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Vol. I

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THE HEALTH PROPAGANDA BOARD, MADRAS

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IMPORTANT

All the manuscripts for publication, books for review, Exchange of Journals and other correspondence relating to the Editorial Section should be sent to the MANAGING EDITOR, *Arogya Margam*, 57, Thambu Chetty Street, Madras.

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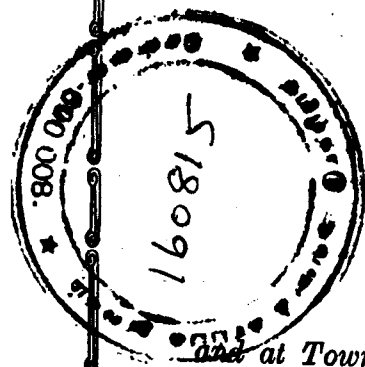
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Your Mouth—

Why You Should Keep It Clean

SOME of the most common questions which every doctor puts to his patients and his routine daily examinations are usually pertaining to your mouth and the conditions thereon.

You are not unfamiliar with the queries—"Show me your tongue, your teeth? Say, Ah—Ah—Ah." Your tongue is pressed with a flat instrument and a good view of the interior of the mouth will be taken, the gums will be pressed, your teeth tapped and the important entrances into the food and breathing canals, the ear tubes and the nasal holes will be carefully examined.

There is something very important and very interesting in the condition of the above parts of the cavity of the mouth which would give the doctor important clues to find out whether the body is healthy or otherwise.

There are thousand and one diseases which could be originated to the troubles in the mouth. Almost all the complicated and most severe diseases with high sounding names which the healing profession is familiar to speak every day and which would usually cause terror and panic among the suffering public, for example, pneumonia, Broncho-pneumonia, Tuberculosis, gastric ulcers, enteritis, hepatitis, rickets, anaemia, rheumatism, etc., etc., take root from an unhealthy appearance of the different parts inside the mouth.

How some of the diseases originate from the mouth and how they could be avoided are questions which require answer in detail.

We are not unfamiliar with the saying, where there is dirt there is danger. The same thing holds

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good to the conditions in the mouth. Our habits, our way of breathing, eating, selecting foods and attending to the cleanliness of the mouth have got a great thing to do to bring in or ward off diseases.

Breathing through the mouth is always dangerous since dirt easily enters into the mouth and make it unhealthy. Eating in haste or hurriedly without giving proper exercise to the grinders and without proper mastication by allowing taste juices to mix with the food will make the teeth, the muscular and the bony part of the mouth weak and non-resistant and the general health run down.

Eating too much of sweets and improper selection of foods would tell upon the structure of the teeth especially in childhood and render it diseased. The caries, a disease of the teeth which eats away the teeth tissue is chiefly due to improper selection of food. It is not unusual to find the mouth always foul and filthy in these conditions. Carelessness by not cleaning the mouth with pure water before and after taking food or drinking fluids makes the breath bad smelling.

It is of paramount importance to keep this entrance—the mouth of the body—the temple—always clean and healthy. When once the mouth cavity is made unhealthy disease organisms gain easy entrance and play their havoc.

The stunted growth, mental dullness, disfigurement of the face, specially that of the region of the mouth, partial deafness, chronic headache, eye troubles, disturbances of the digestive and the breathing apparatus and general run-down in health are in some form or other due to the unhealthy condition of the mouth. The parts in the interior of the mouth, the tongue, the teeth, taste glands, tonsils and other passages leading to food, breathing and nasal canals are so closely inter-related that an infection to one of the parts is likely to spread and cause mischief to the other parts also. Hence it cannot be over emphasised to keep perfect control, over our habits in connection with the mouth and its functions.

This leads us to the rules of the hygiene of the mouth and some of which are as follows:—

(1) Make it your daily routine to clean the teeth, tongue, the gums and other parts of the mouth with pure boiled water.

(2) Eat your food slowly taking plenty of time to masticate so that the taste juices could easily be secreted in the mouth and mixed along with the food in order to help easy digestion.

(3) Breathe fresh air, always through the nose and never by opening the mouth.

(4) Avoid eating excess of sweet stuffs.

(5) Avoid excess of smoking.

(6) Avoid excess of chewing.

Decayed Teeth Through Wrong Breathing

THE development and growth of the various components of our body all affect one another directly or indirectly. The growth of the nose and of the whole respiratory apparatus is intimately connected with the growth of our dental apparatus. The floor of our nose is the roof of our mouth. This is not an economy, but an instance where we have not specialised very far. Another example is the simple nature of our urinary and sexual equipment, which has led to diseases of many structures, and disordered many functions. Children's tonsils and adenoids become inflamed and enlarged because of their inability to deal with a chronic infection of their upper respiratory apparatus, with the result that they cannot easily breathe through their nose. Or they acquire the habit of breathing through their mouth and their tonsils and adenoids become enlarged, when they cannot easily breathe through their noses. In either case they develop a poor nasal apparatus which upsets the development of their dental apparatus, and their tonsils and adenoids become infected and no longer able to exercise their function. The teeth of the consequent defective dental apparatus which are always less wet than they should be become carious, and that end of the dental joint which is exposed in the mouth becomes inflamed. The usual debate is whether the tonsillar disease causes the dental disease or the dental disease the tonsillar disease. Actually, of course, the disease is misuse,

and these so-called diseases are signs of it, which later may give rise to symptoms. The effect of the development of one component upon another will be "seen" when we compare the development of the "upper" extremity of those species which have or are attaining erect posture with their dental apparatus. As our front feet became free they acquired a prehensile function which slowly displaced the prehensile function of our dental apparatus. All mammals who "walk" on all their feet have to catch their food alive with their dental apparatus, and cannot develop their front feet until they attain erect posture. In some marsupials the front feet have reverted since the adoption of the erect posture and their freedom to develop functions unrelated directly to movement was assured. Probably before and after the adoption of the erect posture they never prehended food that was, likely to struggle, and during the great development of their hind feet for their peculiar manner of movement their front feet were neglected—disused. Their front feet may disappear altogether as those of the kiwi have. There is great need for a detailed comparative study of the general morphology and the character of the teeth and food in every form of life that has teeth or analogous structures. The subject has been neglected too long.

"New Health," 1938.

Do Children Need Meat?

THERE are four main classes of foods that we need for proper health and growth. They are proteins, carbohydrates, fats and mineral salts. We also need vitamins, certain properties found in most foods, in the natural state, and particularly in *f r e s h* fruits and vegetables.

Roughly speaking, carbohydrates are considered to supply energy; fats and heat; while the proteins are the body-builders. Mineral salts are also essential for body-building (particularly for bones and teeth) and the general efficient functioning of the body, as well as for the excretion of waste material.

This month we are giving consideration to one of these groups, the protein, or body-building group, in particular.

In England it is the common habit to regard meat as the principal and best (if not the only) source of "good" or "first class" protein. Consequently, most people consider that, since children need a fair amount of first-class protein, because of the growth they have to achieve, it is essential for them to have meat.

Main Source of Protein

It is quite true that children need adequate protein in order to ensure satisfactory growth but the point to consider is whether meat is the best and most suitable source of its supply.

While many foods, e.g., wholemeal bread, contain a percentage of protein, the main sources are: meat, fish, chicken, cheese, eggs, nuts, beans, peas, lentils, soya beans and milk.

Meat, fish and chicken are the *dead* tissues of animals; cheese, eggs, and milk are the products of animals, but are not dead tissues; while nuts, beans, peas, lentils and soya beans are the vegetable proteins. Some proteins, being "first class" are more valuable to the body than those which, though still good are not all equally good.

Proteins are complicated substances built up from simple ones termed amino acids. Amino acids are manufactured by plants from simpler substances. This is a process that animals are unable to perform. Animals can use the proteins and amino acids of plants to build up different and complicated protein, but they cannot perform the initial stage of making the amino acids themselves.

When we give children meat to build up their bodies, we are giving them protein that has already been used in the construction of similar tissue; in fact, it is really second hand. Before the child's system can derive any benefit from the meat, his own digestive system has to break it down again into its simpler constituents, and then rebuild these into new protein combinations.

Meat is popular because most people find the flavour appetising and it is also a stimulating food. Children, however, should have unspoiled appetites that do not need "tempting" with special flavours, and they are certainly do not need the "stimulating" effects of meat. For highly "nervy" children this is obviously bad. Meat derives its stimulating properties from the fact that it contains uric acid and other waste products of living. Had the animal lived,

the uric acid would have been excreted through the ordinary channels of elimination. Do any of our children need this?

Milk and Eggs

Considering other sources of protein, we find that milk contains first-grade protein in a very digestible form, and hence it is very popular for growing children. For children who like it, and digest it well, it appears to be excellent. On the other hand, the fact that in some cases, it is so beneficial as apt to encourage parents to become over-enthusiastic about it, sometimes with undesirable results. If the children dislike milk, but drink it under compulsion, there is little chance of it doing them much real good. It should also be remembered that though milk contains excellent body-building proteins, mineral salts, and vitamins, it can be mucus-forming so that if children are sufferers from catarrh, milk should be used carefully in balance with other foods.

Eggs also contain first-class protein and other valuable substances, and if children like them, they can usually take two or three a week (apart from those used for cakes, etc.) with advantage. (Children who do not care for them can thrive perfectly without, provided their diet is balanced and adequate through the use of other foods.)

Cheese and Nuts

Cheese is the concentrated protein from milk, and in a very good form

Being hard and highly concentrated it should be grated for children, and so made more digestible. It is preferable to use it uncooked. In Diet Reform, "cottage" or cream cheese is most popular, being considered of much better all round food value.

Nuts contain a lot of fat, as well as a certain amount of good protein. Some people find them highly indigestible, but this is often because they are either imperfectly masticated, cooked too much, or eaten at the end of meal that is already more than adequate both in protein and carbo-hydrates.

Nuts for children are best when finely milled, and preferably uncooked. They can be served with fruit at breakfast, or with vegetables or fruit at dinner time. A good way of serving nuts for the children's dinner is to make a tasty sauce with butter and flour and vegetable water and milk, flavoured with YEASTREL or tomato, and when it is quite ready and hot, to stir in the grated nuts without further cooking. Cheese can also be served this way in a sauce.

Peas, beans, and lentils are called the pulses. They are rich in good vegetable proteins, but do not count as "First Class" proteins. They also have a high percentage of starch, which makes them an extremely concentrated food. Hence the fact that a dish such as a lentil roast sometimes makes one feel rather "full up". They should be used with discretion.

—"Reproduced through the courtesy of the *Health for all Magazine, London.*"

Is Asthma A Mystery?

WHY is Asthma still looked upon as a mystery? I suggest that it is due to a wrong method of approach.

Many years ago Sir Arbuthnot Lane made the bold statement that "Disease cannot affect healthy cells." Reversing this statement we may say that "cells must become unhealthy before disease can occur." Recognition of this fact has done more to help the doctor in the treatment and prevention of ill-health than the whole medical pharmacopeia. It provides us with a fundamental cause—a common starting point. Asthma, we are told, is the result of an irritable respiratory centre, or else that it is due to a calcium deficiency, or that an asthmatic patient is so constructed that certain foods or emanations are poisonous in their effect upon him and he is said to be allergic.

While all this may be true, these factors must not be treated as original causes. They are in themselves effects, and treatment directed towards effects alone is inevitably doomed to failure.

Allied Toxic Manifestations.

One can make a long and interesting list of conditions such as the above which commonly occur in asthma—nasal growth in the nose, womb disorders, bad teeth, bile bag infection, etc. The significant fact is that all these conditions are poisonous manifestations, and treatments which include thorough detoxication have produced the most uniform and satisfactory results. To some medical observers there is a little or no mystery in asthma or its treatment.

In toxemia, therefore, I suggest we have the origin of asthma. Blood changes, sensitivity, asthmatic eczema, spasm, all arise out of, and subsequent to, the toxemia.

Poisons the Body Expels.

The production of poisons by the body and in the body is a normal physiological process, and the system is quite capable of dealing with them. The four main outlets for waste products are the bowels, kidneys, skin and lungs. Added to this there is a barrier against invasion provided by the liver, anti-bodies, etc.

Provided toxic accumulation does not become excessive the defensive system is quite able to stand up to its work, but when as the result of faulty or inadequate elimination, the toxic load becomes too great the defensive system breaks down and the blood-borne toxins have free access to every cell in the body.

One Question and Another.

It is sometimes objected: Why, if asthma is the result of toxemia, does not toxemia always produce asthma? This question is often put and is best answered by another, equally absurd. Why does toxemia not always result in chronic rheumatism, for this also is recognised as being of toxic origin?

Toxemia manifests itself in innumerable ways, and many factors relative to the individual can influence the

ultimate result. Nurture, environment, heredity all play their part in deciding the outcome. Faulty or inefficient elimination by either of the channels mentioned will result in the accumulation of poisons in the body.

There is a tendency to regard constipation the sole cause of such accumulation. This is far from the truth, and treatment for this condition alone will not have the desired effect in asthma. Increased skin activity is obtained by exercise, baths and ventilation of the body which occurs when suitable clothing is worn. Almost without exception asthmatic patients are overdressed, particularly as regards underclothing. Thick woollen vests and shirts are the order of the day, and as a result, the body temperature is raised and remains so. In contrast with the temperature of the surrounding air, a sensation of cold is felt by such a patient except in warm weather when he feels exhausted with the heat—the heat regulating mechanism of the skin is unable to act.

Woollen underclothing, by absorbing and holding emanations and moisture from the skin, becomes clammy and uncomfortable and incidentally predisposes to the taking of colds, which is in contrast to popular opinion.

Cotton or linen underclothing is the most suitable wear for asthmatics, for the porous nature of the material allows of the ready interchange of air. It must be remembered that the skin absorbs oxygen from the air and gives off poisons from within just as do the lungs.

Experience shows that patients wearing such underclothing feel the cold far less than those who dress in wool. Exception to this rule is made in the case of the aged and those below par,

and in these cases wool may be worn to conserve heat.

Special Breathing Exercises.

Respiration of the asthmatic patient is usually of the thoracic type with little or no diaphragmatic movement. As a result of this type of breathing expiration which is the difficulty in asthma is never more than half completed.

Special breathing exercises are essential in the treatment of asthma in order that diaphragmatic control may be developed, and the result of this is a marked improvement in the general appearance and feeling of well-being.

Deep breathing is apt to be overlooked as a means of detoxication.

Kidney activity is not difficult to promote provided the kidneys are not diseased. An adequate supply of water each day is all that is necessary for this purpose, and is far superior to drug treatment. Finally, there is question of bowel. Dr. Alfred Jordan reported a series of 27 cases of asthma referred to him for intestinal radiology. Without exception these cases showed abnormalities of the colon, and included such conditions as ptosis, kinking, bands, spasm, stasis, etc., in a marked degree. Such a state of affairs has been rightly described by Dr. Jordan as due to ignorance in matters of bodily hygiene.

It is obvious that a bowel in such a condition is quite incapable of performing its functions effectively, and becomes a cesspool of infection.

This toxemia has been described as the explosive charge which in the case of asthma requires a trigger to fire it off. Almost any source of irritation can act

as a trigger, the commonest being in the nose, gall bladder, appendix and stomach.

So much has been written concerning the nasal factor in asthma that no further mention is necessary here.

Removal of a diseased appendix or gall bladder will frequently terminate attacks of asthmatic spasm in the same way that removal of nasal polypi or the shortening of turbinates does, but unless efforts have been made to detoxicate the patient the asthma will return with the appearance of a new trigger.

No mention can be made of treatment in an article whose purpose is merely to outline asthma as a disease which has in many instances a definite and treatable cause.

Of course there may be many difficulties. Much time and patience is required both in the investigation of the case and also in treatment, and in no condition is the individual element more variable. Idiosyncrasies play an important part in treatment, and it may be necessary materially to alter a preconceived mode of attack on this account.

Experience alone will enable us to adjust our treatment as between one case and another, for no two asthmatic patients are alike in every detail, but there is, I believe, one fundamental condition common to all—toxemia.

—"New Health."

According to the Prime Minister of England, Mr. Neville Chamberlain, the expectation of life of a new-born child today is nineteen years longer than it was when he was a boy.

Sir Isaac Newton never touched alcoholic liquor.

"Live a normal life, and do a few simple natural exercises, and you will keep fit," says W.G. George, one of the greatest athletes of all times, whose grip, at the age of seventy-nine, is as firm and whose eyes are as clear as ever they were. "Walking is the best exercise of the lot. Everybody does not want to be an athlete, but everybody should want to keep fit."

A NATIONAL HEALTH SERVICE.

IN April, 1930, the British Medical Association published a detailed scheme for a general medical service of the nation. After eight years' discussion the Association's proposals have been issued in revised form and appear in the supplement of last week's issue of the **BRITISH MEDICAL JOURNAL**. The object in view is to promote positive health and to "ensure for all who need it every kind of treatment available for the care of the sick and the prevention of disease." The scheme contemplates that every one should be provided with the services of a family doctor of his own choice and (normally through the agency of the family doctor) with such consultant, laboratory and other auxiliary services and institutional treatment as may be required, the several parts of the complete medical service being "closely co-ordinated and developed by the application of a national health policy." As a step towards these ends, it is proposed that the existing national health insurance medical service should be extended to include not only the dependents of the insured but also other persons within the £250 income limit such as small shopkeepers and others in independent business, and persons receiving relief from the public assistance authorities. For all those coming within the enlarged scheme there would be a complete range of consultant, specialist, and auxiliary services. It is thought that the inclusion of hospital care in the extended insurance service would not be practicable, but it is recommended that the hospitals of the country, both voluntary and municipal, should work as one service and in co-operation with the other health services.

A plan for a national maternity service is put forward, and the need for it is regarded as so urgent that its establishment should not await the other developments. The essentials of this service comprise anti-natal and post-natal care, the services in every case of a certified midwife, a general practitioner chosen by the patient, a supply of sterilised obstetric dressings, and such consultant laboratory, ambulance, and institutional services as may be necessary, including the provision of "home helps."

It is contemplated that the existing health services of the local authorities, which deal with such matters as infectious disease, mental disease, and deficiency, tuberculosis, venereal disease, maternity and child welfare, and school hygiene, would be co-ordinated with the extended insurance service, but the administration of health functions would be limited to the councils of areas with a population of not less than 75,000—100,000 (according to the predominantly rural or urban character of the area), and the administration of hospital services would be regarded as a "regional problem" that might require combination of local government areas into larger administrative units. The arrangements outlined are not worked out in complete details; but it is suggested that each local authority charged with health functions should establish a statutory committee concerned with medical and allied services as distinct from environmental health services. This committee would assume responsibility for the extended insurance medical service, the insurance committees being abolished as recommended by the Royal

Commission on National Health Insurance in 1926. Though no attempt is made to discuss methods of financing the new arrangements—it is indeed stated that “it is not within the province of the medical profession to express a view on the subject”—the plan lays it down that the contributory principle should be retained, and the service would continue to be “directed in its essentials from the centre and conducted in every area on uniform lines.” The new statutory committee of the local authorities would thus be responsible for two important medical services: one consisting, as at present, of medical officers selected and appointed by the local authority, mostly receiving salaries paid from the local rates aided by Exchequer grants; the other consisting of medical practitioners remunerated from funds created by insurance contributions and Exchequer grants, their duties being prescribed in detail by the central authority and the amount of their remuneration being determined by their popularity, with insured persons. These two services would, it is hoped, remain distinct while collaborating with each other; but it is difficult to believe that in a national health service so sharp a distinction could be maintained. The Royal Commission on National Health Insurance thought it could not.

“We are of opinion,” they said, “that the difficulties of a composite support to a completed medical service from insurance funds as well as from grants and rates would be so considerable alike in their financial, administrative, and social aspects that some more practical solution must be sought. In particular we feel sure that the wider the scope of these services, the more difficult will it be to retain the insurance principle. The ultimate solution will lie, we think, in the direction of divorcing the medical service entirely from

the insurance system and recognising it along with all the other public health activities as a service to be supported from the general public funds.”

Even if it be assumed that the medical care of insured persons will, as extended, continue to form part of the insurance system and retain its highly centralised administration, it cannot confidently be predicted that the present method of medical remuneration will be retained. The proposed extension would greatly increase the number of persons receiving medical treatment at the cost of public funds. The insured persons now form about 40 per cent. of the total population; with their dependents and the other persons to be brought within medical benefit they would form over 80 per cent; and the question would at once arise whether, in some areas at all events, medical remuneration might not, in the interests of economy, be on a salaried basis—a change that might have repercussions. The methods of financing the extended service, so far from being a subject outside the province of the medical profession, seem to be of basic importance, and may be found to govern the main features of the changes to be made.

The need for further development of national health services, which is well brought out in the B. M. A. scheme, is emphasised in the recently published Annual Report of the Department of Health for Scotland for 1937, which speaks of the urgent necessity for constructive regional planning, particularly for the provision of institutional treatment. Modern medicine and surgery have become more specialised and complex, often requiring expensive apparatus and team work. In consequence there is growing demand for larger institutions fully equipped and staffed; and since such institutions cannot be provided by the authorities of

the smaller local government areas a need has arisen for a reorganisation of hospital services. Under the scheme recommended by the Committee on Scottish Health Services, a statutory hospital committee would be set up for each of the five regions of Scotland, in each of which the cottage hospitals and other smaller units would form a coherent whole, serving as a link between domiciliary practice and the larger hospitals (both voluntary and municipal) which would take part in the health system as centres for consultation and specialised treatment, and at the same time provide, in co-operation with the universities, facilities for

ordinary teaching, post-graduate study, and research. The Scottish report lays special stress on the growing importance of the hospital as a primary centre for the development of modern medical practice. The development of hospital services, in consequence of the Local Government Act 1929, and the enormous extension of hospital contributory schemes, in one of the most remarkable of recent phenomena in the field of public health. Its social significance seems likely to increase, and it may be of the first importance in building the comprehensive health service of the future.

—“*The Lancet*,” 1938.

CAUSE OF LEPROSY.

Japanese Doctor's Discovery.

WHAT may be a first step in revealing the cause of leprosy is the discovery by Dr. Fumie Hayashi, Director of Keiai National Leprosarium, Kagoshima, of a relationship between leprosy and climate.

The colder the climate the severer becomes leprosy, says Dr. Hayashi, quoting as proof statistical investigations from different climatic regions in Japan and surveys made in leper colonies in varying temperature zones throughout the world.

So definite is this climatic effect that the severity of Leprosy increases in winter and relaxes in summer in severe climates. Dr. Hayashi informed a representative of the *Japan Advertiser*.

Dr. Hayashi also believes that sanitary and hygienic conditions have a marked effect in the incidence of leprosy, basing his idea in part on an almost 100 per cent inspection of the some 19,000 inhabitants of the leper isolated island of the Kika between Kyushu and Formosa, which he and Dr. Kenji Nagai, also of Keiai National Leprosarium, conducted last year. The number of lepers in small villages, they found, did not parallel

the population or the presence of tuberculosis, but rather was in correlation to the presence of filariasis (a parasitic worm which inhabits the interior of the body). Leprosy and filariasis in these villages seemed to persist in direct relationship to the insanitary condition of the village.

According to Mr. Perry Burgess, President of the American Leprosy Foundation, who visited Japan recently, Dr. Hayashi's discovery is one which may prove to be of a fundamental nature in the discovery of the causes of the disease.

Isolation Still Best.

Nevertheless Dr. Hayashi holds that present day studies of leprosy cannot eradicate the disease. Segregation in Japan at least is the only practical method, he asserted, but added that segregation should be combined with a general improvement in hygienic and sanitary conditions.

Survey work, the basis for his present theories on leprosy, Dr. Hayashi holds as the most essential phase of its epidemiological study. Among problems which he feels must be treated before the basis of leprosy can be brought to light is the seemingly higher susceptibility of males. The sex ratio of lepers is generally two or three males to one female.

The report that most cases of leprosy among Europeans are contracted in tropical colonies and statistical evidence on the susceptibility of children as compared with adults are two other fields needing survey investigation, according to Dr. Hayashi, who thinks that much of the evidence cited as proof of the susceptibility of foreigners in the tropics is in reality proof of the susceptibility of infants.

Queer are the results of some studies, he pointed out, "Once in Bihar and Orissa in India", he said, "I went with Dr. Santra to a village called Ranikhatanga which he had surveyed. In this village with a population of 600, the cause of infection of 20 cases was clearly established. It seemed that there was no leprosy there 20 years before; that while there are Mohamedans, Hindus and Christians in the village the disease is always found among the Christians." By this one survey, according to Dr. Hayashi, it became evident that the disease was conveyed by contact, and that "the mosquito theory advocated by certain South American workers does not hold good."

The severity of leprosy in Japan Dr. Hayashi attributes both to "the intense cold which prevails here and winter" and to the fact that inmates of Japanese leprosaria live unusually long. "Winter is so dreaded by the patients that by the end of the winter season a kind of depression prevails in all the leprosaria." On the other hand, while the average duration of life to the end of the disease in other countries is from eight to 10 years and 15 years at the most in Japan the span is 17 years at the average.

Baldness Gave Clue

It was the prevalence of baldness or partial baldness which started Dr. Hayashi on the track of his climate theory. Foreign physicians visiting Japan remarked on the unusually large number of such patients. Given an opportunity for a round-the-world leprosy tour, chiefly to tropical countries by the League of Nations. Dr. Hayashi sought to determine whether baldness and leprosy were less correlated in other countries. He combined with that a comparative study of ear and nerve symptoms. — "Justice," 1938.

Scouts—Alert!

A SCOUT is a person who goes ahead of an army, finding out the way they ought to follow.

The Boy Scouts are boys who have gone ahead of the great army of the Boys of Britain, finding out the way in which boys should go, and pointing it out that others may follow in it. They have discovered for themselves manliness, loyalty and cleanliness.

Thousands of British boys, who have never joined the Scouts, are all the better for the great Scout organisation. They have imitated Scouts in manliness and loyalty and cleanliness.

Though these boys have never joined the Scouts—perhaps through no fault of their own—they have admired them. Boys always copy what they admire and like.

What are you doing every day to make the boys who are not Scouts admire the Scout organisation; to make them want to copy Scouts in manliness, loyalty and cleanliness?

Are you always manly? Cheerful? Loyal to your school, your class, your chums? Clean?

Whether you are in uniform or not, you are known as a Scout. Everything you do leads people to form an opinion—a good one or a bad one—about the great Scout organisation.

It is something to live up to—but it is WORTH IT.

—HEALTH PROPAGANDA BOARD, MADRAS.

Scouts' Watchwords

Be PREPARED

At dawn of day
To enter clean
Into the fray.

Be PREPARED

To fight all day
To drive disease
And dirt away.

Be PREPARED

For ill, unless,
You do your best
For CLEANLINESS.

Be PREPARED

Where DIRT is seen,
To do your part
To make things CLEAN.

Be PREPARED

Still more—be KEEN
To show the world
That SCOUTS ARE CLEAN.

Be PREPARED

To say, assert
And prove as well—
SCOUTS WON'T STAND DIRT!

Be PREPARED

(For Truth will out)
To hear folk say—
HOW CLEAN—A SCOUT!

—HEALTH PROPAGANDA BOARD, MADRAS.

Do You Shut Out Fresh Air?

There are many poor children who cannot get enough fresh air because they have to live in stuffy, crowded rooms in large cities. But there are others who can get it but don't. I know one little boy who shuts his window with a bang every night when he goes to bed, and he never lets in a bit of good, fresh air. And his cheeks aren't fat and rosy, either.

You see, to be healthy and strong, we must breathe plenty of good, fresh air. Our lungs are made up of many, many tiny spaces, and around them are the little vessels through which the blood flows. The pure, fresh air fills these little spaces, and the blood eagerly takes it in through the thin walls, for it needs pure air to make it red and healthy.

What if those spaces are filled with bad air that has been breathed over and over? The blood doesn't get what it needs, and soon the cheeks get pale and thin.

You wouldn't think of taking a bath in dirty water that had been used over and over, would you? No, you bathe in fresh clean water, and often too, so as to keep your skin healthy. And it is just as bad for us to keep our lungs bathed in dirty air that has been used. God made the plants out of doors so that they would be able to use the bad air and give off good air; and He made the sunshine to purify the air.

Of course, in the winter time, when it is very rough and the wind blows the rain into the room, it may not be wise to open the window very much, if at all. Nor would it help our health very much to keep it open on foggy night and let all the fog into the room. But now spring is here and the damp, foggy weather has gone we can, on most nights, quite safely keep our windows wide open.

So let us be out of doors all we can, and at night keep our windows wide open.

—"Good Health," 1938.

LAUGH AND LIVE!

The Psychology of a Smile.

IT has been wisely said that the thing that goes the farthest toward making life worth while, that costs the least and does the most, is just a pleasant smile. Psychologists in Paris, Vienna, and America have been investigating some of the many things a laugh is capable of accomplishing, and after a series of exhaustive tests, their findings, which are both interesting and instructive, conclusively prove the truth of the above statement.

These eminent thinkers make bold to say that if we will only try to smile when we are feeling unhappy, we will soon be of good cheer. If we persistently laugh at life's misfortunes they will quickly disappear. Many of us by experience are painfully conscious that the external and internal are continually acting and reacting on each other. We well know the intoxication of excessive talking, the sobering effect of silence, that exterior composure is a great aid to inward reflection, that one of the quickest ways of conquering one's temper is to lower the voice. A smile being in the same category must have similar effects

Effort Worth While.

To laugh, however, when one is feeling distinctly depressed, is no easy matter. It is a task demanding a strong and determined effort on the part of the will. How are we to do it? By summoning the judgment and the reason to the aid of the will, by considering the great and far-reaching benefits to ourselves and others

accruing from such an exercise. As with all other difficult achievements, it is the first step which costs the most. Once the initial stages are passed, and the path in the brain clearly marked, smiling, in spite of circumstances, will have become a fixed habit.

Then if a smiling face means a happy heart and a happy heart means a healthy stomach, the increase of health and happiness will amply repay us for all our strivings. According to ELLA WHEELER WILCOX, such a victory is a real test of character, for

"The man worth while
Is the man who can smile
When everything goes dead
wrong"

and again from the same author:

"The smile that is worth
The praises of earth
Is the smile that shines through
tears."

If we long for sweet contentment—that philosopher's stone which changes everything to gold—we must learn to laugh when things go all away, for it is almost impossible to grin and grumble at one and the same time. For this purpose, the psychologists recommended us to practise smiling at least for ten minutes every day; in short, to make it part of our daily dozen, and they promise us that our faces will thereafter keep us contented during the rest of the time. This is a real "grin, and bear it" discovery, throwing new light on an old proverb.

Ten Minutes a Day.

An eminent doctor goes even further than that, and asserts that we ought deliberately to sit down and laugh for at least ten minutes every day, whether we have anything to laugh at or not. Laughter being the finest internal exercise possible, a kind of interior massage, its benefits need not be enumerated.

Perhaps we have a bad temper, making a life not worth living spoiling youth and health and beauty. For sheer misery production it is said to be without a peer, yet the psychologists assure us that we can quash it with a smile. A village carpenter in whose household I lived for four years, was an exceedingly pleasant man, in spite of many trying circumstances. He was never known to lose his temper, and only once was seen to be angry. Even then his nephew who was an eye-witness of the occasion, afterward told me that there was a smile on his face. He had learned the secret of controlling his temper by relaxing his countenance.

Conversely, we can work up quite a spot of anger in a very short space of time by simply frowning, when perhaps we have no troubles at all worthy of the name. Besides the unpleasant results, there is the waste of energy to be considered, seeing that about fifty muscles are required to form a frown, while fifteen are quite sufficient to create a smile. Why ask our features to work overtime?

It is possible to generate intense anger in the heart by simply scowling at the object of our dislike. To avoid this a famous preacher advises us to act to those we do not like as if we really loved them, and soon we shall find ourselves loving them in deed

and truth. Such advice is not only sound theology but good psychology.

As destroyers of beauty, frowning and temper are perhaps incomparable, so when the sands of time have run down a bit we may expect to find that "she will fairest be whose face has never worn a frown." No cosmetic can conceal the furrows on the brow and no lipstick obliterate the hard lines round the mouth produced by this malevolent couple.

If the expression of an emotion intensifies it, then it is a good rule never to express dislike, discontent, depression. Habitually repressed, these undesirable weeds of the soul ultimately wither and die. But the flowers of love, joy and contentment flourish in the heart of the one who wears a smile face and is chronically pleasant and affable.

Emotions are Catching.

How quickly a cold, discontented expression on the face of one of the members of a family is communicated to the others. How it falls over the household like a darkening cloud, chilling them like a biting frost! There is something else, however, which communicates itself just as swiftly, requires less energy and produces more beneficial results, and that is a smiling face, a beaming countenance, a loving look. The one acts as a refrigerator, the other as a radiator.

A Fortune in a Face.

The famous milkmaid of nursery rhyme celebrity, who intimated that her face was her fortune, spoke better than she knew. Modern psychology has proved that our faces affect not

only our hearts and minds and bodies, but our fortunes as well. Many a successful business man has smiled his way upward to wealth and affluence. Robert Louis Stevenson said he would rather meet a happy man than find a five-pound note. Barrie speaks of the "ten pound look." "His smile is worth a hundred a year to him," said a teacher of an inspector of schools, but such "face-value" is really incalculable.

It was a smile on the face of his sleeping baby sister that awoke the genius of Benjamin West, the great painter. So beautiful was it to behold, that the boy wished it might last for ever. Though untutored in the art of drawing, he hurriedly made a sketch

of her beaming countenance. But the likeness was so true to life that his mother immediately recognized it as a picture of Sally and gave him a kiss for his pains. That kiss he afterward declared made him a painter.

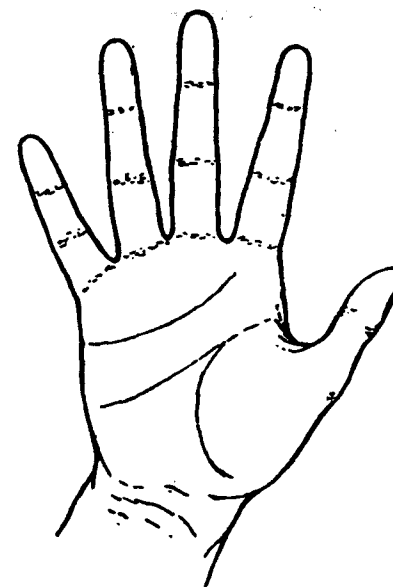
If we give to the world the best we have we are promised that the best will come back to us again, for the world invariably pays us in our own coin. If we harbour love and express it in smiles and warning glances, we shall set in motion forces which will lay down for ourselves and others all along life's pathway "miles and miles of smiles."

—"Good Health," 1938.

Salt as A Curing Agent

How many medical men, asked to select the ten most valuable drugs, would include common salt on their list? And yet it has an undoubted claim; indeed few would omit it once they had thought of it in this connexion. Of its many uses we may here mention two, one of which is new. In the United States Sandstead and Beams claim that administration of Salt in large doses (0.25 to 0.5 g. per kg. body-weight per day) leads to complete or almost complete relief of the pain of diabetics under his care will be provided with a much-needed remedy. In India Chakravarti and Tyagi under the title of "studies in effects of heat", describe 10 cases of collapse during the hot weather at Allahabad. In all 10 there were signs of severe salt deficiency and its attendant renal complications, and it is clear that these patients would probably not have collapsed if they had been taking enough salt with their food. These are glaring examples of serious deficiency disease. It is axiomatic that for one example of a frank deficiency disease there must be of hundreds of other masked and subacute forms in the same district. The observation of Chakravarti and Tyagi therefore support the view already expressed in our columns, that mild degrees of salt deficiency must be a common source of chronic ill-health in the tropics.

—LANCET, 1938.



WHAT OUR FINGERS SAY

RIGHT HAND.

FINGER ONE says:

"Give me milk at least a pint a day."

FINGER TWO says:

"Porridge, too, and cook it well,
I pray."

FINGER THREE says:

"Vegetables, Potato, if you please.
And one like spinach, onions, sprouts,
Or carrots, beans or peas."

FINGER FOUR says:

"Apples, prunes,
Or other fruits, I wish."

FINGER FIVE says:

"Soft cooked egg, or a piece of meat
or fish."
This child's hand says, "Don't forget
To give me these each day
To help me grow up well and strong
To run, and work, and play."

LEFT HAND.

FINGER SIX says:

"Go to bed at seven every night."

FINGER SEVEN says:

"Windows up in dark as well as light."

FINGER EIGHT says:

"Take a bath at least twice a week,
And every day do not forget
A restful nap to seek."

FINGER NINE says:

"Do be sure to brush the teeth each
day."

FINGER TEN says:

"Eat three meals—
Drink water through the day."
My left hand says, "Outdoor Play."
And living by this rule
Is giving me the start I need
To make me fit for school."

—THE HEALTH PROPAGANDA BOARD,
MADRAS.

HEALTH AND LAW

Lead Poisoning in Water Supply

BARNES vs. IRWELL Valley Water Board.

All England Law Reports, 1938, Vol. 2, p. 650, Court of Appeal.

THE Court of Appeal confirmed a decision whereby at Manchester assizes a plaintiff and his wife were awarded damages for lead poisoning due to drinking the water supplied by the Irwell Valley Water Board.

The plaintiffs were supplied with water for domestic purposes by the defendant water board. It was proved that the water was pure so long as it was in iron pipes, but in its passage through lead pipes it dissolved lead and became poisonous. The only lead piping through which the supply was passed was a length of 6 ft. before the stop-cock was reached, and the pipes upon the plaintiff's premises, which had been inspected by the Board. The plaintiffs, by drinking the water supplied, had contracted lead poisoning.

THE COURT OF APPEAL held

- (i) The Board had not been guilty of any breach of statutory duty, as the supply of water up to the turncock was pure and wholesome.
- (ii) The Board had been negligent, in that it should either have taken steps to reduce the plumbo-solvency of the water, or have warned consumers that the water, if

passed through lead pipes, was liable to be dangerous to health. The plaintiffs were therefore entitled to recover.

SLESSER L.J. said: "Here, as it seems to me, they have, under their powers, offered to supply the consumer with water, pure and wholesome, in conditions that are known to both parties to obtain—namely, to supply it so that it can travel through lead service-pipes, that being a common method agreed upon by both parties for the supply of water, and indeed, contemplated by the regulations—and they cannot be heard to say that, because the consumer has chosen to have his water supply through a lead pipe rather than through an iron pipe, the fault is his, and not the fault of the water authority. I think that what the water authority offered was to supply pure and wholesome water, whether taken through a lead pipe or whether taken through an iron pipe, and, in so far as such option was held out to the consumer and he was invited to take it through a lead pipe, there was an obligation in that case to supply him with water which, coming through a lead pipe, would not be water which would be poisonous."

—Health Propaganda Board.

Nature Defends Our Lungs.

"Nature has two mechanical methods for disposing of germ-laden mucus as well as a germicidal method for combating infection—a sort of biological three-fold shield."

AT this time of year we are particularly interested in such arrangements as Nature has made to protect the nose, throat and lungs from infection by germs. These defences are much more perfect than most people imagine.

The path over which the air travels as it is sucked down on its way to the lungs begins at the nostrils, passes through the interior of the nose into the back of the throat down into the wind pipe, past the vocal cords on to the bronchial tubes which end in the air-sacs of the lungs. Almost the whole of this long path is covered with living cells whose fine surfaces are bathed in a clear, gum-like liquid called mucus. Obviously any solid particles in the air travelling over this route will tend to stick to the mucus, which may thus be regarded as acting like a filter to remove from the air its dust and germs. The air before it reaches the lungs is thus filtered, warmed and moistened (when that is necessary).

Whip-Like Threads Called Cilia

Now the surface of each one of these cells covering or lining the respiratory tract is not smooth but, on the contrary, is provided with twenty to thirty minutes whip-like threads called cilia (from the Latin for an eye-lash) which keep up a constant lashing movement in the mucus in which they are embedded.

In the nose and throat, the cilia lash the mucus down towards the mouth, in the lungs, bronchial tubes and trachea they lash it up towards the mouth. The result of this is that mucus, with germs and dust particles entangled in it, is driven towards the mouth and then get rid of. This is, therefore, Nature's first mode of defence for the mucus membrane of the respiratory tract. It is really the mechanical removal by living protoplasmic whips, quite invisible to the naked eye, which could have been discovered only by the microscope.

But, it may be asked, if all the cilia are lashing backwards and forwards all the time, how comes it that any germ-laden mucus is ultimately moved towards the mouth at all? The answer is because the forward stroke is more powerful than the backward or recoil stroke. If both strokes were equally vigorous, it is perfectly clear the mucus would be brushed first one way and then the other so that it would "get no forrader." But Nature does better than that; these millions of tiny living threads have a powerful forward stroke and a feebler return stroke so that more mucus is driven forward than backward, the net result being that some mucus moves forwards. We have said there are millions of these living whips at work, and this is no figure of speech, for as each cell may have 20 to 30 cilia on its free margin and there are hundreds of thousands of these cells there must be millions of cilia at work day and night. For they cease not day and night, whether we wake or whether we sleep,

seeing that they are quite outside the control of the nervous system. The cilia never become fatigued. In this respect they are immensely interesting, for they lash away at their own rhythm, which is from ten to twenty times per second—too rapid to be followed by the eye—throughout life. We know for certain that no nerves have any control over them because if we scrape off a few ciliated cells from a mucus membrane and mount them in a little salt water under the microscope we may watch the cilia lashing briskly all by themselves. (Learnedly this is called a non-innervated, inherent rhythm.)

Their Amazing Activity.

It is a beautiful sight to watch these active little whips working away without once stopping to rest. We marvel at the heart-beating 70 to 80 times per minute throughout life, but in a sense the continuous activity of the cilia is more amazing. Their speed of action can be hurried up by warming the fluid in which they are kept, but when they are working about twice their normal rate, the limit has been reached and beyond this we cannot force them. On the other hand, cold slows their rhythm and, if sufficiently intense, can stop them altogether. We call this "latent life."

The cilia are sensitive to poisons and especially to the anaesthetic vapours, chloroform and ether. By these their action can be stopped, to recommence on blowing fresh air over them. We have some reason to believe that tobacco smoke depresses their activity. Thus it is not good to inhale the smoke because we do not want any lessening of the vigour of the valuable ciliary "scavenger action," as it has been called. It is interesting to note that gravity has no

effect on them; the cilia in the wind-pipe and bronchi lash upwards just as efficiently as those in the regions above the mouth lash downwards. That the cilia really do make things move may be proved by a simple experiment as follows:—Having killed a frog, remove the lower jaw, so as to have a good view of the roof of the mouth which has been moistened with some salt water. Now place a small fragment of cork or a crumb on the hard palate and watch carefully. In a few seconds you will notice the crumb slowly but steadily moving towards the frog's gullet. This transit is entirely due to the activity of the cilia. If under a lower power lens we look at a ciliated surface, we shall see that all the cilia are not doing the same thing at the same moment, but that a wave of bending forward seems to sweep over the membrane. These waves of activity have been likened to waves made by the wind blowing over a corn-field. In the case of the living cilia, the wave motion is remarkable because not only is it not directed by any nerves it proceeds with an orderly sequence entirely outside our consciousness; needless to say, we do not attribute consciousness to the cilia, however much their behaviour resembles conscious action.

Germ Destroying Glands.

The scavenger action of the cilia is, however, not the only defensive arrangement in the lungs. The pathologists believe that the secretion of the glands in the nose which keeps the membrane moist—quite apart from the mucus—is endowed with germ-destroying power exactly like the tears (secretion of the eye-glands) which are powerfully bactericidal). The eminent throat specialist, Sir St. Clair Thomson, M. D., many years ago showed that the air

which has passed over a healthy person's nasal chambers is virtually sterile, for its germs are dead.

But there is still another protective mechanism in the lungs, this time to be found in the bronchial tubes. To understand this we must remember that the bronchial tubes as they repeatedly divide in the lungs are always getting narrower. The result of this is that every such tube tapers or, in other words, is a minute cone with the small end directed downward.

Now the bronchial tubes are provided with circular muscles like elastic bands surrounding them. If, then, these circular muscles contract, they must

squeeze upon the mucus inside the tube with the result that the mucus, *plus* dust and germs is forced in the direction of least resistance, which is upwards, since there is the wider end of the hollow cone. In this way bronchial mucus is always tending to come up under the action of bronchial muscle.

Asthma is the distressing spasm of these muscles. We see therefore that Nature has two mechanical methods for driving germ-laden mucus along the respiratory tract—ciliary and muscular—as well as germicidal method for combating infection a sort of biological three-fold shield.

—"New Health," 1938.

Factors in Physical Fitness.

THERE has been of late a great amount of ill-informed talk on the subject of physical fitness generally and nutrition in particular. The main reason for this seems to be that there is, as yet, no satisfactory standard of the state of nutrition of the individual, although it is clear that it is certainly not one of inches and pounds exclusively.

Nutrition and physical fitness are inter-related, and to a considerable extent dependent on one another. The chief factors governing them may be said to be (1) diet, (2) rest (3) physical education.

DIET.

