risks for operation. However surgeons further noted that in cases where the protein tissues—muscles, nerves—were worn down, experienced quick healing of bed ulcers when they were given large amounts of amino acid.

"Patients with burns respond much better to skin grafting after their lost nitrogen (protein) stores have been replaced." Injuries and burns take more, or use up more of the body's store of nitrogen than do other ailments, so that the amino acids are particularly valuable in these cases.

In severe injury or serious illness there is a great amount of wastage or using up of protein tissue, because proteins, particularly muscle

PEOPLE'S HEALTH.

tissue, have more dynamic energy or heating power than other tissues. In other words the stronger or more muscular the patient is when injured the more he can give of this protein tissue to help fight the injury and thus make a quicker recovery.

Remember, being muscular is not the most important thing in life but it usually means that the individual has other health assets—good digestion, good lungs, strong heart. Five minutes home exercise and a daily walk is a good investment. JAMES W. BARTON, M.D., (Cutting from the National Standard, Bombay).

CHLORINE IN PUBLIC AND DOMESTIC SANITATION.

"In reviewing the virtues and limitations of chlorine, it is immediately evident that the virtues are many and the limitations few. The chief limitation of chlorine as a sterilizing agent lies in its sensitivity to the presence of organic matter, but in many cases this objection can be overcome either by super-chlorination or by chloramination and only in rare cases is its use ruled out by this restriction. On the other hand for the purpose of killing intestinal organisms it is unsurpassed. It is effective in very minute quantities, rapid in its actions unobjectionable and non-poisonous in the quantities used, and non-corrosive to plant and utensils when used correctly. Its method of application is simple and non-critical being capable of a wide latitude. It is a

strong deodorant and one of the cheapest and most effective antiseptics on the market. It is doubtful, indeed, whether any other chemical has done so much to conserve public health throughout the world. PAUL D. (From "P. H. Engg. Absts.", Vol. XXI).

SANITATION IN BAKERIES.

The baking industry "stands in fifth place nationally as to value added by manufacture and holds seventh place among all industries in the average number of workers employed. Although extensively mechanized, it continues to employ more and more workers. The more highly mechanized a bakery becomes the better engineers it requires to do the things that only human brains can possibly do. One outstanding thing that this men's equipment of the baking industry has accomplished is the inevitable low accident rate. The challenge now to the industry is bakery sanitation. Sanitation is a matter of education. Rules of sanitation must be direct, specific and rigidly enforced. They must include bakery personnel, bakery premises, and bakery products. Intensive courses and regular required attendance of all shop men and qualified leadership can meet the problem. Sanitation, the public's faith in the food baking industry puts out, is the key to a per cent. increase in bakery sales and realization of a 2-billion-dollar industry. M. HAVENS. (From "P. H. Engg. Absts.", Vol. X).

POTASSIUM IN RAIN WATER.

BERTRAND G. G. R. Acad. Sci., Paris., 1945, 220, 865. Rain water collected on a terrace at the Institut Pasteur, Paris, in the autumns of 1942 and 1943, was analysed for potassium. This period of the year was chosen because the rainfall is abundant and the low temperature is unfavourable to the development of micro-organisms and to attack on the collecting vessels. Potassium was determined as the chloroplatinate. The samples of rain water collected in 1942 and 1943 contained 0.2 and 0.4 mg. of potassium per litre respectively. The demonstration of the presence of potassium in rain water conforms the view that spray carried from the sea may be the origin of the magnesium which the author had previously shown to be present in Paris rain water. (see W.P.R. Summary, 1944, 17, Abstracts Nos. 368 and 369).

(Excerpt from "W.P.R. Summary", Vol. XIX, No. 2, Abstract No. 186).

2.500-146
N47-146
160780