The First Report of the Advisory Committee on "Nutrition" gives some very

useful and practical information on diet, which may be badly put as follows:—

(1) Adequate quantities of the "Protective foods" are necessary in the diet to ensure correct nutrition.

(2) The "protective" foods are:—

(a) Milk and milk products (*i.e.*, butter, cheese, etc.)

(b) Vegetables.

(c) Fruit.

(d) Eggs.

(3) Sea fish, particularly herring, have a high nutritive value.

(4) Potatoes are valuable and should be more extensively used to replace some of the sugar and highly milled cereals, e.g., white flour in the ordinary diet.

(5) Skimmed milk, butter milk, and whey are valuable articles of diet, and should be made available and used for that purpose.

(6) "From the health standpoint, there is no other single measure which would do more to improve the health, development, and resistance to disease of the rising generation than a largely increased consumption of safe milk, especially by mothers, children, and adolescents. The average daily consumption of milk should be about two pints per day for expectant mothers, from one to two pints for children, and not less than half a pint for the rest of the population."

This is valuable information on which those who are in any doubt about questions of diet can safely rely.

There are doubtless difficulties to be encountered in certain cases, and the chief of these, so far as can be ascertained, are :—

(1) Certain persons undoubtedly do not like milk, or find that milk does not agree with them. Such persons can get a sufficiency of the protective substances from vegetables, fruits and eggs, as milk is not an essential where a good mixed diet is available. As eminent authority has stated that for those who can command a varied diet, including tomatoes, green vegetables, etc., milk is not necessary.

(2) Certain persons consider that milk is too expensive. The same authority has made it clear that the

reason for emphasising the value of milk is because the common diet of the poorer population with its large reliance on sugar, white bread and margarine, is deficient, and milk offers itself as the cheapest means of correcting nutritional faults. But if milk is to become the key of the population's nutrition, some means must be found of materially reducing the cost. In the meantime as much as can be afforded should be made part of the family diet.

(3) Certain persons regard milk merely as a poor substitute for tea, or as a colouring agent for it. They cannot, or will not, look upon milk as a food, to be taken for their own good, and unfortunately often allow their children to follow their example. They are often people who are otherwise unsatisfactory, and who keep the maternal and infantile death-rates on a high level. They are the people who have inherited or acquired dietetic bad habits and for whom education is necessary. They must be brought to realise that in an otherwise poor diet, milk is not only a valuable food, but the most valuable food of all, as it has the property of making up for the shortcomings of the other articles which they eat. It must be admitted that a pint of milk does not give the same satisfaction to a hungry family as a 2-lb. loaf of roughly the same price, but it must constantly be remembered that the satisfying of hunger though much, is not by any means the whole story. There is a necessity for both bread and milk; bread satisfied present desires, but milk builds up for the future—therein lies its value. It is difficult to get many people to think of the future, but in this matter we must keep on trying.

Many local authorities have realised this, and provided free milk under their maternity and child welfare schemes.

In some households where milk has been given to an expectant mother, or child, it has been found that this milk has not been used for the purpose for which it was provided, but was regarded merely as a general supplement to the family income, the favourite tabby cat being one of those to benefit. Such cases may doubtless be exceptions, but they show the difficulties under which the Health Department works in the face of persistent prejudice and ignorance. It would seem in some cases hope can lie only in the rising generation and that, therefore, the school is the proper place for health teaching of this very important character. What use can a young woman make of learning if she does not know the elementary laws of health?

Rest.

Diet, although probably the main one, is not the only factor in physical fitness. There are other important things that require attention and one of these is rest. In some houses all the household activities are regulated so as not to wake the baby. That can be overdone, but it is on the right lines. In other houses the baby gets little or no consideration and its rest is entirely subordinate to "household occasions." The poor child is dragged, tired, sleepy, and peevish, to picture houses, meetings and parties, and home again at a late hour. Thereafter he is fed at all hours to keep him quiet. A child welfare scheme, with all its benefits, has in many cases little chance against such odds. The baby should have as much rest as it is possible to get him to take.

Adequate rest is also necessary for others besides young children. Toddlers and school children need at least 10 to 12 hours sleep, adults at least in the average case.

Physical Education.

Exercise is another factor of importance in this question, sufficient and sensibly regulated exercise contributes to the ideal of healthy physical fitness, which is desired by all. This does not refer to small children so much, as they usually regulate their own fairly satisfactorily, the only danger being that they overdo it if not watched. With school children and adults, however the matter becomes capable of a measure of organised regulation and the public conscience, has lately been aroused to its importance. The School Medical Officer of Manchester puts the relation between nutrition and physical fitness very well when he writes. "While the object of physical education is to produce fitness, we must not forget that the community must be made fit for physical education. One cannot educate physically in an adequate manner the child or man who is markedly under-nourished. We need good nutrition to produce fitness in the first place, and can maintain that fitness by physical exercises, for fitness, like mental capacity, may run to seed if not utilized." Children and adults get into physical bad habits and physical education helps to correct these by pointing the right way to physical poise and fitness.

Physical education admits of a rough division into (i) games and sports, and (2) physical gymnastics. Games and sports are in every way excellent, but not all, for various reasons can indulge in them. More playing fields, swimming baths and halls are necessary to aid those who desire, and are able, to go in for outdoor or indoor sports, as few towns are really well endowed with such facilities.

There seems no doubt that in schools more time could, with advantage, be

devoted to physical education and facilities are available in most schools for this purpose. An organised scheme covering the whole period of school life would be of great value. The opportunity of continuing physical education after leaving school should be available

to adolescents also, and if some form of organised classes could be arranged to follow immediately on the school period, success of the movement would be more readily achieved, as it is very difficult to take up again after a lapse.
—“*Better Health*,” 1938.

The Prevention of Disease in Childhood.

THERE are a few truths more self-evident and more easy of proof than the dictum that “prevention is better than cure” and especially is this so in respect of disease. To prevent ill-health is to prevent an incalculable amount of mental distress, physical suffering and communal hygienic disorder, and each of these is intimately bound up with the other, so that they are closely inter-related. This is particularly true in respect to the school-child, for as the child so the man, and a seemingly slight disorder of childhood may have its permanent aftermath in a disease of adult life.

The prevention of disease in the school-child does not truly start either in the school or pre-school years, but during the nine months when it is carried within the womb of its mother. Indeed preventive medicine goes still further back so far as the child's heredity, which is of vital importance in respect to its freedom from racial diseases such as syphilis and alcoholism.

But for practical purposes I am at present considering preventive medicine in child-life as beginning from the period of its conception.

The attempt to protect the child from disease at this stage of its existence is comprised in the term ante-natal care, which simply means attention to the health of the mother so that the child may be formed healthily.

Ante-natal care comprises the instruction, examination, and treatment (when necessary) of pregnant woman either through their private doctor or by means of the ‘State’ Medical Service. This latter exercises its functions by means of ante-natal clinics, by home visiting, and by propaganda work in the form of talks to mothers and girls in the top classes of schools. The expectant mother's state of health is investigated and she is given advice on minor disabilities. If more serious troubles are detected the patient is referred to her private doctor or to a hospital.

Modern scientific research has taught us that the diet of the mother has a marked influence upon the developing, unborn infant, and “it can be safely assumed that liberal and wholesome feeding of the mother during pregnancy must favour the production of a normal and well-developed infant.” (G.F. Still in “*The Preventive Aspect of Medicine*,” published by *The Lancet*, Ltd, 1934, P. 52).

In general terms we may say that the mother should partake freely of the “protective foods”—milk, eggs, vegetables, butter herrings—so that there may be ample supplies of vitamins A and D to assist in the production of calcium needed for the formation of bones and the enamel of teeth.

In cases of poverty the State will supply milk and food to expectant mothers, and they can attend at the outpatient department of hospitals for a free supply of cod-liver oil to replace the lack of vitamins in the diet

Post-Natal Prevention.

Prevention of disease after birth (post-natal) has many avenues. Probably the most important concern themselves with the preservation of sight and with the prevention of those diseases resulting from imperfect diet.

In regard to blindness, prevention is chiefly concerned with the occurrence of ophthalmia (inflammation of the eyes) due to infection during birth. It is estimated that one-third of the cases of blindness is the result of this infection, and the State has made it a notifiable condition so that treatment may be given at the first appearance of the disease. Midwives are instructed to immediately cleanse the eyes of the

new-born babies and then drop in a little of a silver solution which kills the infecting germ.

Diet in Childhood.

It is coming to be more and more believed that most of the diseases of childhood are due to incorrect dieting either by excess or defect, and that this is not necessarily dependent upon poverty. A weak child which is fed on the wrong food can be just as malnourished as the poor child, since it is not the quantity so much as the quality which matters.

Of all preventive measures in respect to diet none is more important than the encouragement of breast-feeding. Dr. G. F. Still, a well-known authority on the diseases of children, writes that “even a few weeks of breast-feeding seems to have a definite and specific value in, so to speak, establishing the new-born infant, perhaps even in conferring upon it some degree of immunity against infection. Against all the gastro-intestinal disorders which beset infancy, against rickets and infantile scurvy, against those failures of nutrition which so often make artificial feeding an anxiety, breast-feeding is the surest preventive.”

Where artificial feeding becomes necessary, and in the later feeding of the growing child, science has taught us to realise the vital importance of giving an adequate supply of these food factors necessary to normal growth, and termed vitamins. The recent knowledge of the importance of having an adequate supply of milk, butter, eggs, and tomatoes, and failing these, the daily dosing with a little plain cod-liver oil, has enormously decreased the incidence of rickets, scurvy and dental disease in

children. Added to this the knowledge of the part played by sunlight (natural or artificial) in the prevention of these diseases has enabled science to arrest their development, and to treat them adequately when they have appeared.

The last half century has seen a marked reduction in the death-rate of infants from infantile diarrhea, formerly one of the potent causes of death in babies. The reduction is due to the encouragement of breast-feeding, and to the greater cleanliness in the handling and transmission of milk.

With the growth of the child through school years we see how preventive medicine has reduced the incidence of disease by means of the notification of infectious diseases, hospital treatment

of infected children, quarantine contacts, and disinfection of homes, schools and public places. For infectious, though non-notifiable, diseases such as ringworm, impetigo and conjunctivitis, we have to thank the adequacy of the School Medical Service.

But although much prevention must always necessarily rest with the State and the doctors, municipal or private, much more than is realised rests with the public. Those adults who study the laws of hygiene, personal and communal, and who put them into practice, have conferred a greater boon upon the children of the nation than the greatest gift which the richest benefactor could make in money or in kind.

—"Better Health," 1938.

A London physician, one of the most eminent world authorities, was asked his opinion respecting a possible causative relation between constipation and cancer. Very definitely he replied, "There is no relation whatever between constipation and cancer. Cancer is caused by the mistaken use of purgatives in the treatment of colon inactivity. Purgative produce chronic congestion and colitis, and the prolonged irritation causes cancer."

"Good Health," 1938.

Better Walking.

THE feet should be tended as carefully as the hands, nails cut straight and short, and five minutes spent in massaging a little cold cream into feet and legs nightly, after bathing, will prove very much worth while. It is a wise habit to change the shoes when indoors, and a great rest to tired feet. Varicose veins even if slight tend to take the pleasure, out of walking. If support is needed, thread stockings are infinitely more comfortable than elastic, and are practically invisible. If this is not required, bathing the legs for ten minutes daily with cold water will do much to strengthen them, and compresses of witch hazel are also very beneficial.

A graceful walker does not depend on the condition of the lower limbs alone. Well-developed trunk muscles and an erect and supple spine assist tremendously to beautify walking. If the whole body is perfectly built and balanced, the action of walking will naturally be graceful, but few people have their muscles and limbs to work in perfect harmony, and need training in poise and balance.

A correct standing position must be acquired first, the feet parallel, never everted; the chest held steadily but easily over the fore part of the feet; shoulder flat; abdominal wall in slight contraction, but not tense; trunk held well up out of the hips; and the weight

carried, not, as is usual, by the heels, but by the toes and balls of the feet, heels only touching the floor lightly to steady the balance. The position may be an effort at first, but with daily practice it will become perfectly natural in a very short time. As soon as it can be assumed without effort heel raising should be begun slowly, and care taken that the trunk retains its position. Then curtsy-sitting should be attempted and no slacking of the erect trunk permitted. A gramophone adds much to the enjoyment of the exercises, and is an aid to rhythmic movements. When these have been mastered with some degree of success they may be varied with a slow walk, heels held just off the ground, and as the front foot touches the ground the weight should be swung forward with it. This can be best practised without shoes, and during dressing quite a few little walks may be made in this position and are a great help to acquiring it unconsciously. The exercise should be taken with a light springy movement, as though a spring were coiled under the ball of each foot, and gradually the heel should be dropped lightly at each step, the exercise thus passing by degrees into a natural and beautiful walk. Once this has been acquired, it will be found far less fatiguing than when the weight is placed in the heel, breathing will be improved, and an easy swing from the hips will develop without effort.

—"New Health," 1938.

Care of The Skin and Muscles

The Energy Reserves of The Body

WE are accustomed to regard muscles as somewhat isolated masses of tissue which are conveniently arranged to do all manner of work for us when necessary. Certainly they do seem to obey, in some sub-conscious manner, the will, as is evidenced in walking and allied-exercises. It is during those periods when the muscles are required to do some extra work—such as in physical training—that we come to realise that they are after all very important members of the economy and are intimately connected with the nervous system and hence the brain.

This connection is vividly portrayed after excessive exercise when we become "short-winded", yet this is only because of the rapid oxidation which results from overworking of the muscles. The blood becomes exhausted of its oxygen and a condition approaching "anoxaemia" follows, with a paralytic tendency to arch the whole of the body backwards.

Such results are, of course, very extreme cases which only follow violent exercise, and it is not with such conditions that I wish to deal now, but with some of the normal reactions which the superficial tissues undergo during the functioning of the body in health.

To do this satisfactorily we must understand something of the outer structures of the body, its covering or vestment—the skin.

When we look carefully at the slow gliding movement of the biceps muscle of the arm, for instance, we can visualise the immense latent power which is contained in these tissues, and as we gradually speed up its contraction and relaxation by bending the elbow, after a short time we realise that there is indeed a limit to its power of endurance or elasticity, as we call it.

Now this elasticity gives to our muscles their natural "tone" which enables them to "come back" as it were. A rigid muscle is useless, but is unfortunately quite a common result of such articular diseases as arthritis and rheumatism of the joints. The surface of a healthy muscle is seen to be smooth and supple, as though it is constantly kept well-lubricated. Actually it is lubricated, otherwise the dry heat generated during its movement tends to set up inflammation and we get swelling of the parts concerned to the ends of the muscle.

The skin we must consider carefully, for it plays an important part in maintaining the normal function of the muscles which lie underneath it. A gentle stimulation of the skin in many abnormal conditions is often followed by an increased circulation of the lymph which is the carrier of some very important compounds essential to the development of those elusive substances, the hormones or secretions of the ductless glands.

Five Layers of Skin

The epidermis consists of five layers—an outer or horny layer, a smooth or "clear" layer, a grained layer, a soft net-like layer, and the foundation layer. The colouring matters of the skin are developed in the net-like layer chiefly. They are the important bodies responsible for the production of the acids that develop the hormones of such glands as the supra-renal and thyroid. When a blister forms after prolonged exposure to the sun or through a burn, a fresh surface is exposed which is most in order to prevent the tendency to knit together again of the tissues.

The true skin, or dermis, underneath these five layers is ridged by minute projections called papillae about 1/100 of an inch high. These papillae are supplied with blood vessels and nerves, the ends of which form the organs of the touch—known as Meissner's corpuscles. There are approximately 800 of these bodies on the ungual joint of the forefinger to every twelfth of an inch, while on the dorsal spine they are separated by a distance of two inches, thus showing that tactile impression is very much more acute on the finger than on the back.

These facts are, however, of only passing interest in order to show that the sense of touch depends upon minute bodies which are not found in the upper layers of the skin, although they cause prominences on the surface into which open the minute pores of the sweat glands. These latter tubes pass right through the epidermis, the dermis, and end in coils lying in the fatty tissue below. They occupy about 1,000 square metres of body surface according to Krasue, who estimates their number at about two and a half millions.

Then there are the sebaceous glands which supply the hair with an oil-termed sebum, rich in platinum and olein. This furnishes a form of natural lubricant for the surface of the body and is induced in excess of the normal whenever the circulation of the blood increases. At night, when the blood pressure drops some twenty points below the normal, the fatty contents of the skin, instead of passing off in evaporation along with sweat, remain in the vessels and pores, causing such things as shiny noses.

How They Function

The chief function of the skin is to control the temperature of the body through an automatic reflex, so that when the body itself is raised in temperature an impulse is sent from the vaso-motor centre in the brain to all the blood vessels on the surface which causes them to dilate, thus pouring out sweat and lowering the temperature.

If the pores are stopped up with excreta, the temperature of the body soon rises. Consequently, although the true skin regulates the temperature of the body and is sensitive to touch impression, the outer skin plays an important part in protecting it from injury. One of the most noticeable instances of this is shown in the deposition of pigment substance in the net-like layer and the thickening of the "clear" layer to form blisters or erythema through the fluorescence of the horny layer in its reaction to the ultra-violet rays.

One of the chief ingredients of the skin layers is a horny proteid-keratin, which is composed of certain acids of the aromatic amino-type, cystine and

tyrosine, which are also occasionally contained in the urine. These acids are produced from keratin by the action of physical agents like sunshine. Now since there are no blood vessels in the skin, such bodies are absorbed by the lymph with which the structures are bathed, and, through this medium ultimately reach the ductless glands. Here the glands are stimulated to secrete their respective hormones under the influence of the amino-acids. Many of these acids are contained in the grease which appears on the wool of certain animals often in conjunction with the cholesterolin-active in the formation of Vitamin D as the result of the action of sunlight.

By the action of various chemical reagents on keratin contained in different samples of horn, nail and other hardened skins, small quantities of the basic substance tyrosin, which, in the natural form, is produced through the influence of sunlight on keratin could be obtained.

Tyrosin is one of the most important of the amino-acids, being taken along by the lymph stream to the thyroid gland, where it activates that gland to secrete thyroxin, which, in turn, controls growth. Another hormone is adrenalin—poured out by the supra-renal glands. One of the most important effects of adrenalin is its control of the body temperature through a constrictor action upon the blood vessels, so that we see there are two methods for maintaining correct body heat, which is so important to health.

Of the more important effects of an increased or lowered body temperature is its action on the jelly-like state of the albuminous substances of the tissue—

the celloids. These bodies are found in many vital situations and constitute much of the actual substance of the internal organs and glands.

An intensified nervous state of the individual causes an increased temperature, and the surface of the body becomes covered with a sweaty and greasy moisture, which is due to an increased circulation of lymph. In this case, we have effects identical to those produced by an excessive muscular activity.

As a matter of fact, we might name many conditions which induce heavy sweating. Many emotional states do this, and also digestive changes, while the physical effects of the ultra-violet rays of the sun and ordinary lamps has already been mentioned. During dormant disease like rheumatism the secretions from the skin are often found to contain traces of sulphur which combines with hydrogen to form rather objectionable odours from the body of all because of faulty elimination.

There are so many chemical actions which ensue in the normal life of the living cell, that unless the waste products formed are ridden effectively they combine with other substances and form, very often, poisons or toxins. Here we see the importance of muscular exercise coupled with the skin stimulation in the form of massage or light irradiation.

One fact we should always bear in mind, viz., the careful guarding of the body against chills, since this is one of the most prevalent causes of auto-intoxication.

—“*New Health*,” 1936.

Slum Clearance and Overcrowding

SINCE I reviewed this subject a year ago the housing question has been making history. The Government and the housing authorities in close co-operation and interpreting a clear expression of the national conscience, are well underway, with a combined and continuous effort on the largest scale to raise our housing standard by putting an end to slums.

Indeed, two facts stand out in the history of housing effort. The first has been the first fruits of the campaign of slum clearance. We have now begun to reap a harvest from hard preparatory work. In the year ending 30th September last, 15,000 houses were provided under the act of 1930 to rehouse persons displaced from the slums, and on that date 19,300 were under construction, making 34,000 houses as the total number actually in sight as the result of the year's work. This compares with 11,000 houses provided during the three previous years of work under the Act. In the same year, ending with September last, 18,000 houses were demolished or closed. More significant perhaps than the actual number of houses built and demolished during the year (striking as is that number) is the rate of progress with the work which we have now attained. In the month of October (the last month for which I have full figures) the number of houses included in order submitted by local Authorities under the Act was 4,741. We have thus achieved a rate of progress of 56,000 houses a year in this connection. The completion of the programmes requires an average rate of about 56,000 houses a year. If we consider the comparatively early stage of the five years' effort the comparison

enables me to say that the rate at which we are working promises successful achievement of our programmes within the limited time—that is, of course, subject to the maintenance by all concerned of the strenuous efforts to which we owe our success so far. That those efforts will be maintained we have no doubt. This work stands in the very forefront of the nation's needs. The public health demands it; the deepest considerations of our common humanity demanded it; the public conscience demands it, and must be satisfied.

Another outstanding event of the past year (to the end of September) has been the continuance of the great activity of house building by private enterprise. The number of houses thus provided in the year, no less than 255,000, was a record. It is not contended that the provision thus made is sufficient directly to meet our needs for small houses for the lower-paid wage-earners. As a matter of fact, though this is not perhaps commonly realised, these private enterprise houses to make an important contribution to that most urgent need. Of the total, 93,000 houses were of rateable value not exceeding £13 (£20 in greater London) and of these 28,000 were houses that were let. Of the remainder a large proportion about 130,000, were houses suitable for wage-earners of better economic status, which indirectly relieve the housing situation by relieving the pressure on other accommodation. As said it is fully recognised in our policy that further and more direct provision is necessary to meet the demand for small houses to let for the lower-paid wage earners. But undoubtedly these houses are an important contribution. Further, the knowledge which we have gained of the

extent and the manner to which private enterprise is capable of helping to meet that demand will be most useful in carrying out direct and comprehensive plans for meeting the demand as a whole.

We stand now at a most important point in the course of the development of our work remedying housing evils. To secure the most effective results, the work must be developed step by step. The first necessity was to tackle

the slum evil and to get that work organised and advanced to such a rate of progress as to ensure success. Now that has been done, at the earliest possible moment we proceed to the next stage, which is the direct attack on overcrowding. Had we attempted to organise both these great tasks at the same time, we should but have delayed progress with both. But now the time has come at which we can pass on.

—“Better Health” 1938.

The Health Value of Physical Training.

PHYSICAL education is talked about more to-day by “the man in the street” than it has ever been during the last century, which is most encouraging to those who are firm believers in the tonic which physical education can give, and is giving, to the present generation. In every way physical education is expanding—the teacher is realising that her physical training lesson is not merely a training of the body, but a vigorous training of the mind or brain, making the pupils alert and keen, giving them that joyous uplift of aspirations and outlook as well as giving them that feeling of well-being which makes one tackle the difficulties of everyday life with a happy and forceful courage.

The medical officer of health looks upon this great desire on the part of the general public to want to keep fit as a “back-to-nature movement.” Man to-day has not to catch a hare before he eats it, but every day he brings its hundreds of new labour-saving devices,

which means that every day less and less physical exertion is demanded from mankind. This outcry for physical training therefore can be accounted for; the man of to-day needs to exercise his body to keep the general organs in good tone, and if his body is in good tone his daily work is carried out efficiently and with economy of effort, while at the end of a day he has enough energy to enjoy his leisure with that sense of well-being which makes him wish to spend his leisure time to good account.

The mental tonic and the happy outlook which a well-taught physical training lesson can give to a class has untold value. Miss Cumberbirch, Principal of the Hull Training College, when lecturing to a big audience in Sunderland this year on “The Connection between Thought and Health,” impressed on her audience the fact that we must not look upon physical training as affecting only the body, for whatever beautiful thing one did (and she considered

women's physical training movements beautiful), that the entire personnel was uplifted and a tonic given not only to the body but equally to the mind and soul.

Sir T. P. Nunn expressed recently in a lecture how he looked upon physical education to give a child a sense of dignity of life—that everyday actions can be performed in a worthy and dignified manner—and that the child from the poorest of surroundings can possess this, for, as the lecturer continued to say, “a well-bred person can come from a hovel and a hooligan from a mansion.”

This rousing of the public to realise the importance and benefits of physical education has its origin in the good work done in our elementary schools, and it is a healthy sign that the parents are beginning to take a real interest in what physical training work is done by their own children, and thus seeing how our schools do cater for giving the children a chance to grow up with strong and healthy bodies.

In the world of physical education one is constantly talking about good posture and describing all its benefits, and yet how difficult it is to get everyone to persevere so that good posture might become a permanent possession. If only there were road signs which said “Stretch up” or “Walk with a good Posture,” then, perhaps, we should remember as easily as we do to “Keep to the left” when driving along our English Roads. At least every school might have a reminder notice, for it is during school life, when the children are growing so rapidly, that they should have this chance of perfect development.

Although an easy upright posture is worth having because of its beauty, yet this is by no means its greatest value, for when the body is held in a good position in standing, sitting or walking,

all the internal organs are in their rightful places and can function properly, thus the body is kept in good tone and has every opportunity of reaching its highest point of efficiency so that the individual feeling fit and happy, tackles the problem of the day with a braver spirit. Every school medical officer will therefore welcome the news that a still greater effort is being made to obtain this good posture in the children.

The Board of Education's Syllabus of Physical Training for Schools lays great stress on “The Importance of Good Posture and the Necessity for a daily Lesson in Physical education,” so that the long periods when the children are sitting in the classrooms will be counteracted, and it is hoped that all head teachers will realise the importance of daily exercises, more particularly in areas where the children are under-nourished and where mal-postures creep in so much more quickly for the short daily lesson can prevent such deformities which may set in.

This Syllabus is very inspiring and merely to look at the pictures therein, showing children clad in the minimum of clothing, exercising their bodies with the greatest of vigour, joy and daring makes one feel that a great step forward has been made and that children, who naturally have supple agile bodies, will be expected to keep this energy agility, suppleness and control throughout their school life, and so one hopes for always. This book will be welcomed by all teachers and particularly by those who have been trying out the more modern methods of physical training without a reference book as a guide, but it is felt that the good experimental work which has been carried out in many schools will form a splendid background and the best possible work will go ahead.

—“Better Health,” 1938.

Modern Life and Nervous Failures.

IT is the universal custom to credit particular generations with their own special forms of ill-health. Like all popular notions there is something of truth in much unconscious error.

This present age has been designated the "age of nervous failure" and is, rightly or wrongly, credited with the production and fostering of nervous instability, nervous failure, and those various types of emotional instability and dread popularly spoken of as neurasthenia and termed by the medical profession functional nervous disorder.

There is some truth in the blame which is cast upon our period of time for the part it plays in fostering "nerviness" and "anxiety" states. Modern life proceeds at breakneck speed under the influence of worry, financial or other. The child is frequently conceived and born in a spirit of anxiety, either because of financial stress, or because both parent's work, or—so often—because the mother to be has had her mind disturbed by alarmist reports dealing with maternal mortality.

The only child grows up the nervous centre of his universe deprived of the contacts which render easy the path of normal growth. Then, whether an only child or one of a large family, he enters school at five, and from five to

fourteen years lives in an atmosphere of drive and competition. He grows bodily and he develops mentally—but far too often the double strain demands its toll of emotional inhibitions, nutritional failures and environmental difficulties. He enters his working life to meet stress once more (if he is lucky enough to find work), to carry on at speed and under the ban of monotony and routine. Or he fails to find work, and his nerves are strained with the fight against that sense of hopelessness and of not mattering to the State which is one of the worst results of unemployment.

If he is fairly well off, he must still needs rush and compete and cut short his sleep. His nerve endings are bombarded by endless noise, and his special senses are ever on the alert to save himself from illness, injury or death. In other words, there is no time to rest, to relax, to think and to be serene.

The penalty of all this is nervous failure, with inability to carry on any longer. The individual cannot face life, cannot cope with the environment and with responsibility. And so, in an unconscious desire to save himself, to avoid feeling a coward, to gain time, to have a reasonable excuse, he begins to feel symptoms of illness and to believe that they are actually there. To him

they are unutterably real, and no amount of *arguing* will cause him to believe otherwise.

And so, modern medicine, having learnt that when nervous strength fails, the body fails too, takes him apart and gives him detailed investigation, and care, and consideration and rest.

Or rather that is what medicine hopes to do—but so seldom is there the chance to do it.

Cases of nervous failure need to be treated on vastly different lines from the methods in use with ordinary cases of acute medical and surgical illness. They need complete rest for a time, frequent nourishment, sedative, and much later on, stimulating treatment, with nursing by those who in addition to their general training have learnt how to nurse away hidden fears and torturing suspicions. And they need time to talk out their difficulties and pull out from the deep unconscious all

those far off happenings which have caused a nervous shock whose effect has long persisted.

For all this, special out-patient departments are needed to sort out the cases—whether child or adult—which need nervous rehabilitation and having found them, special psychiatric hospitals are being opened to nurse the patients back to normal and teach them how to deal with life easily and effectively.

There is probably no branch of medicine and nursing which better repays effort and skill than that dealing with the nervous disorders.

The methods of investigation and treatment are new, but sound, and it is to be hoped that many more hospitals of this type will be opened where, secure from any hint of "mental" treatment, the sufferer from nervous failure may find cure and rehabilitation.

—"Better Health," 1938.

Epidemics in Schools.

SEVEN years ago the Medical Research Council appointed a committee to investigate epidemic and other illness in schools from both scientific and practical standpoints. The first report of this school Epidemic Committee, which has just been issued, deals in great detail with the sickness recorded during a period of five years, 1930—34, in 21 boys' and 10 girls' schools. These schools were predominantly public and boarding schools attended mainly by children of the

"middle" or "upper middle" social classes. The total number of children in the enquiry was 22,166 boys and 7,600 girls, varying in their individual period of observation from 1 to 15 terms and in their age from 10 to 19 years. For each of these pupils particulars were obtained from the schools of all absences due to illness for one day or more, in addition to some information on the past medical history. The result have been analysed in terms of causes of sickness, seasonal incidence,

sex and age differences, secular trends, and many other factors.

Sex Differences.

One of the most striking sex differences is in the recorded incidence of naso-pharyngeal infection. The average number of boys attacked during a term by such causes (including influenza) was 17.4 per cent. of the total population, of girls 38.9. per cent. or more than twice as many. It is from the diagnosis "cold" that most of this difference arises, with attack rates of 22.6 per cent. on the girls and 5.6 per cent on the boys. It is clearly not unlikely that the excessive incidence of the girls may be the result of a stricter surveillance and readier removal from school rather than of a real sex difference in susceptibility. The same difficulty arises in interpreting the dealing attack rates from naso-pharyngeal infections as age advances. That may be a process of natural immunisation or only the result of a younger child being kept out of school on account of a cold more frequently than an older child with a smaller attack. A more secure basis is reached with serious infections such as otitis media, pneumonia, acute rheumatism, &c., and here also there are some large sex differences in incidence. The boys suffered twice as frequently as the girls from otitis media, two and a half times as frequently from pneumonia, and eleven times as frequently from acute rheumatism (the last is based upon rather limited figures). These differences in serious illness may be derived, at least in part, from the stricter supervision of the girls, already mentioned, which would lead to their being kept out of school more frequently for minor infections and isolated at an earlier stage of illness. In girls' schools there is also, probably, less close contact in the sleeping accommodation. At

present the committee is not prepared to interpret these observed differences but stresses the importance of discovering the underlying causes.

Colds.

The weekly attack rates from naso-pharyngeal infection show, with a fair degree of regularity, a rise to a maximum in the third or fourth week of the term, followed by a rapid fall, and then a tendency to a second but less important rise at about the tenth week. A possible explanation is a loss of immunity in the holidays followed by an epidemic of colds under the renewed contact and exchange of naso-pharyngeal flora on return to school; a temporary immunity thus results but wanes in time for a second outbreak towards the end of the term. By comparing the records of boys in six schools an attempt was made to see whether those who had suffered heavily from colds at one age caught more or less colds at a later age than their fellows whose earlier experience had been more favourable. No influence of previous upon subsequent experience could be found, and the subsequent history of boys who in any one term had, had two or more colds was also not materially different from their experience before the term in which the multiple colds occurred.

Influenza.

A similar type of comparison can be made of boys who passed through two epidemics of influenza. It was found that those boys who contracted influenza in the first epidemic were more, not less, likely than their unattacked companions to contract the disease when again exposed to risk a year later. On the other hand, figures for an epidemic

in the first term of 1932 showed a considerably lower attack rate (7.95 per cent.) on those who had been attacked in the previous Christmas holidays than those who had escaped attack in the holidays (23.03 per cent. attacked in the term). A tentative explanation is that the attacked belong to a more susceptible class and are therefore more frequently attacked than their more resistant companions, in a later epidemic, taking place at least a year later than the first epidemic; but for a short interval of time they have a transient immunity conferred by the attack. In the influenza epidemics observed girls showed far less tendency than boys to develop such complications as otitis, sinusitis, and pneumonia.

Common Fevers.

The medical histories of previous experience show that broadly, about 70 per cent. of the boys had measles, chicken pox, and whooping cough before entry to the schools, about 30 per cent. had German measles and mumps, and less than 10 per cent scarlet fever. The corresponding figures for the girls are rather lower but of the same order. Of those attacked during school-life the Lent term provides the most formidable number of cases closely followed by the summer term. The Christmas term rarely produced cases of infectious disease. The maximum number of outbreaks began in the third-fourth weeks for the boys, the second-third weeks for the girls. It seems probable that such early outbreaks were introduced by a child infected at the end of the holidays and subsequently falling ill, but the possibility of carriers, particularly for scarlet fever, must be borne in mind.

A remarkable fact is the inability of a high proportion of outbreaks to

spread at all. Limiting observation to outbreaks which had time to spread before the end of term, it is found that 34 per cent. in boys' schools and 41 per cent in girls' schools were limited to one case. Similarly there is much variability between one epidemic and another and between one school and another. For instance, with measles the proportion attacked of susceptibles (no history of previous attack) varied from 12 to 70 per cent. Examination of seven pairs of epidemics of this disease gave support to Stock's observations on the acquirement of a transient immunity without exhibition of a clinical attack. Children who had passed unscathed through one epidemic were more likely to escape attack in a second epidemic than those who had not been exposed to the first risk. There is some evidence of the same phenomenon, but on a lower scale, in German measles. This disease exhibited sometimes powers of spread equalled only in the present data of influenza, the cases tending to occur in two or three well-defined waves. Although approximately the same percentage of children had before entry passed through an attack of measles, chicken-pox, both with regard to the number of times it appeared and the absolute frequency with which it spread to the extent of causing an attack rate of 1.0 per cent. or over. Whooping-cough, on the other hand, was a comparatively unimportant disease and the number of cases relatively trivial. In accordance with past observations girls appeared to be more liable to attack than boys.

Although the proportions attacked by mumps before entry were low the disease showed no distinct tendency to spread widely, an observation which is still more striking with scarlet fever, which showed less inclination to spread than any other infectious disease except

diphtheria. A large sex difference is also here shown. The boys reported 271 cases of scarlet fever, the girls only 27. Allowing for the fact that boys outnumbered girls in the ratio of 3 to 1 we might expect 81 cases among the girls. In other words the boys reported more than three times as many cases as the girls, a sex difference for which no explanation is forthcoming. In general these data on the infectious disease suggest, as one would expect that the chance of one of them gaining access to a school is dependent, in part at least, upon the size of the population. Another observation of interest is the considerable difference between the infectious disease in their ability to work themselves out before the end of term. About half the outbreaks of measles came to a natural conclusion, while no epidemics of German measles and only a small proportion of mumps, chicken-pox, and scarlet fever could be said to have ended before the holidays began. With an almost unlimited supply of susceptibles outbreaks of German measles, mumps and scarlet fever might well be expected to drag on, but the difference between the behaviour of measles and chicken-pox is odd since the proportion of susceptibles to these two diseases was approximately the same—about 30 per cent.

Other Diseases.

Gastro-intestinal disorders show their highest incidence—43 per cent. of their total—in the Christmas term, the remainder being fairly equally divided between the Lent and summer terms. Another cause of school absence with a high incidence for boys in the Christmas term was trauma, which produced in total—i.e., on the figures for the whole year—9.4 per cent. of all lost time among boys and 4.8 per cent. among

girls. In the Christmas term the figure for the boys rose to 17.8 per cent. or about half a day per pupil, while with the girls there is no pronounced seasonal change. Epidemic catarrhal jaundice was encountered on a large scale at two schools and fairly frequently when confined to but one or two cases. The available evidence confirms Pickles's conclusion that it has a rather long incubation period, three to four weeks or even longer. Its incidence was low in the summer term and also fell nearly three times as heavily on boys as on girls. In the Lent term of 1934 epidemic conjunctivitis became widespread and caused a considerable amount of lost time in both boys' and girls' schools. Ringworm of the scalp, or body was rarely reported but there was fairly wide prevalence of *tinea curis*, the incidence of which most medical officers think has increased since the war. In the present experience 40 per cent. of the cases fall in the summer term and it was found that on the whole the schools which isolated patients until cured suffered lower attack rates than those which permitted school attendance during treatment.

Time Lost.

Taking all causes of illness together we find that in the boys' boarding schools 3.2 days were lost per boy per term, in the girls' boarding schools 3.8 days. In the former variations between schools were from 5.1 to 2.2 days, in the latter from 4.3 to 3.0. Colds and influenza added together accounted for 53 per cent. of time lost by the girls and for 43 per cent. of time lost by the boys. All rates except those for trauma tended to decline without advancing age, as one might expect as the result of increasing herd immunity. Bacteriological

work carried out on behalf of the committee by Dr. F. Griffith of the Ministry of Health leads to some interesting epidemiological observations. He found that in one school, during a period of four years, there were six separate invasions by different types of haemolytic streptococci, each type appearing suddenly and gradually dying out, leaving behind a few chronic carriers. Does the disappearance of an epidemic strain from such a community mean that those susceptible to infection with this type had been attacked or become insusceptible through a concealed infection? Does the particular strain lose its invasive properties and become unable to infect and produce disease in normal throats though present in the chronic carriers? The great majority of these streptococcal outbreaks occurred in the Christmas and Lent terms and the summer term and the summer vacation appeared to interpose a barrier to the extension of types then present.

Only a Beginning.

Such in short are the data that the committee has accumulated and analysed. At present they have made no attempt to establish correlations between particular sickness rates and particular environmental factors which might be

altered or controlled. For the interpretation of seasonal variations, sex differences, and school differences they regard their data as still too few. Their inquiry is proceeding and it is the committee's intention to continue the collection of these sickness records on a somewhat more restricted scale while investigating in greater detail the problems which the present facts have stressed. If, for instance, the present difference between schools are found to be repeated over a further period of years, then it would be reasonable to regard them as real difference dependent upon environmental factors which detailed inquiries might detect. The committee also proposes to correlate growth rates of pupils, as measured by gain in weight, with the sickness incidence experienced. The conclusion is that "by continuing the inquiry over a much longer period, so that significant differences or trends can be distinguished from those that are transient and random, and by following up particular problems, it should be possible, at least, to lay a foundation of well-documented evidence that will serve as a basis, certainly for further studies, and possibly for administrative action."

—"The Lancet," 1938.

Infant Life Protection

AND

What it Means.

TOM and Mary are only babies, aged respectively three years and ten months; unfortunately their mother has a kink for deserting children, and one Saturday afternoon their father returns home to find that she has run away and left him with two helpless mites on his hands. His own mother can take the boy, but baby as well is more than she can manage. The father is working and can afford to pay for the maintenance of his children; his logical solution is to ask the Public Assistance Committee to take the baby, but he would prefer to have her near him if he can find a neighbour to look after her. This is not difficult, the mute appeal of a deserted baby is sure to be answered quickly, but, then, what happens?

One of the most distasteful duties which falls to the lot of an Infant Life Protection visitor is visiting a motherly soul who has taken a destitute, or almost destitute infant to her bosom, nurtured, fed, clothed and loved it and, being too poor to support it entirely has accepted a small payment, and having to warn her that she has contravened the Children and Young Persons

Act of 1932, and rendered herself liable to a fine not exceeding £25 or six months' imprisonment.

Very few people realise how strict the law is in this respect; payment may mean only a few articles of clothing for the child's use. It also includes the acceptance of a lump sum. It is perhaps questionable whether any Local Authority would prosecute if they were satisfied that a kindness was meant, and that there was no intention of evading the law, but a caution must be given.

It often happens that a poor woman intending originally to take a foster child in the hope of augmenting her slender income, comes to love it with such a passionate intensity that she will go to any extreme in order to keep the child. When the payments fall in arrear she will do nothing to collect the money, in case it will lead to the child being taken away from her. Should any one suggest that it is a drag upon her and must be given up, she becomes well nigh distracted and will give the

impression that her very life depends on keeping the little one under her wing.

With the exception of certain institutions which receive exemption, the law demands that any person intending to keep a child under the age of nine years apart from its parents, or if it has no parents, must give notice in writing at least seven days prior to receiving the child, to the Medical Officer of Health of the district, that they intend to do so; giving full particulars of the child they intend to take. This notice must be either delivered personally or sent by registered letter. A foster mother already recognised as such by the Local Authority has to notify that she intends to take an additional child forty-eight hours prior to its reception, giving full particulars, or in the case of an emergency, not later than twelve hours after its reception. There is no provision, however, for an unregistered person taking a foster child no matter how great the emergency, hence she has rendered herself liable the moment the child enters her custody.

Grandparents, brothers, sisters, uncles and aunts are excepted.

A newspaper must not publish an advertisement for a foster child that does not give the full address to which replies are to be sent, or full address of the person advertising.

The Infant Life Protection visitor has the right to visit the homes where foster children are living at any hour of the day or night and must be allowed to examine the children and their sleeping accommodation, it being advisable that foster children should sleep apart. Refusal, to allow her to enter is regarded as a serious misdemeanour. If she has reason to believe that foster children are being kept in unregistered premises

where entry has been refused to her, she may obtain a magistrate's order to enter the premises; should she find a child or children therein and have proof of payment or any agreement by which payment was promised, the person responsible for the custody of the child can be dealt with under the Act. Should it come to the knowledge of the Local Authority that a child or children have been so kept, within six months even of the removal of the child or children from the home, the Local Authority may take proceedings.

Any person once convicted of an offence under the Act, or who has had a child removed from her care, will not be allowed to keep a child on a future occasion without the written sanction of the Authority. The same applies to any premises from which a child has been removed by reason of having been found sufficiently unfit to be a danger to the health of the child. Upon anyone refusing to relinquish custody of the child the visitor may be called upon to remove it.

Upon the removal of a child from her care, the foster mother must give notice in writing to the Local Authority and to the person from whom she received the child, and in the case of its death must also notify the Coroner for the district. Should she desire to change her residence she must give seven days' notice to the Medical Officer of Health of the new locality in which she intends to reside.

Anyone, therefore, who contemplates taking a child under nine years of age for payment of any kind, should consult the Medical Officer of Health for the district or his Infant Life Protection visitor, and so avoid endless trouble and inconvenience.

—“Better Health.”

What Shall We Drink?

THE importance of fluid for the continuance of life cannot be estimated yet is little remembered, save by those whose business it is to keep the body in health, or attend it in disease.

It has been stated, and with scientific reasons for the statement, that it is easier to sustain life without food and warmth than without water, amongst savage races the greatest punishment for tribal enemies is to leave them to die slowly by withholding any form of liquid nourishment.

The body contains and uses its fluid in the form of water which is a chemical compound of hydrogen and oxygen, and is the most important single constituent of the human or animal organism.

The functions of water in the body are manifold. It forms the solution in which food is broken up and carried to the various tissue cells, and by which the waste products of metabolism are excreted. It assists in regulating the body temperature and promotes the elimination of poisons, and also warns us of the presence of fever by causing thirst due to the need for replacing fluid lost by evaporation.

It is possibly because water is so readily obtainable that human beings tend to overlook its importance, but certain it is, that the majority of people drink far too little for the bodily needs of everyday life.

It has been calculated that at least two-thirds of the adult body weight is due to water, and that four to five pints

are lost daily in the excretions. To maintain health this should be replaced, and to do so, at least six glasses of water should be drunk daily, in addition to the liquid contained in other food and that in the other usual beverages.

There are very few conditions of ill-health in which water is not only given, but increased in quantity, so great is its diluting and eliminative power when poisons need to be neutralized or removed.

Hot water is a stimulant to the gastric juice, and it is really the water in warm soup which promotes appetite and stimulates digestion at the beginning of a meal.

The beverages most commonly used for drinking purposes in the British Isles are tea, coffee, milk and fruit juices. Of these tea is by far the most useful drink, and its use is productive of much more ill-health than is usually believed.

Indeed it is true to say that tea, incorrectly made and over-frequently imbibed, is as surely a poison as alcohol, except that its effects are much slower and less obviously present.

The main constituent of both tea and coffee is a drug known as Caffeine. The effects of Caffeine upon the body are to increase the volume and rapidity of the circulatory flow (hence the frequency of palpitation and dizziness in people who take tea or coffee to excess), to increase the rate and depth of respiration to raise the temperature considerably, to interfere with digestion by either

retarding or hastening it (hence the occurrence of flatulence and dyspepsia in some tea-drinkers), and to increase the output of urine.

It is obvious that these effects are, in general, stimulative in nature, and one would expect that the nervous system would partake in the stimulation.

Such is in fact the case, and over-use of either tea or coffee produces nervousness, irritability, headache, dizziness and insomnia. These effects are considerably increased in children and neither tea nor coffee should be given them save very greatly diluted with water or milk, and only drunk when freshly made.

To be always sipping tea, especially when strong from long brewing, is to invite digestive, nervous and other troubles, and is the abuse of a most useful drink for daily use as a pleasant beverage.

Milk is Nature's perfect food, and is almost equally useful as a drink, taken either as it is or diluted with soda water or plain water.

It has been estimated that not less than a quart of milk a day is the amount which each individual might profitably drink, but unfortunately the cost of milk makes it prohibitive whether as food or drink.

It is probable, however, that national interest in the "More Milk Campaign" may soon make it possible for milk to be taken in much larger quantities than hitherto.

Fruit juices form an excellent and pleasant way of drinking water. They

are more valuable than plain water because of their vitamin and sugar content, and they have not the same over-stimulating effect as is the case with tea and coffee.

In addition, there is the useful fact that they can be varied in flavouring, as almost any kind of fruit can have its juice expressed so that, with water added, it makes a healthy and pleasant drink.

Certain natural waters contain valuable drugs in solution and it is chiefly to these that Spa waters owe their value and popularity.

British people have not yet cultivated the "Spa habit" and many who do use medicinal waters, go abroad for the purpose.

Such an attitude is unfortunate, since it means expenditure of money, time and energy which could be used to better purpose by going to our own Spas.

British medicinal waters are to be found chiefly at Buxton, Harrogate, Matlock, Llandrindod Wells, Llangamarch Wells, Strathpeffer Trefriw and Woodhall (Lincolnshire). Some of the waters contain iodine, others bromide, iron, sulphur, magnesium, and salt, and are equally effective for health purposes as those of foreign countries.

It is greatly hoped that the British Spas will be given a push towards publicity, and so obtain the patronage they deserve and give the medicinal help the community so greatly needs.

—*"Better Health."*

Cycling and The Keep Fit Campaign.

STATISTICS do not tell us how many bicycles are owned and used by people in Great Britain. Evidence gained from close association with the manufacturer and cyclist organisations suggest, however, that there are some ten million bicycles in the hands of the public, and something like eight million actually in use during the summer months. In other words, one in five of the people in Great Britain regularly cycles either for business or pleasure or both, during the best part of the year.

Out of 3500 doctors in England, Scotland and Wales whose opinion was sought on the relation of cycling to the Government's Keep Fit Campaign, only seven have spoken against cycling as an aid to physical health. Thirteen, for one reason or another, find themselves unable to give an opinion, and twelve are undecided. The remaining replies are all in favour of cycling as a valuable ally in the cause of a fitter Britain.

A number of doctors put forward, practical suggestions—these were specifically requested—for the extension of cycling as a recreation and hobby; others give their views on the way to increase road safety, and one or two suggest alternative methods of cycle construction.

Medical testimony is overwhelmingly in favour of the bicycle not only as an aid to general physical well-being (which is the Government's aim in its

campaign for an A.I. Britain), but taken wisely, as a valuable restorative to those recovering from illness or in need of gentle exercise in the open. Doctors agree that the bicycle is an unrivalled means for securing that mental health and poise without which fitness in the strict sense cannot be achieved.

It has been greatly impressed by the stress laid on the immense value of cycling as an antidote to the restlessness and neurosis caused by the pressure and speed of urban life. It is clear that the man who escapes by way of a bicycle to the peace of the countryside, and who is under no compulsion to travel quicker than his legs will comfortably carry him, is doing as much for his mind's as for his body's fitness.

Many doctors, convinced of the bicycle's contribution to health, encourage their children to ride. Indeed the number of doctors' families in which every member is provided with a bicycle is extremely gratifying. But it is not only a child's health that is benefited; scarcely less important—as these replies show is the fact that child's road sense is developed. He acquires that quickness and judgment in action which make him a reliable member of the road-using community. In these days, it is a duty to educate children in right conduct on the road, and the bicycle is the best means to that end.

—“*New Health.*”

Personal Cleanliness in School Children

SCHOOL life should offer the best possible opportunity to train the child in healthy bodily habits. As a rule medical officers have very little complaint to make about the children in the junior departments of the schools. In this age group the children are usually looked after by the mother and are quite well kept.

School-leavers, however, are not nearly as satisfactory. At every inspection in this group far too much time is taken up by a discussion on a personal hygiene. One cannot say that uncleanness is found but far too often there is a lack of personal fastidiousness, which by this age the children should have acquired. In most schools, it is quite common, excluding those cases where the conditions are due to lack of means, to find that perhaps 2 or 3 only, out of 25 or 30 girls, ever brush their teeth, that clothing is unsuitable, that posture is bad and the general air is that of personal carelessness. It is in this section of the school community too, that there are most refusals for dental treatment.

The unchallengeable conclusion that we are forced to is that children are not leaving school brimming with the health and vigour that should be theirs, considering the resources that the Public Authority has put at their command.

This is a grave statement but a statement based not only upon impressions formed at successive medical inspections but unfortunately borne out by statistics.

The weak link in our services is not difficult to find.

Medical inspections are carried out systematically, advice is given to the parent and child defects are remedied, and the following up of cases is rigorously carried out. The fault is not there. It is obviously due to a lack of a defined responsibility for physical or bodily education at this stage of school life.

We know that these children are taught a certain amount of drill or dancing and this may or may not have a permanent effect upon the child. How often, though, does the child receive any lessons or training in personal hygiene, a matter which is going to affect the whole of his or her subsequent life?

When week after week one sees these girls at an inspection and notices that the skin is not as clean as it should be, the underclothing not clean although the girl is quite old enough to wash it herself, and that the teeth are in a dirty condition, seldom if ever brushed, one can only assume that practical hygiene is not taught, or at least not pressed.

There is absolutely a lack of balance between mental and bodily education, and until this is remedied and we take the whole of the child and his interests into consideration, we cannot, as a medical and educational body, be said to fulfil our purpose.

The environmental improvement in the surroundings of the children is far too frequently negated by superstition about many matters, and education of the children and a determined effort only can break this superstition. For instance, when one suggests to a mother that the girl is not as clean as she ought to be, the mother replies that in her opinion too frequent bathing is weakening. This type of statement is by no means confined to the poorer mothers. In other cases, in discussing the diet, of these growing girls, one frequently finds that most unsuitable and unbalanced food is being demanded by the girl. Time and again mothers remark that they would be grateful if

the girl were taught at school how to look after herself because she pays no attention to the parents' advice. The mother usually has younger children to look after and expects a girl of 12 and over to look after herself.

These facts are surely convincing enough to urge the necessity for the teaching of practical hygiene in our schools. The average healthy child is interested in the subject but the interest is liable to wane unless she is encouraged by her teachers and stimulated by the competitive spirit among her fellows. Herd instinct is snobbish and among school children this is especially true.

We have the firmest belief that if children at this most impressionable time of their lives are made to care for and to value their bodies their chances of becoming good and healthy citizens will be increased.

—"Better Health."

Medical News and Notes.

New Health Act for Madras.

The new Act contemplates empowering municipalities and local boards to spend a minimum amount for public health purposes, according to their status, since such a provision does not exist now. The provisions dealing with cases of street nuisance are said to be severe, as the authorities feel that unless such stringent conditions are imposed the public health of the province will not improve.

Do Your Children Quarrel?

Psychologist Marie Heynemann on the Staff of the East London Child Guidance Clinic, speaks from wide experience. She urges that the more independent a child the more he will be inclined to be on good terms with his brothers and sisters. How to create that independence is the kernel of the problem for parents.

ONE of the most frequent complaints made by parents is that their children, although brought up with equal love and justice, are constantly quarrelling and sometimes seem to hate each other.

Mother is speaking the truth when she says that she and her husband love all three children equally well and want to bring them up to be capable and sociable persons. But parents forget one important thing; they themselves have changed during the period over which the three children were born. Generally the first year of marriage is nothing but happiness which reaches its climax, when a child is born. The parents see their love fulfilled in a third being, and whatever the little one does is an event. The young mother is inclined to fulfil her duties with exaggerated zeal and the baby soon notices that his welfare is the centre of family life; that the parents smile when he smiles and looks anxious when he cries. He is an almighty king and is perfectly happy.

Naturally the tragedy of this infant's life is the birth of a little sister. A rival

has pushed him from his throne. He must share his royal rights. This helpless little bit of humanity even gets more consideration than he does. But he does not want to surrender his throne or share his rights, and so tries by every possible means to fortify his position against the invader. Thus from the moment of her birth the elder brother will dislike the younger sister.

Is there no way of preventing this? Yes, there is. If you tell your boy of two that another baby will soon be born, that his little being is growing near Mummie's heart, he will be proud of your confidence. Then let him help with the preparation for baby's arrival. Show him all the tiny things he once wore and that are now being made ready for a little brother or sister. If you let him take part in these preparations he will gradually get accustomed to the idea of being no longer an only child and the appearance of the baby will not come as a shock to him. He will go on being helpful while you are nursing her, feeling his importance as the elder. By this clever preparation you will have prevented the growth of hatred between these two children.

Many a mother feels unable to talk to her child about the birth of a brother or sister. Then things like the following will happen: Tommy, left alone with the baby for a moment in the garden, began rocking the pram until he upset it. Then he ran away and hid in the house, leaving baby crying beneath the upset pram. Asked why he did this, he answered that he only wanted to do what Nurse did, rock the pram. Was it an accident? It might have been, but probably it was not. This boy wanted to give vent to his hatred of the intruder and took the first opportunity. Four-year-old Mary left alone with her little brother in the bath while mother answered the door-bell, pushed his head under water and nearly drowned him. Asked why she had done this, she said that baby had stood up in the bath when Mummie left the room and that to punish him she had held his head under the water. There are dozens of such examples.

An elder boy who was not properly prepared for the arrival of a sister and who was never told by his mother, that according to some law of Nature, girls generally develop quicker than boys in the first ten years, will notice how his little sister soon learns everything he knows and is more skilful than he. He will never think of competing with a younger sister; instead he will give up and in his feeling of inferiority will resort to laziness, stupidity or mischief-making. As a result we have the "bad elder brother" and the "nice little sister" who will never be on good terms.

The second child is born after some years of marriage when joy and grief have had their turn. She always sees some one in front of her and very often becomes a "race-runner" by which psychologist mean a child who lives

constantly at a strain; whose ambition is continually excited, who is running a race with an elder child either all her life or until she has beaten him. Such children dream of trains missed; buses rushing past the stop. When they are older and you explain to them that the missed train and bus is in reality the brother whom they want to catch up, they nod and sigh; "But I shall never catch him up in age."

Rather peculiar is the position of the youngest child in the family. His stages of development are nothing new to the mother. When he does not feel well she does not worry half as much as she did over the eldest. But she probably thinks that as this will be her last child she can spoil him a little. He always has some elder children in front of him, but nobody behind. There are two alternatives. Either he submits to the feeling of inferiority impressed upon him by being the youngest, or he will try to overcompensate this feeling. If he does the first he will become a pampered pet, hanging on mother's apron strings; perhaps never really growing up, remaining dependent and helpless, mocked by his elder brothers and sisters and never taken seriously.

There will be constant quarrels in the nursery; for elder children either become jealous of the mother's protection of the youngest, or the second child takes the baby's part against the eldest.

The other rather rare alternative is for the youngest to take up the challenge of his years, become Tom Thumb, advance with seven league boots and develop into the most valuable and capable member of the family. It is obvious that this defeating and over-running of the elder children cannot go on peaceably.

If parents recognise that there is a "Nature given" difference between their eldest, second and youngest child they will be able to treat each rightly. Due preparation for the birth of a younger child and permission to help look after him and will partly eliminate jealousy. A fair distribution of duties in the household, confidence and a certain amount of freedom will make the children independent. The more independent a child is the more he will feel

inclined to be on good terms with his brothers and sisters. In the same degree as he is expected to help them, he will feel entitled to ask their help. Only on this basis of continual give-and-take, can peace be established in the nursery.

Nursery reconciliations are as charming as the quarrels are disconcerting. To let children find their own feet is wise advice.

—"New Health."

Alcohol in Social Life.

ALCOHOL, it has been said, is useful in Chemistry, in Medicine and in Social Life.

It is this last-mentioned sphere of usefulness that is prominently before us during any "festive season."

No doubt, that expression referred back to a day before the advent of the income-tax and while yet a bottle of the best whisky cost three shillings and six pence instead of about four times as much, yet many people manage to make merry in a fashion if not in the old fashion.

For occasions of social intercourse, the watchwords ever are—mirth with mental sanity, cheerfulness with common-sense, moderation in all things in eating as well as drinking.

"Wine measurably drunk in season bringeth gladness of the heart and cheerfulness of the mind but wine drunken with excess maketh bitterness

of the mind with brawling and quarrelling," said the writer of a book called "Ecclesiasticus", a composition of date not later than the third or second century before the birth of Christ. Could we have a better text for a sermon on True Temperance unless it be this verse from the book of Judges?

"Wine which cheereth God and man."

The office of wine or of whisky is essentially and pre-eminently social; alcohol constitutes that extraneous aid required to foster and accelerate the social and convivial tendencies which from many people are congenitally absent or are so feebly developed that they require the assistance of a rapidly diffusible, mental stimulus.

Returning to Ecclesiasticus we read again; "Wine is as good as life to a man if it be drunk moderately; what is life then to a man that is without

wine for it was made to make men glad." Could the role of alcohol be more moderately stated? After two thousand years' experience this pronouncement cannot be bettered—wine drunk in moderation makes men glad.

Is the promotion of good-fellowship a matter of no account? Is it wrong at the end of a day of worries and fatigue to forget these for an hour or two. The stresses and strains of modern life are so exacting that people cannot be blamed if after their hours of work are over they relax by looking on the wine when it is red.

About ten years ago a Commission which included twelve of the leading men of science in England at that date reported on the action of alcohol on the human organism, and amongst other wise sayings they said this "We deal here solely with the physiological aspect of the liquor question, and our consideration of this aspect leads us to recognise that the agreeable effects which the majority of people experience from the use of alcoholic beverages can be produced by doses of alcohol—moderate in quantity and taken in adequate dilution at sufficient intervals—which will not in normally constituted persons be attended with appreciable risk to physical or mental health.....The temperate consumption of alcoholic liquors in accordance with these rules of practice may be considered to be physiologically harmless in the case of the large majority of normal adults; this conclusion it may be added is fully borne out by the massive experience of mankind in wine-drinking and beer-drinking countries."

Of course, everything must "be done decently and in order." Every creation of God is good, but everything can be misused—money, clothes, food, sex, art,

science, religion, position, power—every thing that goes to make up the full circle of our life.

Some men are compelled for life to be total abstainers from alcohol in every form; some, the happier, can and do use alcohol in moderation, and they alone are free.

They are free because they have command over their lower natures; they can say "thus far but no farther," they know when to stop, they are not ashamed to refuse to be led into excess by any specious invitations to indulge in folly just because some of their friends may be foolish. Some morally weak people must be total abstainers for their moral fibre is so frail that they know it cannot support them.

But there is something morally higher than this and that is true temperance.

Total abstinence is good, but true temperance is better. It is morally nobler to live in the world with one's self-regarding tendencies held well in check amid a thousand temptations to excess than, like an anchorite, to forswear the world and take refuge in the safety of a mechanical, social isolation.

Moderation in all things said "the master of them that know" moderation in wine drinking echoed the author of Ecclesiasticus and "a little wine" was advised by Paul, the Great Apostle of Christianity, whose Founder's first miracle was to turn the water into wine.

By Professor

D. F. FRASER-HARRIS,
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—"New Health."

On Being Ill— And Well.

A sudden illness not only puts a stop to the career of our agreeable sensations but blots out all recollection of a desire for them. We lose the relish of enjoyment. We feel the present pain and an impatient longing to get rid of it; all else is an irritation.

If only we could obtain ease, we think we could forswear every alternative comfort. Other things than our disorder and its cure seem less than nothing and vanity.

We feel it take possession of every fibre and of every faculty. We become absorbed by it and cannot divert our reflections from it for one instant. We are filled with regret and bitter with recrimination. This is the reason for those fine resolutions we sometimes form on such occasions. We promise ourselves a wiser and more careful form of living should we recover. Never again shall we traverse the path led us to the sick bed.

These sudden resolutions, however, are generally of short duration; those repentances which are the most loud and passionate are the surest to end speedily in a relapse. We are too engrossed in the prevailing feeling to look beyond it.

Such is the frailty of human emotions and behaviour that when the painful stimulus is over we slide back only too easily to our former mode of living and thinking.

It is amazing how little effect physical sufferings can have been upon the mind except during the time we are subject to their immediate influence. While the impression lasts they are everything when it is gone they are nothing. We toss and tumble about in a sick bed; we lie on our right side, then we change to the left; we stretch ourselves on our backs, then we turn on our faces; we wrap ourselves under the clothes to escape the cold, then we throw off the coverings to escape the heat and suffocation; we fling ourselves out of bed and walk up and down the room; we return to bed.

We are worn out with fatigue and pain, yet can get no repose. We seem wedded to our disease. We make new efforts, try fresh expedients but nothing appears to shake off the agony or to promise relief.

Every moment is as much as we can bear and yet there seems no end to our fortunes. Nor can we so much as

conceive the possibility that this state of things should not last for ever.

Suddenly a change comes, the spell falls off and we forget all that has happened to us. No sooner does our disorder turn its back upon us than we laugh at it.

The state we have been in sounds like a dream, a fable; health is the order of the day, strength is ours and we discard all uncalled for evidence to the contrary with a smile of contemptuous incredulity just as we throw our medicine bottles to the rubbish bin.

It is hardly to be wondered at that we dread physical calamities so little beforehand. We think no more of them after they have happened.

Out of sight, out of mind.

The body forgets its grievances till they recur. Meanwhile in this state of good health we remain blissfully unaware of the continuous smooth working of our bodily mechanism. Let one cog

become dislocated and instantly we become painfully reminded of the existence of a complex and delicate machinery within us. The human engine will not tolerate ill-usage or thoughtless neglect. Treated generously and sensibly it permits an unostentatious efficiency and a smooth working which is the foundation for the comfort and delight of the body it serves.

In one of her letters Lady Mary Wortley Montague remarks that she is so happy that she regrets she cannot live three hundred years. We all have moments like that; moments when life seems so good that we envy the particulars and would be glad if we could abide here longer than Nature permits. But such moments of JOIE DE VIVRE are only to be earned by a careful and wholesome respect for the bodies we are given to use and enjoy.

The moral, wise reader, you must discover for yourself. The path is laid clearly before you. You have but to follow it.

—“Better Health.”

Bringing Health to South Indian Children with Calcium.

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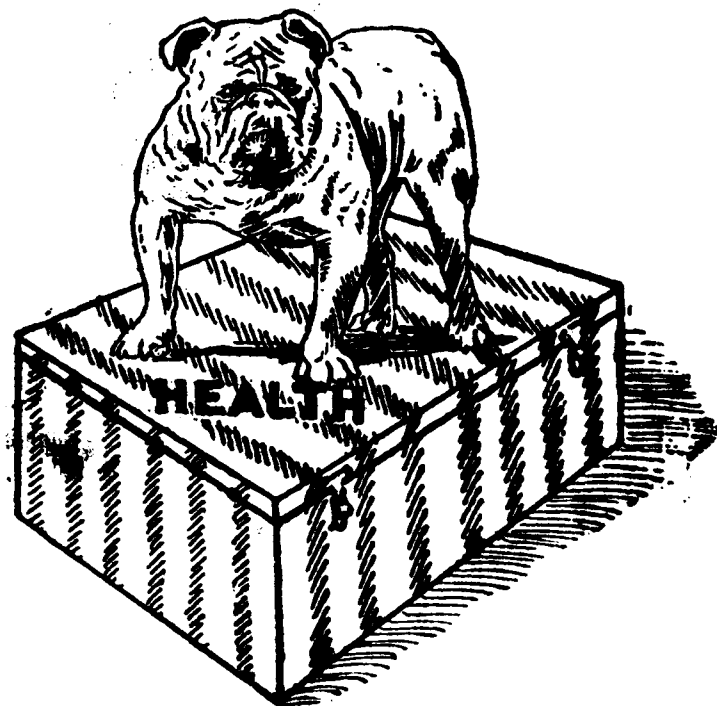
Edited and Published by Dr. U. D. Gopal Rau at No. 57, Thambu Chetty Street, Madras on behalf of the Health Propaganda Board, Egmore, Madras
Printed at The Artisan Press, No. 17, General Patters Road, Mount Road, Madras.

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KEEP IT WELL
IN HAND

HEALTH

3 AUG 1938

AROGYA-MARGAM

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HEALTH & HAPPINESS PUBLISHED
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No. 6

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IMPORTANT

All the manuscripts for publication, books for review, Exchange of Journals and other correspondence relating to the Editorial Section should be sent to the HONORARY EDITOR, *Arogya Margam*, 57, Thambu Chetty Street, Madras.

Original articles are accepted with the express understanding that they are contributed solely to this journal. All matters published in *Arogya Margam* is copyrighted.

The manuscripts must be typewritten, and double spaced, and the original copy should be submitted. Blocks for illustrations will be supplied by us if the original illustrations are sent.

The Honorary Editor reserves the right to alter, delete, or make necessary changes in the matter sent for publication. No reasons will be given for rejecting articles.

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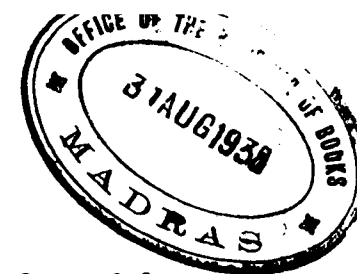
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You Need First A Beautiful House

AND

City Beauty Will Follow

(Editorial.)

THE problem of housing was staggering in its magnitude and unless it was dealt with satisfactorily all the money spent on education, sanitation and health would be money wasted" was the opinion expressed by Mr. S. Satyamurthy, at a public lecture on "A Beautiful City" held recently at Gokhale Hall, Madras. A brief extract of the same appear elsewhere in this issue of our journal.

We emphasise the point that the problem of housing conditions is the foundation of all Public Health Service. Unless the immediate surroundings of our bodies, the room we sleep, the place we dine, the space we cook our food, the courtyard where our children move and play, the parlour we frequently use, the outer compartments where we do our excretory

functions and in short the 'Home' we live in are airy, healthy and hygienic, it would be no wonder or surprise or exaggeration to hear daily the astounding figures in vital statistics about infantile and maternal mortality—so many deaths from malnutrition, Tuberculosis, Malaria, etc. etc.

We lay stress both on the public mind and the authorities concerned in the interest of National Health and Welfare the paramount importance of focussing our immediate attention to the problem of housing conditions.

It is the home and the conditions within the home that form the first basic problem of Health. Great progress has been made during the last quarter of a century in the knowledge of causes and prevention of diseases, the

conditions necessary to the building up of a healthy body, the value of sunlight and fresh air, the many intricacies of right and proper feeding, the necessity for cleanliness of body and surroundings and all these would largely depend upon a well-managed and healthful home. A good home-keeping is a home rule. It is a place where we can be at home, where we can indulge in simple and homely pleasures, a place where we and those near to us could cultivate those intimate ties of attachment which would lead us to serve the humanity at large. Each of us demands of home certain essential qualities that will make our lives a little more pleasant. We want to environ ourselves with things we cherish, and these have a personal significance. Those who are ill-housed, ill nourished and debilitated fall a ready prey to many diseases. The main objects of maternity and child welfare centres and other Health organisations would be unfulfilled, if not, defeated in many ways without a healthful home.

As it has been rightly pointed out by Mr. S. Satyamurthy, money spent on education, sanitation and health would be money

wasted unless proper schemes are launched to improve the housing conditions in the city especially.

If we could only stretch our imagination to the most uncomfortable unhygienic housing conditions in our cities and which could be described in the words of Mr. Owen Dunn, Chairman of Improvement Trust, Bombay, as follows:—

“The conditions under which the vast majority of the poorer people in the City live are unwholesome and demoralising in the extreme. The wonder is not that the general death-rate is exceedingly high, the infant mortality terrible, but that so many human beings manage to exist at all and that the ravages of diseases and pestilence are not far greater. In many quarters, the houses are jammed so closely together that free circulation of air is prevented, the sun can barely get lower down the roofs and the atmosphere is thick with foul odours. There are no proper roads, only narrow tortuous lanes and passages and horrible gullies, and the older houses have generally been built without any regard to light and air, and too often in a style which would make even the most

incorrigible English Jerry builder blush. Hundreds of houses had no opening at all except a doorway leading into a dark foul smelling passage where artificial light is necessary all day long while the glorious sunlight floods the street perhaps only a few yards distant.”

We cannot but realise the real need for giving immediate attention to our comforts in possessing a beautiful house.

The so-called improvements in our cities, of widening roads, providing amenities of park, beach and Radio atmosphere, organising Baby Shows and Radio Talks on Health topics would be of only secondary importance in view of the horrible housing conditions in our cities.

Owing to the poverty in the Country 75% of the people live in single room tenements, which rarely measures 60 square feet and with the parlour common to other co-tenants which is all the accommodation available for a rental value ranging from Re. 1 to Rs. 3 or 4. The average number of the family is 5.

There are people who spend their whole life-time living in the public road-side, in motor shed verandahs and actually on the road itself. It is heart-rending

to see them suffer without a house. Their health, their habits, their clothings, and their immediate surroundings are horrible where horrible diseases like Tuberculosis and other infectious diseases take origin and easily spread.

It would be endless if we go on enumerating the sufferings and evil consequences of bad housing conditions and how these conditions drain our energy and vitality and how it renders the National health weak and non-resistant.

It is our desire that every householder should pay his careful attention to his immediate surroundings, the house he lives in and construct and equip and arrange the same, satisfying all conditions of health and hygiene. The Government and the Corporation ought to place this problem of housing conditions in the forefront of all their advancing schemes for the progress and welfare of the people.

This is the problem which goes directly to deal with the causes of so many epidemic, endemic and infectious diseases that mar our progress and our civilization. Money spent for the improvement of housing conditions among the masses is the money saved in the shape of a strong, sturdy and Healthy Nation.

Noise and Neurosis

NOISE has come to be an inseparable feature of modern life. Insidiously it has developed in our midst until now it has achieved the importance of a national problem. Like a plague it has descended on our great cities holding them fast in its toils. We live, work, play and sleep with a discordant overture of noise for ever in the background. Day and night our ears are assaulted with a harsh medley of sound which irritates beyond measure our sensibilities. To find an oasis of quiet to-day we have to seek out some secluded hamlet far distant from a main traffic road. We cannot hope to escape the menace of noise in any city, town or highway village. Such is the predicament to which our urban civilisation has brought us.

It seems that no sooner do we solve certain problems of city development than others equally grave present themselves. We have subdued to a large extent the dirt and dust peril. Urban sanitation is now highly efficient. Water supply is adequate (though admittedly not yet as abundant as it ought to be). Undoubtedly city life offers many amenities and refinements, but also imposes the curse of noise. This is a problem of great moment to those who are concerned with the physical and mental welfare of city dwellers. It is most regrettable that we have permitted the growth of noise to the extent it has reached to-day. The noise peril has caught us unawares and we are in a quandary as to the remedy. We have been tardy in acknowledging the existence of urban noise because we have failed to appreciate that noise can be definitely harmful to mind and body.

If noise were *only* unpleasant or disagreeable there would be some excuse for treating the problem lightly. Unfortunately noise is much more than that; medical opinion holds that the effects of noise upon the nervous system can have serious repercussions upon the general health. Our street and traffic noises may not obviously endanger life but they impose a strain upon our nerves to which even the most robust are not immune. That is why every city dweller should be fully alive to the dangers of noise and why every effort, legislative or otherwise, should be welcomed and encouraged. In this respect, the activities of the Anti-noise League deserve our full and enthusiastic support. We cannot afford in the interests of national health to tolerate any longer the present plague of noise.

As it is upon the nervous system that the adverse effects of noise have their predominant influence, I considered that the opinion of a nerve specialist would be enlightening to us. The following is an expression of the expert's point of view, from which it will be apparent that noise is a grave menace to the **hygiene of mind** :—

"Noise may be described as chaotic or discordant sound waves and is definitely disagreeable to the ear. Loudness of any sound is unpleasant and if very intense can be dangerous to life. It has been affirmed that some of the fatalities from high explosives during the war resulted from the violent sound waves imparting a shock to the nerve cells of the brain. Noise is the antithesis of rhythmic sound. Rhythm is inherent in human life as indeed in all

nature. It excites comparatively pleasant reactions in mind and body. We are all familiar with the charms of music, how it can soothe and how it can stimulate. In contrast, noise is arrhythmic; the sound waves are irregular and unexpected. Noise disturbs the fundamental rhythm which pervade all the vital activities of the body."

As every one knows a sudden noise creates a momentary feeling of fear. Involuntarily, we "start" our muscles contract, the heart beats more vigorously, the blood pressure rises and the endocrine glands become more active. We pass into a position of defence against possible danger. Noise is a potent stimulus to the emotion of fear and in sensitive people the fear may be evidenced by all the symptoms of shock and paralysis of will. There can be no doubt that a sudden unexpected loud noise, such as the violent hooting of a motor horn, may completely paralyse a pedestrian with serious consequences to life and limb.

It is not implied that all noise arouses in us a conscious feeling of fear but there is no doubt that noise of any kind tends to produce some varying degree of the physical reactions of fear. Even when we are asleep, a noise insufficient to wake us will generally cause our muscles to contract which is revealed by a restless movement in bed. The ear is still receptive when we are asleep and experiments have shown that even comparatively slight noises can raise the blood-pressure during sleep. We thus see how noise is perpetually arousing the physical and to some extent the physical concomitants or fear. Naturally the degree of those signs depends upon the inherent toughness or sensitiveness of the nervous system. People vary greatly in their responses to noise, according to the inherited fabric of their nerve structure

and according to the state of their general health.

Now, fear is an exhausting emotion. If sufficiently prolonged, it causes fatigue and ultimately a great reduction in mental and physical vitality. It is in this way that noise casts a heavy burden upon the mind. It leads to a constant leakage of nervous energy, energy which is not being utilised for any constructive purpose, energy which no one can afford to lose. Even though the noises are accustomed, the disagreeable stimuli are still transmitted to the brain, and, in contrast to pleasant rhythmic acoustic stimuli, and fatigue irritate the nervous system. The emotion of fear, no matter how it is aroused, is a fertile source of neurosis and in so far as noise initiates fear, it may be regarded as a definite contributory cause of nervous illness, particularly of the exhaustive type.

The "noise neurosis" if we may coin the phrase, attacks the sensitively minded. It brings about a state of constant muscular tension which dissipates nervous energy at a rapid rate. The result is revealed in an "always tired" feeling, irritability of mood, and an impairment of the intellectual ability. The keenness of the mind is blunted. All effort is tiresome. Initiative is diminished and good work becomes impossible. Most serious is the effect of noise during the sleeping hours. At its worst noise may produce insomnia, which, once established, is most difficult to cure and has a disastrous results upon the general health. Even though it does not cause actual sleeplessness, noise at night is exhausting and the sleeper awakes tired and unrefreshed. Noise during the sleeping hours renders complete relaxation impossible and without such relaxation of muscle and nerve the benefits of the physiological rest cannot be obtained in full.

It must be emphasised that habitual noise is not ignored by the brain even though the mind may in time neglect to take notice of it. As already indicated the neural reactions occur just the same and produce their exhaustive effect.

Of the harmful effects of noise upon those who are suffering from acute or chronic disease there can be no doubt. Quiet and rest are sheet anchors in the treatment of any form of illness, equally as important as diet or drugs, and yet how often is this very desirable condition unfulfilled. Hospitals and nursing homes are far from blameless in this matter of noise prevention. Even though much noise comes from the streets and is unavoidable, there is also much noise that could be prevented from within the walls of such institutions. The trouble is that the baneful effect of noise upon the sick is not sufficiently realised by those who are responsible for their care. Many a sleeping draught or drug would be unnecessary if precautions were adopted to reduce noise.

To sum up, it may be said that noise may induce a condition of nervous weakness or exhaustion of varying degrees of severity according to the temperamental and constitutional make-up of the individual, the kind and nature of the noise and the state of the individual's general health. And in so far as nervous weakness implies a weakening of organic functioning, noise may pave the way to actual bodily disease. Finally, to the very robust minded who imagine that unnecessary fuss is being made about noise, we would remind them that there is no one who may not have his hypersensitive moments when noise may become an almost unbearable experience.

From this evidence it is clear that the time for complacency in our attitude to the problem of noise is past. If we could measure up the cost of noise in wastage of human energy and productivity, it would amount to millions of pounds every year. Moreover, there is the unestimable cost in human suffering. The human mind in these civilised times has a great many stresses to withstand. Life on the mental plane is becoming increasingly more difficult and strenuous. The need, therefore, to remove noise becomes imperative in the cause of mind health.

Unfortunately, the remedy is by no means easy to determine. Much of the noise of modern cities is bound up with the transport problem. But silent, or at least relatively quiet machines of locomotion, should not be beyond the ingenuity of the engineer. The time has come for engineers to become genuinely and enthusiastically anti-noise minded.

Many more street noises and street cries could easily vanish without inconvenience to any one. The importance of absence of noise during the sleeping hours has already been stressed, and every possible measure should be taken within the dwelling house and without to ensure quiet.

Until the great mass of people become sufficiently anti-noise minded, fresh legislation should be introduced and strictly enforced. The existing common law against noise as a nuisance is greatly in need of expansion and strengthening. We must take our stand against the curse of noise now. Let people fully realise its dangers and we may hope for a universal effort towards its conquest.

The city of the future must be a noiseless city. —"New Health."

Some Thoughts on My Clothings

THE main use of clothes is to prevent undue loss of heat, but in hot countries they do also keep heat from the body. To keep in warmth, materials must be bad conductors of heat. Objects that feel cold to the skin on touching, as glass or a metal tea-pot handle, take heat readily from the hand, and thus are good conductors of heat. The metal tea-pot, if full of hot tea, feels unpleasantly hot in its handle because the heat is then conducted too quickly for comfort to the hand holding it.

Any substance that feels warm, that is, does not strike cold to the touch, is a bad conductor of heat, as is the material of coats, carpets, asbestos. Though it is possible in a room to go round touching different objects, some of which feel colder than others, actually all are the same temperature, that of the room, about 60° F. probably. Differences are due to differences as conductors of heat, the body at 98.4° F. always being hotter than the room temperature.

Air is a bad conductor of heat, so that rough materials that hold air in their interstices, as woollen tweeds, knitted stockings, woven underwear and furs are the best to wear in cold weather, when heat needs conserving, whereas smooth materials, such as cotton, linens, artificial silks help the body to lose heat, and are preferable in warm weather. Wool fibres have a natural

curly bend or 'camp' in them that, when woven, holds air in the material. Cotton fibres can be worked up to stimulate wool thus. Materials containing cotton, however tend to be heavy, whereas wool materials are relatively light.

Wool also retains some natural oil of the fleece, and this makes it able to absorb moisture slowly and to dry slowly whereas cotton absorbs moisture quickly and dries quickly. Contrast the effect of being caught in a rain shower in a woollen tweed coat, in which the rain drops stand on the material's surface and can be shaken off, and in a cotton or linen dress, in which each rain-spot shows as a circular wet patch and the soaked material is soon clinging damply to the skin. This hygroscopic quality of wool ensures that when the skin perspires and the body tends, on a cold day, to lose heat over-quickly, the wool next to the skin absorbs the perspiration slowly and dries slowly. This prevents noticeably rapid loss of heat and the chilled feeling that means that the body resistance is lowered, and that, given a dose of cold germs, a cold may be caught.

A cotton vest soaked with perspiration after exercise feels cold and damp against the skin. Heat is being lost over-rapidly. We should not be conscious of this cooling down, and this is the time to put on an extra coat, so that heat may be lost more slowly.

Analogously, sitting on damp grass, sleeping in a damp bed, or putting on unaired clothing chills the body, because the body heat has to be used to counteract and dry up the damp. Such lowering makes for special susceptibility to active attack by germs of rheumatism, that are probably always quiescently present in the intestine.

A school of thought exists that doubts the value of wool next to the skin, because by keeping the skin over-warm and by absorbing moisture and drying slowly, wool may tend to keep the skin in a continued state of dampness, and so over-ready to lose heat rapidly and be chilled, whereas it is affirmed that cool air passing over a dry skin has comparatively little power to chill. Similarly, tightly fitting clothes, as woven vests round the body, and arm-holes closing in the axilla, are considered to make for habitual moistness of skin from perspiration. The aim is for the skin never to be so hot, either from clothes or from over-heating of air, as to be perspiring visibly, except during and after strenuous physical exertion.

Loose, thin cotton underclothing next to the skin is advised, and the wearing of as few light and loose articles as possible, and of a cut so that air can get to the skin and the skin be kept cool and dry. After exercise, producing perspiration, a wool cloak or coat is suggested to guard against too rapid cooling.

It is postulated that the over-heating caused by wearing too many and too tight clothing results in mouth breathing and adenoids, in the attempt to lose more heat. Increased susceptibility to colds in the head, tuberculosis and rheumatism are ascribed to this skin dampness, and it is certainly significant that rheumatism occurs less in

hardy gipsy and middle-class children than in the still over-clothed and cod-dled child of the artisan.

Children need to be brought up to be hardy and not to be afraid of cold. This does not mean that they should be made to suffer from cold, as in having cold baths or sitting in an unheated room on that annoying and uneconomical plea that it is "good for them." The hardening process can be gradual and unnoticed. To have a good average power of resisting cold and heat, hunger and thirst, injuries and disease is a useful emergency asset throughout life.

Where wool is worn next to the skin or not, too many and too tight clothes make for an enervating susceptibility to any adverse health condition going. It is of interest, perhaps, to note that the average total of a man's clothes weight is 15 lbs., whereas a woman's is about 4 lbs.

Indoor room temperatures, as of classrooms, should be such that children do not need, and are not encouraged, to wear top-coats and scarves indoors. If outdoor clothes are worn thus, there will tend to be relatively too much blood in the skin (causing the skin to perspire and lose heat) and less in the brain; and outdoors the child will be hot-skinned and enervated, and inclined to catch cold, instead of being braced and stimulated mentally and physically. Outdoor clothes with open-air classrooms are, of course, better still.

It should be remembered also, that wool shrinks unless washed carefully, thus losing its natural oil, whereas cotton washes and wears well, can be boiled and is relatively cheaper than wool. Wool, however, does not catch fire easily, whereas cotton burns readily.

Cotton-wool and flannelette are entirely cotton and very inflammable. Flannelette can be bought impregnated with chemicals to counteract this, but washing removes this safeguard.

Silk is a bad conductor of heat, but relatively expensive and not hard-wearing. Linen, though hard-wearing is more expensive than cotton, and is similarly a good conductor of heat.

Clothing, as noted earlier, should be loose and light, and the weight should hang from the shoulders. Tight boots and gloves stop the circulation of blood, causing cold feet and hands, and possibly chilblains. Tight garters and knicker elastics, that make a mark on the leg, stop the circulation unduly and conduce to varicose veins in later life. Tight knicker elastics and belts round the waist compress the abdominal organs and tend in the long run to induce a deposit of fat along the line of constriction. Tight corsets are fortunately unfashionable. These used to constrict the lower part of the lungs, preventing adequate breathing as well as displacing the liver and stomach by downward pressure.

Records kept among College women from 1891 onwards, show that decrease in green sickness, a form of anaemia, almost to disappearance, in digestive disturbances, in tendency to faint and in menstrual disability, and an increase in average height and all-round fitness and joy of life, has kept interesting pace with the enlarging of the average waist measurement and with the shortening and lessened voluminousness of the skirt (Mosher.) Brassieres should be carefully chosen so that they support the breasts without pressing them out of place, specially forward and inward.

Boys suffer from collar tightness more than girls. Tight stiff collars

press on veins on either side of the neck that take the blood from the head back to the heart, causing relative congestion in the head and so less oxygen in the brain. Such collars also increase susceptibility to cold in over-clothing the neck. An open-necked shirt with a pull-over is neat and free. Collars also impede muscle development at the base of the neck. Contrast sailors' necks with those of a regular collar-wearer. Tight hats probably conduce, among other influences, to baldness by constricting the scalp circulation and by pressure on scalp nerves.

Loose clothes are always warmer than tight ones, and two loose thin layers than one thick layer, because of the air that can be held in the interstices and between the looser garments. A class that sits continuously in a hot, moist atmosphere gets this air in its clothes too hot and stagnant, and one advantage of a quick break in the open air is the bracing moving and changing of this enveloping garment of air.

On the other hand, a cold, damp east wind blows through the interstices of clothes, so that the body has a continually changing cold layer of air next to it, which it futilely tries to warm. Skin and fur coats and closely woven materials resist this kind of wind. Loosely knitted jerseys are then useless. Rubber mackintoshes, because they keep in moisture which condenses on the inside rubber surface, are unhealthy for regular use, as are rubber gymnastic shoes, particularly for people whose feet perspire markedly.

Dark clothes attract heat more than light, as was shown by the following experiment cited by Dr. Argyll Campbell. A set sized piece of black material put on snow surface in the sun sank in deeply, while a similar sized white piece

of material scarcely sank in at all, in the same time, because the snow under the black material had been the warmer and had melted more. For protection against heat, colour counts more than material, white being coolest, then yellow, pink, blue, and black last.

Underclothing worn during the day should never be worn at night. In garments, worn next to the skin, bacteria increase so that after one wearing 400,000 bacteria to the square inch were found, which had increased after six days' wearing to nearly ten million per square inch. Such bacteria probably increase stuffy smells. Frequent washing and sun drying lessen them. Dark woollen knickers need to have washing linings to wear with them, and a vest and cotton knickers are preferable to combinations to wear next to the skin, because knickers can easily be washed and so changed more frequently.

Clothing should be of about equal thickness all over the body. Children who wear socks and very short skirts or knickers in winter tend to loose too much heat in proportion to their intake. Bare legs in winter conduce to rheumatism. In summer, however, it is becoming increasingly the practice for girls to play games and do physical training stockingless, thus getting out of doors the benefit of the ultra-violet rays from the sunlight. Boys have always been free in this way. Both boys' and girls' clothing should fasten in front, where fastenings are necessary, so that the children can dress and undress themselves.

For footgear, shoes are preferable to boots for normal people, because boots tend to take place of the muscles in supporting the foot and leg at the ankle and make for weaker joints, just as the

old type of corset weakened the abdominal muscles.

Shoes should fit firmly round the heel and over the instep, and give room in the front of the shoe for the toes to spread out uncramped. In the natural foot the inner side is straight, with no bend inward of the big toe at that joint. Shoes then should be similarly straight on the inner side, with no pressure of the big toe out of place inwards, as is caused by wearing over-pointed shoes. The point of the shoe should come in front of the big toe and not the third toe as it often does, thus deforming the foot.

On the inner side the shoe should fit smoothly to the hollow of the instep, without any wrinkles. When laced up there should be a space between the two laced sides. If these touch the shoe is too big round the instep and will not fit firmly on the foot. A blocked-up toe leaves the toes uncompressed, and in buying new shoes there should be half an inch between the big toe and the end of the shoe when standing up.

Short shoes cause bunions. Pressure on the big toe end causes "give" in the big toe joint, and inflammation of its synovial bursa, called synovitis. The first symptoms are pain and redness, and if the joint is painted with a counter-irritant, as iodine, and the shoes discarded at once, there should be no more trouble. Wearing out such short shoes, is a mistaken sense of economy, results possibly in a life-time of foot pain from a bunion and unsightly foot shape.

Corns come from the continual rubbing on the same spot of an ill-fitting shoe. Careful choice of shoes and the keeping, possibly, of several pairs of shoes in wear in rotation, never the

same pair two days' running, does something to prevent corns from coming. Also corns should not be allowed to get markedly painful before they are dealt with. Regular daily washing and foot care is essential.

Too high heels shorten the normal stride in walking and make for a jerky clack, clack tread, because the body weight is changed over-abruptly at each step from the heel to the ball of the foot. A medium heel makes for foot comfort and economy of output in walking. People who say they need high-heeled shoes for support probably need instep arch supports for flat-foot. High heels also put undue strain on the muscles and ligaments of the ankle joint, so that the heel "goes over", that is, wears down markedly on the inner or outer side (see Chapter II). Certainly children should wear low-heeled shoes over the muscle-straining period of growth.

Tight shoes, and those with very thin soles, cause continual cold feet, because damp readily permeates the shoe and this causes loss of heat, which leads again to chilblains, colds and rheumatism. Chilblains are excited by too rapid warming of cold feet and hands by the fire or on hot-water pipes. The value of warm, adequately fitting shoes may be hindered by the wearing of over thin or tight stockings so that too much heat is lost or the circulation impeded. Warm stockings or spats or gaiters are useful in cold weather, and warm underclothing.

Apart from cold, proneness to have chilblains or not, seems to depend on particular metabolism, some people getting them very readily. The regular

taking of cod-liver oil and of calcium before the cold weather sets in is sometimes advised. Painting with iodine relieves irritation to some extent. Vigorous exercise, as long walks, helps to get rid of chilblains, and the rubbing often advised aims at increasing the circulation locally, as would brisk walking.

Prolonged cold feet conduces to congestion of the nasal mucous membrane, thus reducing resistance to colds. Constant wearing of bedroom slippers causes a habitually slovenly walk and a relaxing of foot tone of muscles and joints. Stockings should be changed after exercise, both because continued soaking of perspiration soils the stocking foot because a change freshens and braces the feet. Teachers should impress on their classes that the feet should be as clean as the hands and that there is no danger in daily feet washing.

Nails on hands and feet should be kept clipped short and clean and the quick be kept pressed evenly down, to prevent hang nails developing. A stiff nail-brush, hot water and soap are better than a sharp instrument poked under the nail to clean away dirt. Ingrowing toe-nails on the feet can be prevented by cutting the nail straight across and slightly concavely in the middle, the opposite way to finger nails, which grow and are cut to a convex shape. Slightly to file the nail surface down its middle line of the nail, so away from the sides, where there is the possible tendency to grow in painfully. Tight shoes conduce to ingrowing toe-nails.

—"Hygiene and Health Education."

Health in The Headlines

A Nature-Cure

(News Feature by "Observer.")

Progress in Four Countries.

Reports come from four countries **Australia, Canada, South Africa and India**, all of which record significant signs of progress in public health, education and administration.

From Australia two recent injunctions of a committee of experts established by the Australian Department of Health were: (1) consume less patent medicines, and (2) drink more milk.

Also from Australia comes a recommendation that the millers and bakers of that Country should establish some research laboratories with a view to producing better and more nourishing bread than is at present in general use.

Johannesburg's 2,19,000 pints of Milk for Ailing Babies.

In South Africa there has been a definite trend towards natural methods of living and healing for many months now, and in addition to sending the boxer Mr. S. R. Liebrandt, Nature-Cure follower (see this feature, July issue), to Berlin for the Olympic Games recently (where incidentally, he reached the semi-finals in his class), the Public Health Department of Johannesburg, the Golden City which celebrates its golden jubilee this year, has, through the medium of the City Council's Welfare Clinics, used 400 pints of pasteurised and 200 pints of raw milk

for the particular purpose of observing the curative effects of milk in cases of ailing babies.

Altogether, during one year recently, 219,000 pints of milk were used for the treatment of ailing babies in Johannesburg. We feel that such a forward move is positive public health administration is exemplary, though for precisely what reason pasteurised milk should be given preference over raw milk to the extent of double the quantity, we are at a loss to understand! Surely there is abundant evidence to prove that raw milk is more nutritious than pasteurised, and particularly convincing is the evidence in the case of young children.

Unbleached Cane-Sugar for South Africa.

A special grade of unbleached cane-sugar will be marketed shortly in South Africa, at a price considerably less than that charged for white sugar. This step has been made possible by the co-operation of the sugar-growers and refiners with the Government.

Sweets from Vegetables.

If an interesting news item received from Canada can be regarded as authentic, followers of Diet Reform may soon be able to enjoy sweets without experiencing any deleterious effects on

their general health. Mr. Fred Stonburgh, a Toronto confectioner, has received the idea of making caramels from spinach and honey, and other sweetmeats from carrots and tomatoes.

Compulsory Breathing Exercises for Indian Schools.

In any survey of the health of India it would be difficult to exclude a reference to breathing. As oatmeal is to the Scotsman and rice to the Chinese, so is breathing to the natives of India. Home of the world-famous Yogi breathing exercises, it has now been pronounced compulsory by the Rajah of Aundh, the ruler of some 70,000 people, for breathing exercises to be performed daily in all State schools, a measure which could be adopted with consequent improved health by the peoples of many Western nations.

Healthy at Eighty-one through Natural Living.

In most unexpected places and publications one finds the efficacy of natural methods of living and healing being praised, and one such example appeared in the *Morning Post* (London) recently. It took the form of a reader's letter, headed "Healthy at Eighty-one", and bore the signature of "Octogenarian." It read as follows:

"As a retired solicitor who has attained to the age of eighty-one, I should like to give you my experience with regard to the dietary I adopted eleven years ago. It consists of a light breakfast of fruit and cereals; a luncheon of fish or poached egg with salad, and a dinner of a small quantity of meat and vegetables, with fruit to follow. Three meals a day with no tea meal! My drink consists of ripe lemon juice and honey (with water) at tea time, again before retiring and while dressing in the morning. I observe the following rules:—Thorough mastication of all foods, avoid eating too much food at any meal; do not drink at meals; do not eat pastry, rich cakes, or puddings; avoid rich sauces and pickles, white bread, and sugar. Vegetables should be steamed in order to retain their vital organic mineral salts. My case is a striking example of what living a simple life can do, having regard to the fact that I feel younger and am more active than I was ten years ago! I should add that I take no intoxicating liquor of any kind."

Wise counsel from a solicitor.

[Reproduced through the courtesy of the *Health for All Magazine*, London, in which paper it originally appeared.]

SAFEGUARD YOUR HEALTH Shake off Superstition and Ignorance. SNAKES TO CURE TUBERCULOSIS.

Apprehending danger to the public health and consequent breach of the peace, the First Class Magistrate of Garh has issued an injunction, temporarily restraining a tribe of snake-charmers from selling to the public baked or live snakes or any other reptiles which are regarded as infallible cures of diseases such as tuberculosis, rheumatism, etc.

There was an alarming increase in the number of patients suffering from the ill-effects of poisoning, caused by eating baked snakes which were considered by superstitious people to be effective cures for tuberculosis, etc.

—Health Propaganda Board.

The Rat

A Menace to Health

WAR is continuously being waged throughout England on rats, in order to try to diminish their number and so reduce the enormous amount of damage to food, property and materials, which is caused annually by the ravages of these vermin, and at the same time to protect the health of the public against this grave menace.

It is well known that rats may play an important role in the dissemination of the germs of disease and that they also harbour certain parasites. They are the means of spreading disease not only among human beings, but to at least an equal extent among domestic and other animals. The number of such diseases tends to increase as biological and medical studies proceed. It is probable that further research will show rats to be carriers of diseases other than those for which they are already known to be responsible. The rodents lead a communal life in direct contact with each other and thus the passage of the germs of disease is facilitated. Outbreaks of food poisoning have from time to time been attributed to the contamination of food by the excreta of rats, consequently their presence in dwelling houses must be regarded as a grave menace to health.

Although the problem of rat extermination is a difficult one, owing chiefly to these rodents being prolific breeders (producing litter after litter with unfailing regularity), and also to their migratory habits (being capable of existence

under a variety of conditions), it is necessary from an economical as well as from a medical and sanitary point of view that some stringent measures be taken to combat the rat menace.

The two species met with in Great Britain are the "blackrat" (*Rattus*) commonly called the ship, Indian or house rat and the "Brown rat" (*Rattus norvegicus*), known as the common brown or Hanoverian rat, water rat, barn rat, sewer or grey rat.

The black rat, which was described by the ancient Greeks as being associated with their outbreaks of plague, is said to have first made its appearance in Europe about the thirteenth century. It is the chief species which infects our ships (where cases of plague sometimes occur) and consequently it is conveyed by commerce to all parts of the world. During recent years the black rat has met with a good deal of success in London and other sea-port towns, owing to its climbing habits, establishing itself in the upper parts of houses at a considerable distance from the docks, especially where there are kitchens and restaurants on the upper floors; finding access to these buildings by way of stackpipes, windows, ventilators, chimneys, and by using telephone cables as bridges.

The brown rat apparently had its origin in China, where there still exists a species almost indistinguishable from it. It is a very strong, voracious,

cunning and sometimes fierce animal, especially when driven into a tight corner. Being a great lover of water it can swim a considerable distance. It frequents barns, stables, basements of buildings, drains, sewers, slaughter-houses, grain stores and wheat stacks, etc. The rodent burrows and nests in the banks of canals, rivers, ponds and water courses, where it abounds in large numbers.

It is interesting to note that the Medical Officer of Health for the City of London in a recent report says: "Observations and records in the City suggest that the brown rat is outnumbered by the black rat by about three to one. Owing to the constant attention of the drains and sewers, the brown rat is fast disappearing, and as new buildings replace the old, a lessening of the small black rat will be apparent."

Rats will gnaw through almost any obstruction, and even through such materials as lead pipes, ivory, leather and even concrete, and by this means their ever-growing incisor teeth are kept down to a reasonable length. During their ravages they will carry away valuable articles for use in the construction of their nests.

It has been estimated that, on an average, one rat causes, by the destruction of food and material, damage to the extent of $\frac{1}{4}$ d. a day (roughly 7s. 6d. a year) amounting to a total loss through the agency of rats of £ 15,000,000 per annum in Great Britain and Ireland, but this enormous sum probably does not include the actual value of the food spoiled or the damage done by this pest on board ship, or in the docks where such commodities as wheat, barley, maize, rye, meals and cakes, vegetables and fruits are temporarily stored. It is said that

a full-grown rat will eat 2 ozs. of grain daily, i.e., 40 to 50 lbs a year.

It must be remembered that destruction to property caused by these rodents burrowing under foundations (thus tending to make the buildings unsafe), gnawing their way through floors, partitions, gas and water pipes, means considerable expense to firms and public bodies on repairs. Rats have been indirectly the cause of fires by gnawing away the insulating covering on wires used for electric lighting. In the rural districts farmers also suffer from depredations of these rodents, as they consume and destroy root crops, fruit and vegetables, steal the eggs and young of poultry, and have even known to suck the milk from teats of a cow in order to obtain food. Rats require both food and shelter for their well-being and they cannot persist where either of these is lacking. The infestation of premises by these vermin is usually traced to some condition favourable to the animal and the removal of this condition discourages their presence and means permanent reduction of rat damage. In the Spring they depart into the open fields where they burrow and pass the Summer. In the early Winter they re-establish themselves in buildings, lay up in their holes during the day and go forth in search of food as soon as it gets dusk.

To reduce the number of rats it is essential to obtain their simultaneous destruction throughout the Country, consequently there is a general need of organisation and co-operation to be able to tackle the problem which requires the greatest energy and zeal of all concerned.

The following are a few hints as to how we can help in this important campaign.

All food should be stored in rat-proof safes and no scrap of crumbs left lying about. Refuse and garbage that is likely to afford food and shelter to rats should be stored in metal bins with close fitting covers and removed regularly. The formation of heaps of rubbish is a dangerous practice as such accumulations not only afford food and shelter for rats but may in time become their principal breeding places. Every new allotment, fowl run, pigsty or rabbit hutch offers new quarters for their maintenance.

Secure the rat-proofing of buildings as far as possible especially outbuildings such as chicken runs, and protect the inlets and outlets to ventilating pipes.

All water tanks and storage cisterns should have rat-proof covers. Rats are attracted to water and the brown rat drinks a considerable quantity; they also have a habit of making their nests in the spaces beneath storage cisterns.

Destruction

The principal methods of dealing with these pests are: by poisoning; trapping and snaring; hunting with dogs and ferrets and the protection of the natural enemies of rats, such as owls, weasels, buzzards, kestrels and stoats, etc. **POISONS:**—There are many preparations in the market containing phosphorus arsenic or strychnine, etc., but there is always a risk of poisoning other animals. The bait which is probably the safest for the house-holder to use contains extracts of squills. This is made up in a convenient form as small biscuits which are harmless to domestic animals but destroy rats and mice. These biscuits can be purchased from any drug store. A liquid preparation of squills is also obtainable, in which case a small quantity is mixed

with an equal amount of milk, previously scalded and allowed to cool. Small pieces of bread are dipped in the mixture and these are laid as bait in the rat runs at night.

Warning.

When poison of any description is used in large buildings for the extermination of rats, it must be used indiscriminately and the person entrusted with this work should be instructed in the following points:—

- (1) To use the greatest care in mixing and handling the baits.
- (2) Only the minimum amount of poisonous material should be used.
- (3) To give full warning to all concerned that poisonous baits are being laid down.
- (4) To prevent domestic animals from gaining access to the baits or to the bodies of poisoned rats.
- (5) To see that unconsumed baits are collected and that all dead rats are buried or burned.

Traps:—The large break-back with a wooden platform is a cheap and efficient trap, but to secure success the bait should be fresh and frequently changed and if one kind is not taken by the rodents another kind should be tried. Baits used for rats should also be of a different nature to the food they usually obtain. The "Steel gin" can be set unbaited in rat runs, earth, chaff or saw-dust being highly sifted over the trap so as to hide it from view and at the same time the surroundings should be made to look as natural as possible.

The "rat lime" or "varnish" trap is now extensively used with excellent results. It is made by spreading strong lithographic varnish or rat lime one-sixteenth to one-eighth of an inch thick, on stiff cardboard measuring about 15 inches by 12 inches, a suitable bait being placed in the centre. The trap is then placed along the rat runs, which can be easily found by sprinkling fine flour on the floor at night. The trap remains effective for three or four nights. A smaller prepared card should be used for trapping mice; after rats have been driven out of buildings, destroyed, all holes should be blocked up with a mixture of cement and glass, or glass and tar.

With regard to the efficiency of the various kinds of traps used for catching rats, the Medical Officer of Health for the City of London in a recent report remarks on the merits of those which

have been tried out in the City of London. He says: "Various kinds of traps have been used, the ordinary cage trap, the cel pot, the round wire and other types of wire traps. None of them are very successful, and some are constructed of wire so fine that captured rats are able to force the wires apart and escape. The traps which are found to give the best results are the 'break-back' and the varnish trap, the latter being now in general use and the most successful of all."

In an anti-rat campaign, no matter what measures are adopted for killing rats, they must be persistently and systematically pursued. All public authorities and private individuals should take concerted action, and this should be regarded as a national duty.

—"Better Health."

Milk for School Children.

BOMBAY SCHEME.

The Commissioner to the Standing Committee of the Bombay Municipal Corporation has submitted a scheme for the supply of milk to undernourished and needy children attending Municipal schools. It is estimated that the cost of the scheme for the first year will not exceed Rs. 31,000.

The budget grant of the current year is Rs. 50,000 and as the cost for the first year is not likely to exceed Rs. 31,000, it is hoped that there will be no difficulty in putting the scheme into force immediately.

To ensure that the milk supplied is put to as beneficial a use as possible and that the children entering the schools for the first time should get the first benefit, instructions are being issued to examine first the new comers and issue milk to those that are found to be suffering from malnutrition. When this is over, the examination will be continued to the next higher class if possible.

If these arrangements are approved of, tenders for the supply of milk will be invited and the scheme brought into force immediately.

"Hindu."

When Your Child Cannot Sleep.

THERE are many causes for sleeplessness in children.

Some children shrink from the darkness, and are afraid of shadows. This is not a natural fear. The normal, healthy child, if he has been properly brought up, does not mind being left, in the dark. Fear is usually put into his head by some unthinking remark.

The seed of fear can be planted by some such remark as "You won't be afraid if I take away the light, will you?" The imaginative child immediately begins to wonder what can be lurking in the darkness, and conjures up bogys of his own until sleep is impossible. These childish fears must not be laughed at, but dealt with sympathetically.

A night light placed on a little shelf, so that light does not shine directly into his eyes, will "keep him company" until he falls asleep.

Bedtime ramps are very jolly, but children should not be allowed to become too excited immediately before going to bed or tears and tantrums will follow.

A quiet game, or a bed-time story, will create the calm atmosphere which is so necessary for peaceful slumbers.

Most children love the bath hour, and can only be persuaded to leave the tub with difficulty. Others have vague, obscure reasons for disliking water. If quaint toys are provided for the bath, these will distract the attention from the necessary ablutions. A little

diplomacy will often overcome childish difficulties.

Children should not be allowed to study too near bedtime. An over-active mind will keep them awake for hours. A warm drink of milk is a good sedative, taken before retiring, but late, heavy meals should be avoided.

If your child is restless, take note of the temperature of the room. If the bed room is too hot, or airless, the child's sleep will be broken and unsatisfactory.

See if the bed coverings are too heavy, or too tightly tucked in.

If his little feet are icy cold, it is perhaps a sluggish circulation which is causing the trouble.

An emotional upset which has occurred during school hours or play, should be carefully dealt with before the child goes to bed. It is exceedingly bad for the child to be expected to sleep in an excited or unhappy frame of mind.

Small incidents loom very large in the child's world, and destroy his peaceful trust in his fellow-beings. If he is taught to realize that to-morrow may bring some new happiness his momentary disaster will seem less heart-breaking.

If we wish our children to be normal and healthy, we must see that they enjoy sound, restorative, and sufficient sleep.

—"Good Health."

Health Risks

OF

Cinema Operators

IN the projection of moving pictures in present-day cinema houses, the source of light is the carbon arc. It has long been known that an electric spark in air will form nitrous fumes and the toxic effects of such fumes are well known. It seems high time therefore that attention was paid to the conditions of ventilation under which cinema operators work. Unless these are good the operator will be exposed to both to excessive heat and to nitrous gases. Qualitative and quantitative analyses of these gases are by no means reassuring, and Philip Drinker and Snell have done well to consider the precautions that ought to be taken. They find that the heat out-put of the carbon arc in the cinema projection lamp is about 160 British thermal units per minute, and the temperature at the entrance to the lamp flue reaches 300° F. after the arc has been burning for half an hour. When two lamps are used alternately, as is the practice in cinema booths, about one-sixth more heat is generated—i.e., 187 B. t. u. per minute. Efficient ventilation both of the lamp flue and of the room itself is therefore needed to make the temperature conditions reasonably comfortable for

the operator, and the experiments of Drinker and Snell showed the great advantage of having a high rate of air movement in the lamp flue, as a means of diminishing both heat and fumes. The investigators conclude that if the ventilation of the lamp and the room will dispose of the heat from the arc, it will be at the same time remove the harmful products of combustion. They recommend that the flue pipe from the projection lamp should be ventilated at a minimum rate of 12 c. f. m.—preferably at 50 c. f. m.—and that the room or booth itself should be connected to the air-conditioning system of the theatre; or if such a system is not available, the booth should be ventilated at a rate (about 20 to 30 air changes per hour) sufficient to maintain a comfortable temperature. In such places as the large Hollywood motion-picture stages, where it is impossible to put flue pipes on the projection lamps, there should be enough general ventilation of the stage to remove the heat and the products formed by the carbon arc electrodes.

—"The Lancet."

Medicine and the Law.

Must the Surgeon Count the Swabs?

MAHON V. OSBORNE tried at the Manchester assizes last week, was one of those cases where a swab has somehow been left behind in the patient's body when the wound is closed after an operation. The surgeon had relied on the counting and checking of the swabs by an experienced theatre staff. Where would the injury place the blame? Would they say—as in *Byrne v. Thorn* in 1904—that, if the nurse made a mistake, the operating surgeon was liable because the counting was a vital part of the operation undertaken by the surgeon? Or would they—as in the South African decision in 1924 (*Van Wyk v. Lewis*)—hold the theatre sister to be independent of the surgeon so that any negligence on her part was something for which he should not be made to account? In the end they seem to have said—as in *James v. Dunlop* in 1931—that the surgeon was liable upon the particular facts of the case.

Thomas Mahon, a labourer, was brought to Davyhulme Park Hospital near Stretford on March 4th, 1937. He was suffering from a perforated duodenal ulcer. Mr. R. P. Osborne operated the same day. Owing to the subsequent condition of the patient, the visiting surgeon of the hospital conducted a second operation on June 12th, and a swab 10 in. by 8 in. was found in the body. The patient died next day. His mother brought an action for damages and for negligence. Mr. Osborne's defence was that he was assisted by a highly trained nursing staff on whose care and skill he was

entitled to rely; there was in use a system by which swabs were carefully counted and checked. In the circumstances, he contended it was not the surgeon's duty, nor was it in the best interest of patients, for him to count the swabs or check the removal; that was the duty of the theatre nursing staff. He had inquired if all the swabs were accounted for; on receiving an answer in the affirmative, he closed the wound. For the plaintiff it was claimed that it was the duty of the man who put in the swabs to take them out. Here there is perhaps a suggestion that the surgeon, in interfering with a patient's body, commits some kind of trespass or assault; but the patient has impliedly invited the surgeon to do what is necessary. On the surgeon's side it was pointed out that swabs are extremely difficult to detect by sight or touch; they may be indistinguishable in colour from the surrounding tissues; the same swab may be used several times in the course of an operation; the surgeon cannot possibly keep a mental note of the number used. This particular swab had no forceps attached. Perhaps the forceps had fallen off; perhaps two swabs were folded together. It was stated that over 3000 abdominal operations had taken place at the hospital and this was the first misadventure of this kind. In accordance with sound standards of hospital practice a tally was kept on a blackboard of the number of swabs used. They were grouped into bundles of five and were checked by the theatre staff before use. Mr. Justice Atkinson pressed Mr. Osborne to give his own theory of the

mistake. The witness said he thought there might have been a miscount; possibly two swabs were given him at one time, the one with forceps attached, the other without. Miss Ashburner, the theatre sister, responsible for the checking, described the method adopted. By the time the swabs reached the table they had been counted three times. She was not conscious herself of having done anything amiss. Her evidence caused the court to inquire how she came to have omitted to enter a defence in the proceedings. She had originally been made a defendant like Mr. Osborne, but she had put in no appearance; judgment had therefore been signed against her in default and the court had been informed that, so far as she was concerned, the sole duty of the jury was to assess the amount of damages she would have to pay. She gave her own explanation. She had written to Mr. Osborne about the claim made against her, and she had been interviewed by Mr. O. A. Hempson, a partner in the firm of Solicitors acting (through the Medical Defence Union) for Mr. Osborne. There had evidently been a misunderstanding. Neither Mr. Hempson nor Mr. Osborne had undertaken her defence. Mr. Hempson indeed made it clear in the witness box that he would never have advised that the surgeon and the theatre sister should have their case conducted by the same legal advisers. The Judge was satisfied that everybody had acted in good faith and that Miss Ashburner, who ought to have taken legal advice, never intended to admit liability. The judgment signed against her was, by consent of all parties, cancelled. But, with the case thus re-opened against Miss Ashburner, no specific allegations of negligence were formulated so far as she was concerned nor did the plaintiffs' counsel seem prepared to impute blame to her. It was surprising that the Jury eventually found no negligence on her part. Meanwhile expert

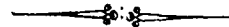
witnesses had testified to the care and skill of Mr. Osborne. Mr. Jhon Morley, Professor of Surgery at Manchester University, reminded the court that the surgeon had to balance in his judgment the harm he may do by an extensive search as against the harm he may do by leaving a swab behind. He added that a swab was difficult to detect when saturated with fluid and difficult to discover by touch. The judge told the jury that Mr. Osborne had given his evidence with conspicuous frankness and was a witness who would command their confidence. The jury declared themselves unanimously of opinion that Mr. Osborne was working under difficult conditions during the operation, but they came to the conclusion that he had not made a reasonably sufficient search for swabs and that a search would have disclosed the missing swab. On this finding the plaintiff was awarded £616 3s. 6d. and costs against Mr. Osborne, with a stay of execution for 14 days pending consideration of appeal. How a jury reaches its unanimous conclusions in questions of such technical difficulty is one of the mysteries of our forensic system. Possibly an actual experience of the surgeon's task in the operating theatre would go far to convince juries that counting swabs at the close of an operation is not so simple a matter as counting the number of persons on a bench in the law courts and that other considerations may make it impracticable to explore the patient's body at leisure. In effect the verdict in *Mahon v. Osborne* means that a surgeon is not to delegate the task of checking the swabs to the sister who is trained to undertake it, but that he must somehow keep count of every swab while his mind is intent upon the all-engrossing complexities of the operation. The verdict does not seem to suggest that the surgeon is responsible for the sister's possible error, so much as that he himself must do everything.

Responsibility for Nurses.

A legal journal, in a preliminary comment on *Mahon v. Osborne* observes that the reports of the case do not disclose the exact status of the Davy-hulme Park Hospital. "We must presume" adds our contemporary, "that nothing at all, either in law or in fact, could be said against its owners." This remark may serve to link up the case with recent discussion at the Stow-market District Nursing Association, where it was suggested that the employing body might be well-advised to declare that it accepted no liability for claims made on the basis of the alleged negligence of a nurse. The public health department of the East Suffolk county council had written to point out the need of adequate insurance against possible claims. It was said that a recent action had resulted in damages being awarded against a cottage

hospital to the amount of £ 3,649 on the ground of the alleged negligence of the staff; the hospital had been insured, but the policy provided that the maximum payable on any claim should be £1,000. Thus a substantial sum had to be found from other sources. To disclaim liability for the negligent acts or omissions of its servants and agents may not be easy for a nursing association. While the parallel may not be exact, the London Passenger Transport Board could hardly protect itself from claims made by injured pedestrians by merely announcing that it would not in future hold itself liable to pay damages for traffic injuries caused by the drivers of the Board's vehicles. The law of agency and the principle of RESPONDE AT SUPERIOR are too strong for that.

—"The Lancet."



CALCIUM LACTATE IN MUNICIPAL SCHOOL.

Methods of improving the health of Municipal School children is now engaging the attention of Commissioner of the Karaikudi Municipality. Proposal at Karaikudi for the supply of Calcium lactate to all the Municipal School children have been put up.

The question of supplying pure milk to all children reading in municipal elementary schools at the cost of the municipality had to be given up for want of funds. Nutritive research has revealed that children fed on Calcium lactate put on weight and also showed a slight increase in stature. So it has been suggested the supply of Calcium lactate to all the municipal school children in Karaikudi.

Marvels of the Body—I.



ELECTRICITY AND LIFE.

The twentieth century is often spoken of as the electrical age. The movements of the most powerful battleships that plough the mighty ocean, the electric trains that cross the towering Alps, or the delicate seismograph that records the quaking of the earth thousands of miles away, are all operated by electric currents. Yet even more wonderful are the electric currents which play so important a part in the functioning of the human body.

The brain is a central power station and the millions of delicate nerves are highly insulated electric wires carrying the currents from the brain to all parts of the body. These delicate wires do not all have the same function. Certain nerves are called motor nerves because they carry impulses to muscles; others carry pain sensations from the skin to the brain. There are nerves that transmit light impulses, nerves that transmit impulses caused by vibration in the air upon the ear, which the brain interprets as sound, and nerves carrying impulses from the tongue which are interpreted as taste.

In addition to the electric currents carried by nerve cells, it is now known that every living cell is a storage battery and by means of delicate meters it is even possible to measure the electric potentials of these cells. Thus electricity plays an important part in the chemical changes that take place in issue.

Another interesting chapter of the electricity of life is in certain species of fish, particularly the Brazilian electric eel and certain African catfish which catch their prey by stunning them with electric shocks. In these fish are found electric plates which carry charges that have the power of rendering a needle magnetic, of decomposing chemical compounds, and emitting a spark, all being wholly dependent upon nerve stimulus from the brain of the fish. The strength of the current in a rayfish two to three feet long is sufficient to disable a man.

"Good Health."

Fundamentals for Physical Training.

WHEN dealing with the subject of Physical Training, and particularly for athletes, one is of necessity compelled to write cautiously, as the innumerable aspects in relation to the different types of athletic pursuit, and the inevitable question of differences in different individuals necessitate the avoidance of all "hard and fast" rules.

Apart from these precautions, though it is possible to state personal experiences and experiments that can be duplicated by others, and which, from a Nature-Cure point conform to general principles.

At the outset it cannot be over-emphasised that where strenuous athletic exertion is concerned, the importance of one's daily diet far outweighs the additional considerations of the individuals' training routine.

The athlete who pays attention to his ordinary habits of living, and who takes particular care to avoid any unnecessary depletion of his store of energy, is in the best position to gain increased results in his training, and, finally, in his actual contests.

Nutrition of Supreme Importance.

Particularly does this statement apply to those who partake in events of a prolonged action, for the staying power that is necessary in such events makes a heavy demand upon one's nerves, and, in any sport, the muscular functions cannot be carried out efficiently if the nerves force is not given the opportunity to meet the demands of training through inefficient dietary.

Of course, in all kinds of athletics, the other factor of proper rest, mental and physical, and efficient training methods, etc., cannot be overlooked, but from experience the writer considers proper nutrition of supreme importance.

Proper nutrition should not be confused with that very old term always associated with physical training, and not always completely understood, namely, "feeding up." The gargantuan repasts of the old time athletes would certainly horrify us in these more enlightened days, but it is a recognised fact that there are still not a few athletic coaches of repute who regard the "porter house steak" an essential part of an athlete's menu and although one has to acknowledge the meritorious achievements of the present day champions, it is also a fact that there are and have been, champion athletes and others among the "also rans," who, by regulating their living-habits along natural lines, have "stayed the course" far better than most, and this has been very significant among vegetarian athletes.

Some Typical Cases.

The case of Walter W. Greaves, the Bradford one-armed vegetarian cyclist, who lives on fruit, vegetables, and milk, and who is at present engaged on an attempt to break the World's Yearly Cycling record, illustrates this point. With two months to spare Greaves had eclipsed the English record of 36,007 miles held by A. A. Humbles, and his daily average of over 130 miles together with exceptional feats of endurance, such as cycling 222 miles in one day, were, according to Greaves own statement, attributable to his carefully planned dietary. The cases of

S. R. Liebbrandt, the South African cruiser-weight boxer, who reached the semi-finals of the Olympic Games this year and who has a hundred "knock-outs" to his credit, and of England's No. 2 Lawn Tennis player, H. W. ("Bunny") Austin, both of whom have adopted Diet Reform, also came to one's mind when dealing with the importance of a well-planned diet for all who pursue some form of athletics.

Fasting's Place in Training.

But while a dietary that conforms to Diet Reform principles can accomplish much that helps to obtain athletic efficiency, the lesser known benefits of fasting have a value all their own to the athlete, particularly in the treatment of the minor illness which the ordinary individual experiences, and generally at a time when he needs his physical efficiency to be at its best. Fasting also is a valuable remedy for "staleness."

It is also worthy of mention that the York Oil Burner Athletic Club of America, has been achieving astonishing results with the progress of its members in the weight lifting world. The important part of their achievements is not so much that they live and train on natural lines, but that their Principal and Trainer Bob Hoffman, who himself holds professional records as a strong man, is an advocate of the two-meals-a-day plan. If a professional strong man finds two meals per day sufficient to meet the demands of such a strenuous physical pursuit, it is surely obvious that the eating habits, at least, of many present day athletes could stand some amount of revision.

Average Athlete retires at Thirty.

It certainly gives one food for thought when it is observed that the average athlete retires from activity at about thirty to thirty-five years of age. This is true at least among runners although there are many exceptions in the Marathon class. A close observation of all the available evidence, however, would tend to show that, in spite of careful attention to their general living-habits, the average athlete is "burn out" within a comparatively short time.

The one factor that seems to be the least altered, though, is the dietary, for, despite the wise dispensing with certain items, the general "make up" is more or less the usual orthodox mixture, with perhaps a regular addition to the latest product of science "glucose" which seems to be such a "necessity" to-day!

Why "glucose" or ordinary sugar should be regarded as the "Athlete's Friend" is beyond any reasonable deduction, for, although an extra "ration" of carbohydrates may appear to supply extra energy, the clogging of the system subsequently defeats this purpose and is substantiated by the fact that those athletes who follow the "sugar cult" appear to be regular victims of periodical colds!

If an athlete desires to obtain any benefits that may accrue from sugar, it will be found much easier and certainly more beneficial for him to derive those benefits in the natural way, i.e., from dried fruits, fresh fruits and honey. These do not overtax the system with the burden of an excess of acid.

From personal experiments in long-distance races, I have discovered that a fine and most efficient "refresher" can be made from the juice of dried figs that have been left to soak in cold water overnight, and to which is added an equal quantity of grape fruit juice.

This drink is particularly efficacious in hot weather but as hot-weather talk is out of season at present, and acid fruits are not very much in favour during the winter months a substitution of apple juice, pine apple juice, or even weak tea preferably mate, will be found useful.

A reliance upon "Patent drinks" is not recommended to those who wish to reach the best athletic efficiency, the most favourable and lasting method being the regular attention to one's habits of living and a balanced, natural dietary. If, however, an athlete is suffering from the ill-effects of a life of neglect towards the preservation of athletic ability, there is no surer way of effecting a speedy improvement than fasting.

Fasting should be supervised.

According to the particular bodily conditions of the athlete, the necessity of a short fast, is best determined by the individual first trying short fasts, and if these are found to be too slow in their results, then a longer fast, preferably under the supervision of a qualified Naturopath, is to be recommended.

A series of short fasts is recommended for the athlete who is already in a fairly good condition of health, and who does not wish to break training for too long a period.

But where, as frequently happens, an athlete attempts to carry on a long struggle against the symptoms of the body's attempt to adjust itself to conditions of disease, it cannot be emphasised too strongly that the quickest road to physical fitness is, not in the suppression of ill-health or disease symptoms, but in the total elimination of body toxins.

When this has been accomplished, the consequent improvement of one's physical efficiency is most noticeable in the powers of recovery from the effects of intensive training, with an increased ability to accomplish, in a much easier manner, feats of exertion that were formerly hard to perform.

Nerve-Building Foods.

If, through over-training or too much racing, staleness symptoms, easily recognised by a state of irritability or "nerves" arise, then sense tells one to "case up."

In this respect, a beneficial plan is to feed the nervous system with those foods rich in the required elements, such as tomato juice, cream, cheese, eggs, milk, etc. But if one takes sufficient care to include enough of these foods in the every day dietary, such minor breakdowns should not occur.

It may be of interest to state, in conclusion, that the late 1932 Olympic Champion and World's Record Holder T. Hampson conducted his training for the 1932 Olympic Games along the lines advocated, and, most significant of all, Germany, where Nature Cure is more popular than in this Country, finished above the rest of the competing nations of the world.

—"Health For All."

Atmospheric Pollution Imperils Public Health.

Scientists and Smoke Abatement.

THE serious and far-reaching effects of smoke-laden atmosphere and scientific means of overcoming this menace to public health were recently discussed by members of the Society of Chemical Industry and the Institute of Chemistry meeting at Edinburgh.

"While meticulous care is bestowed on the control of the purity of food and water for our consumption, little control is exercised over the purity of far more essential 'free air,' complained Lt.-Col John Du P. Langrishe, D.S.O., Lecturer in Public Health at Edinburgh University. He went on to say that statistical evidence showed a close relationship between death-rates and atmospheric conditions. The number of deaths from pulmonary and heart diseases was shown to increase in direct proportion to an increase in the intensity and duration of smoke fogs.

A very good example of this was disclosed in researches connected with three periods of dense fog which descended upon Glasgow in November and December, 1909. Deaths from respiratory diseases during the week previous totalled 75; during the week with three days of fog they amounted to 138; while, in the ensuing week they rose to 233. Over the whole period of bad fogs, the death rate from respiratory diseases rose from 2.1 per 1,000

to 13.9 per 1,000—an increase of 11.8 per 1,000—while in other seven towns which were fog-free during the same period, it rose from 1.6 to 4.8 per 1,000, an increase of only 3.2. Had the Glasgow death rate from all causes been increased only in the same proportion as in those other towns, the actual number of deaths would have been 1,000 less.

"It is at the extremes of life that these effects are most marked," he stated. The infant's tissues are exceedingly delicate—hence bronchitis and pneumonia are two of the most frequent cause of the deaths of infants in towns. This is reflected in the higher mortality of town infants from respiratory diseases—though, of course, it must be admitted that atmospheric pollution is not the sole cause. At the other extreme of life we find a higher death-rate from heart diseases as well. "The cause underlying this high mortality in towns must operate continuously on the health of an urban community; their lungs become more or less similar to those of a coal-miner, not pinkish in colour like those of an infant or of one who works in the fields, but blackened both on the surfaces and in the depths, due to the deposit of carbon. Constant irritation of the respiratory tract lowered its resistance to infections, whilst the gritty part of the ash in smoky atmosphere

caused definite injury, with the result that we found increased incidence of lung tuberculosis or phthisis, in town dwellers. "There are also good grounds for believing that the tarry matter is at least partly responsible for cancer of the lung," remarked Col. Langrishe.

These were some of the direct effects of smoke in the atmosphere upon the human organism. There were also very important indirect effects, due to the obstruction of the solar radiation. The speaker explained that it had been shown that Manchester on a still day received but 55 per cent of the daylight received by Timperley, only 6 miles south; while on foggy days it received 5 per cent; on the other hand, when a north wind carried the smoke over Timperley, Manchester 30 per cent. more day light than did Timperley.

Among the effects of the obstruction of visible radiations was that of loss of actual visibility. Out of doors, the smoke pall was a constant source of menace to human safety, whether by road, by rail or by air. Indoors reduction of visibility caused an increase of 25 per cent in industrial accidents, while the compensatory use of artificial illumination had been shown to be accompanied by a reduction of 11 per cent. in output. The loss of visibility was accentuated by the deposit of soot and tar on windows. "The cutting off of a large part of solar radiation from the human organism has profound effects upon it," went on Col. Langrishe. "One is struck on all sides by the pallor of town-dwellers and their stature, as compared with the rural population. They are stunted because of the reduced vital ultra-violet radiations not being sufficient to produce assimilation of calcium and phosphorus and, most pathetic of all is the existence of rickets in children a disease due to incomplete formation of bone, brought about by

the same cause. They are pallid because of the lack of sufficient blood-forming and pigmenting solar rays. Owing to the reduced powers of resistance, tuberculosis and the whole host of infectious diseases flourish where these beneficent rays are deficient. Is it any wonder, then that such affections are rampant in our towns and cities? asked the speaker.

Psychological ill-effects were inter-related with the physiological; smoke gloom lessened the potential reserve, working power and well-being of the individual; it increased fatigue, irritability and restlessness; gloom without made for gloom within and induced mental depression.

Col. Langrishe went on to deal with "the remote yet highly important" influence on human health of the action of smoke on vegetation. "It has been shown I believe," he said "that pasturage in the neighbourhood of the industrial towns in Lancashire, which at one time supported 2 beasts to an acre, can now carry only one beast to 3 acres, while the milk of such cows is deficient in calcium. This is a very serious thing for children, whose diet consists so largely of milk, for if their food is deficient in calcium, then not only is their growth retarded, but, worse still, they are liable to suffer from rickets." There was also the effect on garden allotments. Lettuces, for instance, grown under such conditions in towns, gave only 30 per cent of their natural yield and were deficient in quality. The same applied to all garden produce.

"One other point," said Col. Langrishe in conclusion "is the extra work thrown on the already over-burdened housewife. It has been calculated that in Manchester, again, the extra laundry work in each household is equivalent to

not less than an extra week's work in the year, as compared with Harrogate, while the family bill for soap is 32 s. more per annum.

"The problem of atmospheric pollution from coal smoke has occupied the attention of mankind for over five hundred years and yet it still remains unsolved" stated Dr. Birkett Wylam of the Department of Health for Scotland, another speaker. "Other public health topics, such as water-supply and sewage have provided subjects for legislation, and rapid advance has been made, but the position of smoke abatement has remained much the same for the past fifty years."

It must be admitted, however, that present public opinion was viewing the problem in a much more serious light than that of even ten years ago. Much had been done and said to arouse the public to a fuller realisation of the danger of a smoke-polluted atmosphere, and the champion of smoke abatement, who in the past was regarded as a crank, was now looked upon more as a man with a message.

"It had been stated," went on Dr. Wylam, "with a great deal of justification, that the problem of pollution from industrial smoke has been largely solved and that the main offender is the domestic consumer. The domestic fireplace probably causes about two and a half times as much smoke pollution as

the factory chimney in spite of the fact that the domestic coal consumption is less than half of the total. The large industrial consumer must, for reasons of economy, obtain the most efficient combustion possible and a smoky chimney represents unnecessary expense."

The small boiler plant or factory was probably the worst industrial offender from the point of view of smoke emission. Often the plant was not of the most up-to-date type and the fuel the cheapest procurable. The suppression of this offence lay with the local authorities and a vigorous campaign against undue smoke was usually successful if combined with tactful persuasion and assistance.

Mr. Alan M. Ritchie, M.B.E., Chief Sanitary Inspector of Edinburgh, who spoke on the subject from the administrative point of view, that for years the main efforts in smoke abatement have been directed to reducing factory emissions, with excellent results. Recently, however, it had been felt that any real improvement in atmospheric conditions was to be effected, attention must be paid to the pollution caused by domestic fireplaces. "The British people," remarked Mr. Ritchie, "have a persistent partiality for the open fireplace, and the aim of the future must be to secure a sufficiency of smokeless fuel to displace the burning of raw coal."

—"Better Health."

Laughter is the language of peace, sympathy and good will; it is the fragrance of life that yields health and friends, and increases your bank account.

THE BODY-MIND PARTNERSHIP.

THE Health for All Summer school lecture audience evinced in no small measure, the new realisation by thinking people that the function of mind in Nature Cure must be of tremendous importance.

In any relationship there must be "give and take" in any partnership there must be unity of policy and purpose, in the building and maintenance, of health there must be co-ordination of mind and body, if any of these conditions are to be successful.

It is a vital truth that the body and mind are one, with action, interaction, and reaction so close that the modern health practitioner has to diagnose "disease" with considerable inquiry as to whether that dominant level of mind called the subconscious is working for or against the individual.

In one of his earlier treatises, Farnworth said :

"The subconscious mind is capable of making you well and keeping you well. It is capable, under the influence of certain stimuli, of changing your whole being—in the twinkling of an eye—quite independently of your conscious mind."

Again this psycho-therapist wrote :—

"The subconscious mind is ever ready, when called upon, to release a tremendous flow of energy into the system to preserve the body."

Indeed, it is now accepted as an axiom that it is impossible for a man or woman to nurse a repressed fear, or

to feed an anxiety, and for such fear or anxiety not to set up a bodily symptom.

Just think for a moment what this message means to those countless thousands whose days and nights are hideous because they have been labelled "neurasthenic."

Be sure of this—there is a new school of thought in relation to the origin of neurotic and psychotic disorders. Until quite recently the solely psychological conception of the origin of these disorders predominated; but now there is the new bio-chemical and gland conception of the origin and treatment of the neuroses and psychoses. This is replacing the older method of approach—it is applied psychology of body-mind partnership and claims the attention of all who suffer from mal-adjustment of the personality. As we have stated in Health of Mind for All section of this magazine in a previous issue, your glands determine your personality and the health of your gland depends upon the elements extracted from the blood stream, which derives its quality from the food you eat and the conditioning reaction of thoughts you permit yourself to think,

A study of the Chemistry of the brain has shown that the most striking difference in chemical composition between the brain and other organs is the quantity of lecithin. Lecithin is a conspicuous component of yolk of egg; it is invaluable for nutrition of nerves. Neurasthenia is a condition of under-nourishment of nerve tissue, a lack of nutritive substances in the medullary sheaths of the nerve cells. This deficiency can

come about through a person continuously dwelling upon some groundless fear, some memory of past misery, some association of negative ideas belonging to an environment no longer real, all of which destructive emotions burn up and use up the natural tissue elements provided by nature.

To conclude, long before the publication of the items quoted below, we were in pursuit of the suspected psychological aggravation of the scourge of Asthma, and here at Southport we are carrying on the work we entered upon long before a leading national newspaper quoted, from the British Medical Journal (both June 27, 1936), the following: "Expressing the theory that Asthma is related to psychological factor, Guy's Department of Psychological Medicine relates in the current British Medical Journal the case of a man who developed the complaint while on an unhappy holiday with his wife, in the course of which he sulked all the time. Also the case of a woman in whom attacks of Asthma were brought on by a postman knocking at the door, by excitement, worry, and people she did not like. In another instance an elderly man suffered attacks only when he smoked a particular tobacco—the same as that used

by his son-in-law, with him he lived at loggerheads.

British Medical Journal, June 27th, 1936 ("Psychological Factors in Asthma.")

"In Asthma the attacks themselves are so obvious and unmistakable that they could then be used as indicators of underlying mental disturbances.

"Asthma can also furnish a striking text of what needs to be emphasised in the education of medical students; that the body and mind are one; or at least that their interaction is so close that no examination of a patient should neglect some consideration of what is going on in his mind.

Four pages deal with the "association of Asthma with psychological unrest."

The forgoing quotations are of interest in view of the subject matter of the present article.

—Health For All.

HEALTHGRAMS

Exercise develops skill and co-ordination which enable the different parts of the body to co-operate and synchronise better.

* * * * *

The principles of psychologic healing have been employed by the faith healer, the yogi, the medicine man, the quack doctor and the food faddist, and it has been noted that the more fantastic the fad the more popular its psychologic appeal.

Knowledge

AND

Health

"The study of biology is a good groundwork for the study of the human body, but it is not enough.....Boys and girls can also be taught simple human anatomy and physiology."

It may be true that a little knowledge is a dangerous thing, but no one will deny that complete ignorance is a much greater menace.

It is an extraordinary fact that the average man and woman grows up literally stuffed with knowledge of such diverse subjects as geography, history, mathematics, business affairs and housewifery but remains almost entirely ignorant of the simplest facts concerning his or her own body. Certainly there seems to be a universal thirst for information as to how to avoid illness and to cure it when it has developed, and it is one of the most encouraging portents of modern enlightenment that a constant flow of books on health subjects now helps to satisfy this thirst. But even the most lucid writer of books and pamphlets on 'How to Prevent Disease' is handicapped by the fact that his readers have no foundation on which to build up the facts presented to them.

To take one simple example—how difficult it is to explain the real cause of that common evil, constipation to a man who has no idea how long his

intestinal canal is, how it lies in the abdomen, or whether food merely drops through it by gravity or is pushed on by some kind of pump. There must be thousands of adults to-day who still think the stomach and abdomen are one and the same thing; and that their endocrine glands are related in some obscure fashion to the swellings which arise in the neck when they have a sore throat.

It is not to be expected that the layman should have that complete knowledge of complex bodily activity which the qualified doctor spends six or seven years' hard labour in acquiring. But he should have a clear picture in his mind of 'How the Body is Constructed'; 'How the different Organs Lie' in relation to each other, and the special task of each one. In other words he is much more likely to avoid mistakes and save himself needless ill-health if he knows the rudiments of human anatomy and physiology. If he knows nothing, or has only a confused idea, of these subjects he is as helpless in charge of that complicated machine, his body, as a driver in charge of a motor-car who

does not know the difference between a carburettor and a sparking plug.

But how is the average man and woman to acquire this knowledge? He has as a rule neither time, nor the inclination, nor the ability to sit down and master large text-books on anatomy and physiology. It is hard for the adult brain, occupied all day with the business of earning a livelihood, or caring for a home and family, and less capable than in youth of absorbing new knowledge, to grasp these undoubtedly difficult subjects, though for those who sincerely wish to learn there are always means available. It is to be feared that the men and women of the present generation, unless they are sufficiently interested to make a strenuous effort to overcome the obstacles of lack of time, inclination and capacity, must be content to glean a little information by the way.

But there is no need for the coming generation to grow up in the mists of ignorance. They can be caught young and taught gently and gradually facts which, it can scarcely be denied, are at least as important as that two sides of an isosceles triangle are equal. A great step forward has been taken in the institution of classes in biology in many schools.

The study of biology is certainly a good groundwork for the study of the human body, but it is not enough. Any boy and girl from thirteen to fourteen years of age who can be taught

biology can also be taught simple human anatomy and physiology, and ought so to be taught. It may be argued that this implies the necessity for teachers to add another subject to their already full course of training, and so it does. But if the teaching of anatomy and physiology in schools were compulsory there would be no more difficulty in including these subjects in the usual training course for elementary school teachers than those of history, languages or mathematics, while in the case of those taking a University Diploma, it should surely not be impossible to arrange a course of lectures specially modified to suit those who do not need the medical student's detailed knowledge. At present there are few really simple text-books on anatomy and physiology, but a demand usually creates supply, and a standard handbook for schools, written by a recognised authority, would bridge the gap until fully trained teachers were available.

No doubt this plea for the education of boys and girls in that most important and interesting subjects—the human body—will be regarded in many quarters as the voice of one riding a hobby-horse and crying aloud in the wilderness, but it is merely a variant of the old theme to which the footsteps of progress and civilisation have marched since the days of Socrates—"Know Thyself."

DR. ETHEL BROWNING.

—"New Health."

Divorce

AND

Evidence of Insanity

A test case in the Divorce Court on June 1st raised the question of the propriety of the production of medical records by the Board of Control in cases under the Herbert Act. It was alleged by the husband that the wife was "incurably of unsound mind." The Official Solicitor appeared as guardian ad litem of the wife and asked that the Board of Control should supply him, before trial, with copies of all documents throwing light on her medical history. The Board of Control formally objected and was represented by the Attorney-General. The President of the Divorce Court intimated that, subject to considerations of public interest in particular cases, disclosure to both parties of the documents relating to the patient's medical history must unquestionably be in the interests of justice. The Attorney-General said that if the president thought that the disclosure would in proper cases of assistance to the court, the Board of Control would give due weight to that opinion when considering any application. The Court dismissed the Official Solicitor's application. The President made no distinction between the Official Solicitor and any other properly constituted guardian acting for a patient of unsound mind in respect of litigation. A fuller report of the President's observations will be awaited with interest.

The first case requiring the judicial interpretation of the words "incurably

of unsound mind" have now been heard. There has been a tendency on the part of the medical witnesses to distinguish between cure and recovery. The President of the Divorce Court has not encouraged the drawing of any subtle distinction. "Incurable," he said (in *Swettenham-v-Swettenham*), means that which cannot be cured, incapable of being healed by medicine or medical skill; "unrecoverable" means incapable of being restored to health which is the definition of cure. The President said he could imagine cases where it might be necessary to examine the possible distinction more closely, but in the cases so far heard there was no need of any such research. In the *Swettenham* case, where the parties were of advanced age, the evidence was that the respondent, Lady Swettenham, had for five years and more been receiving the benefit of all that medical and nursing skill and treatment could do. It was common ground, said the judge, that her age, after protracted illness, any more drastic treatment was out of the question. This was not a case of aggravated or violent insanity, but the court was satisfied that it had been proved beyond doubt, not merely by the fact of certification (which would not in itself have been enough) but by the medical evidence and the history of her illness, that the respondent was incurably of unsound mind.

"The Lancet."

Venereal Diseases

AND

Compulsion.

LAST year the Ministry of Health sent a small group of medical and administrative experts to Scandinavia and Holland to study the measures taken in those countries against venereal diseases. The report of Colonel Harrison and his colleagues deals instructively with a difficult subject, and it may seem ungrateful not to accept immediately its main conclusion that Scandinavian results are similar to our own and that compulsion in treatment therefore cannot be a major factor in securing success. It will be questioned, however, whether this conclusion is justified while there are still so many gaps in the available information, and while adequate standards of comparison are lacking. It certainly appears that there has been a decline in the incidence of syphilis in all the countries concerned, but critics can fairly argue that the answers to one incomplete questionnaire form insufficient evidence as to the state of affairs in Holland, while the data for this country are obtained only from those treatment centres that are subsidised. Without similar figures from other treatment centres, from general hospitals, and from practitioners, the figures published in the report of the chief medical officer of the Ministry of Health must be regarded as a useful index of relative incidence rather than as a guide to the total incidence of the venereal diseases. Unless or until some reliable system of notification is introduced we shall be unable to ascertain the exact situation in this country. It is none the less important to have information about what is being done abroad.

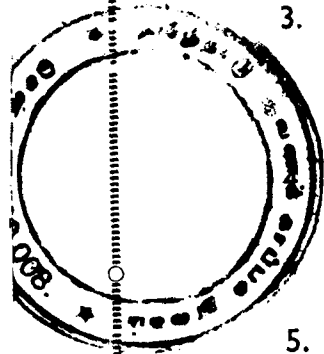
—"The Lancet."

HOW USEFUL "AROGYA MARGAM"!

1. Can you imagine, dear readers,
What's it that made our ancestors
In all walks of life, conquerors?
It is but Health!
2. What's it that makes us lag behind
In life? It is because we're blind
As to how we all ought to find
The way to Health.
3. Of all useful things upon earth,
What can constitute lasting worth,
Nay, create universal mirth,
Excepting Health?

To regain our glory pristine,
As much in yours is as in mine,
Come, brothers, we shall all combine
To promote Health.
5. Health Propaganda Board, Egmore,
Of Madras thro' this mag' doth pour
At our doors, riches in galore,
Concerning Health?
6. How useful "Arogya-Margam"
Finding ev'rywhere warm welcome!
Priced only one-four per annum,
This heav'n of health!
7. Contents culled from sources varied
"Arogya-Margam" takes the lead
Acceptable to ev'ry creed
In matters Health!
8. In conclusion, dear readers, I
Pray to the Almighty on high,
This mag's volumes to multiply
In Health and wealth!

—Syed Khader Badsha Chishtī.



BABY IS CRYING!

PUTTING it very briefly, we might say that baby cries because there is something in his surroundings, or his own little person, which is making him uncomfortable and we must try to discover the various causes, for they are many.

The fault may perhaps be in his clothing. Are his napkins soiled or wet and needing to be changed? Is there any tightness at all or anything rough, hard or tickly causing an irritation which he cannot explain since he has "no language but a cry"? Have we even allowed a pin-point to hurt him? May be the garments are too heavy or stuffy, making him perspire too freely or, on the other hand, they may be too scanty and his hands and feet are becoming chilled.

If his clothes are quite satisfactory it may be that his cot bothers him. Perhaps it is a little too short or narrow and he bumps himself when he stretches. Perhaps there is some knobby part in the frame work or bedding, or the bedding itself is too hot or heavy. May be it is too close to the wall or to other furniture, so that he does not get the benefit of space and airiness. Or he may be lying in an awkward position which is cramping him.

Then there is the room itself. Perhaps it is airless, hot and stuffy, or the light is too glaring. Perhaps he is disturbed by sudden violent noises of traffic, motor horns, street music, heedless people, etc., so that somehow the room fails to be sufficiently restful.

I think we shall agree that it is not good for any healthy baby in this nervy world of ours to need absolute quiet or to get into the way of waking at the slightest ordinary noise, but we shall

also admit that often there are outrageous noises which no self-respecting baby should be asked to endure.

Many of these difficulties are solved fairly easily in the day time when baby is put to sleep out of doors. This in itself helps him to ignore discomforts which indoors would probably keep him awake. If he must be indoors, perhaps it will be possible to put him near an open window.

Some one may say "Yes, but all these are matters which I always look after most carefully and still my baby cries too much." Well, then, if his surroundings are ideal the discomfort must lie somewhere in baby himself. What about his food? Is he hungry or perhaps overfed? It is quite possible for him to appear hungry when he is actually overfed and this feeling of hunger may often be lessened by giving him a sip of water. If he is really hungry and it is found that his gain in weight is not sufficient then it may be necessary not to feed him oftener, but slightly to increase the amount at each regular feed.

There may be some distaste for food, possibly because it is not really suiting him and is giving him wind. Or this indigestion may have been caused by his taking the food too quickly or while he is in an unsuitable position.

Lastly, the crying may be due to some baby feeling—for instance, fear, anger, distress, at some show of displeasure. I think we know well how real this grief may be. At a very early age baby's lip quivers, his face puckers and he cries most pitifully, giving very clear signs of hurt feelings. He sometimes cries lustily at some thwarting of his desires, perhaps even because he wants to sleep and cannot.

—"Better Health"

HOW TO IMPROVE MADRAS

CITY Beautiful was the subject at a public lecture delivered by Mr. S. Satyamurthy at Gokhale Hall, Madras, 2nd July, 1938.

The health of Madras, Mr. Satyamurti said, was on the whole improving. The City was in this respect not quite so bad as it used to be, but he recognised that there was great room for improvement. One of the problems they had to tackle were the sources of infection on the outskirts of the City. The inclusion of some of these within the City limits, as for instance Adyar, would not only add to the beauty of the City but enable them to take adequate measures for securing good health conditions in the City, and also explore additional sources of water-supply. Modern science enabled man to wage successful war against mosquitoes and if a campaign was carried on through the year all over the City, it would soon become mosquito-proof. As for the Cooum, the speaker hoped that the Government of Madras would take early steps for keeping it clean.

Referring to the City water-supply Mr. Satyamurti said that they "had been playing too long" with the manner of filtration of water and it was time they went in for mechanical, rapid filtration, acquired the second crop rights of ryots under the Red Hills Lake, constructed extra conduits to the Pumping Station, and gave plentiful water to the Citizens.

Very Slow Progress was being made in the **Improvement of Housing Conditions**. The Speaker suggested in this connection the **Constitution of A City Improvement Trust and Legislation to compel Employers of Labour at least to share the Responsibility of**

Housing Their Labourers, and to Prevent and Punish Overcrowding. In tackling the problem, Care should be taken to conserve the city's open spaces.

The Problem of Housing was staggering in its Magnitude and unless it was dealt with satisfactorily, all the money spent on Education, Sanitation and Health would be money wasted, in regard to Slums, the Corporation and the Government Should Set An Example by improving the slums on their own lands. Private Owners could be Compelled to do Likewise.

Though compulsory elementary education had been introduced in the City, Mr. Satyamurthi said, there were at least 15,000 children of school-going age, who did not attend schools, and public opinion ought to be roused to secure cent per cent attendance of children at schools. The law, he suggested, ought also be amended so as to provide that only children of those whose monthly income was Rs. 50 and less should receive free education. A similar provision could be made in regard to treatment at Corporation dispensaries also.

Duty of Citizens.

To provide these and other amenities which would go to make the City beautiful, Mr. Satyamurti said, they wanted an efficient hard-working and incorruptible executive; the Government should be a friend, philosopher and guide to the Corporation; Councillors and alderman should act with a high sense of duty and never seek favour from the officers for themselves or for others.

—"The Hindu."

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GOD AND THE DOCTOR.

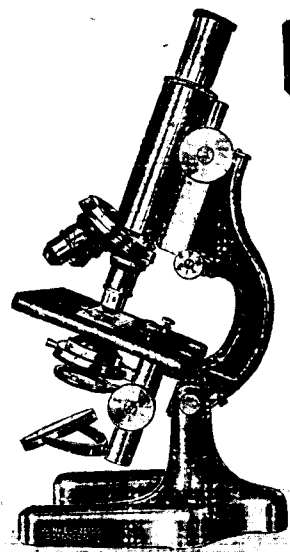
God and the doctor we all adore,
When danger is present, but not before.
With danger past, both alike are requited,
For God is forgotten, and the doctor slighted.

A NECESSITY.

"Now, although you're convalescent,"
Said the doctor with a smile,
"You must still be very careful;
Lead the simple life awhile."

Said the patient: "While the prospect
Makes my heart with sadness fill,
I know I'll have to do it,
For I've just perused your bill."

—"Health Propaganda Board."



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Vol. I

No. 7

THE HEALTH PROPAGANDA BOARD, MADRAS

**OCTOBER
1938**

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FIGHT AGAINST TUBERCULOSIS

**Broadcast Appeal by Her Excellency Marchioness
of Linlithgow**

For King Emperor's Anti-Tuberculosis Fund

"I appeal to all to give me your whole-hearted support in the prosecution of my campaign against Tuberculosis. The financial appeal alone would not solve the problem. My purpose is three-fold to arouse public opinion to adopt preventive and curative measures and to impress upon the people of this Country the necessity for social service in arousing the public opinion. I need the help of all classesand get in touch with a greater number of people than I could ever hope to do otherwise."

In response to the above appeal the Health Propaganda Board, Madras, would celebrate the Anti-Tuberculosis Week in Madras between 25th September and 2nd October 1938.

It is earnestly hoped that the public would take advantage of this intensive campaign against Tuberculosis and realise the urgent need for fighting this dreadful disease Tuberculosis.

—The Health Propaganda Board, Madras.



Dewan Bahadur
DR. C. NATESA MUDALIAR,
Chairman of The Health Propaganda Board, 1927—1937.

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FOOD
WILL
BE**



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INTO
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FUEL**

**On which The Life Flame Will Burn Contentedly
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IMPORTANT

All the manuscripts for publication, books for review, Exchange of Journals and other correspondence relating to the Editorial Section should be sent to the HONORARY EDITOR, Arogya Margam, 57, Thambu Chetty Street, Madras.

Original articles are accepted with the express understanding that they are contributed solely to this journal. All matters published in Arogya Margam is copyrighted.

The manuscripts must be typewritten, and double spaced, and the original copy should be submitted. Blocks for illustrations will be supplied by us if the original illustrations are sent.

The Honorary Editor reserves the right to alter, delete, or make necessary changes in the matter sent for publication. No reasons will be given for rejecting articles.

All business correspondence, advertisements, subscriptions, and other payments should be made to the SECRETARY, HEALTH PROPAGANDA BOARD, Pantheon Gardens, Pantheon Road, Egmore, Madras.

ADVERTISEMENTS

Complete copy, instructions and blocks must reach this office not later than the 5th of every month in which the advertisement is to appear. It is understood that the old text (running) is to be printed, if no new copies of advertisement reach this office a month previous to the date of publication of Arogya Margam.

160815

MATERNAL MORTALITY

SOME CAUSES AND THEIR PREVENTION.

(Editorial.)

THE increase of population in India during the recent years would give some idea to a common observer of things to find out the real state of affairs regarding the appalling figures of Maternal Mortality. Something like 200,000 or more maternal deaths connected with child-birth occur yearly in India as stated at the Conference of Medical Research workers in Calcutta.

The numerical strength of our nation has got a great thing to do to gauge the physical and mental stability of the people. A mere increase in the number of population should convince one of the physical and mental disability and the consequent decrease of the resisting power of the body to diseases. This should apply particularly in India where, poverty of the people, their ignorance of sanitary and hygienic principles, superstitions, illiteracy, physical

conditions and environments have much to do to unbalance the natural resisting powers of the body and render it an easy prey to diseases and infections.

With such a background to undermine the health of a nation it would not be a surprise to observe such high figures of mortality rate. Factors which would increase the natural resisting powers of the individuals should find a prominent place among the preventing measures adopted to combat this problem.

Considered from a very broad point of view the various causes which contribute to the high maternal mortality rate could be grouped under two heads: (a) General and (b) Special. The former tends to decrease the natural resistance and undermine the physical and mental stability. The latter group provides the clear

cut ways and means by which specific organism of dangerous diseases enter the human body and play their havoc.

Among the general causes, we should lay stress on the problem of poverty in the country. This is the fundamental principle which is responsible to lower the vitality. If one were to imagine the conditions of life of the starving, foodless, naked, anxious-looking, irritable tempered, helpless and homeless millions of our countrymen we need not go a step further to seek for the cause of the increasing maternal mortality rate in India. Circumstances and environments are such as to pay no heed to health advice but anxiously look for their begging bowl to be filled in, so that, they could satisfy their pinching stomach-hunger. We need not dilate upon the other general causes such as congestion, overcrowding, illiteracy, ignorance and superstition which no doubt have their own parts to play in the drama of life and render the national health weak and susceptible to diseases. By nature we are born to be hale and healthy, both in mind and body. It is the unavoidable circumstances and

their conditions in life that are responsible to undo and undermine the bodily activity and make one despirited and defy the rules of hygiene and health. Our women unlike those in the West are born and brought up in an atmosphere of dependency. The circumstantial and environmental forces are such as to submerge their natural taints of independence and free life and bind themselves to time-long customs and habits. Success in life, its pleasures and happiness, mishaps and miseries are traced to Fortune and Fate. So much so, the domestic atmosphere is constantly saturated with ideas of superstition and supernaturalism and the women fall are the first to absorb themselves in such an atmosphere and keep off the light of wisdom from scientific knowledge pertaining to health and hygiene. It is no wonder this would contribute largely to increase the maternal mortality rate.

Special Causes

Special stress need not be laid here on the particular causes that bring on an increase of maternal mortality rate when we know full well the back-ground is weak and



non-resisting. Malnutrition is the point we wish to emphasize. All our lines of thought to search for special causes such as anaemia, tuberculosis, care of the pregnancy and during labour, sepsis, etc., would fall flat when we look with our eyes wide open to the tremendous devitalising factors brought into play on the human mechanism by malnutrition. This factor is mainly responsible to bring untimely death. Common sense would tell us that want of proper food, inadequate adjustment of different qualities of food and moderation would bring on malnutrition amongst the masses. Certain investigations made on the point would tell us that out of one thousand women drawn from lowest income groups, that is from poorer section of the community half of them, five hundred, showed anaemic symptoms, while 150 were severely anaemic. This would convince us that adequate food for health is eaten by barely half of the community and that of the lowest income group is deficient in every constituent. It is therefore unnecessary for us to impress that malnutrition results in much ill-health and suffering and ignorance about proper diet is wide spread.

Prevention

The first and foremost preventive measure to combat maternal mortality rate should be on the lines of tackling the problems of poverty and malnutrition in the country.

The problem of poverty is an economic question and it is not within the purview of this paper to deal with at length. But yet recognition of its profound effect in rendering the soil unsuitable for adequate treatment cannot be ignored by one and all interested in national health and well-being.

Scientists, public men, public bodies, and prominent dietitians should awake and arise to the importance of food in relation to health and disease and arouse interest in general health and well-being. Nutrition controls the quality of blood. Anaemia is one of the commonest results of malnutrition which accounts for a large percentage of deaths already referred to.

The problem of malnutrition should now receive the immediate notice of all of us. Milk is the crux of the problem. Sufficient stress has already been made on the nutritive value of milk both

in the press and on the platform. This should be supplied on a very wide scale taking particular care to control its quality and production in large quantity and also sufficiently cheap and within the reach of the poor men in the country.

Educational propaganda is necessary to point out the quality and the adequate quantity of food for growth, development and

increase of the natural resistance to diseases among the masses. Free distribution of good milk in all maternal and child welfare centres should be organized on a wide scale. The scheme launched by Her Excellency Marchioness of Linlithgow to combat tuberculosis in India would prove to be immensely successful by paying particular attention to this fundamental problem of *malnutrition* in the country.

APPALLING LOSS OF LIFE.

BOMBAY PREMIER ON MATERNITY PROBLEM.

APPEAL TO DOCTORS.

Pointed attention to the appalling wastage of life during maternity was drawn by the Hon. Mr. B. G. Kher, when he declared open the All-India Obstetric and Gynaecological Congress on 13th April 1938.

He said it was common knowledge that illiteracy, poverty, prejudice and social customs proved to be very great obstacles in the spread of maternity and child welfare work and it was hardly necessary for him to stress the magnitude of the maternity and child welfare problem facing them. Mr. Kher pointed out that nearly 45 per cent of registered deaths was among children under five years and the number of women disabled as a result of pregnancy was as high as 30 per cent. He added: "We look up to your learned profession to suggest and devise practical measures to prevent this huge loss of life."

—Health Propaganda Board.

Our Activities

LATE DEWAN BAHADUR DR. C. NATESA MUDALIAR'S PORTRAIT UNVEILED BY THE HEALTH MINISTER OF MADRAS.

AT a largely attended public meeting organised by the Health Propaganda Board, Madras, on 24th August 1938, at Victoria Public Hall, Dr. T. S. S. Rajan the Health Minister of Madras, unveiled the portrait of the late Dr. C. Natesa Mudaliar.

Dewan Bahadur S. Muthiah Mudaliar, Chairman of the Health Propaganda Board, while requesting Dr. T. S. S. Rajan to unveil the portrait said that the late Dr. Natesa Mudaliar's public work embraced many lines of activity and his connection as the Chairman of the Health Propaganda Board for over 13 years had done much to promote health activities and inculcate the sanitary conscience in the people of this Presidency and his selfless work and generous sympathy for those in suffering has set before the members of the Board an excellent example to follow.

The Health Minister while referring to his short contact with the late Dr. C. Natesa Mudaliar at Calcutta during the Conference of the Far Eastern Tropical Medicine pointed out that Dr. C. Natesa Mudaliar was looked upon as a poor man's friend. In spite of his differences of Political views he never disregarded the urge of his heart, intellect and judgment especially when his countrymen were in suffering and crossing all barriers of community, or race or politics the learned doctor was deeply interested himself in the work of the Health Propaganda Board.

"Behind the furrowed head and fierce moustaches of Dr. C. Natesa Mudaliar, Dr. Rajan said, lay generous heart of a man who lived, not for himself at all but for others, particularly the suffering. Dr. Rajan hoped that the portrait unveiled just then would serve to inspire and energise all those who had known the doctor and participated in the work he engaged himself in, to more and more fruitful efforts in the service of their fellowmen." These were some of the characteristics of Dr. Natesa Mudaliar whose voice was heard in the lowliest huts in Madras as well as in the bungalows of wealthiest and the dwellings of the middle class people for he served all and he was one of those who lived well and truly serving his fellowmen."

—Health Propaganda Board, Madras.

King Emperor's

Anti-Tuberculosis Fund

HER EXCELLENCY THE MARCHIONESS OF LINLITHGOW'S APPEAL

In response to the above appeal the Health Propaganda Board, Madras, has been actively organising the Anti-Tuberculosis week in Madras between the 25th of September and October 2nd, 1938, by holding public meetings, broadcast talks, processions, distributing hand bills, etc. and explaining to the masses the horrors of the most dangerous disease, Tuberculosis, in India that is responsible for a large percentage of deaths and the need for combating the same by suitable preventive measures about which the necessary stimulus and initiation has been taken by Her Excellency the Marchioness of Linlithgow.

It is of paramount importance to understand how in 1935 out of 6,578,711 people who died in India about half a million succumbed to Tuberculosis. It is one of the greatest scourges of health and efficiency both economic and social and of human life itself, so that not only the Tuberculosis sufferer but also the general well-being of India that is bound up with the success of the appeal by Her Excellency the Marchioness of Linlithgow for King Emperor's Anti-Tuberculosis Fund.

It is our earnest desire that with the active and sympathetic co-operation of the Public Health Department, the Corporation of Madras, Boy Scouts Organisation, Medical and other health associations and other public health workers that our programme of work for the Anti-Tuberculosis week would be successfully gone through and the necessary impression would be drawn in the public mind for the urgency for their co-operation in tackling the Tuberculosis problem in India.

—THE HEALTH PROPAGANDA BOARD.

Marvels of Medical Science

HEART WASHED DAILY

An amazing operation :—In Guy's Hospital, London, there is a two-year old boy whose case is said to represent a triumph of the surgeon's skill. Twice a day his heart is washed in salt water. He feels no pain and as he lies with a woolly dog beside him surgeons and students come to marvel over his case and to watch the operation of washing his heart through an incision in his chest. "The Daily Herald", says of this case.

Geoffrey Clifford Knight, youngest of the five children of Mr. and Mrs. Knight, a minor and his wife, of St. John's Road, Elvington, went into a Dover Hospital last week with pneumonia. Doctors found that fluid had enlarged his heart to three times the normal size. It could not be reduced, so Geoffrey was taken to Guy's. A famous surgeon there performed an operation he had only carried out once before—on an adult.

He cut two ribs, split the pericardium (membrane of the heart), stitched the severed portions to the walls of the chest.

Then the heart was washed.

Geoffrey lived for the next 24 hours in an oxygen tent, with nurses watching through mica windows, feeding him through an armhole at intervals.

"He is now well on the way to recovery", so goes the official information.
—Health Propaganda Board.

Your Heart At Fifty.

By Sydney R. MILLER, M. D.

SOME rather simple mathematical calculations shed interesting light on the extraordinary work and efficiency of the human heart. Beating at an average rate of 60 per minute, your heart contracts 3,600 times an hour, 86,000 times a day and over 30 million times in the course of the year. These are very conservative figures, for the normal heart rate usually averages between 70 and 80 per minute. Moreover, in an instant response to many demands, such as sudden or prolonged physical exertion, many emotional stimuli, during the active phase of digestion, fever and some forms of glandular overactivity, the heart rate is automatically increased and kept so until the need no longer demands this acceleration. At each contraction, approximately 3 ounces of freshly oxygenated blood are expelled from the left side of the heart something over 6 quarts of blood leave it every minute, or approximately 2,000 gallons are delivered every day for the necessary maintenance

of the normal functioning of the various tissues and organs all over the body. Moreover the delivery of this fuel is made in the face of a certain amount of resistance, or blood pressure. In fact, the human heart, beating at a 60 per minute rate, actually develops $2\frac{1}{2}$ horsepower a day. Translated into other terms, your heart is exerting energy sufficient to raise 56 pounds one foot per minute, or to move $40\frac{1}{2}$ tons one foot per day. Thought of in this sense, the work which the heart does is literally astounding. Whence comes the energy for this remarkable four-chambered motor, remains a mystery.

Not handicapped by any muscular or valvular defects, the human heart performs its duties so quietly, yet ceaselessly, that as a general rule the individual is not consciously aware of its existence. Estimate for yourself the work which your heart at fifty has completed. The figures will conclusively prove the soundness of the assertion that if at fifty you are not "heart conscious" you should, in all fairness and wisdom, become intelligently "heart considerate."

It is a well-known physiological fact that the functional capacity and fitness of any organ in the human body depend mainly upon the constant maintenance of an adequate supply of normally oxygenated blood. At rest, the supply of oxygen usually will be in excess of the demand, and even a considerable amount of muscular exertion may be indulged in before oxygen use equals the supply furnished, as a result of increased rapidity of breathing and acceleration of heart rate. When the supply no longer meets the demand, an "oxygen debt" is promptly incurred. At once lactic acid accumulates in the muscles and to a certain extent in the blood, and we become conscious of the

sensation of fatigue—mild or severe—which affects our glands, sense organs and nervous system, quite as much as our muscles. Fatigue really is but an expression, in terms of sensations, signs of symptoms, of chemical changes which affect every tissue of the body.

The Heart Pauses but Never Rests.

Aside from the momentary pause between beats, the heart never rests. For this reason an adequate blood supply to the heart at all times is imperative. Blood is supplied to the heart muscle through an intricate series of arteries which constitute the so-called coronary system. The circulation of blood through these coronary vessels, taking place as it does in an organ which is ceaselessly active and frequently subjected to rapid variations in volume and rate of blood flow, must inevitably subject the vessels of this system to severe physical strain. Consequently, the apparently normal heart at fifty has aged whether there be signs or symptoms of this or not. If during the preceding decades your heart has been subjected to the accelerating influence of many emotional upsets, the poisonous influences of insidious infections, or the injurious products arising from an improper diet or faulty or neglected elimination; if it has been repeatedly stimulated by excessive indulgence in nictotine, tea, coffee and alcohol, or has been obliged to supply blood to a body needlessly obese because of sedentary habits or food excesses; if it has been obliged to meet the demands of excessive physical effort or the strain of prolonged nervous, mental and emotional tension; if its work has been inadequately balanced by proper hours of sleep, fresh air and periods of relaxation and recreation, your heart at fifty

has aged that much more. Even in the absence of those early evidences or signals of heart muscle inefficiency, such as shortness of breath, heart consciousness or feelings of pain or oppression underneath the chest, it is both safe and sound to assume that alterations in the calibre and elasticity of the coronary arteries have occurred, and, therefore, that your heart at fifty has not the reserves it formerly had.

Heart Disease the Leading Cause of Death.

A body of facts which cannot be questioned proves that heart disease is now the leading cause of death, and the mortality curve has been rising steadily for the past twenty years. The increasing number of deaths occurs almost entirely in persons over the age of forty-five, and these resulting from diseases of the coronary vessels occur pre-eminently in early middle life and not in the elderly. The medical profession has become increasingly familiar with the various manifestations of heart impairment and with the disguise under which many of the milder, non-fatal forms of coronary disease masquerade. The medical profession has become "heart-minded" and is in a position to teach "heart consideration"—to the end that your heart at fifty may be rugged, secure and competent to carry on much longer.

The Heart Commandments

If you are intelligently appreciative of what your heart has done for you over a period of fifty years, you will evidence that fact by heeding some simple heart insurance rules or commandments. Briefly, they are these:—

1. Do not subject your heart to sudden, strenuous or prolonged physical exertion.
2. Eat regularly, slowly and temperately.
3. If you are excessively overweight, seek sound counsel as to how best to dispense with this form of heart handicap.
4. Endeavour to avoid physical activity for at least thirty minutes after eating, particularly after the heaviest meal of the day.
5. So far as is possible, avoid emotional stress and strain. One might particularly emphasise the importance of the factor of worry in its relation to heart strain.
6. By appropriate measures, keep your body as free as possible from the so-called foci of infection.
7. The importance of regularity of intestinal elimination cannot be overemphasised.
8. Average not less than eight hours of sleep in room abundantly supplied with fresh air.
9. Perennial health demands a proper balance between the factors of work, play and rest.
10. A periodic medical examination may often reveal defects of which you are totally unaware. A stitch in time saves nine!

—"Better Health."

Laxatives

AND

Bowel Consciousness

Kraemer from an analysis of a detailed laxative history along with the history of bowel habits taken in a series of 300 consecutive patients in private practice observes that the incidence of laxative addiction for the entire group is 73%, the proportion in males and females is exactly the same. 21% took laxative daily, 53% took weekly or more often, 43 took only one brand of laxative, 32% took two brands and 2 gave history of taking more than 8 brands. 113 patients had been addicted for less than 5 years but 108 had been taking from 6 to over 40 years. The most frequent reason for taking laxative was non-movement of the bowel without any laxative and the next most frequent cause was stomach-ache. The etiological factors stimulating bowel consciousness are advertisement, physicians, parents and friends. The prevention of this bowel consciousness must be done by adopting the following measures:

(1) The parents must be educated against the use of laxatives and must be cautioned against overemphasizing bowel function.

(2) Physicians must be more guarded in prescribing laxative and they must show less concern regarding the functional activity of the colon. They must treat constipation by withdrawing laxatives and not by prescribing additional ones.

(3) There must be legal curb to the advertising of laxatives in the press and the radio and by mail.

(American Journal of Digestive Diseases, March 1938, P. 9)

—"Journal of the Indian Medical Association."

Medical Education In India

TO THE EDITOR OF "THE LANCET."

Sir,—In his address at the Annual Meeting of the Manchester Medical Society on May 4th, Sir Richard Needham made very appropriate suggestions about Medical Education in India (*Lancet*, May 21st, P. 1196). It remains to be seen whether the Indian Medical Council will pay heed and take complete control, not just by making an imperfect register but by taking adequate possession of all institutions. That means including the licentiates in the register along with the graduates as one unit without any distinction. The next step would be for the council to set up one uniform standard of medical education, whether for licentiates or graduates, throughout all the presidencies and provinces. The licentiates are at present looked down upon for not possessing the university cachet; but they are adequately trained and qualified in Western medicine to practise medicine, surgery, and midwifery, with the same responsibilities as those of the graduates. Improved facilities have made the licentiates of the last decade far better equipped than the old L. M. & S. class; the examinations are not far from the graduate standard and the examiners are often the same for both. The licentiates have proved their metal in civil, military and Government Hospitals, dispensaries, schools, and colleges; the health of India cannot progress without their help. It is they who come in direct contact with the multimillions of the poor.

I am, Sir, yours faithfully,

F. TARAPORVALA,

Ex-president, All India Medical

Licentiate Association.

—"The Lancet"

Teaching Road Sense to the Toddler.

IMPORTANCE OF PARENTAL CO-OPERATION.

THREE people are mainly concerned in equipping the child to meet the hazards of life safety—the teacher, the policeman, and last, but far from least, the parent. In the schools instruction in correct behaviour in relation to traffic, as well as more general safety first teaching, is becoming a matter of routine. As to the role of the Police one has only to watch the confident mien of a child who goes up to a constable at a busy crossing and thrusts his hand into the large protective grasp of the law, with a request to be taken across the road, to realise how effectively the Police have established themselves as symbols of safety in the child's mind.

But what of the third of the child's mentors—the parent? The parent comes in for a good deal of criticism, some of it deserved, some of it undeserved. It is sometimes forgotten that economic conditions play a not insignificant part in the child accident rate. Mothers who spend their lives in an unequal struggle against bad housing conditions and inadequate incomes may be pardoned an occasional lapse in their supervision of their children's comings and goings. Still, without the co-operation of the parent much of the good work of the other partners—the teacher and constable—is nullified. The teacher has the child under his influence for some five and a half hours daily. For the remainder of the twelve hours odd during which the child is active each

day, the parent's influence is in the ascendant. It is only too easy for the teacher's work to be undone by the indifference, or even on the occasion the hostility, of the parent.

The Teacher Appeals to the Parent.

The President of the London Teachers' Association, Mr. S. Vanderhook, made an urgent appeal for parental co-operation at the National Safety Congress held in London in May 1938. He considered that a fruitful approach might be made to the parents of toddlers on the following lines.

After pointing out the accident figures as applicable to children during recent years and appealing for help, show that they can help in the following ways: Let them try to bring the child to school. If this is impossible because the parent has to go out to work, let the parent secure the help of another mother who does bring her child to school. Mothers could in some localities form rotas in which to carry out his work.

Children should be encouraged to go to and from school by the same route each day, and this route should be one over which the child has been taken and the dangers made clear at every point.

Parents should be encouraged to talk to children about the lessons received in school on road safety.

The child should be impressed with the fact that the policeman is there to help.

Given a safe place within reach, parents should see to it that children do not play in the road.

Play with balls in the street should be especially discouraged.

Dealing with the hazards specially applicable to young children of junior age, Mr. Vanderhook made the following suggestions:

Children should be placed on their honour not to ride behind cars and lorries, and not to play with balls, marbles and tops on the way to and from school.

Parents should be asked not to send children on errands which involve the crossing of busy roads and not to send them at all just before school.

Parents should encourage their children to play in parks, school playgrounds and recreation grounds rather than in the streets.

Finally, an appeal should be made to the parents to back up the work of the teachers and police in trying to prevent accidents.

It is cheering to reflect that the necessity for such intensive safety first instruction should—it is reasonable to hope—be much less in the case of the next generation, who have been subjected to it in their youth. It is often observed that children are much more circumspect in making their way through

traffic than many adults are. They will stop on the edge of the footpath and survey the road up and down before they attempt to cross, while an adult will often amble more or less haphazard into a stream of traffic.

A Constable Speaks.

The point of view of the police was also put forward at the last National Safety Congress. The speaker was Mr. W. H. Smith, chief constable for Eastbourne. The heart of the problem, as he saw it, was to make parents and the public generally appreciate their responsibility for the safety of irresponsible children. He agreed with Mr. Vanderhook that every effort should be made to persuade parents to escort their children to and from school, and suggested further that parents should be invited to attend safety first talks in the schools, and that teachers should encourage the children to talk to their parents about safety instruction or police lectures they had at school. He thought that it would be a good plan for the schools to issue a leaflet to parents, say, twice a year, giving information about danger spots in the locality, with brief particulars of recent accidents, showing the cause, and he advocated that information should be sent by the teacher to any parent whose child had been seen riding behind motor cars or lorries. He further suggested that an attempt should be made to persuade managers of cinemas to show on the screen at the end of each performance a short safety film of the trailer type or slides advising patrons to take care on the way home.

The essay competitions for school children, conducted by the National "Safety First" Association, have been found of real value as a means of

obtaining the interest and co-operation of parents. Though the rules lay down that the essay must be the unaided work of the pupil, it is quite natural that the child who intends to compete should talk about the matter at home. Thus the parent becomes interested as well as the child, and will probably assist by discussing certain aspects of road safety.

Mr. Smith described a method of dealing with young delinquents which he said the police had found very satisfactory. In cases in which it is not desirable to prosecute, the child is seen by a responsible police officer in the presence of the parent. The officer points out the wickedness or the error which has been committed and advises as to future conduct.

The offence may be one of larceny in which the property involved is trivial and the owner does not desire to prosecute, and the circumstances are such that a verbal caution will probably do more good than drastic action; or the complaint may be that the child has

been towed by a motor lorry without the driver's permission, or some similar offence. In any case, it is a good thing for the parent to be present and for him to be made to feel his personal responsibility in the matter. The psychological effect is bound to be beneficial. Mr. Smith has found that the affectionate parent appreciates the desirability of doing all in his power to prevent his offspring from getting into trouble again. The not-so-affectionate but materialistic parent sees that unless he does something to restrain his child he himself may be mulct in damages or get into serious trouble.

Some of the resistance to safety first propaganda, particularly in the case of children, arises from a notion that safety first is "sissy." This idea can be countered by the statement that Sir Malcolm Campbell, whose daring has made him the hero of many thousands of small boys, is a member of the National "Safety First" Association.

—*Mother and Child.*

BEER, WHISKY AND PETROL.

THE Ministry of Transport, in issuing new traffic rules, warns against the danger of driving a motor car when one has been drinking alcoholic beverages. Alcohol, even in moderate amounts, has the effect of retarding reaction time to stimuli. Under the influence of one or two drinks, the driver of a car travelling at forty miles per hour will go fifty to a hundred feet before reacting to an emergency which a sober man will react to within twenty-five feet. Thus a bottle of beer may be sufficient in an emergency to endanger not only the driver's life, but the lives of others as well. Many of the deaths due to motor accidents in this country are undoubtedly caused in this way.

—*"Good Health."*

Rice—And How to Cook It.

RICE would be a greater favourite than it is if a larger understanding were brought to bear upon its cooking. It is still in a world of rising prices a cheap food; moreover it is an accommodating food, for it can be both the mainstay of a sweet or vegetable dish; it is useful in soups and with curries, whether of meat, fish or fowl, rice can help to bulk out the more expensive items. One objection that is often raised against rice is that when it is cooked it is a gluey mass of stuff, hard to digest and also that it is so often tasteless, making it both uninviting and difficult to eat.

Yet it is easy to cook rice and serve it with sauces both hot and cold, of tomato, curry, tarragon, chopped gherkins or mayonnaise. It is also well to bear in mind that rice can be served not only as an accompaniment to other foods, but also as a complete course, and as a sweet, besides being served up with milk or cream, it is excellent with jams, jellies, honey or syrup.

A few simple rules should always be observed when cooking rice.

Now turn the rice on to a cloth, separating the grains with a fork. Put the rice into a dish, put in the oven, and in ten minutes there will be a dish of white rice thoroughly cooked with each grain separate.

A similar way is to wash the rice, cook in plenty of water; rinse in salted hot water, dry by spreading it out on a dish.

Either method allows of the rice losing its stickiness.

Escoffier, the chief of world renown, observed five points when cooking rice. They were:—

- (1) Wash the rice several times and drain it well.
- (2) Take 5½ pints of boiling water for every 4 ozs. of rice, and boil for ten minutes.
- (3) Strain and wash in plenty of cold water.
- (4) Return to the saucepan with 5½ pints of slightly salted, boiling water, and boil for another ten minutes.
- (5) Drain the rice and dry on a warm napkin.

—P. L. R. Bulletin (London)

—*"New Health"*

CELL NUTRITION AND THE CREATION OF HEALTH AND TONICITY

HALMAGON—Investigated by A Medical Representative
of The New Health Society

A distinguishing feature of the modern outlook is a change of perspective in relation to the problem of health and disease. No longer are the men and women of to-day concerned only with the mere prevention of disease. They aspire to a higher and more significant idea, the ideal of health in full measure, health abundant. No subtlety of imagination is required to appreciate that there is a world of difference between the neutral state of freedom from disease and the positive state of joy and vigour which denotes good health. It is the difference between the life that is just bearable and the life that is worth while; the difference between dull inertia and happy activity. To-day most thinking people are conscious of their desire for positive health; they realise that its possession gives them a self-mastery which ensures success, and that its value cannot be measured in terms of material wealth. With eagerness they pursue this ideal. They strive conscientiously to follow the primary laws of correct living, yet too often health abundant never quite comes within their grasp.

To millions of men and women this is an acute and pressing problem, and it is therefore highly important to record certain scientific discoveries which have a vital bearing upon its solution. These discoveries mark a fascinating chapter

in the history of bio-chemical research, and it seems probable that their practical application will have far-reaching and striking effects upon the welfare of mankind. Essentially, the discoveries relate to the mineral factors which govern the intricate chemical functions of the cell, which is the structural unit of all living tissues, and it is to Tonicity Laboratories Ltd., the great credit is due for collating the results of a vast amount of experimental research and for making publicly available the practical applications therefrom. There is no question here of an immature discovery being thrust upon the public. "Halmagon" which in a word represents the discovery, is the outcome of years of painstaking research, carried out by highly skilled medical investigators in many different parts of the world.

Minerals Essential to Life.

The part played by certain mineral elements in the vital activities of the human organism provides the key to the understanding of the Halmagon discovery. While physiologists have long known in a more or less vague way that a number of minerals are indispensable for cell and tissue life, it is only recently that their specific role in the maintenance of health has been

understood. Actually, there are about a dozen minerals absolutely necessary for the sustenance of life, and these require to be regularly replenished from the dietary; otherwise serious impairment of health results.

In the case of the iodine it is established that a deficiency of this element in the food intake leads to the disease of the thyroid gland known as simple goitre. Replace the missing iodine and with surprising rapidity the disease state is remedied. Equally obvious are the effects of iron deficiency as revealed by anaemia and lime deficiency as revealed by disordered growth of the teeth and bones.

It is, however, within the confines of the cell, the microscopic tissue unit, that the most subtle activities of the minerals take place.

Minerals are Cell Activators

Essential minerals are present within every single cell of the human body in a "free" form, i.e., not incorporated into the cell material. Within the cells the mineral functions take place as a vital machinery. Unless it is present in sufficient quantity, the work output of the cells will be diminished, their balance and efficiency will be disturbed, and the net result will be a depreciation of the health and vigour of the body as a whole. In contrast, adequate mineralisation of the cells facilitates all those complicated building up and breaking-down processes which are termed metabolism. It helps to safeguard the health of the cells, and endows them with a capacity to resist disease influences.

The importance of minerals to body, however, will not be appreciated until

it is grasped that there is a constant drainage of this mineral from the body, and that this loss must be made good by a sufficiency of special mineral intake in the dietary. If this mineral intake is not maintained then clearly the body cells will have their vitality lowered, just as deficiency of iodine leads to goitre and deficiency of iron to anaemia.

Naturally, in the enquiring mind there arises the significant question; are our body cells adequately supplied with the essential minerals as made available in an ordinary dietary? If the answer be "yes" then this discovery, interesting though it may be, has little practical significance so far as the average individual is concerned. On the other hand, if the answer be "no", are we not provided with an immensely important clue to the cause of the amazing amount of ill-health, debility and physical and mental exhaustion which is rampant in modern times?

Mineral Starvation To-day

To this crucial question there is an unequivocal answer—an answer which probably explains in part why examinations during the great war lead to the discovery of the amazing number of men physically unfit, the "C3 class". There is a sufficiency of scientific evidence to show that this special form of mineral starvation in varying degree exists almost universally among the civilised people.

A Man-Made Famine.

There are good reasons why we must take a definite effort to ensure that our daily dietary includes a ration of the minerals. Most enlightened people are

aware that many of our food stuffs in the process of their refinement are robbed of certain of their vital constituents. This is noticeably the case with our cereals. White bread and the various products made from white flour contain practically none of the minerals. Even our table salt has been "refined". The old fashioned, moist grey-tinged variety which was simply the natural salt residue obtained by the evaporation of sea water by the natural aid of the sun's rays, contained minerals in plenty. From the modern white, smooth-running salt, the manufacturers have removed practically all the minerals vital to life except sodium.

Here is another important factor. Green vegetables and meat are sources of the essential minerals. But the mineral richness of vegetables and of the livestock reared thereon depends upon the richness of the mineral in the soil on which they grow. The vegetable root can only pick up from the soil such mineral as may be present. Recent investigations point to the fact that our agricultural soil is becoming increasingly deficient in the vital minerals. In this matter we must also bear in mind that the soluble mineral compounds of the soil are constantly being washed out and carried by the streams and rivers to the sea. From this it is apparent that even if conscientiously we include abundant amount of green vegetables in our dietary, we cannot be sure that we are obtaining an adequate daily supply of this special mineral. Owing to the impoverishment of the soil and its produce, both vegetables and meat and the modern methods of manufacturing foodstuffs, and the ignorance of the nutritional values displayed in household cookery, mineral starvation is one of the greatest menaces which we of the twentieth century have to face.

A Safeguard of Cell Nutrition.

Most people are now aware of the serious diseases which result from vitamin starvation, partial or complete. Scurvy, rickets, neuritis, skin diseases and catarrhal infections are amongst the most important of these, yet it was only comparatively recently that their casual relationship to vitamins, and its absence leads to such a lowering of cell-health as to predispose the body to innumerable disease states.

Frequent mention has been made of the cell, and it is presumed that the reader is fully aware that the cell is the unit of which all the organs and tissues of the body are constructed. Primarily, all health is cell-health, and all disease is cell-disease. This is an issue about which there is no doubt. There are so-called tonic drugs such as strychnine or arsenic which certainly stimulate certain tissues, but it is an unnatural stimulation—a practice somewhat akin to whipping up a tired horse. There is a temporary response but the sequel is likely to be greater exhaustion than before.

In people who are under-fed from the essential mineral standpoint, regular administration of minerals in a form which permits of easy and rapid assimilation by the blood, create a condition of cell tonicity. In simple language this means that the body, being correctly mineralised, regains its lost tone, and tone represents health and vigour. Minerals tune up the human body so that every organ and tissue does its appointed job well and thoroughly. One of the peculiar features of minerals is the rapidity with which its administration is followed by a feeling of well-being and increased vitality. Lassitude and inertia are overcome and replaced

by a surge of energy. Medical testimony confirms this valuable property of minerals.

Upon the blood minerals have a general revitalising effect, but more specifically they stimulate the disease fighting white corpuscles and increase the anti-bodies (substances which destroy germs). In consequence, the capacity of the body generally to resist disease germs and destroy their poison is increased. Most remarkable is the action of minerals in combating intestinal intoxication. As most people know, this condition arises from constipation, which enables putrefactive germs in the large intestines to multiply and to produce poisons. The power of minerals to check the formation of these noxious substances is considerable and its effects are immediately noticeable by the rapid deodorising of the motions. Mineral preparation also rectifies constipation by restoring tonicity to the whole intestinal tract.

Of considerable importance is the evidence available to show that the minerals have an energising influence upon the glands of internal secretion. These glands control the health of the body and mind through their hormones which must be produced in correct quantity and quality. Lack of glandular balance due to sluggish cells is responsible for much ill-defined ill-health, notably the "nervous exhaustion" which is so prevalent in modern times. Minerals are a restorative of gland equilibrium, for they cultivate the gland cells and promote a generalised tonicity and well-being throughout the whole body.

In so far as a lowering of cell-health is the fore-runner of actual specific disease, and in so far as under-mineralisation is a fundamental cause of this

state, minerals exert a most beneficial effect in restoring cell-health and enabling the body tissues and organs to overcome disease. It is a matter of replacement therapy, the restoring to the cells of a constituent necessary for their correct functioning, in the same way as the replacing of defective thyroid secretion by tablets and dried thyroid extract.

As might be anticipated, it is in the relief of nervous exhaustion, debility, asthenia and states of chronic fatigue that minerals have achieved some of their most successful results. In these conditions the cells of the brain, nerves and endocrine glands are in a state of depressed function, and remineralisation by means of specific minerals, re-vitalises these cells, restores their tonicity and so in a fundamental way leads the sufferer back to health. Medical investigation has shown that the neurasthenic symptom complex responds in a remarkable way to mineral therapy. In a large series of clinical cases improvement resulted within a week of commencing regular mineral administration. This was shown by a general increase in the physical and mental tone, improved appetite, gain in body weight, better sleep, and more regular bowel action. Most noticeable was the development of a feeling of optimism and well-being, in marked contrast to the previous feeling tone of depression.

Cell Regeneration in Convalescence

From the many hundreds of medical reports submitted for this investigation, which deal with a very wide range of conditions of ill-health, it is apparent that minerals act as a specific as well as a general remedy via their action of regenerating the exhausted nerve,

brain and gland cells. This is quickly reflected by a great increase in mental grip and power. Work output and efficiency are enhanced and the joy of life is restored. In the debilitated and depressed state which so often comes as an aftermath of influenza and severe head or chest colds, minerals are, of proved value, cutting short the period of convalescence and restoring tonicity to the depressed system. The feelings of lightness or heaviness in the head, the giddiness, palpitation, indigestion which are often associated, are also rapidly relieved.

It is to be noted that minerals by increasing the germ-resisting powers of the blood are valuable preventive against all germ infections and particularly in the case of the common cold and influenza.

An interesting property of minerals is their power to relieve and control certain of the allergic disorders of health, i.e., those diseases which are due to abnormal sensitiveness to protein substances. Asthma, hay-fever, eczema, some forms of pruritis (itching and irritation of the skin) and nettle rash have been found to respond most favourably to specific mineral therapy. It seems probable in these cases that the essential minerals stabilise the cells and render them less sensitive to the offending protein. In general, skin blemishes and acne are improved by the use of minerals and a most remarkable feature is their success in causing the disappearance of warts.

In the prevention and alleviation of affections of the gall-bladder, inflammation, jaundice, and stone, minerals give tonicity to the liver cells, relaxes the muscle, controlling the outflow from the gall-bladder and thus allows more complete drainage. Minerals remove the dull, "out-of-sorts" feeling

so commonly associated with "liverishness." Similarly, minerals relieve the stomach discomfort, poor appetite, heart-burn, head-aches and listlessness which accompany the auto-intoxication associated with gastro-intestinal disorder.

Clinical records are available which show that minerals reduce the tremors, tremblings, neuralgias and muscle cramps which are related to certain disorders of the nervous system. In the various rheumatic affections minerals have shown themselves capable of affording good results.

Relief of Prostate Disorders.

In frequency of urination, especially, when related to enlargement of the prostate gland, minerals have been found to have the peculiar property of reducing the frequency, in many cases, to the normal number. From medical testimony submitted, there can be no doubt that administration of minerals mark a new era in the control of prostatic disorders, and is, without doubt, a valuable and unique prophylactic of this most trying and incapacitating ailment.

Radical in its Action.

It may seem, from what has been written of the therapeutic powers of minerals that they are of the nature of panacea. In a sense, this is actually the case in so far as giving of specific minerals something which is lacking in the body cells—something which is essential for their correct working and sound health. By promoting and restoring cell-health minerals attack the root of all diseases which primarily reside in the cells of which the organs and tissues are constructed.

Improve the vitality of the cells, and the body as a whole is placed in the best possible position both to resist and to cure disease.

That, indeed, is the function of minerals; by endowing the cells with vigour and tonicity, stimulating the natural disease-fighting powers of the

body to full activity. "The body has within it the nature of cure" is an aphorism of Hippocrates, the father of medicine. Minerals fortify the component units of the body and so enable the beneficent work of Nature to take place unhampered.

—"New Health."

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Unclean Handling of Food.

Attention should be drawn to the dangerous manner in which certain articles of food, notably confectionery and sweets, are sometimes handed by the retailer to the purchaser. We refer to the habit, common to many, of moistening the forefinger and thumb with the tongue before picking up the paper bag, preparatory to its being blown open with a forced expiration of droplet laden breath. This process completed, the food stuff is then transferred to its contaminated container by the sputum-infected hand of the vendor. In the majority of cases foodstuffs are prepared under satisfactory and hygienic conditions, safeguards which, in many instances, are nullified by subsequent dirty handling. The purchaser, by refusing to accept articles so handled, would do much to discourage this disgusting practice.

Tuberculosis Infection.

Tuberculosis claims its victims in nearly manhood and womanhood. The source of infection of a patient, apart from the consumption of tuberculosis milk, is by contact with a person suffering from active pulmonary tuberculosis. It is therefore essential for all persons to be examined and re-examined until at least four years have passed from the time they were known to be last exposed to infection. It is difficult to persuade contacts, especially young adults, to submit to such periodical examination. They do not realise how important it is to detect the disease in its early stages for a cure to be effected or to arrest the disease.

—"Better Health."

Why Does The Doctor Tap Your Knee?

Mysteries of the Nervous System

By A. N. Donaldson, M. D.

A large percentage of cases of illness nowadays originate in the nervous system and the physician is called upon to exercise much ingenuity in his effort to untangle the symptoms and advise as to treatment.

The status of this nervous system may be studied in a variety of ways. The eyes are tested. Are the pupils equal and regular? Do they react properly to a flash of light? These tests check the integrity of certain nerve pathways which control involuntary eye muscles—nerves which are almost always affected in certain diseases. If there is a departure from the normal, the physician knows that either the controlling brain area or its nerve path is injured.

The "Tone" or liveliness of various muscle groups throughout the body are determined by various means and the reflex arcs in all crucial points are checked.

What is a reflex arc? We will explain by example. With one knee crossed over the other the tendon just below the knee cap is struck a harmless blow with a rubber hammer. This blow releases a nerve impulse from the tendon. This electric energy travels up the leg and enters the spinal cord. Within this

structure the impulse is transferred to another set of nerve fibres, which, passing out of the cord, distributes a "hot" spark to certain muscle groups, which in turn cause the leg and foot to jerk. Well, if the jerk cannot be made to appear, it simply means that the impulse is held up in transit, that something is wrong with the telegraph system, either incoming or outgoing. Nerve pathways in different parts of the body are thus checked and the nervous system as a whole appraised.

We make our patient stand with both feet together, and with his eyes closed. Then we ask him to walk a chalk line for us. Thus we determine any abnormality of brain and nerve paths controlling equilibrium. His skin is touched here and there with hot points, cold points, sharp points, dull points, all to test the effectiveness of that part of the nervous apparatus which is supposed to receive, transmit, and interpret temperature, touch, and pain sensations. This apparatus includes a nerve fibre which carries an impulse into its nerve cell. As we conceive it this cell interprets the impulse thus brought to it and initiates another impulse to be relayed out over nerve fibres. The examination of the nervous system is thus directed toward the determination of how well an intricate and elaborate telegraphic

system, which transforms a senseless mass of protoplasm into an active man, is really operating.

May be the patient whose reflexes we have been overhauling has a badly-damaged nervous system. A succession of shocks over a period of many years delivered to a delicately-balanced-mechanism plus long-standing infection may have succeeded in starting some chronic, slowly progressive ailment.

A recent patient offers the basis for an interesting observation. The chief problem was a sense of fullness in the abdomen, which made the patient feel that she could not eat. She was a heavy user of cathartics. We know that nerves carry a definite type of impulse, and since nerves of the membrane of the bowel carry only the sense of pressure, and since the cathartics irritate that membrane, we assumed that the sense of fullness could not be and probably was due to long-continued "pill" irritation.

We cannot ourselves always tell just the point from which a pain may

originate; for example, a diseased tooth on your right lower jaw may set up a bowl which seems to be coming from some spot on the other side. And then the appendix, nestled in the lower right side of the abdomen, may cause a pain which has called our attention to the lower left side. Or this little trouble-maker may stimulate disease of the gall bladder or stomach. We call this referred pain, and it sometimes taxes the doctor's diagnostic efforts to unravel the tangled skein.

Reckless disregard for one's body and mind bring to the physician each day pathetic pictures of broken lives, and no matter where the abuse has centred—be it heart, stomach, kidney or mind—the nervous system, that great correlator of all activities is damaged, the injury often too deep to efface. And it is that gentle tap on the knee that provides your doctor with one of the means for determining the state of the nervous system.

—"Good Health."

Alcohol—Food or Poison?

By Emma L. Transeau.

MORE than half a century ago (1875-80) several French Scientists conducted experiments on dogs, rabbits, pigs, and other small animals to learn which of the alcohols formed during fermentation is the most poisonous. They gave the animals enough to show how much per pound of their weight it would take to kill them. It was found that the most poisonous was amyl alcohol, the chief constituent of

fusel oil. According to one investigation it took only about one-fourth as much amyl alcohol as ethyl alcohol to cause death. Yet it is the ethyl alcohol in alcoholic drinks that is most to be feared, because they contain so much more of it than of amyl or any of the other alcohols. The so-called "hard liquors" whisky, gin, rum, brandy, and other distilled liquors have from thirty to fifty parts of ethyl alcohol in one

hundred parts, but only about one part in one thousand parts of amyl alcohol.

It is the ethyl alcohol, formed by the splitting up of sugar during the fermentation of fruit juices or malted grain infusion, that is responsible for both acute and chronic alcoholism, or alcohol poisoning. Ordinary wines contain from eight to thirteen parts of ethyl alcohol in one hundred, and beers and ales from four to seven parts.

The early studies of the effect of ethyl alcohol were directed mostly to the visible changes which its liberal or habitual use produced on vital body organs or structures. One of the most celebrated of the early reports (1853) was by Dr. William Beaumont, who had the rare opportunity of looking directly into the stomach of a soldier through an opening left by a healed gunshot wound. After the free or ordinary use of any intoxicating liquor, Dr. Beaumont reported, the inside lining of the stomach appeared inflamed, and an unusual amount of liquid was poured out over it.

Since Dr. Beaumont's time much has been learned, without looking directly into the stomach, about how it is affected by alcoholic drinks. It is known that they cause the stomach walls to pour out quantities of fluid which dilute the alcohol and thereby lessen its irritating effects. Some persons have supposed this fluid to be the same as that secreted by the stomach for the digestion of food, and that taking alcoholic drink with or before meals would therefore aid digestion. But scientific examinations have shown that the fluid thus produced by the action of the alcohol is different from normal and of little or no value to digestion. When alcohol is taken before meals as an appetizer, it has harmful after-effects which more than

counterbalance the pleasurable sensations it evokes.

According to Dr. R. Sulzer, a heart specialist, the condition of the heart under alcohol is the same as occurs in fatigue. In both circumstances it dilates more than an unaffected heart would in performing the same amount of work.

The more serious effects of the use of alcoholic drinks are produced, scientists believe, upon the nervous system.

The cells of the nervous system differ from those of other organs in having numerous projections of varying length. The longest of these projections form the white threadlike nerves over which impulses pass to and from the brain. Studies of the impaired and degenerated nerve cells and fibres found in deceased alcoholics have been repeatedly made.

A characteristic action of alcohol when it comes in contact with nerve cells is to dull their sensitiveness. Lessened sensitiveness to touch has been shown by placing the two points of a draftsman's compass on a person's skin, where he does not see them, and moving them closer together until he can no longer feel them as two points but only as one. The distance between the points is measured and recorded. He is then given a small dose of alcohol, and in a few minutes, when it has taken effect, the compass points are again applied. Measurements are again taken, and it has been found that the space where the two points are felt as one is wider, showing that the sensitiveness of the nerves of touch has been dulled.

Careful observations in daily occupations often corroborate the evidence of experiment. During the war, when

naval vessels kept a sharp look-out for torpedo boats, a German seaman displayed unusually keen vision in the dark. He could see a torpedo boat at night where others could see nothing. One evening at mess he drank a glass of beer. Immediately his ability to pierce the darkness with his eyes was gone. He credited it to the glass of beer and afterward refused to take even a single glass.

One of the advantages of experiments over chance observation is that the alcohol can be given in precisely measured dose. In one experiment a group of letters were shot swiftly past a small light opening, and the subject was asked to tell what letters he saw. After a dose of about two teaspoonfuls of alcohol, equal to the amount in a large glass of beer, more letters sometimes passed unobserved or were named incorrectly than when no alcohol was taken. After twice that amount there was a very definite loss in perception.

Many experiments have been devised to imitate work performed in ordinary everyday occupations. One test of this kind reported about a year ago from the University of Munich by Dr. Otto Graf, was like guiding the steering wheel of a motor car. A pointer was attached to a wheel which, by turning to right or left, kept the pointer directly on a white line marked on a revolving belt. The line was very crooked, with irregular turns. In some places it was broad and clear, in others it was narrow or indistinct. The belt carrying the mark could be made to pass fast or slow as the performer wished, by pressing a control with his foot. If the pointer left the track, it touched a metal which recorded by electric clock-work both the number of slips and the length of time the slip remained uncorrected, that is before the pointer was brought back on the track.

This work, therefore, tested concentration of attention, alertness, quickness and precision of movement. The subject sat on a comfortable seat and did not become bored by the task. The doses were of two sizes, forty grammes—about one and one-third ounces—and eighty grammes of alcohol, in a thirty-per cent solution. With the smaller dose, failures to keep the pointer on the mark increased to 150.6 per cent of the normal test; with the larger dose, 312.2 per cent.

There were other effects not shown in the measurements, but in the subject's feelings and behaviour, which would not tend to safety in driving a motor car. Distances were deceptive; objects seemed farther away; voices sounded more distant. His attention did not take in what was passing around him, only the task directly in front of his eyes.

By studying the thoughts and feelings reported by the subjects of the experimental tests and observing their behaviour, much has been learned of the effect of ordinary, supposedly "moderate" doses of alcohol upon conduct. Always the subject thinks he is working better when under the influence of alcohol, while his results prove that he is not, showing that he has less power of self-criticism.

Some subjects report feeling, confused, "as if the mental fingers were all thumbs." Some show irritability. It was reported of one subject that his associates in the laboratory could tell his alcohol days from the normal days by his display or irritation over small matters.

The weakening effect of alcohol on self-control has an important influence upon various qualities essential to good

citizenship. The breaking down of restraint, the very effect that is given as a reason for social drinking, means lessened self-control. The brain, by which self-control is exerted, is the organ of the body most sensitive to alcohol, hence the first to be weakened by it. The loss of restraint often begins with the first drink. Whatever resolutions may have been made not to overstep moderation are then broken.

Just what a child may inherit from a parent whose body cells and tissues were under some degree of alcohol poisoning when the one that originated his life began its development, is not very well known. One source of confusion has been trying to apply here the law that a parent does not transmit to his child characteristics which he did not inherit from his parents. If by

study and practice he becomes a musician, he does not pass that acquired ability on to his child.

That is true, and if a parent acquires an imperative craving for alcohol, he does not transmit a similar craving to his child. But if a person takes enough alcohol in the course of a few hours to lessen his mental and physical powers, precise chemical tests will find the alcohol permeating all the cells of his body. And those who have studied the effect of alcohol upon germ cells report that at certain stages in their development they are more susceptible to injury than at others. If injured, they can hardly be expected to develop normally and produce as vigorous, healthy and well-balanced individuals as they would if not thus handicapped at the beginning of their existence.

— "Good Health."

The Technic of Sleeping

(An Article dedicated to the thousands who sleep badly because they have never learned how to sleep well)

A man's preparation for living begins with his grandfather or earlier, and his preparation for a sound night's sleep goes back almost as far. That man sleeps best who has always abstained from narcotics and stimulants, who is scrupulously regular in all his habits, his working hours, his eating and sleeping, who realizes the desirability of moderation in work, exercise and play, and who refrains as completely as possible from haste, excitement and violence in all forms. This is all down in the books already, even though the majority of human kind pay very little attention to it. But some additional

facts have been established in the matter of sleeping which are perhaps less generally known, although it is possible that even if they were, they would be generally neglected.

To begin with the fact of capital importance, I made the encouraging discovery years ago that sleeping is much more a voluntary action than the majority of persons realize. Sleep is not solely and necessarily an instinctive reaction to weariness; it can be a wholesome precaution against coming weariness, a potent and entirely harmless tonic or "bracer" for a period of strain

and trial. If I have a hard task before me, I try to sleep at least nine hours before attacking it. And I believe that except when I am very unusually agitated or perplexed, I can sleep nine hours at a stretch, or even ten, whenever I choose to.

I recall the obstacles which I sometimes have to vanquish in order to persuade myself to yield to the ever-kindly solicitations of Morpheus. All should know, to start with, "yield" is the accurate word. I spoke of sleep as a voluntary action, but I must hasten to add that it is an act of surrender. I hope it is not blasphemy to suggest that going to sleep is very much like "getting religion". It is not "doing" something so much as it is letting a wise and beneficent Spirit have its way. When you meet a lion on your path to slumberland, you don't grit your teeth and fight him. If you do, you are beaten at the start. You simply ignore him. You rest in the calm conviction that Morpheus is all-wise and all good, that pain and problems have no ultimate reality and that there is every reason for letting them alone, for paying no attention to them. Thus, relieved of care, you quietly, lazily decline to occupy yourself with anything in particular since your sole business for the moment is to have no business whatever. You can't fall asleep till you stop thinking. And you can't stop thinking by thinking stubbornly; "I will stop thinking!" You can stop it only as you might stop rowing or swimming when you want to float (I think this figure is a very soothing and helpful one). You stop thinking by relaxing your muscles and your mind and letting yourself go. And this is an art which can be learned. I have made measurable progress in it, even in the last year or two.

The obstacles which I find it necessary to meet now and then include, first,

physical pain. Although I am not robust, I have never had a great deal of acute physical suffering to contend with, and I am sure that a pain-rackled body must be desperately hard to forget. But at several periods in my life I have suffered considerable pain from my eyes. I have discovered that the principal trouble with them was that, like the rest of my body, they cannot stand excess—excess either of labor or of light. Dark glasses in bright sunlight, an eyeshade to keep the light from driving directly into them when I am at work, a blue light bulb for all night reading, have done a great deal toward settling my eye problems. But when I go to bed with a headache back of my eyes, as sometimes still happens after an evening of bright light, strain and excitement, I usually have little difficulty in forgetting my tired and fretful eyes, in laying them aside to rest much as I might take out my teeth and leave them in a glass of water to freshen, if it were not that my teeth are still fortunately anchored to my physiognomy; and when I reach out and put my eyes on in the morning, as I put on my shoes, and my neck-tie, I am almost sure to find them just as good as new.

Quite as stubborn an enemy of the god of slumber as any form of physical pain, is mental discomfort or excitement. A sensitive man, a man who is subject to self-distrust and self-reproach, has a tendency when he lies down in the darkness and in the silence to cast his mind back over the affairs of the day, to dramatize the day's happenings and sometimes work himself into a fever with this shadow-boxing. For many years, when I came home from a public meeting in which I had taken an active part, I always rolled and tossed for a considerable time until my heart slowed up, my body cooled down and my brain grew weary of rehearsing the irrevocable. But within the past year

or two my technic of dismissal and forgetting has become so effective that I am now usually asleep in ten minutes after the most active and trying evening. The technic which I am still acquiring involves both the developing and the discarding of habits, and the habit of waiting until certain physical and mental tensions relax is an unnecessary habit which I am abandoning. Morpheus receives me just as I am, hot and bothered as I may chance to be, and the adjustment of my pulse-beats and temperature takes care of itself.

Another harmful practice, the habit of climbing one's mountains the night before the ascent is scheduled, is a habit of which it is hard to be rid. In this regard, I am not exempt from a tendency which I believe is rather general. I often go to sleep beautifully at my early bed-time, only to start broad, awake and begin frantically borrowing trouble three to five hours later. When this happens, the whole thing of course has to be done all over again, and with the evening weariness largely worn off, the problem may be a much tougher one than it was at 10 or 11 o' clock. During a period of nervousness some years ago, I resorted several times to a warm drink or a warm bath in the wee small hours. These things helped, but I was careful not to resort to them often, or they might have come to help less. It has been several years now since I have found any such thing necessary. Almost always, I can indolently decline to take thought for the morrow and lie cozily thinking of nothing in particular till I am thinking of nothing at all.

This non-chalant dispersal of attention is a procedure which we can learn to apply even under difficult conditions. We do something similar with our eyes. Sometimes when we are in an

absorbing study or a day dream, sometimes when we are merely sleepy or indifferent, we find ourselves facing the visible world with unseeing eyes which are focussed on nothing. All purposeful thinking requires a modicum of effort, and we can approach the gates of sleep only by the path of purely passive reverie.

There may be some routine procedures that help certain wakeful souls to this dispersal of attention which leads to oblivion. Personally, I have never counted sheep successfully for that purpose, inasmuch as I am neither a mathematician nor a biologist, and counting sheep would involve a definite effort that would tend to waken me. I used to try some such recommended gymnastics as a youngster, but I am sure they would all work in the wrong direction with me now. There is no suggestion, no hypnotism, no numbering process in my method of securing sleep. I never took a sleeping potion in my life, and I hope I shall never have to. I never read myself to sleep, and I don't think it is a wholesome procedure. I go to sleep promptly and sleep naturally and easily, largely of course because nearly all my life I have done so, so that my mental and physical being is adjusted to that manner of spending the hours of darkness. If I made a practice of retiring to-night at 10 and tomorrow at 1, my bewildered nervous system would no doubt be much less tractable. If I drank black coffee and then lay down to sleep, my puzzled brain might be more inclined to obey the coffee than the gesture. Most insomnia is no doubt traceable to daylight indiscretions. But I have cajoled a reproachful but for giving Morpheus to my bedside after a hearty meal and slept off my jag even when I didn't deserve to. It is a great thing to be able to sleep. It gets you out of a lot of trouble.

When I lie down at night I always say over certain affirmations, which require several minutes to complete. No matter how sleepy I am, I always go through them after a fashion, even though I sometimes have little idea of what I am saying. I am sure there is benefit in this practice of mine, and I am sure, too, that the fact that I never allow myself to omit them makes it all the more certain that I shall drop off to sleep as soon as I have finished them.

I prepare the way for my sleep, I earn it, so to speak, and the laborer is worthy of his hire.

Insomnia is one of the great curses of the race. It is the mother of suffering, of inefficiency, nervousness, inharmoniousness, insanity, no doubt of crime. And to a large extent it is unnecessary. Thousands sleep badly because they have never learned how to sleep well.

—BY ROY TEMPLE HOUSE.

SLEEP

Sleep, immortal Goddess of the Night,
Take me in your arms, and till the morning light
Hold me to your bosom. Whisper in my ear
The things called dreams. Make sorrows disappear.

So I can live and laugh and play
Like a child again, in a new-born day.
Then, when dawn's shadows softly round me creep
Return me to my tasks again, kind benefactress, Sleep.

By Florence L. WILSON—"Hygeia"

ANNOUNCEMENT.

The November Issue of Arogya Margam the official organ of the Health Propaganda Board, Madras, will be devoted to tackle the problem of Tuberculosis in India. Original contributions from specialists on the subject as well as public spirited men would be received for publication on or before the 15th of October 1938.

HEALTH PROPAGANDA BOARD, MADRAS.

Marvels of the Body—2.

CHEMISTRY AND LIFE.

THE human body is virtually a walking chemical factory carrying stocks of sodium, potassium, calcium, phosphorus, sulphur, iron, manganese, copper, carbon, oxygen, nitrogen, chlorine, and other well-known chemical substances in different proportions. Yet on account of the large quantity of water with which they are combined the total value of the chemical substances in the body, if put up for sale, is relatively small. A doctor of international fame has stated that the actual chemical value of the human body is a little less than four shillings. There is enough iron in the body to make a medium sized nail, enough sulphur and phosphorus to make a thousand matches, enough fat to make a few bars of soap, enough glycerine to make two or three dynamite caps, and enough calcium to whitewash an average size chicken-coop. A humiliating thought for the conceited!

Bones are largely made of calcium and phosphorus; the blood and tissues are made up of principally of sodium, potassium, carbon, oxygen, nitrogen, chlorine, and sulphur. Calcium, Sodium,

and potassium play very important parts in the work of the heart. If the heart of a chicken that has just been killed is placed in a solution of calcium it contracts firmly. If placed in a solution of potassium it dilates. In a solution properly combining calcium and potassium together with addition of sodium, the heart will contract and dilate because of calcium and potassium while the sodium assists in maintaining the rhythm.

Digestion itself is a complicated series of chemical changes. The acid secretion of the stomach and the alkaline secretions of the intestines, pancreas, and liver all act as chemical substances. The blood likewise is protected by what is known as buffer-salts which maintain the alkalinity of blood at a certain level. Excess alkaline substances are neutralized before they can do harm. If the alkalinity of the blood drops to any appreciable extent, death is inevitable. Hence we see that life has a great deal to do with chemistry.

—"Good Health"

Food, Force and Health

By Dr. SANDERSON WELLS

"Life springs from life and must eat life daily or die. Cleansing its source from taint and daily feeding the stream on living foods are vital issues which, adequately dealt with, would restore our pristine vigour and reverse our adverse trade balance."

LIFE is Force! Conception, Birth and Death struggle, and the span of existence rests, like the arch of a mighty bridge, on the forces of inheritance, and the energies derived from food. Force in equipoise is Peace, but the improbability of obtaining such accurate adjustment in the human body makes perfect health an impossible ideal. Health is enjoyed, however, according to the ratio in which function gains through balance the maximum of beneficent movement.

Liberty likewise depends on balanced forces and in dealing with life it is essential constantly to remember the serious effects resulting from any derangement of delicately and laboriously adjusted powers. If every unit enjoyed perfect health, there would be no discipline, and amidst universal agreement law and control would be unnecessary; but perfection of mind and body being unattainable ideals, need for coercion is so generally recognised that force of circumstance, force of public opinion, police force, etc., are current phrases of speech. Since unbalanced urges and desires exist, sane mankind adopts the principle of the balance of forces, and imposes restraints to correct errors. Jails and straight waistcoats are to prevent serious invalids from injuring

themselves and others. False sentiment in regard to these subjects has resulted in untold mental, moral and physical suffering.

Deficiency is as disturbing as excess. Overfeeding clogs and injudicious feeding injuries, as surely as underfeeding weakens the system. Damaged tissues invite attack, and bacilli are quick to seize an opportunity for invasion. Residence once established, toxins are poured out until the host either dies or successfully defends himself by restoring the balance. When toxins and anti-toxins neutralize one another, war ceases, peace is regained and life and health start rebuilding. Though perfection is unattainable, we must struggle towards the ideal, and this in the human body entails elimination of abnormal inheritance and eating adequate living food.

England has made noble effort, at enormous cost, towards improving the health of her population, but prejudices have jeopardized success, and produced untoward results. Long the asylum of undesirables, she has led the way in preserving the unfit, until these have accumulated to the point of directing her policies towards descent to the lowest common factor, rather than

attempting ascent by levelling upwards. Restraints, hampering but irritatingly useless, have driven the fit and capable abroad to strengthen rivals; until, left with low forms of notoriously prolific life, and a consequent accumulation of tainted strains, she has been forced to subsidize the inefficient and degenerate, at the expense of the best remaining to her. Loading these, her broadest backs, to breaking point has dragged them down to self-sterilization through late marriage and limitation of offspring. This process commenced long before, but intensified, during the Great War by the destruction of a million virile males, has increased the pre-war predominance of females, and removed selection by choice from marriage. The results are only too apparent. During this period the National dietary has also been steadily devitalized until white bread, margarine, tea, sugar and mass-produced factory made products are in general use.

Life springs from life and must eat life daily or die. Cleansing its source from taint and daily feeding the stream on living foods are vital issues which adequately dealt with would restore our pristine vigour and might reverse our adverse trade balance.

There is danger that both may be delayed until too late. Virile and accomplished races have sprung from unfertile soils on a sparse diet, because, though sometimes hungry, they lived on pure natural food, while the rigours of existence eliminated weak strains.

A generous diet, even when wholesome, overloads the system and hampers activity. A generous diet of devitalized foods adds deficiency to overloading and deficiency diseases are rampant among us to-day. The delicate balance on which health depends has been

upset, and silent and malign forces are at work. Clean, active tissues quickly adjust themselves to changing requirements and the effort is hardly perceptible. In disease and deficiency the struggle is obvious and expressed to-day in irritability to strain, aversion to decisions, apathy in face of emergencies, general depression and want of power.

The English people come of good stock and live in the finest all-the-year-round climate, with vast supplies at command. They are a just, tolerant and well-meaning people. If food is the daily source of health and energy, and if they now show signs of failure, then there is an emergency to be dealt with.

If also the most vigorous races have lived on spare diets of cheap natural foods the obstacles to recovery are not serious. The regime of a Highland family fifty years ago should form a proved, though unnecessarily severe, basis. The nation has a call to survive and is eager to respond. Voluntary effort brings rewards, and, as has been shown by physicians and surgeons in our hospitals, is not wanting in efficiency.

Organised educative propaganda, if undertaken by the press and the B.B.C. would create a demand easily met in a few weeks. Trade balances and bank balances would benefit. Had our unemployed been supported in kind on vital foods, huge stores of healthful energy would now be available with which to meet urgent problems.

The source of life needs cleansing and its stream revivifying.

The force of public opinion is all-powerful.

—“New Health”

The Child: A Self-Revealer

By Dr. Maria Montessori

TRAINING IN FINE PERCEPTION.

WHEN I came into the room one day with a four months old child in swaddling clothes in my arms, I had not the slightest idea that the children would carry the matter so far beyond the simple bit of fun I had planned. I did it for a joke. I playfully said to them: “This baby is cleverer than all of us. Look at her feet; no one can keep their feet as still as she does hers!” I alluded to the fact that her feet were tightly swaddled. But the children were thrilled. Leaning towards me and the child they all planted their feet still and stood absolutely motionless. I carried on my joke, and still insisting on the superiority of the babe in my arms. I said “But none can breathe as she does; listen to her gentle breathing.” They were all perfectly grave, bent forward towards me, holding their breath. Then there fell upon us all a thrilling silence, excluding us from the ordinary world, for we heard no noises except those that were slight and far away—a fly’s wings, the clock’s ticking, the chirping of a sparrow in the garden, but no sound, however slight, came from us or our surroundings, for we kept immovable, and sound is, after all, dependent upon movement.

Now I believed that those little ones had just understood that if one keeps still a wonderful silence results; just this and nothing more. But I had to recognise that over and beyond this

they had a real craving for silence; for when I invited them to listen to it, how eagerly they responded, becoming motionless immediately, as if it were a delight—a dynamic obedience based not upon a command, but upon enthusiasm and inspiration. It was, nevertheless, difficult for me to cast aside old beliefs and realise that within these children lay a whole world of alert spiritual consciousness. I kept thinking about children as children had hitherto been known to us. Besides my original idea of experimenting upon them reappeared, so that I was held back within the course, mechanical conceptions which had guided me till then. I thought that here was a grand opportunity; in such silence I could test the children’s acuteness of hearing.

In order to test it one has to begin with silence—a thing hard to achieve in one’s immediate surroundings, but here was a splendid chance to experiment upon children’s powers of attention in listening. Itard had, in fact, succeeded in educating the hearing powers of partially deaf children by drawing their attention to noises which only just appeared upon the threshold of consciousness in a silent place. My experiment was this: I went into the next room and stayed there, calling each child in the room I had left by name, under my breath, to come to me. The one who heard his name called had to come as noiselessly as possible. I

provided sugar plums, delicious sweets which I thought would be for them a rare delight, and to those who responded to my call I gave these sweets—thinking that it would help to keep them quiet during such a long exercise. But I was amazed to see that few of them accepted the sweets or, if they took them, it seemed as if they were bored at being interrupted in what they were doing. They did not eat them. When I looked at these children, their faces, I saw, were full of joy; joy at hearing their names called, at recognising the sound, at finding they could come to me without making any noise. The fascinating thing for them was to be called by an almost inaudible voice, which emerged from deep silence and faded away into it again like a ghost—sugar plums were unworthy of their exalted state of feeling, so I withdrew them in shame at my lack of delicacy in offering anything so inappropriate. The game of silence spread; it is now found in our schools all over the world. This experiment revealed a whole chorus of delicate feelings, a whole world of creatures eager for effort and glad to raise themselves to greater heights.

The children had now so trained their senses in fine perception by means of the exercise with scientific material that they were able to distinguish the finest shades of colour and to discriminate between the musical tones obtained by striking bells or the duller sounds produced by slabs of wood of various lengths. Their power of observation was both keen and delicate. They found interest in a blade of grass, and they began to take notice of their own clothes and to consider what was proper and nice in their own homes; they insisted that things should be clean and remonstrated with their own mothers about their untidiness. Little by little it came about that we no longer saw dirty clothes hanging out of the windows or

broken pots on the sill; geraniums began to bloom on the window sills of these homes of the poor. It was brought about by the children; the poor were learning from the child. This was the first proof we had that the world of adults is suffering from a loss of sensitiveness. We need to be brought into contact with the world of children, with the unspoiled human soul which is at work on the elaborating of its own life. This vivifying contact will reveal a possibility of salvation for mankind.

The "Explosion into Writing."

One of our most singular experiences occurred when we tried to teach these children the alphabet. The material included big cards on which were letters grouped together in various ways—cards which we no longer use in our schools.

One day I came to school and found the children much excited about something, so much so they did not notice me or wish me good morning; they were making quite a noise and walking in a procession as they shouted. They held the letter-cards aloft, as high as their arms would reach; it was like a Lilliputian replica of some political procession, with the crowd carrying its banners inscribed with appropriate words. The mistress stood apart watching them in some distress. "It is all about the alphabet," she explained. "They are in love with the letters." The actual cause of all this enthusiasm was, as I soon found out, the realisation by the children of the correspondence between the written letter and the spoken sound. This realisation had sent so deep a thrill to that part of the brain where words are stored that each one who had received the shock was shouting aloud the separate sounds into which he was analysing the words he knew. The fact that these sounds corresponded to

the written signs filled them with almost delirious joy, and hence it was that they flaunted the letter-cards as banners in this march of glory.

Now it was that a new form of activity started in our school among the bigger children (of four years and a half or thereabouts). They no longer wanted to use the scientific material, but only to touch the letters we had prepared for them. With the moveable letters they began to compare words, placing these letters side by side. One saw them deep in sight lost in inner concentration, murmuring under their breath the sounds of these letters. First they analysed the words they knew into their component sounds and established the correspondence of these sounds with the letters of the alphabet—"f", "s", "o", "r" and so on.

Next, the little hands set to work at combining letters and so they came to words. When I passed near some child and, marvelling at what I saw, read aloud in a congratulatory way some word he had built up, he would look up at me in blank amazement, as much as to say, "Why, how did you guess it? How could you possibly know that I had just that word in my mind?" They never connected the fact of reading with this curious exercise; they took me for a thought-reader when I read aloud the words they had composed. The day came when they really began to write. They then wrote with chalk all the words they could think of. They wrote them everywhere they could. They filled the floor space, they covered the furniture with written words. This phenomenon we named the "explosion into writing" and it took place with little children of four and a half.

And yet they not only did not read, but they seemed unable to turn their minds in the direction of reading, and

when they had built up a word and some one asked them to read it they could not, nor did they seem to understand what was required of them. No one ever read the words that others had built up or written. It was not till six months later that they began reading but when they did they got on extremely fast. They read shop-signs and so on until they came to reading out of books, which they did without any actual preparatory exercise; they understood the stories in books from the first. The differences in type in printing were no hindrance, they got over the difficulty by the same kind of intuition which scholars employ in deciphering ancient hieroglyphics.

The Existence of "Sensitive Periods"

Now all this extraordinary mental activity was a real psychological phenomenon, not the result of any method of education, but rather the spontaneous beginning of what might evolve into a method, inspired by the revelations afforded us by children of the powers within them.

How did it all happen? I myself merely interpreted the facts, so as to apply them, eventually, to education. I may mention two of these facts in brief: (1) Love for exactitude and love for repetition of the exercise, together with a form of mental concentration in children between three and four years of age; (2) spontaneous writing between the ages of four and five. It is a curious fact that no attempt of ours will get a child of six to repeat the exercise, nor can we interest a child of six or seven in the alphabet, still less obtain from him the explosion into writing. There exist therefore phenomena of remarkable activity, each belonging to some definite age.

It was in the way I have described that we came to the discovery of sensitive periods in the psychic growth of man.

In Holland, just at the time when De Vries was expounding to the world of biology his famous theories about the "spontaneous mutation of species" (which were at variance with Darwinism) some of his followers who took an interest in my experiments recognised, in the facts I have narrated, the same phenomena as De Vries had studied in his "Individual Evolution of Living Creatures" under the title of "Sensitive Period" that the living creature in process of development acquires for itself some given characteristic, after which that special sensibility ceases.

Now, it was apparent that a child of four, at the height of his enthusiasm for the alphabet or for the explosion into writing, gave signs of just such a special sensibility—of the power of clearly distinguishing the elements of speech, previously acquired by him more or less confusedly. The alphabet, it is clear, constitutes a wonderful external aid to the child at this period; it allows him to materialise, by means of things he can handle, the mental work to which nature prompts him at this particular sensitive period.

The revelations made by children opened out the way for a method of education, for it made clear to us various details of general utility and of universal application. For instance, it was revealed that writing is easier than reading—that writing must evolve through analysis of the speech with which the mind is already stored, and not through reading books. This was one of the most practical contributions to the success of my method of education; it certainly was a great advance.

The child who composes the words he knows, with symbols that he can handle, is studying on his own account; he is being forced to analyse into its component sounds the speech he actually uses; he is a discoverer. The words he form are the fruit of his individual effort, the result of his analysis. It is this that makes writing interesting and easy for him, though he does not "explode" as he would at another stage. If we compare the writing of children who acquired it at the sensitive period, we shall see that it is of a perfection which later on would be impossible for them. There has been much discussion about this principle that writing should precede reading; it has appeared to people somewhat contradictory. But let me quote a summing up which I heard not long ago: "Which came first in the history of mankind—writing or reading?" Obviously writing was first, or there would have been nothing to read!

Now writing is a creation of man that he may express his ideas in a tangible form. Writing is a real creative fact. It arose side by side with the art of drawing. It is therefore natural that it should start not from the book but from the mind. But it took the child, in his simplicity, to make this clear to us. If we leave him to manifest his mind in freedom we shall receive from him not only revelations of truths unknown to us regarding the structure of the human mind, but aid for ourselves in getting rid of old fads and fixed ideas that have grown up and stifled our native common sense.

The continuous revelations made to us by acts simple in themselves, but all aflame with spiritual vitality, made those who watched the children attribute to them some deep and undiscovered wisdom, which might be destroyed in us the veils and hindrances that enslave our being as adults.

From the child, revealer of another world than ours, we can draw new energy, we can refresh our wilted life—here was the important fact revealed. This it was that drew so many people to see our children—not just their power of writing down pretty phrases in beautiful writing, not only their refinement of highly trained senses, by which they recognised and distinguished the delicate shades of colour that grown-ups could not appreciate—it was the real ego of these children that was the attraction. The childish personality, so open and understanding and unperturbed, so receptive and so consolatory it was this that touched something in the heart-depths of the beholders. There arose in them a sense of new life arising from deep places, and new hope was born.

Crowds came to visit us in that bare room in the slums—persons of varying class and station; the queen and the working man, the minister of state,

lords and ladies, and the poor in their simplicity. The fame of those children spread over the world; in those days people came to see them from the ends of the earth, especially from America, and a great deal was written about them.

There was much talk about a method of education which worked miracles. The results were attributed to external causes. The appearance of delicate inner facts upon which long study had still to work was ignored. It was not understood that here we had to do with a spiritual revelation, a raising of the veil from the great unknown; that is, the mystery of man himself. It was not then a new way of educating which concerned us here, rather was it the revelation of what man may be—a new creature and a better, one in whose hands lie the destinies of times to come.

—"Mother and Child."

Hard Water and Health.

BY A PHYSICIAN.

AT a recent discussion between medical men, sanitary inspectors and water engineers diverging opinions were expressed as to the action of hard waters on man. It was apparent that the journey of water through the human system was not understood, nor was it realised that the body chemistry is not as straightforward as that reaction noted in the test-tube and the laboratory. The hardness of water depends on the presence in it of calcium and occasionally of magnesium salts. It is the former which causes delay in the production of a lather with soap, while the latter form the unpleasant thick scum.

Water, when drunk, enters the stomach where the chemical reaction is generally acid and consequently the soluble salts such as the chloride will be formed. The rise in temperature due to body heat is never sufficient to produce the deposition in insoluble form such as one finds in a kettle fur. Absorption may take place into the blood stream, but some of the calcium can become fixed to the fats and fatty acids produced in digestion to form insoluble soaps. No calcium can enter the blood stream except in a soluble form.

Calcium in the blood is an important factor in maintaining the correct reaction of the tissues. This must become neither too acid nor too alkaline, a balance that is maintained between chloride, carbonate and bicarbonate, and phosphate salts. A temporary excess can be withdrawn from the circulating blood and deposited in the bones or teeth. More may be disposed of by the kidney as minute crystals in the urine, or into the large bowel.

It can thus be realised that whilst a hard water supply may help to give strong teeth and bone to a young child any tendency to rheumatism (especially that variety which is called osteoarthritis) or to the formation of renal stones, in his parents will be accentuated. I do not wish it to be understood that the calcium of the teeth is only derived from that small amount abstracted from the water supply. Readers of *New Health* are fully aware of the importance of food and sunlight to the growing child in this respect.

Hard water in this way may be disadvantage to sufferers from rheumatism and from kidney stone. In all old people there is an increasing tendency for muscular tissues to be replaced by fibrous tissue from a lack of use or the demand for continued strength. This is one form of the hardening which occurs in the blood vessels. A hard water can thus offer to the blood an excessive amount of calcium which if deposited in the walls would render them brittle and more liable to break or rupture.

Calcium remaining in the bowel can fix and render insoluble some of the fats which would otherwise be absorbed. The presence of these residues and irritating crystalline compounds may set up a form of spastic constipation.

Hard and dry faeces in the rectum are also due to the fact that insufficient fluids are being drunk, and it is acknowledged that hard waters are never palatable.

But water has other close associations with man beyond that when it is drunk. It is used for washing and for cooking. The value of soft water in this connection may perhaps be better explained by others but nevertheless should be mentioned here. More soap is required and is never so effective a cleansing agent with a hard water. Irritating compounds are present in the lather which may damage a delicate skin and its continued use results in the most weather-beaten complexion. Vegetables cooked and boiled in a hard water must include within their tissues and leaves the crystals that in the kettle are deposited as fur. Tea and coffee lose some of the aroma to which their virtues as a stimulating drink are due. They are less palatable and so less fluid is taken to supply the body's needs whilst the calcium and magnesium salts present in their preparation produce unexpected compounds with the tannin, thein and other alkaloids. The full chemistry of these changes has not yet been worked out.

There is no universally applicable method for softening water. It is therefore advisable to choose one in which no harmful chemicals are used and it is of advantage to use one which may act also as a filter. There is some evidence to support the opinion that the form of goitre known as "DERBYSHIRE Neck" may be due to bacterial contamination as much as to the mineral contents of the water.

—*"New Health."*

Edited and Published by Dr. U. D. Gopal Rau at No. 57, Thambu Chetty Street, Madras on behalf of the Health Propaganda Board, Egmore, Madras

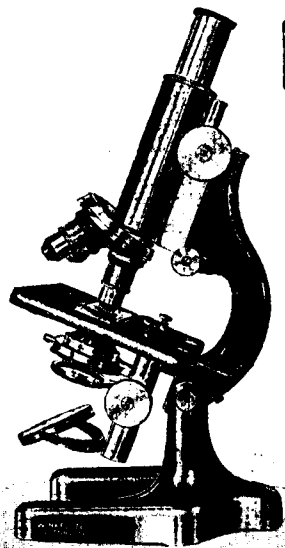
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No. 8

THE HEALTH PROPAGANDA BOARD, MADRAS

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NOVEMBER 1938**

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IMPORTANT

All the manuscripts for publication, books for review, Exchange of Journals and other correspondence relating to the Editorial Section should be sent to the HONORARY EDITOR, *Arogya Margam*, 57, Thambu Chetty Street, Madras.

Original articles are accepted with the express understanding that they are contributed solely to this journal. All matters published in *Arogya Margam* is copyrighted.

The manuscripts must be typewritten, and double spaced, and the original copy should be submitted. Blocks for illustrations will be supplied by us if the original illustrations are sent.

The Honorary Editor reserves the right to alter, delete, or make necessary changes in the matter sent for publication. No reasons will be given for rejecting articles.

All business correspondence, advertisements, subscriptions, and other payments should be made to the SECRETARY, HEALTH PROPAGANDA BOARD, Pantheon Gardens, Pantheon Road, Egmore, Madras.

ADVERTISEMENTS

Complete copy, instructions and blocks must reach this office not later than the 5th of every month in which the advertisement is to appear. It is understood that the old text (running) is to be printed, if no new copies of advertisement reach this office a month previous to the date of publication of *Arogya Margam*.

DO NOT SPIT

SPITTING on public roads, streets, lanes and other thoroughfare is very harmful to public health.

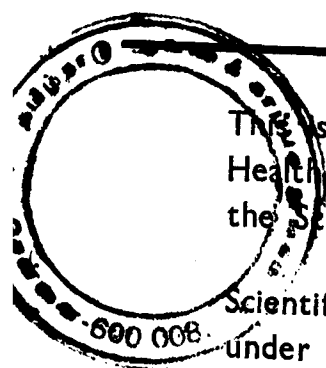
Spit usually contains disease germs which, when wet and dried, either stick on to the feet of the passers-by or get inhaled by them thus making them carriers of infectious diseases.

Tuberculosis is a dangerous disease that takes away many young and healthy lives in our country. Spit infection is one of the main causes responsible for this disease.

In the interest of Public Health can you not control this indecent, filthy and harmful habit and thus save the country from the havocs of dangerous diseases?

You will do this to-day. Determine that you will not spit on public roads.

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What and

Why Should You Know

About Tuberculosis?

I feel something wrong in my body—there is something going down in my general health. I feel no appetite, no desire for work—life seems to be a burden for me. I find no pleasure. I am quite conscious there must be some wastage somewhere in my body organs.

Ah—I get pains—sometimes mild—sometimes severe, very severe—excruciating in my sides and chest.

I get dry cough—hacking—most severe at nights. It takes a different turn, gets acute in the morning bringing forth plenty of discharge which is very often offensive. They call this sputum. I get this often when I exert myself or engage myself in any physical labour, even walking or talking for some time.

There is pain in my stomach at times pointing to the naval and very often diffuse over the entire abdomen. This is often followed by loose stools, very very intractable for treatment.

There is pain in my joints especially in the knees. It is warm, swollen, the parts below and above appear emaciated.

I find some heat in my body; a sort of burning sensation in my palms and soles. This is varying sometimes high in the evening and low in the morning and vice versa. It remains continuous and severe for several days.

Above all there is one thing, the only thing which I realise as very very peculiar, namely my conscience. I am conscious that I am going down in health. I

am conscious that my weight is decreasing day by day. I am conscious that my appetite is getting weaker and weaker. I am quite conscious every organ in my body and every tissue is on the way to decay, degeneration and destruction. I see every thing is gradually wasted and there is only the skin and bone.

I have heard of diseases like Typhoid, Pneumonia, Malaria, and Influenza which do bring on fever and other degenerative changes but they are not permanent. These diseases have specific time and subject to careful treatment and the general run-down in health could easily be regained but this is not so with this King of all wasting diseases—Tuberculosis or Phthisis or consumption.

Another important feature of this wasting disease is that it slowly, steadily and surely ruins the body entirely and it is in fitness that our ancestors have named this wasting disease as "Kshaya Vyathi".

Modern science has made it as clear as the palm of my hand that this disease is caused by a specific germ which, when it gains its entrance into the human body, spares no organ uninfected. When it plays its mischief in the lungs

we call this as Pulmonary Tuberculosis, when it affects the abdomen we call it as Abdominal Tuberculosis and so on when the brain, joints, skin and eyes are infected.

Common sense would tell us that in order to win a war we should know the strength and the plans of the enemy camp and increase our defence forces. So is the case with this wasting disease Tuberculosis, the most dreadful enemy of human progress and welfare. It is the bounden duty of every soul in India to know what this disease is, why should we know it and how it could easily be prevented by increasing our defensive forces and by adopting the most common and easily available sources for cure, namely, good food, good air, sunlight and exercise.

Plenty of literature explaining the causes and the means of prevention of this dreadful disease are within the reach of every one of us. Besides the activities of the various official and non-official health organisations almost daily din into our ears the horrors of the disease and how to tackle them by public lectures, broadcast talks, exhibition of posters, issue of hand-bills, and cinema shows.

It is the bounden duty of every one of us in the larger interest of the progress of the nation and in the individual interest of safeguarding one's own kith and kin that the most helpful advice given by the health organisations would not only be carefully followed but would help in bringing home people who are ignorant of this nasty disease and its ravages under such advice.

—o—

Anti-Tuberculosis Week in Madras

MAJOR-GENERAL N.M. WILSON, O.B.E., K.H.S., I.M.S., the *Surgeon-General with the Government of Madras*, in the course of his inaugural address dealt at length on the staggering statistical figures of mortality throughout India and pointed out "that for every one death from Tuberculosis ten are infected with the disease." The population of close on 400 millions spread over an area of 1,808,679 square miles in India with insufficient and inefficient Tuberculosis clinics and hospital accommodation is a point which should receive urgent consideration to combat tuberculosis which scourge

we are now beginning to feel is a special public health problem in the country. The scheme outlined for the formation of cadre of medical men specially trained in Tuberculosis work, the establishment of tuberculosis clinics throughout the whole presidency and the propaganda in the prevention of the disease through such clinics, and the establishment of Sanatoria throughout the presidency, no doubt, would bring on immense benefits to tackle the problem but what strikes us most to face this scourge is to go to the root cause of the trouble namely the "harrowing economic conditions which have practically

speaking made every man and woman of India desperate of their lives."

Malnutrition of the masses is the problem which needs our urgent attention. Diet is of greatest importance in infancy and early childhood. Milk is the crux of the problem. Better balanced system of agriculture is the only feasible way in which greater and cheaper supply of milk can be secured. For better nutrition of the masses increase the present consumption of milk. These are some of the views which one could gather from the proceedings of the Indian Science Congress held at Hyderabad in 1937.

These are the things which should receive the immediate attention of every health organisation interested in the health progress of India who should take necessary steps to intensify the propaganda for increased consumption of milk especially by school-children.

At a recent Conference held under the auspices of the International Faculty of Science applied to human progress in London in June last Dr. Simionesco directed particular attention to the

immunisation of the national milk supply which constitutes the most dangerous source of infection.

"In a campaign against tuberculosis nothing is more important than a rigorous and strict control of the construction and reconstruction of dwelling houses. Overcrowding was the general feature in all areas in the City. "More than 40 per cent. of the houses in Madras were overcrowded." "The owners want only a high rental return and do not care for effective ventilation". That was the fundamental cause for the high incidence of tuberculosis. As expressed by the Health Officer, Corporation of Madras, this is another urgent problem which should receive our prompt attention. Houses which appear big and palatial from outside present inside dark and ill-ventilated rooms and kudams occupied by several tenants quite disproportionate to the hygienic principles necessary to keep one self happy and healthy. Inspection of every house in crowded areas of the city and restricting the number of tenants in each house are practical steps which would help a good deal in lessening overcrowding in the City.

The spread of tuberculosis infection in India can only be prevented by a process of educative persuasion, as was pointed out by Major-General Sir John Magaw, I.M.S., in a lecture to the East India Association at Overseas House is another important problem which should receive our earnest consideration.

"The key unit in every State is the family, and the only prosperous States are those in which each family lives a well-planned life. The heads of every family must therefore be taught how to plan a satisfactory existence for those who are dependent on them. Here is where the responsibility of the Governments comes in. It is their duty to provide sound education in life-planning and to persuade the people to adopt the plans which have been prepared."

Education of womenfolk in Anti-Tuberculosis measures and to make them feel proud in keeping their houses clean, linen clean and their children carefully fed and nourished, as told by the Assistant Directress of Public Health, Madras, is another important point in our campaign against Tuberculosis. The various other practical hints given during the week by eminent medical men with vast experience in the field and other public spirited men for tackling the problem of tuberculosis should receive due consideration both by the Government of the Country and the public at large and we would not be far off to win success in our campaign against the scourge which has been successfully wiped out from continental countries.



GOVERNMENT HOUSE
Ootacamund,
21st September 1938.

ANTI-TUBERCULOSIS WEEK IN MADRAS.

25th Sept. to 2nd Oct. 1938.

Under the auspices of the Health Propaganda Board, Madras, an intensive campaign against Tuberculosis was organised during the Week ending September, 1938. We have made this number a Tuberculosis number; in view of the growing menace of the disease, we are giving a fairly full report of the several speeches made during the Week, for the information and benefit of our readers.

—O—

The Health Propaganda Board expresses its grateful thanks to His Excellency The Lord Erskine, G.C.I.E., the Governor of Madras, for His Gracious Message sent on the occasion of the inauguration of the Anti-Tuberculosis Week.

HIS EXCELLENCY'S MESSAGE:—

As Patron of Her Excellency the Marchioness of Linlithgow's Anti-Tuberculosis Fund I have great pleasure in sending a message to the Madras Health Propaganda Board in connexion with the celebration of the Anti-Tuberculosis Week. I am indeed grateful to the Board for having agreed to undertake the task of concerting measures to celebrate the Week, and I am glad to see that the Board has secured the co-operation of several other similar associations, social workers, and officials who are interested in this major health problem. Her Excellency the Marchioness of Linlithgow's appeal has done much to arouse public opinion in this country in the matter of Anti-Tuberculosis work, and I have no doubt that the intensive campaign now sponsored by the Health Propaganda Board will not only prove to be of first rate advantage to the Fund, but also stimulate further interest in the general field of Anti-Tuberculosis activities. I cannot too strongly emphasise the importance of propaganda in a matter in which so much ignorance regarding the appalling extent of the existing danger from tuberculosis prevails, and I trust that when the history of the anti-tuberculosis campaign in India comes to be written, the share contributed by this Presidency towards the cause will not have been inconsiderable.

I wish the celebrations all success.

Erskine

Governor of Madras.

MAJOR-GENERAL N. M. WILSON, O.B.E., K.H.S., I.M.S.,

In inaugurating the week on 25th September '38, Major-General N. M. Wilson, Surgeon-General with the Government of Madras, after reading His Excellency's message published elsewhere, said :—

LADIES AND GENTLEMEN—It gives me very great pleasure to inaugurate your "Anti-Tuberculosis Week" and I thank the members of the Health Propaganda Board for the opportunity they have given me in addressing you this evening and in doing so I feel it my duty to speak plainly to you all, helping you to realise yet more fully, the havoc that Tuberculosis plays in the ranks of all grades of society, and to ask you to give all the help you can in co-operating with us in fighting this scourge.

It has truly been said that Tuberculosis is the most insidious of all diseases; it affects the life, happiness and spirit of a people.

I do not wish to go deeply into statistics regarding the disease, but I feel I must bring, clearly before you all, the picture that faces not only this Presidency but the whole of India. "We know that in 1935 out of six and a half million people who died from disease throughout the whole of India that half a million succumbed from Tuberculosis, and throughout the Madras Presidency the death-rate from Tuberculosis is in the region of 150,000 per annum and Madras City alone accounts for close on 2,000 deaths a year from this scourge.

Taking these figures of mortality into consideration it has been estimated that there are usually 10 cases of Tuberculosis infection for each death, so on

this basis you will be able to deduce the actual number of cases of Tuberculosis in India and the figure will stagger you. I regret to have to state the fact that more could have been done in the past in India to alleviate the conditions of those suffering from the Disease and likewise to prevent the Disease. I have given you rough figures of the mortality from Tuberculosis throughout India, half a million, and I again repeat "for every one death from Tuberculosis ten are infected with the disease." Now let us compare what is being done in Great Britain with what is being done in India.

Great Britain covers an area of 53,851 square miles and has a population of roughly 45 million people and for this area Great Britain maintains 677 well-equipped and well staffed Tuberculosis clinics. India covering an area of 1,808,679 square miles with a population of close on 400 million people has only 40 Tuberculosis clinics and these are not efficiently equipped and only a very few have an adequate number of trained health visitors for preventative and educative work. Then again let us compare the number of hospital beds given over to the treatment of Tuberculosis in Great Britain with the number in India. In England there are 28,900 beds for Tuberculosis patients and accommodation in open air schools for 14,705 children tainted with the disease. India, it is estimated, maintains accommodation for only 2,000

in twenty Sanatoria and various hospitals most of which have been established through Private enterprise, subsidised in a few cases by Local Governments. India has no organised scheme for the after care of those discharged from Sanatoria. I put these facts before you so that you may judge whether it does not behove the people of India to take active steps in combating what has now become a major Health Problem.

Therefore I have no hesitation in saying that Her Excellency Lady Linlithgow's appeal for funds for Anti-Tuberculosis work throughout India is the most magnificent appeal ever made in India and I have every confidence that through Her Excellency's foresight India will now be prepared to fight a stern battle to eradicate this scourge.

Now let me tell you in what manner we intend to tackle the Disease. While in Simla lately I had many opportunities of discussing this problem and we are all agreed that the first steps to take are these, in fact the scheme I am going to outline is being adopted throughout the world after 50 years of experience in anti-Tuberculosis measures.

1. To form a cadre of medical men, specially trained in Tuberculosis work, for we are all of opinion that Tuberculosis is a Disease which must be "specialised in" and carefully studied and only those specially qualified should be taken on to this cadre. We do not consider that medical officers who have had only 1 month's theoretical training with a few demonstrations of patients under Sanatorium treatment are sufficiently qualified to be in charge of a Clinic. Concentration of effort and work done properly **must be** the watchword of the campaign.

2. The establishment of Tuberculosis clinics throughout the whole Presidency, staffed by doctors of our special cadre. The purpose of these clinics are four-fold.

Firstly, to accurately diagnose the disease and gauge its extent.

Secondly, to give expert advice to patients as to what form of treatment should be adopted.

Thirdly, to be a means of spreading Propaganda in the prevention of the Disease through the agency of Women Health Visitors who will form a portion of the staff of these clinics and who will visit out-patients in their Homes.

Fourthly, these clinics will form centres in which postgraduates in Medicine can be taught the modern methods of diagnosing and treating the disease in its early stages.

3. The establishment of sanatoria throughout the Presidency is a parallel necessity. The clinics will feed the sanatoria. The natural outcome of the sanatoria are colonies of cured patients. The natural outcome of the sanatoria are colonies of cured patients. I must here explain that such colonies have come into being through the demand of cured patients themselves. These patients have found the benefit of living a regularised life in an environment of fresh air. The teaching of industries which do not overtax their recently regained strength renders them happy and useful members of the community and a bridge is formed between the hale and hearty subjects living in towns and the sanatoria which are bringing sick people

back to life. The colonies will be in the vicinity of the sanatoria and regularly visited by members of the sanatorium staff. I fully realise the importance of the Slum Clearance Schemes, and the schemes of improving the Standard of living, but these schemes will take a very long time to mature and as we all recognise that our foremost policy in this Province is to educate the Masses in Anti-Tuberculosis work, the finest propaganda in educating the Masses is the Cure and alleviation of the Disease.

I have in a brief way given you a working scheme and I trust that the members of the Health Propaganda Board and those of you who are here tonight will spread this information throughout this large Presidency and I feel certain that as Madras has always led India in the way of medical relief to its sufferers the Presidency will continue so to do and Ladies and Gentlemen, I conclude my remarks by repeating that it is with keen pleasure that I inaugurate this week in our "Anti-Tuberculosis Campaign."

TUBERCULOSIS IN INDIA

(Malnutrition—A Fundamental Problem to tackle)

BY

Rao Bahadur Dr. M. Kesava Pai, O.B.E., M. D.

INDIA happens to be an unfortunate country in the matter of tuberculosis prevalence. It is one of the worst countries of the world as regards the incidence and mortality from the disease. A modest estimate puts down the incidence at 5 millions and the mortality at half a million per year, but it is not unlikely that the figures are actually much higher. The disease has been prevalent in India from very ancient times, but with the march of urbanization and industrialization and the increase of population the disease has been making headway in recent years. This has been the rule with all countries in the world; but in the more advanced countries, with the progress sanitation, the improvement in the public health and nutrition and of anti-tuberculosis measures in particular, the incidence of the disease has been on the decrease so that in many countries of Europe and America the mortality from tuberculosis has come down by 75 to 90% during the last 50 years. Statisticians estimate that tuberculosis will be practically wiped out of these countries in the next half a century.

What are the various factors that are responsible for the increase of tuberculosis in India? These can be expressed in one word, viz., malnutrition, brought about by a combination of several factors including poverty, ignorance, insanitation and insufficient and defective food.

Of these factors the problems of poverty, insanitation and ignorance have to be solved by the State. There can be no doubt that industrialization and development of the natural resources of the country increase the purchasing power of the nation; that ignorance has to be dispelled by education and propaganda; and sanitation and town-planning are subjects that should be tackled by Corporations, Municipalities, public bodies and by the Sanitary Department of Government.

By far the most important factor, namely malnutrition, is the real and predominant cause of the high prevalence of the disease in this country. The general malnutrition in the population is the result of poverty and ignorance. The population of India is fast increasing but not the purchasing power. The dietary of the majority of its people is very defective with the result that the increased strain of urbanization, industrialization and unemployment is increasing the prevalence of tuberculosis. Such parts of India where the dietary is up to the standard, with sufficient proteins and vitamins, as the Punjab and the North West Frontier, are comparatively less subject to the disease, whereas Bengal and Madras where the protein and vitamins are deficient in the dietary are much more devastated. Even in Southern India, the districts where rice constitutes the main article of diet, with little milk

and vegetables, like the West Coast, are said to have a higher prevalence of tuberculosis than districts on the Deccan plateau where ragi, which is a nitrogenous cereal is used on a fair scale. It was with the idea of increasing the milk-supply in India and of improving farm products that His Excellency the Marquis of Linlithgow stressed the importance of improving the breeds of cattle and of the benefits of animal husbandry in general.

Coming to the subject proper of Tuberculosis Prevention, which is the aim of Her Excellency the Marchioness of Linlithgow's appeal, one has to understand the epidemiology and the principles of prevention of tuberculosis. Though the tubercle bacillus is ubiquitous in all civilized populations, it is now recognized that the bacterial factor is less important than the factor of nutrition. In other words unlike most other bacterial diseases the soil, i.e., the body of the individual is more important than the seed. The well-nourished individual stands a far better chance of withstanding the infection than the one in poor general health, the diabetic and the alcoholic being particularly susceptible. The child, breast-fed, looked after well and properly nourished withstands the infection much better than the artificially fed and ill-nourished child. The adult with a well balanced and sufficient diet stands a much better chance of escaping the infection than the one with a diet poor in protein and vitamins. If the rice diet of the Madrasi is partly substituted by wheat or ragi and sufficient milk and vitaminaceous vegetables added and if in place of the milled and vitaminless rice he will use hand-pounded rice with its full content of vitamin in the pericarp of the grain, the standard of his nutrition will be raised and the prevalence of tuberculosis in South

India will lessen. A free use of milk and milk products, a larger intake of vegetables, the prevention of milling of rice by law, if necessary, and its substitution by hand-pounded or undermilled rice and the replacing of a part of the rice with wheat, ragi or some of the pulses like dholi will therefore be effective in the control of tuberculosis.

It is an epidemiological fact that the earlier the disease is diagnosed the greater the chances of recovery, so that any scheme by which the disease can be detected in its very early stage and dealt with by proper rest, nourishment and general attention will prevent the occurrence of the advanced cases of consumption, which are a menace to society by their highly infective nature. The larger the number of advanced cases, the greater the amount of infection, which, when disseminated in an ill-nourished population leads to a high incidence and mortality.

The Tuberculosis Clinic is intended mainly for early diagnosis, i.e., detection of the disease at a stage when recovery is more certain. Contrary to the general popular opinion, tuberculosis is one of the most easily curable of diseases, but it is essential that the patient should be treated in the early or so-called pre-tuberculous stage. This is the idea of the modern Preventoria which are open air institutions for the arrest of the disease in its very earliest stage. Children brought up in such preventoria turn out to be amongst the healthiest subjects in all countries. For the early diagnosis of tuberculosis, the doctor must have a post-graduate course in the subject, and for the prevention of infection all the active cases of the disease, especially those of the pulmonary type, must be segregated in hospitals and sanatoria, where they can also benefit by the modern methods of

treatment. Hospitals and Sanatoria therefore act as effective controls of tuberculosis prevalence as well as after-care institutions like colonies and settlements for convalescents. By a combination of such centres for early diagnosis, segregation, treatment and after-care most modern countries have effectively dealt with their problems of tuberculosis prevention. Unfortunately India is poor in such institutions. Whilst many modern countries have at least one bed for 2 cases of tuberculosis, India has barely one bed for 500 to 1000 patients. The aim of the King Emperor's Anti-Tuberculosis Fund is to supply this want. Though the collection is not sufficiently large there is no doubt, by proper economy, the foundation could be laid for the scheme which, by propaganda and the inauguration of tuberculosis clinics will help in teaching the people the importance of nutrition and the resort to early diagnosis and adequate treatment. A band of trained tuberculosis workers, and health visitors working under the scheme, which will provide sufficient clinics in all cities and towns will help in educating the public and detecting the disease so early that very few will reach the more advanced and incurable stage, thereby lessening the mortality and minimizing infection. India could hope in the course of two decades to control its tuberculosis prevalence to the same extent as many modern countries have succeeded in doing in 50 years.

Tuberculosis in Madras City

BY

Rao Bahadur Dr. C.S. Govinda Pillai, M.B., Ch. B., L.R.C.P. & S., D.P.H., (Edin).

Health Officer, Corporation of Madras.

IN the city of Madras about 1100 persons die of Tuberculosis annually. Hindus contribute the largest number of deaths. Muslim women suffer more from this disease owing to the existence of gosha.

Tuberculosis is a notifiable disease. But this is seldom done except in cases of deaths. On a fair assumption the number of persons suffering from the disease may be estimated at 10,000 a year.

Though constant efforts in several directions are made by the Corporation to reduce the general mortality and prevent infectious diseases by improving the general sanitation, the prevention of tuberculosis has not received such attention as it deserved. However, it has to be acknowledged that the total number of deaths from tuberculosis has not increased in proportion to the increase in population.

But why is it that year after year we see over a thousand persons in the city dying of this terrible disease. Is the control of tuberculosis such a difficult matter?

It is true that the problem is beset with serious handicaps such as the extreme poverty of the masses and over-crowding.

More than 40 per cent of the houses in Madras are over-crowded. This was the astonishing revelation which was the result of a survey made a few years ago by the Health Department. Further, most of these houses are of the "back to back" pattern. This is the fundamental cause of the high incidence of tuberculosis. Housing Committee made certain recommendations, but the measures required huge financing. A combination of efforts by Government, Corporation and private capitalists is necessary to solve the problem.

The Government Tuberculosis Institute is totally inadequate to accommodate all the open and advanced cases of tuberculosis existing in the city. This is another grave defect. We should have a hospital with at least two thousand beds located in a place free from dust and busy traffic. I have seen hundreds of cases discharged from Tuberculosis Hospital kept in dwelling houses without facilities for isolation, etc. It is these cases that disseminate the disease. Such cases should not be discharged from the hospital without informing the health authorities and without making satisfactory arrangements for their isolation and treatment in their homes. Tuberculosis Nursing Homes should be encouraged. But such homes should not be located in busy localities in the interests of the patients themselves.

In a campaign against Tuberculosis nothing is more important than a vigorous and strict control of the construction and re-construction of dwelling houses. Plans for the construction of tenements on the 'barrack' or 'back to back' pattern are not rare even now. The owners want only a high rental return and do not care for effective ventilation.

Citizens should be educated thoroughly about the hygiene of nutrition, resistance to disease by hygienic habits, the

necessity for open air life, love of sports, etc. Pernicious habits like child marriage, indiscriminate spitting, gosha, etc. should be condemned. Superstitious customs affecting the health and vitality of the individuals should be discouraged. Proprietors of factories should see that dust nuisance is brought to a minimum. Periodical medical inspection of workmen should be enforced in the case of textile labourers and other workers engaged in dusty occupations. A copious and wholesome supply of milk should be made available to all citizens.

Tuberculosis and Women's Part in the Fight.

BY

*Dr. (Mrs.) Veerasinghe Chinnappa, M. B. B. S.,
Asst. Directress of Public Health, Madras.*

IT is not my intention to cover ground which has already been covered by experts in the study of the treatment and prevention of Tuberculosis. We are indeed fortunate that the movement for the control of this disease has been originated by the highest lady in the land. Her Excellency the Vicereine. Her Excellency's interest and activity are an inspiration to us all, but I would also point out to you the significance of such leadership, for Her Excellency's leadership is a definite call to the women of the land to take an active part in the campaign.

For our purposes we may consider Tuberculosis to be a deficiency disease—deficiency of calcium, iron, sunlight and adequate diet. Women as home-makers, as house-keepers as those responsible for the upbringing of children, for the ordering of daily meals, for the cleanliness of the home and its surroundings, for the aired state of its rooms, for cleanliness of bedding, linen and furniture and for the free entry of sunlight into all the rooms and corners of the house, are bound to have the largest share in the prevention and cure of this disease. You have all seen the poster just outside this hall—a smiling mother holding up her baby to the sun. Is it not surprising that while the remedy is so simple, those who adopt it are so few? I have visited homes both in this city and in the villages of this province where I have had to light a lamp in the middle hours of the day in order to see mothers and

new-born babies. That such dark rooms should be permitted in our villages which are surrounded by beautiful open country is a great pity. I have also in a single day noted in one village case after case of children suffering from phlyctenules in their eyes, xerosed conjunctivae, and such other conditions indicating a low state of nutrition, very favourable for the growth of this disease. I have seen filthy bedding, pillows, and linen, and have also noted with great satisfaction the response of our mothers to our teaching on these matters. I well remember how in a village where after pillows had been inspected, and condemned, the mothers began to attend health classes. Later I was called very cordially by one of these mothers to come and see her clean bedding—clean pillows with slips over them and clean mats put away in the *and*. You see we had succeeded in making her "house proud."

We need to kindle in our mothers a desire to see their children grow healthy, without a trace of anything that may develop into serious disease later; we need to educate them to a sense of the importance of knowledge in this respect; to provide means for them to acquire this knowledge in centres where they may have their children examined periodically and advice given promptly about early departures from the normal. And all of us should take a personal part in this teaching. For knowledge as regards health must be comprehensive if it is to be of any value. Physical fitness and general resistance are important aids in this campaign.

Co-operation is again essential, for one infected individual is a danger to a very large community, and can spread the disease to many known and unknown, seen and unseen. The infection besides is largely during the period of childhood so that not only should mothers have adequate knowledge as regards its causation and prevention, but also act concertedly, learning to co-ordinate their own personal efforts with those of the community and the state.

The child with early infection struggles through childhood with repeated attacks of fever and cough, indigestion, and loss of appetite; struggles through school life, all the time fast developing an inferiority complex and a sense of insecurity; he reaches college life or enters the working world; and then we see him as the pathetic figure in whose eyes the fire of ambition sparkles alternately with that of the fever of the disease. Finally all ambition is killed and the individual is a burdensome weight on the shoulders of others.

I would also ask you to note that it is a crippling thing for us to think of ourselves and our progress through life in terms of disease. We should as a result of this campaign shut such depressing and discouraging pictures out

of our mind's eyes and view ourselves as individuals in possession of full bodily health and mental vigour, eager to destroy every focus of disease, created always either by our indifference, our selfishness or our ignorance.

And so I appeal to every woman in the country to assess correctly the value of her share in this campaign, and to consider it a privilege to take an active part in it. I would convince her that without the co-operation of women the movement is bound to fail in spite of all that the state may undertake. The campaign has to be planned comprehensively, and a very large army of women workers is required. The woman who understands the spread of this disease is interested not merely in her own house, but also its surroundings; in the freedom from infection of the food, particularly the milk, she buys; her children's school and their play-grounds; the amenities provided by the authorities concerned for these purposes; all these matters claim her attention equally. Thus unconsciously she becomes a force in the administration of the country and directs efforts taken to control this disease. There is no freedom greater than the freedom from disease; and every one of us may be an active soldier in this great campaign. Let us cheerfully take our share and do it well.

Tuberculosis and the Family Physician or the General Medical Practitioner.

BY

Dr. T. Satagopan, M. D., Hon'y. Physician, Government General Hospital, Madras.

THE lecturer compared the knowledge about Tuberculosis 30 years ago with what is available at the present day. At the end of the last century when people died in hundreds and thousands of Plague, very little was heard of Tuberculosis. But now the disease is found in large numbers among all classes of people rich and poor, the leisured classes and the labourers. The disease takes the toll from the aged and the young. The bread-winner is stricken down and the family thrown on the streets. The promising official and the prosperous merchant fall victim to the disease, their ambition is dashed to the ground, and their business dwindles.

In the midst of the distress of the people, the anguish of the medical man is great. Anguish because the cases come too late, for any useful interference, and anguish because the cases which come fairly early have not the wherewithal to take advantage of the very great advance in modern therapeutic measures against this disease. The very immensity of the problem of tackling Tuberculosis might frighten people into helpless inactivity. We cannot therefore be sufficiently beholden to Her Excellency Lady Linlithgow for her courage in facing this problem and the great thought and energy that she is devoting

to Anti-Tuberculosis measures. Whatever funds may be collected, it can never be large enough to tackle the problem fully. If we wish to treat those who are already suffering, we want scores of sanatoria, hundreds of clinics and many thousands of beds apart from doctors and nurses and other staff. With the present financial condition of the country, we can never hope in the near future to find sufficient funds for these purposes. It is easy to arrest the disease in its very early stages and much more easy to prevent people from getting infected. Our aim should therefore be to have a rapidly increasing number of well trained doctors who can fully utilize all the modern methods of diagnosis to spot cases in their very early, i.e., the curable stages, and who can properly guide those in contact with tuberculosis patient in measures of self-protection.

The lecturer warned the public against the mistaken impression that a recently qualified doctor who is trained for a few months in a Tuberculosis Institution to learn the technique of some surgical measures becomes a specialist in the disease. It is very essential to diagnose the cases in the very early stage, the stage where symptoms are few and merely suspicious. It therefore requires a certain amount of experience

as a physician before one could be usefully trained as a specialist.

But however skilled a specialist might be in the technique, if he has any ambitions of being of use to the public he should have the co-operation of the general practitioner and family physician. And if he seeks his help, he should also have his regard. But no general practitioner or family physician will have any regard for a person who is merely a technician. He will willingly seek the help and advice only if he is convinced that his (specialist's) knowledge of medicine is sound and his (specialist's) knowledge of the special subject is profound. It is

therefore highly essential that the first step in the anti-tuberculosis campaign should be to select well qualified medical men with a fair amount of experience as general practitioners and to give them an intense and efficient training in the study of all aspects of this disease. Next, these men should be available to the public, not in the narrow sense of treatment of the tuberculosis subject. But they should, by their earnestness, zeal and no less their efficiency educate the public to take advantage of the increasing facilities in the treatment of these cases. When the public realize the benefit, we have every hope they will come forward of their own accord to find the money for further work in this field.

How To Fight Tuberculosis?

BY

*Dr. Dinkar Rao, M.D., Physician, Government General
Hospital, Madras.*

To fight Tuberculosis three things are essential:

Firstly,—Improving Economic Condition of the people so as to raise their standard of living;

Secondly,—Education;

Thirdly,—The Medical Part of the Campaign, which consists of tuberculosis clinics, sanatoria and propaganda.

He was not going to concern himself with the first two questions, namely, a higher standard of living and education. It meant expenditure of a lot of money and State policy, with which he cannot deal there. The speakers before him had dealt in detail with the clinical aspect of Tuberculosis and of the intended measures of protection. He would therefore like to say a few words from the point of view of a layman.

The vast majority of the population in India is ignorant of the elements of Sanitation and the responsibilities of civic life. It is therefore essential that propaganda should be carried on to every house in every village where the people will be taught the elements of good living. This can be done without touching the pockets of the poor and without a great lay-out of money by Government. If the poor uneducated man is told how tuberculosis is caused, how it is spread by insanitary life and how he can protect himself against such infection by taking simple inexpensive precautions, he was sure that the incidence of tuberculosis can to a great extent be reduced.

The second thing he wished to insist on was that men who would be appointed to tuberculosis clinics will be in the nature of specialists and should be of such experience and qualification as would command the respect of the public. Otherwise, he was afraid the scheme was likely to turn out a failure.

Anti-Tuberculosis Campaign—

Increase Natural Resistance—

Limit the Growth of Population

BY

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HUMAN POWERS OF RESISTANCE

THE human body had been a very powerful one, powerful enough to stand the ravages of time. We can easily imagine, in days of yore, when man had to be exposed to the rigours of climate with no facilities of protection (as we have at present) there were Hercules and Samsons but where are they now? Nay, where are those Romans who conquered the world? Conditions have considerably changed, mountains and valleys have given place to cities, where all amenities of life are obtainable for the mere asking and so the robust nature of man is reduced to the comparatively pitiable condition of the present.

Living in Tune with Nature.

Where man had been living in tune with Nature, diseases and deaths were events occurring but rarely, perhaps once in a thousand years. Now the average life of man has been reduced to 30 years and less in several parts of the World. It does not mean that those men of old were all Directors of Public Health, nor personifications of wisdom in matters medical, social and hygienic. They did not know the existence of Vitamins, Cod Liver Oils and Hormone products. And yet those

were proof against Tuberculosis. Why? Because they were in tune with Nature!!

Artificial Life—A Causative Factor.

Coming to our subject, the tubercle organism passes through persons, in and out, without producing any pathological effects. What do we find now? In short, the ubiquitous tubercle organism which proved innocuous with Methuselahs and Samsons is now the master of destruction of the human organism. It claims its victims in the cities both from among the rich and the poor. In the one case, it is the want of natural living and in the other, the results of dire poverty combined with want of proper living. Years of emasculation, generations of under-feeding, hereditary acquirement of lowered vitality and resistance have made the erstwhile comparatively innocuous tubercular bacilli defy man and become his enemy. The brightest of intellects, the flowers of wisdom are carried away, even before they blossom forth into maturity. The downfall of the physical stamina of the human race, the artificialities obtainable in civilisation detrimental to all natural

laws, the congregation in large numbers, particularly in cities, accompanied by all that are contrary to the maintenance of perfect health, have reduced the resisting power of the human constitution and made it vulnerable to all diseases, particularly to tuberculosis with which we are concerned at present.

Colonisation—A Natural Remedy

If we take the population of the World to be 1,500 millions, we find these people not evenly distributed throughout the face of the Globe, not occupying all the fertile soils available on earth, nor are we utilising to the fullest extent all the resources of the World evenly distributed to all the peoples of this Earth. We are confined to a few thousands of cities, which naturally have to be over-crowded, which over-crowding has got in its wake all the miseries, the human flesh is heir to, and what is the remedy? Colonize!

'Colonise' should in my view be the one Slogan of the time. As far as India and as far as the Madras Presidency is concerned, let us survey that part of the earth which we call Ours and select places for Sanatoria and settlements, etc. Let us distribute the amenities available in the city to the suburbs and to the villages, so that there may be no tendency to rush and huddle together in the comparatively small areas of cities. Let us throw open some of the forests containing virgin soil for occupation for the benefit of the people and convert them into cities with all amenities of life, which the present civilisation is accustomed to. Let each city be maintained on the principles of a Sanatorium, under the control of the Government.

Isolation of Tuberculous Patients

The isolation of the poor tuberculous families in hospitals and the rich in their respective homes is necessary; if we are to control the seeds of dissemination this process of isolation must be carried out to the fullest extent possible.

Control the Expansion of Population.

By proportionate de-population of the over-populated cities, resulting in even distribution, by providing the wherewithal to maintain the human existence, by an even distribution of all the natural resources, by getting back to ways of living as in days of yore, when Samsons and Methuselahs were the order and not the exception, we can get back our heritage or resistance to all destroying forces by living in tune with Nature.

Amenities to The Poor—Free Land.

Let us take the instance of a poor Tubercular man in the incipient stages, who has not the wherewithal to live—when he is blessed with a piece of arable land, good seeds to sow and a pair of buffaloes, he will at once transport himself from the depth of despair to the height of confidence and hope. He who did not or would not care to fight tuberculosis, he who welcomed death as an agent of putting an end to his miserable life and existence, will at once feel a new life and joy. The psychological effect of owning land of one's own and being able to sustain himself by his own efforts

increases proportionately the will to live and to fight the battle of life, even against Tuberculosis.

An Ideal Sanatorium.

We can imagine the feeling of a person when settled on an ideal Sanatorium, under the protection of a benevolent Democracy where the rich are prepared to share with the afflicted poor. For all these, there must be effort, on the part of the people, as much as on the part of Government, for the accomplishment of the great task before us—to get rid of this white plague from the earth altogether.

'Limit the Growth of Population'

When the population of the earth is under control and the fertility of the land is increased by intensive methods of cultivation, happiness should spread all over, by sterilising the incapacitated and the diseased, when and where necessary (either temporarily or permanently) as the occasion demands.

Hospitals as Anti-disease Campaign Centres.

Convert hospitals into not only Anti-Tuberculosis Campaign, but Anti-disease campaign centres, emphasising more on the prophylactic or the preventive aspect rather than the curative aspect, employing the unemployed and raising the inner powers of man by Lectures, Demonstrations, Publications, and Propaganda work in all possible

ways to accomplish our Anti-Tuberculosis Campaign.

Consideration For Others.

The rich must come in large numbers to help this campaign carried on, under the auspices of that great and benevolent lady, Her Excellency Lady Linlithgow. This duty, is a duty, which the rich owe unto themselves in their own interest as much as in the interest of those who are less favoured. Therefore, to the requests already made, I add with all the emphasis at my command, this my request, for generous help from the charitably inclined, which proposition, I heartily commend to your kind acceptance.

Charity the Divine Quality.

The important items in the programme, viz., of distribution of lands, starting of Sanatoria, and settlements, the provision of Research centres and the providing of the necessities of life to the miserable, all these cannot be done without the aid of that Goddess Sri Lakshmi. May those who have been favoured by the Goddess of Wealth come in hundreds, in thousands, nay tens of thousands, to share this responsibility of eradicating the White Plague of Tuberculosis from out of the face of the Earth?

I am sure I am not appealing in vain to the people of this great Land of Charities. Charity, the Divine Quality in man, may I repeat, like its sister Mercy, blesseth him that giveth and him that receiveth.

Tuberculosis (what Every Person Ought to Know about it).*

BY

Rao Bahadur Dr. T.S. Tirumurthi, Principal, Stanley Medical College, Madras.

TUBERCULOSIS is a disease which has been in existence from very ancient times. All the important manifestations of the disease were also known from time immemorial. The common impression that it is a new disease is, therefore, wrong. The fact is that the attention of the public has been recently drawn to the more rapid spread of the disease now, owing to various causes.

It is a bacterial disease caused by the tubercle bacillus. There are various types of this bacillus, affecting reptiles, fishes, birds, mammals and man. It is fortunate that those species of bacilli, which affect reptiles, fishes and birds, are not infective to man. Among the mammals the disease has been seen in cattle, horses, dogs and other domesticated animals. Wild animals are practically free from infection. Therefore, tuberculosis is not a disease peculiar to man.

Among the animals the disease among the cattle is of special importance from the point of view of human infection. A very important method of communication of the disease from cattle to man is through infected cow's milk, especially, in those countries, where the milk is consumed in the raw state. Infection among cows is greatest in towns and cities, where the animals are improperly housed and where open

pasture is not available for them, the animals being mainly stall-fed. In India, the infection among cattle is not yet, fortunately, high. Moreover, the milk is boiled universally, before it is consumed. Therefore, infection through milk is negligible in this country.

Tuberculosis is, therefore, a communicable disease and in India the main source of contagion is from other human beings, who suffer from the disease. The human tubercle bacillus is the chief causative agent in India and not the bovine tubercle bacillus.

Tuberculosis is thus seen to be a bacterial disease and a contagious disease. It is an infectious disease only differing from other infectious diseases, in that it does not spread in the form of epidemics, like typhoid fever, small-pox, plague etc.

Tuberculosis is present all over the world. Countries, economically prosperous with better standards of living, have brought down the incidence and mortality rates, whereas in a poverty-stricken country like India, the figures of infection and mortality are very high and the disease is steadily spreading. The mortality rate in Great Britain has come down by nearly 50%, by 60 to 75% in other countries, France, Denmark, U.S., whereas it has increased by nearly 80% in Calcutta, according to

the figures of the Enquiry Officer in Calcutta. A corresponding increase will be seen in other towns and Cities in India.

Tuberculosis is not a hereditary disease in the proper meaning of the word 'hereditary'. But many persons in the same family may catch the infection and die. The cause of this is not heredity but house infection, due to overcrowding, poverty etc. Though the disease is not hereditary, a predisposition or a weakness of the constitution to resist the infection may be inherited.

Though the actual causal agent is the Tubercle bacillus, there are other equally important causes, which make for the infection. They are (1) overcrowding (2) bad ventilation; (3) mal-nutrition. Ignorance and Poverty bring about such conditions.

The quick spread of the disease is due to rapid transport facilities and increasing urbanisation and industrialisation of towns and Cities, which contribute to overcrowding and congestion of population and unhygienic housing conditions in tenements and busties and chawls and cooly lines. The rural population, who go to the Cities for employment in factories and mills, are more susceptible to the infection than the permanent urban population. The factory and mill hands, who fall easy victims to the disease, return to their villages, when they are no longer employable, owing to illness and thus spread the infection in their native villages. It is now being realised that even the villages, especially those in the neighbourhood of towns and Cities are becoming more and more infected.

Tuberculosis may be considered truly a deficiency disease, because mal-nutrition, owing to poverty or otherwise, is an important factor, which prepares the

soil, i.e., the human body, suitable for the development of the organisms. Tuberculosis more than any other disease exemplifies that the soil is more important than the seed (the Tuberculosis Bacillus.)

The soil becomes impoverished by various causes. The resistance of the body is greatly diminished by previous attacks of the many preventable but devitalising tropical diseases of which there are plenty in this country. Influenza, measles, whooping cough, etc., may be the fore-runners to Tuberculosis.

Among other contributory causes in the females may be mentioned, early marriage, early motherhood and repeated child-bearing and the purdah system. Other subsidiary causes are the use of common vessels for eating and drinking and the sharing in common of towels, clothes and bed.

As a very prominent example of ignorance in hygiene and the lack of sanitary conscience, may be mentioned the filthy habit of spitting in all sorts of places. It is to this insanitary habit the persistence of the infection is due in houses, hotels, choultries, shops, factories, schools, boarding houses, cooly lines, etc. A similar condition prevails in market places, theatres, Cinema houses, etc., i.e., wherever large number of people congregate. Public vehicles, like trams, buses and railway compartments become thus infected by indiscriminate spitting of tuberculous patients. Is it any wonder then that the death rate from Tuberculosis has increased in some cities by nearly 80% during the last ten years?

Defective school hygiene is an important factor in bringing about favourable conditions for infection by tubercle, tonsils, adenoids, mouth-breathing and

*Lecture delivered in connection with the Anti-Tuberculosis Week at the Gokhale Hall, Madras, on 27-9-38 under the Presidency of Sir Mohamed Usman Sahib, K.C.I.E.

ill-ventilated class rooms combined with mal-nutrition bring about a large incidence of tuberculosis in children. Children suffer mostly from tuberculosis of glands and bones.

From the above it is evident that few persons can escape infection by tubercle bacillus. The more urbanised and industrialised the people, the greater are the possibilities of infection. Such people gradually acquire a certain amount of acquired immunity *i.e.*, body resistance to the disease.

Rural people who have not come into contact with the modern industrial civilization fall an easy prey to the disease. Just as in the case of small-pox a milder infection by cow-pox or vaccinia protects the individual, similarly very mild infections create an artificial immunity to the disease. It has been shown that in the urban areas there is a generalised tubercularization of the population. Therefore, it is next to impossible to prevent the mildest infections. What we can do, therefore, is only to prevent infection by big doses quickly. Such heavy infections, instead of creating an immunity, lead to a break-down of resistance and to the development and rapid spread of the disease.

Tuberculosis accounts for 1 out of 10 or 12 deaths and for every 1 death from tuberculosis, there are at least 10 persons suffering from the disease. If the statistics of all forms of tuberculosis in all stages, are taken, the figures will be astounding. According to the Health Officer's statement, in the City of Madras, there are annually 1,200 deaths. This figure is incorrect. The deaths ought to be more, because there is a tendency among the people to hide this disease as the cause of death. Even at this low figure, there ought to be 12,000 persons suffering from the disease in the City of Madras. Is it possible to put

all these patients into hospitals and treat them? The necessity for increasing hospital accommodation for such cases is evident, but the problem of tuberculosis cannot be tackled by that way only. We have to look to the preventive aspect of the disease to a much larger extent than to the curative. The saying 'prevention is better than cure', is applicable to all diseases. In the case of tuberculosis it may truly be said that prevention is the only weapon with which we can fight the problem of tuberculosis in the community.

The disease is found in all strata of society. It affects the rich and the poor and does not respect castes or communities, though the percentage of incidence may differ in different classes or groups. It may be stated generally that the more hygienic the conditions of living among a class of people, the less is the percentage of incidence in them. Tuberculosis may be considered to be a dirt disease.

The mortality from tuberculosis is high in infancy owing to poor resistance at this age period. The mortality figures show a decline in the growing years before adolescence, but again show a high figure between the age periods of 25 to 35 years. The disease does, therefore, carry away men and women in the best period of efficiency to their families and to the country. It may be said that the mortality figures are high in the prime of life, *i.e.*, in the greatest productive period of life. It will thus be seen that the economic loss to the nation owing to mortality from tuberculosis is very great.

Over-work itself is not a contributory factor in the development of the disease but it is often combined with poverty, bad housing and intemperance, incidental to city and factory life.

You should all know how the disease spreads from one infected individual to another. The greatest danger to society is the person who spits carelessly. Such persons are a constant danger to all who live and work with them. During coughing the patient sprays out minute invisible droplets of sputum into the air. Each of these droplets may carry a large number of germs. His clothes, his books, his papers, his eating plates and tumblers are all sources of infection. If he is a careless patient, his spit in the room dries up and when the room is swept as is usually done in the dry manner, the infected dust may carry infection to others, coming into or living in the room. The babies crawling on the floor also become infected by putting their dust-laden hands into their mouths. Therefore, careless spitting, eating and drinking from the same vessel, smoking the same hooka and such other dirty habits should be prevented, because the infection is spread thereby. Among other ways of spreading infection the kissing and fondling of babies and children by their sick relatives may be mentioned.

The impression that tuberculosis spreads more by the dust of the streets is erroneous. The tropical sun is fortunately a great destroyer of disease germs including those of Tubercle. The tuberculosis germ remains virulent and infective for a long time, even 3 to 6 months, in sheltered and dark places. Tuberculosis is therefore not a street infection but is almost always a house infection.

To prevent houses from being sources of infection, the floors should be swept after sprinkling water on them in the wet state. Sunlight and fresh air should be made to enter every room, especially sleeping apartments. Spacious courtyards of old times have unfortunately disappeared now. Cattle should not be

huddled with human beings. Both cattle and human beings should be properly and separately housed. Kitchens should be provided with chimneys and every room provided with large windows. Much, therefore, depends on systematic house inspection and enforcement of sanitary laws regarding ventilation and over-crowding.

Wind and rainfall are the natural scavengers and we should take the greatest advantage of them. Among the three important enemies of tubercle bacillus are sunshine, fresh air, and good food. Sunlight and fresh air, so plentifully provided by God, are obtainable free of cost. But by our ignorance we shut them out, often paying for shutting out, but we pay for such ignorance by getting tubercular infection.

How can you keep yourself and your family free from the disease? It is by the following methods:—

1. Wholesome food for all inclusive of more of the protective foods, milk, eggs, fruit, vegetables.
2. Sunshine and fresh air in every part of the house.
3. Keep the house and apartments clean.
4. Avoid dissipation and drunkenness.
5. Avoid co-operative attempts of drinking and eating from the same vessel, using same towels, handkerchieves, etc.
6. Avoiding spitting indiscriminately.
7. Keeping children away from persons who cough.

8. Detect early symptoms or signs of disease in children such as enlarged glands in the neck, tonsils, mouth-breathing, defective growth, etc., and consult the doctor immediately.
9. Never rent a room or a house without having it thoroughly disinfected and white-washed.
10. Consult the doctor in the earliest indication of the disease in any of the members of the family. Remember 'a stitch in time saves nine.' Remember also that tuberculosis, in a large majority of cases, can be arrested and cured provided it is recognised early.

What are the Early Indications of the Disease?

The disease is very insidious in its origin. The early symptoms are often vague. In children there may be slight enlargement of the gland in the neck, want of growth, distaste for food, fretting, slight wasting, slight afternoon temperature. In adults the early symptoms may be only unaccountable fatigue, loss of appetite, some loss of weight, frequent tendency to catch cold, persistent cough, pain in the chest, etc.

What should one do when he gets these symptoms? You should consult a doctor and get treated at the earliest possible moment. Delay is dangerous. One need not wait to take the ordinary precautions, which are known to be essential in the treatment of the disease. They are fresh air, nourishing food, sufficiency of rest and sleep. As far as possible the hours of labour should be

lessened. By these means the strength and vitality of the body are increased and there is increased resistance to infection.

It should be emphasised that tuberculosis is the most curable of diseases in the early stages. The present day methods of treatment give great hope for patients even in the somewhat advanced stages of the disease. The sanatorium treatment is mainly based on the essentials of treatment already pointed out, viz., sunshine, fresh air, nourishing food, proper amount of rest and sleep, etc. Even if one cannot get admission into a sanatorium, sanatorium conditions can be improvised in villages in the neighbourhood of cities and towns.

What Precautions you should take if there is a Tuberculous Patient in the House.

A careful patient is not a dangerous person to live with. He should be kept in a separate room and provided separate bed, linen, clothes and utensils. He should spit only in vessels, in which antiseptic solution is kept. Children should not be allowed into the room. Flies should be avoided in the room. The sputum should be kept covered. The floor should be swept wet. The windows should be kept open.

How to Prevent Tuberculosis in the Community?

Two important methods are necessary. (1) To minimise chances of infection in the home by attention to personal and domestic hygiene. (2) To take care of those who are already infected and who are likely to infect others.

To tackle the problem by the first method, propaganda on the nature, cause and control of the disease is the most useful. Compulsory Medical Inspection of School Children and compulsory teaching of Hygiene in all the Schools, Primary, Secondary and High Schools are very important aids to propaganda, as mere propaganda alone cannot achieve the desired object. The future rests with the children of the present.

The second method consists in the establishment of Tuberculosis clinics, Hospitals and Sanatoria. A Compulsory Health Insurance Act will greatly aid in solving the tuberculosis problem.

The fund created by the appeal of Lady Marchioness of Linlithgow has as its objects, both propaganda work and the starting of tuberculosis clinics in various parts of this country. I should say that the people have responded very generously to that appeal. But the fund collected can only touch the fringe of the problem. Yet it must be said that a great step has been taken to fight the disease in a practical and scientific manner. May her name live for ever in India! It is the philanthropic work of such ladies, which keeps up the fair name of England in India. I hope that this Tuberculosis Week will bring out the magnitude of the problem, which has to be faced, and the fund will continue to increase in amount year after year.

Sir Mahomed Usman Sahib, K.C.I.E., who presided, said:--

IGNORANCE and poverty were the general causes of this disease. In a country like India it was difficult to remove ignorance. If ignorance and poverty were removed more than half the battle would have been fought.

Their gratitude to H.E. the Marchioness of Linlithgow was great. It was Her Excellency who had come forward with a full programme of bringing the disease under control. People should know that it was possible to bring it under control.

Incidence of Tuberculosis.*

BY

*Dr. K. Vasudeva Rao, M. D., M. R. C. P., Superintendent,
Government Tuberculosis Hospital, Madras.*

TUBERCULOSIS is a world-wide disease, no country being free from infection excepting uncivilized places which are far removed from any civilized country and difficult to approach. About 50 years ago the incidence of Tuberculosis in the western countries especially in Great Britain was as great as it is in India to-day. By an organized and systematic campaign against this disease started by Sir Robert Philip of Edinburgh, the mortality from this disease has been reduced to less than 100 per 100 thousand. We, in Madras, at present have a mortality of 400 to 500 per 100 thousand. It is indeed a very high mortality.

Varieties of Tubercle Bacilli.

Tuberculosis of organs is caused by Tubercle Bacilli. We have at present 4 types of Tubercle Bacilli, first, the human one; the second, the bovine one, which affect animals including wild ones especially when they are tamed or domesticated; third, the Avian, which affect birds and fourth, Piscine, which affect cold-blooded animals like frogs, turtle, fish, etc.

Man is affected by the first three types of Tubercle Bacilli. Thus, people who are moving among herds of cattle and who are milkmen have a chance of getting Tuberculosis through the udder. Also people who drink this contaminated milk have a chance of getting

Tuberculosis of the Bovine type. Thus it has been worked out in Western countries that a great number of Tuberculosis of glands seen in children are of the Bovine type of Tuberculosis.

Types of Tuberculosis.

Tuberculosis affects all organs of the body, no organ being exempt excepting the muscle tissue. Thus, we have, Tuberculosis of the lungs, which is frequently known as consumption. We have Tuberculosis of the brain, we have Tuberculosis of the peritonium, we have tuberculosis of the bones and joints, glands, intestines, kidneys and liver, spleen, etc. Of these organs, the lungs appear to be the seat of election and the greatest amount of havoc at present is done because of Tuberculosis of the lungs. In children, Tuberculosis of bones and joints are more frequent than what they are in the adults. As the child grows older the tendency for bones and joint Tuberculosis diminishes and the chance of getting Tuberculosis in the lungs increases.

By Legislative act and Public Health rules it has become rarity to see a case of Tuberculosis of glands in children in Great Britain. This condition was very frequent about 15 to 20 years ago. The decline is due to the great amount of care that is bestowed upon the milk supply.

* Lecture delivered in connection with the Anti-Tuberculosis Week at the Ranade Hall, Mylapore, on 29-9-'38 under the Presidency of Dewan Bahadur Sir Alladi Krishnaswamy Ayyar, Kt., B.A.B.L.

Predisposing Factors.

Factors influencing the incidence of this disease are:—

1. Poor general health of the people with little or no comfort.
2. Bad housing.
3. Insanitary conditions.
4. Environments.
5. Few social customs which are conducive towards spread of this disease namely early marriages with frequent pregnancies and Purdah system.
6. Want of segregation of people who are suffering from open Tuberculosis.

Age and Sex.

Tuberculosis makes no difference among sexes. The death-rate is practically the same, depending upon the economic distress as well as the period during which individuals are drawn into struggle for existence. Among women the greatest mortality is between the ages of 15 and 30. It is just the period when they attain maturity and their internal organs also undergo a great change. In addition to this the motherhood begins fairly early and this taxes the strength of women. The other cause given for the preponderance of Tuberculosis in early age among women is their emotional condition which is said to be very conducive to Tuberculosis. Among men the disease is rampant between the ages of 20 and 35. Most of the deaths occur at these

periods. Tuberculosis does also occur among the aged. The notion that Tuberculosis does not occur among the aged is a wrong one. The condition among old people tends to be more chronic and continues to be a source of infection, to very many around. No age is exempt from this disease. Earlier the disease starts, the greater havoc it does in the person.

Prevention.

In any campaign against prevention of this disease due consideration must be given for the pre-disposing causes, namely,

1. The economic condition of the people must be improved or in other words starvation must be decreased as much as possible. Good nourishing food must be available even for the poorest.
2. Better houses should be provided for the poor having all the sanitary conveniences.
3. There should be plenty of fresh air and sunlight getting into the houses and people must be encouraged to live as much as possible outdoors.
4. Public health should be improved.
5. Infected persons must be segregated so that the danger of further infection may be prevented.

Dispensaries.

(Curative)

Large number of dispensaries should be opened practically throughout the whole of the country. They should be easily accessible without much inconvenience and cost so that people of the locality may be encouraged to take advantage of the dispensary. The dispensary must serve the following purposes: It should be

- (1) a centre for diagnosis;
- (2) a centre for contact examination;
- (3) a centre for after-care of patients;
- (4) a centre for sorting out cases;
- (5) a centre for education of the public especially the medical students.

To each Dispensary, in addition to the Medical staff, there should be at least 2 or more health visitors for purposes of visiting the patients and their relations at home and encouraging them to make use of the dispensary to the utmost value as well as to encourage the relations and friends of the patients to get themselves examined as a prophylaxis.

Hospitals and Sanatoria.

As soon as cases are diagnosed to be suffering from Tuberculosis in any dispensary, the cases must be sent over to either a Tuberculosis Hospital or sanatorium according to their suitability for further treatment. It is roughly estimated that there should be one bed for every death that takes place from

Tuberculosis. On that criterion, for the Madras city alone, we should have as many as 1,200 beds. As a matter of fact we have only 120 beds for the city of Madras. These hospitals and sanatoria must be equipped with all necessary appliances, X-ray being an essential part of it because work in Tuberculosis clinics and hospitals cannot be adequately carried out without X-ray examination.

Colonies.

As a next step to the creation of Hospitals and Sanatoria, provision must be made for accommodation of patients who are discharged from these institutions. Very many of these patients who go out are only people who have regained a fair amount of health and not absolutely perfect health. These people cannot stand the strain of competition with healthy persons in any occupation. The employers of labour will always prefer to have perfectly healthy people, who will be able to give all their time to their jobs, rather than fairly healthy people who are discharged from these institutions. A discharged Tuberculosis patient has very little chance when he competes with others, healthier than himself. Hence, this competition must be removed and they must be allowed to settle down in certain colonies or settlements which are under the supervision of a Doctor so that these discharged patients are still under medical supervision and their work as well as duration of work are regulated by the medical staff. At least one colony must be available for a group of 3 or 4 sanatoria. Ere long these colonies would become self-sustaining and possibly may also be a source of income. Encouragement must be given to the patients to get their wives and children and to settle down

permanently. Industries like poultry farming, leather-works, basket-making, gardening and others must be started. Here the patient lives under the very nose of the medical attendant and has the satisfaction of being attended to, the moment he shows any signs of break-down. It should be remembered that there is a great amount of tendency for relapse in this case, especially when the surroundings and the health cannot be kept up to the standard.

Open-air Schools.

Open air schools will have to be opened for children who have a tendency for Tuberculosis. Periods of rest can be taken in open air and teaching is done in open air.

To bring about the smooth running of these institutions, as well as to decrease the distress of the patients it is necessary to form a body called after-care committees.

Sir Alladi Krishnaswami Iyer, Kt, B.A.B.L., Advocate-General,

who presided, said:

THAT whichever side of Indian life one might look at, one was confronted with the economic problem. Here was a huge country with a huge population with very little to live upon. The difficulty was how to apply with their limited resources the weapons which people in the west employed to fight the disease. They should therefore seek simpler methods. Clean and nutritive food must be found at a small cost. Clean water was necessary, and their experts and engineers should devise a method by which it could be had without all the processes which municipalities adopt for the purpose. Medical relief should be so arranged

After-care Committees.

This body must be in charge of families of patients who are in hospitals especially families of patients who are the bread-winners so that any monetary help that is necessary for preventing starvation of these people may be given by the committee. The committee should compose of ladies and gentlemen of good social status who can command respect from the people in the locality. These ladies and gentlemen must have also some time which they can spare for this work.

Legislation.

In addition to this, it is essential that a certain amount of aid is also necessary from the legislature. Laws should be laid down for notification of cases of Tuberculosis to the Health Officer, for preventing adulteration of food-stuffs. Legislation must be laid down for construction of houses or in other words Tuberculosis consciousness of the people must be raised.

that the necessary facilities could be had by all people. The importance of sanitation would have to be explained to the people. With the onrush of Western civilisation, they forgot the rules of health and sanitation on which their ancients had laid so much emphasis. The average boy must be brought up in ideas of cleanliness and healthy and decent living. They should devise a system of life suited to the large number of poor people in the country. It was up to the popular Ministry, in co-operation with the best experts of the land, to devise ways and means for bettering the condition of the people.

"What is Tuberculosis and Can we Prevent it?"

BY

Dr. A. Vasudevan, M.D., Government General Hospital,

WHAT is Tuberculosis and can we prevent it? This question should be asked by every citizen who considers it is one of his duties to co-operate in its prevention not only to his own family but to the public also.

There are not many grown-up men who do not know what tuberculosis (called commonly consumption) is or what its signs and symptoms are. While any part of the system may be attacked by it, the commonest is the lungs, then the bowels and sometimes the bones. The fever, the wasting, the cough sometimes mixed with blood is easy to notice as the onset of the dread disease. In the case of the bowels persistent diarrhoea and in the case of bones and joints deformity from the chief features.

For the spread and progress of the disease, two things are necessary—the Seed and the Soil.

The Seed. This is the tubercle bacillus first discovered by Robert Koch. It is found in the sputum faeces and urine of the consumptives. Naturally the infected materials should be properly disposed of. They should be collected in separate vessels mixed with disinfectants like lysol or phenyl before finally being disposed off. Vessels of the infected person should be kept separate from those of others. Indiscriminate spitting all over the places as is seen on our streets and thoroughfares is highly primitive, contagious, unhygienic and immoral. Unfortunately public opinion is not strong enough on this point a matter that will shock any civilized man. Sometimes tuberculous cows have in their milk many bacilli. Thorough boiling of milk should be invariably done.

The Soil. Perhaps this is even more important. All causes that tend to lower the general vitality of persons also predispose to consumption. Knowing that all these factors are acquired

one can easily see that they can be prevented.

These are:—(1) Insufficient nourishment both in quality and quantity. Underfed persons particularly children are very prone to consumption. While one feels that prevention of tuberculosis is intimately connected with economics of the Country yet there are many persons who can afford good food do not feed themselves and their family with the proper food on account of Ignorance.

Milk.—This is an ideal food containing all the necessary body-building factors including vitamins and is also easily digestible. All particularly growing children should drink plenty of good milk. But unfortunately in our Country specially in large Cities milk is scarce and costly.

Eggs.—This is a wholesome diet and should be a part of the food of all and no religious or caste scruples should stand in the way of its consumption.

Fresh Air and Sunlight.—These gifts of God for which one need not pay should be enjoyed to a maximum extent. But due to ignorance and overcrowding, people do not get enough of these. Particularly sick people should have as much of fresh air and sunlight as possible. One should select the most airy and open part of the house to sleep. Some cover their faces while sleeping. This is a bad habit. Children should be encouraged to play in the open and get enough of sunlight on their bodies.

Early Marriage and bearing.—These should be practised and should be part of the system, and prevention of consumption.

Thus we see that if every person should follow these simple rules, the incidence and mortality of this dread disease

NOVEMBER 1938

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Tuberculosis—Its Social Aspect

BY

Dr. Mrs. Ramakrishnamma, M.B.B.S.,

TUBERCULOSIS is one of the most dreaded of diseases, and also the most widespread. Generally, people think that this disease is confined to the lungs only. But no part of the body is exempt from it. It affects not only the lungs but the skin, bones, brain, intestines, spine, etc., etc. Tuberculosis is caused by minute germs which cannot be seen by the naked eye. They are visible only under the microscope. They are of two varieties,—'animal' (bovine) and human. The animal variety affects the cows mostly. For the present, we need not consider the 'animal' variety of tuberculosis, since it is prevalent mostly in cold countries, where children are given unboiled milk of the diseased cows. In our country the milk is invariably well boiled and hence we do not suffer from 'Bovine' tuberculosis.

The tubercular germs are not destroyed easily. Bright sunlight and strong acids, like sulphuric and carbolic acids only, destroy the germs.

And when once these germs have found a dwelling in the human body there is no complete cure for the disease. But the ill effects of tuberculosis can be checked. The body that falls a prey to the tubercular germs is never able to get rid of them completely. Hence prevention of the disease is the most important thing.

When we examine our body we find that it is a well-balanced, delicate mechanism with inherent powers of resisting the onset of any disease. In any weak condition of the body, we may get the disease if we take in the germs. "How do these germs get in?"

A person having tuberculosis of the lungs, coughs and thus sprays the germs. If anybody is near him he is liable to breathe in the germs. The patient may spit in any place, where the play of bright sunlight never happens. The sputum dries and gets mixed up with the dust and any person inhaling it may get the disease. A child playing in such an infected place may put in its mouth an article, soiled with the sputum and thus may get abdominal tuberculosis. The members of a patient's family may handle the cups, saucers, towels, etc., which the patient had been using and thus are liable to easily get the disease. Tuberculosis is not a hereditary disease; only highly infectious.

Thus, the person, who is having the tuberculosis of the lungs is a menace to society. It is, therefore, important that everybody should know the early symptoms of this disease. The infected person wastes away rapidly. He has low fever in the evenings, slight pain in the chest and sometimes cough.

The best way of dealing with the disease is prevention. All that medical knowledge and nursing can do is to arrest the disease and alleviate the suffering. There is no complete cure for it. So it becomes essential and almost a duty that every one of us should keep ourselves fit, quite strong to resist the attack of the disease.

Tuberculosis is one of the curses of modern civilisation, with its overcrowded cities and dusty, dirty towns, ill ventilated, uninhabitable houses, overwork and under-feeding of the majority of the members of society. It is a social

scourge. As long as there is poverty with the consequent ignorance, lack of food, want of accommodation, overbreeding, overwork and undermined health among a large number of the citizens, the disease is bound to exist. T. B. Sanatoriums are of little help. Tuberculosis specialists preaching to the public to beware of the dreadful disease sounds sometimes almost like mockery in face of the fact that most men and women do not have the means to protect themselves against the ravages of T. B. — Nourishing food in sufficient quantity, well ventilated, lodging with no overcrowding useful, regulated work that does not sap at their vitality. T. B. Hospitals, Sanatoriums and Anti-Tuberculosis propaganda have got their limited use and they do help the public. But unfortunately their service, humane and useful as it is, fails to give the maximum benefit since tuberculosis is a widespread and easy-to-spread sort of a social disease, which can be rooted out only by the combined effort of the society as a whole. The root and source of Tuberculosis lies in the poverty, ignorance and overcrowding of the mass of people. All the efforts to cure and treat T. B. is like trying to screen the smoke away allowing the fire to burn all the while.

Thus, it is only the preventive side of tuberculosis that is all important. It is more the work of the health department and the political bureau than that of the medical department.

To prevent and root out this social scourge—Tuberculosis—the following measures are essential :—

1. A better and a more sensible arrangement regarding the distribution of the national

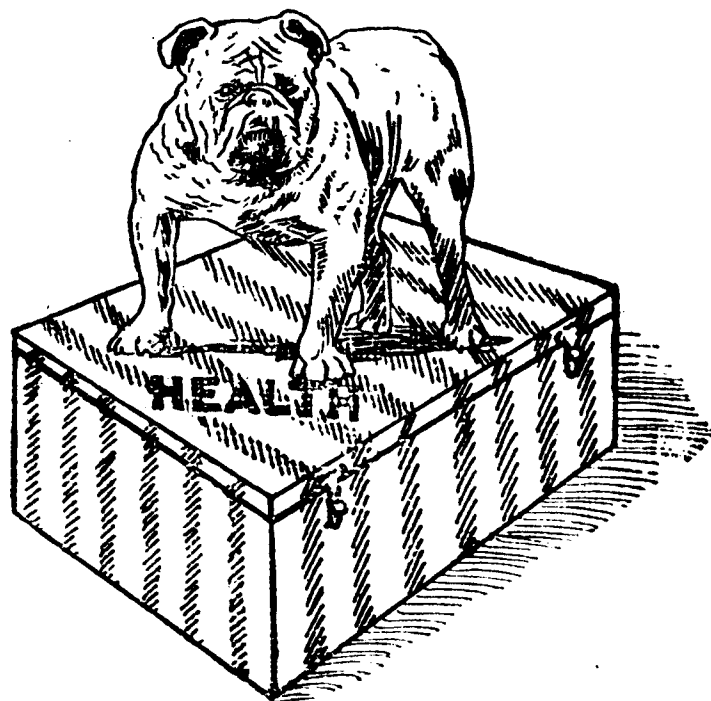
wealth to all the members in the community.

2. Government measures to give work to every able-bodied, healthy adults and food and lodging to all the people.
3. Free Sanatorium treatment to all that suffer from T. B. and a sort of dole from the Government to enable the patients, when sent away from the sanatoriums to keep themselves completely fit and strong.
4. Removal of some of the social evils, helping the spread of T. B. like early marriages, Gosha system, etc.
5. Education of the public regarding the disease.
6. Restriction of the number of hours of work and regulation of those industries which easily affect the health of the workers.
7. A better town-planning and above all, governmental control of house-building. These are far-reaching measures, no doubt. But they are very essential if our society in which almost 25% is now suffering from this curse of Tuberculosis, is to get rid of it and is to lead a healthy, useful life. Till that happy day, when there will be no poverty in our country, we have to carry on vigorous propaganda against Tuberculosis at its sources,—poverty and ignorance.

TUBERCULOSIS SANATORIA IN INDIA

Province	Name	Founded
1. Behar and Orissa	Itki State Sanatorium	1930
2. Bengal	The Jadahpur Sanatorium	1923
3. Bombay	Turner Sanatorium	—
4. "	Dr. Bahadurjee Sanatorium	1902
5. Poona	Hindu Sanatorium, Karla	1912
6. "	"Bel-Air" Sanatorium, Panchgani	1914
7. Madras	Visranthipuram Sanatorium	1926
8. "	Edward VII Tuberculosis Institute	—
9. Punjab	King Edward Sanatorium	1902

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IMPORTANT

All the manuscripts for publication, books for review, Exchange of Journals and other correspondence relating to the Editorial Section should be sent to the HONORARY EDITOR, *Arogya Margam*, 57, Thambu Chetty Street, Madras.

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Treatment of

Cerebro-Spinal

Meningitis

(Editorial)

CEREBRO-SPINAL meningitis has been engaging the serious attention of medical men in this country during the last 5 or 6 years. Northern India particularly has seen, during this period, many severe epidemics which claimed a heavy toll of mortality, while South India, in Madras, barring a few sporadic cases, has up till now escaped an epidemic invasion of this fell disease.

Modern progress in scientific medicine and some of the most successful measures that are being adopted in continental countries where the disease had been occurring either in endemic or epidemic form ever since its first appearance (for recognition in the year 1806 are mainly responsible for combating this disease early and preventing its spread in those areas.

It is not unnatural that the medical practitioner should concentrate on the treatment of the specific cause. While none can cavil at this attitude, one should not forget, that, after all, bad ventilation, insanitation, unhygienic habits and overcrowding pave the way for the growth, development and activity of disease germs. Most of us are painfully aware of the existence of such conditions in our country; and as in other infectious diseases, so in this, these afford a fertile soil for diplococcus intracellularis meningitidis of Weichselbaum to play its mischief either in an endemic or epidemic form. In this respect, we have much to learn from the western nations who, by concerted action and sanitary discipline, never allow a disease to grow to epidemic properties. Hence we have to concentrate on the two important principles of treatment, viz., prevention first and cure next.

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The primary difficulty in the successful prophylaxis and treatment lies, the disease being unfamiliar to many, in its recognition and timely diagnosis. This difficulty is materially enhanced by the fact that some of the varieties of this disease appear suddenly and end fatally. Cases are frequently reported in Medical Journals of a few fulminating types and other forms where the delay in diagnosis and early treatment resulted in permanent injuries like deafness. One of the most common, almost every day fever that a medical practitioner has to treat in India is malaria, the cerebral type of which closely stimulate cerebro-spinal fever. Now that this latter disease is getting to be more common than before, the writer should stress on the necessity of careful diagnosis and corresponding treatment. It is well known now that the best results of treatment of cerebro-spinal meningitis are obtained only when it is treated early.

Prophylaxis is always a ticklish problem. Especially it is so in this disease where a definite and conclusive knowledge about the various types and strains of meningococci is not yet available

and whose source and spread cannot yet be satisfactorily explained. The fact of the existence of healthy carriers of meningococci should not lull us into a false sense of security and be foolish for neglecting essential sanitary and quarantine measures. General overcrowding and insanitation are now the acute public health problems in our country and we would not expatiate on them lest we may be accused of platitudes. The fact that the initial symptoms invariably pertain to naso-pharyngeal catarrh makes it quite probable that the infection may be conveyed by means of what in medical parlance called *the droplet infection*, through sneezing, coughing and even loud speaking. The first step in the prophylaxis is therefore the free use of antiseptic gargles and washes of mouth and nose, at least during the period of epidemics; and the suspected carriers, whenever detected, should be coaxed to systematically observe this procedure. Clean habits, clean food and clean clothes—in a word, attention to personal hygiene, epidemic or no epidemic—will always protect the individual against catching infectious diseases and confer on him the

powers of resistance to overcome the disease easily if unfortunately he is infected.

There seems to be some connection between body lice and meningitis. This has been noted in some epidemics in the continent. This may be kept in view in our attempts at general prophylaxis.

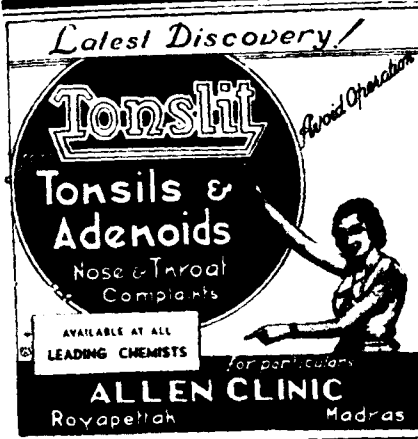
Closing of schools and colleges, cinemas and places of public resort may be attempted during an epidemic.

House to house inspection by health workers (or officers) will probably reveal more cases of

cerebro-spinal fever and this opportunity may be utilized for instructing the people in general and personal hygiene and in advising them to keep their mouth and nose clean by means of antiseptic gargles and washes—as is usually advised during the periods of influenza epidemic.

Such a regime of preventive measures may not be possible of wide scale application under Indian conditions. But India is fast changing and there is no reason to believe that she will not fall in line with the advanced public-health spirit of the western countries.

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*Tuberculosis in Schools.

BY

*Dr. P. V. Krishna Rao, B.A., M.B.B.S., F. I. M., Resident Medical Officer,
Government School of Indian Medicine.*

TUBERCULOSIS is a chronic infectious disease, caused by the Tubercular bacilli. Men and all domesticated animals may suffer from Tuberculosis but goats are immune from it.

The disease is stated to be less aggressive in its ravages in the coloured races than in others. Both the sexes are equally prone to the disease but the state of progress of the disease is more rapid in females than in males. Bad-housing, indiscriminate spitting, poverty, under-feeding, early marriages, living in damp soil, and in the so called "back to back" houses (with no back-yard), and ignorance of elementary principles of Hygiene, both general and personal, are the chief factors concerned in spreading the disease. The disease occurs in all ages, but comparatively rarer below 5 years, perhaps it is due to the child not being exposed to outside infections such as attending the schools, etc. Between 10 and 20 years, it tends to increase till the latter age is reached. From 20 to 30 years there is still greater increase. Then it tends to decline in later years. Owing to effective measures such as intensive propaganda, opening up clinics, for early diagnosis of the disease, and building hospitals for the treatment of the same, the Western countries have been able to control the disease and reduce the mortality considerably; but in India, it has been increasing day by day, and is tending to increase further. The disease is

not hereditarily transmitted, though it tends to be more common in a family, due to close association of the infected, with the other members of the family. Regarding the modes of infection, inhalation and ingestion are the chief ways. Talking of inhalation, infective sputum, after drying either on the road, or the cloths, or on other articles is a great source of danger. The other discharges from the human body are also providing a source of infection. The dried sputum is eventually powdered converted into dust, which is inhaled, thus gaining entrance into the nose and mouth and tonsils and thence into the other glands in and near the neck (Gandamala). Though the disease is not strictly regarded an air borne-one, yet it can easily infect others through air, while sneezing, coughing and even while talking. This is called "droplet infection". Regarding the other method—ingestion, the most common source of infection of the alimentary canal is food and drink, for example meat and milk. Meat of animals infected with Tuberculosis will produce this disease. Milk of cows suffering from T.B. is liable to produce this disease. This is called "bovine T.B." This should be carefully prevented by examination of all the cattle imported from the foreign countries. The indigent cows are not so prone to T.B. as the imported ones, perhaps to their life in the open air and sunlight which is available in plenty in India. I may casually remark that the milk of

the foreign cow is heavier and not so easily digestible as that of the local breed, perhaps the molecules in it are heavier. Some investigations have to be done with a view to verify this view and prevent the various digestive troubles so common now-a-days, if the milk of the foreign cow is contributing in its own way for the above troubles.

Prevention.

Tuberculosis is more a preventable disease than a curable one. Sunlight and fresh air (abundant in India), are inimical to their growth. So, these should be utilised to the utmost. The preventive aspect can be considered under two headings: Public and private measures. The former consists of improving the general sanitation in theatres, factories, and schools, etc., and opening up new parks and gardens and also providing receptacles for sputum in all such public places. Laws should be framed to prevent indiscriminate spitting in streets, public places, conveyances, etc. It is high time that it should be treated as a "nuisance".

He would advise boys and girls to observe regularity in their diet, sleep and strict cleanliness in their habits. Bathing at least once a day, wearing clean clothes after bath, washing their clothes if they are dirty, sitting for food soon after bathing without attending to any other business in, between cleaning their teeth and massaging their gums regularly twice a day, gargling with water the mouth as often as possible, taking oil-baths preferably twice a week, and taking diet regularly preferring fruits as tiffins to other stuffs (as fruits contain vitamins and also act as laxatives), taking suitable exercise in open air, avoiding biting their nails by teeth, preferring the Indian method of greeting when friends meet by using the folded palms, in preference to shaking their hands, going to bed

early and getting up early next morning and taking ragi kanji or milk in plenty. He would also request that the school authorities will arrange for inspection of school children, washing the school furniture once a week, varnishing them once in six months along with white-washing of the building and granting license to fruit-sellers in the school premises but not to coffee hotel-keepers.

Segregation of patients suffering from advanced disease and serious attempt for the reduction of fly nuisance in the houses should be kept in mind.

Regarding private measures, light and air increase resistance against the disease. Bed rooms and sitting rooms should, therefore, be kept open. Fruits containing Vitamin D should be taken. A consumptive should not marry. A consumptive mother should not kiss or suckle her baby and avoid further pregnancies. A change of occupation from indoor to out-door life is useful. The consumptive should spit in a vessel containing a disinfectant and the spit should be burnt or buried safely after boiling. His vessels and clothes should be kept clean and separate. Wet cleaning of rooms instead of dry cleaning should be insisted upon. Educating the public and the masses by lantern lectures and propaganda is essential so that they co-operate better with the Government. In this campaign, opening up clinics for early diagnosis, building hospitals for treatment and opening dispensaries at several places are essential. Women doctors should be employed in equal proportion to men doctors for receiving the necessary special training to obtain a diploma before they are allowed to treat the cases. Instead of taking the ordinary midwives and training them as health visitors, it is better to take lady graduates and train them for a few months so that they can command more respect and hence be

* A lecture delivered under the auspices of the Health Propaganda Board during the Anti-Tuberculosis Week in September, 1938.

able to create more confidence in the public and impress the members of their own illiterate sex when visiting their houses.

Lastly he would offer a few of the important points about the dreadful disease as detailed in the oldest books on Indian medicine. The disease is called "Rajayakshma" (The King of Diseases) or Kshaya (that which consumes) or Sosha (that which reduces the vitality of tissues (Dhatus). The causes mentioned are: (1) Sahasam *i.e.*, doing work more than one can do either mentally or physically (2) Vishamasa-nam, *i.e.*, taking irregular and unwhole-some food (3) Dhatu-kshayam, *i.e.*, wastage of the tissues (4) Vega Rodham, *i.e.*, not attending to the urgings in the human body in time—for example, not attending to the calls of nature when there is an impulse, delaying the emptying of the bladder in spite of a call for the same.

The onset of the disease is either Anulomam or Pratilomam, *i.e.*, if begins to affect the first dhatu (Rasa) and gradually affects the last, namely Sukram. Whereas in Pratilomam, Sukram is first affected and spreads towards the first dhatu.

Lakshanam (symptom and signs):—They are Jwaram (fever), Tapam, (sensation of heat in the body), pain in legs, feet and near the shoulders and the sides of the body. The full Sanskrit slokam, runs

"Amsa Parswabhitapascha
Santhapaha Karapadayoh
Jwarah Sarwangsachethi
Lakshanam Rajayakshmanah."

Treatment:—It should be chiefly deepanam, *i.e.*, appetising, Brimhanam, *i.e.*, tissues building, Balyam *i.e.*, energy giving. The medicines that are used are Bhasmams of gold, pearl and tortoise-shell etc, with suitable anupanams (vehicles).

The other medicines are Chavana-prash, Chagalyadi Ghritam, Rajamri-gankarasam, Makaradwajam, etc.

Regarding diet, the milk of the goat, the essence of the goat's flesh (mamsa-rasam) are recommended. As a substitute for this the vegetarians can use black gram (masha) and green gram (Mudgam). Regarding the goat's milk, it is lighter than any other milk because the goat has got the habit of drinking very little water although it is always active by wandering and eating all varieties of vegetable bitters. Hence its milk is easily digestible and considered medicinal.

Regarding Viharam, *i.e.*, outside life, the person supposed to be affected with this melody, is advised not only to rear a goat but also to take his bed in the middle of a herd of goats. The very smell of the goats and their excretions are inimical to the growth of the Tubercle Bacilli.

TUBERCULOSIS IN INDIA— HOW YOU COULD PREVENT?

BY

Lt. Col. H. E. SHORTT, I.M.S.

IN choosing this topic for a radio talk I wish, first of all, to make it clear that the intention is not to alarm the Public by giving a harassing account of the ravages of a disease which, one must confess, has justly to be feared, in as much as it is no respecter of persons and is worldwide in its manifestations, both in temperate and in tropical climates.

On the contrary, I wish to strike a note of optimism and assurance, to prove to you that Tuberculosis is a preventable disease and, in many cases and certainly in early cases, a curable one also. This is a much brighter prospect than that envisaged in a previous generation, when the word "consumption", which was the term used for tuberculosis of the lungs, was felt to be synonymous with a sentence of early death. Since those days we take a much brighter view of the situation and I shall now proceed, so far as I can within the limits of the time allotted to me, to give you a short account of the disease, with special reference to the position in India.

The title of this address might lead you to suppose that tuberculosis was a disease only of the lungs. This is not so because the tubercle germ may attack any part of the body and so there may

be tuberculosis of the lungs, of the bones, of the bowels, of the skin, of the eyes and so on. Now this seems a very formidable list and one ought to know how to avoid infection in these several cases.

The problem of avoiding infection naturally depends on how the tubercle germ enters the body. This is usually in one of two ways. Firstly it can be breathed in from the air and cause tuberculosis of the lungs. The germ is present in the air in small invisible droplets of fluid coughed out or spit out by infectious cases of lung tuberculosis and it is therefore the duty of those suffering from the disease to cough into a handkerchief and avoid spitting, except into a closed receptacle, in order to avoid infecting their relatives and other members of the public. This precaution alone would prevent a great deal of infection.

The other main road by which the germ may enter the body is by the mouth. This is most commonly caused by taking it in milk which has come from infected cows, which also may suffer from tuberculosis. This form of infection often leads to tuberculosis of bones and the bowels and, fortunately, is less common in India than in European countries.

Having told you how tuberculosis is acquired I must now indicate how it can be cured, and prevented. I have said "cured" first because people always will think of cure before prevention although the slightest reflection would show that prevention is more important. Now this is not the place or opportunity to go into details of methods of treatment but I wish to emphasize again that treatment is often very successful and especially in early cases. This means that all persons suffering from the disease, or suspected to be so, should confidently seek medical advice. Anyone, especially a young person, with a chronic cough and who is slowly losing weight should get himself or herself examined by a medical man so that, should the cause be tuberculosis, early treatment may be commenced.

I come now to prevention, which is infinitely more important to the community at large. What can be done to diminish the chances of becoming infected with tuberculosis? It may be said at once that the methods of protection are nearly all indirect and they have the advantage that nearly every one of them would be beneficial not only in warding off tuberculosis but in preventing many other diseases caused by germs or by deficiencies in diet. What, then, are these general methods of prevention?

They can be summed up in a few words, each of which is almost completely self-explanatory. Food, light, fresh air, exercise. These are the very things which large number of people in India lack and they were the things which people largely lacked in Great Britain where tuberculosis was the scourge which it no longer is for it may, I think, be truly said that it is now being brought under control. Now how are these preventive measures,

which I have indicated by the single words food, light, air and exercise to be applied? To a large extent this is an economic problem and is summed up in saying that the worker must have a living wage, or other efficient means of subsistence, to provide him with enough good food to eat for himself and his family, especially the children, to provide him with an adequate house which will allow him plenty of light and fresh air, and to give him enough leisure for some degree of mental and physical relaxation from labour in the form of healthy exercise. In this connection I might quote what Sir John Megaw, a former Surgeon-General of Madras recently remarked at a meeting in England. "The control of tuberculosis in England has been brought about, not by the Government, but by the people. Things done for the people must necessarily be expensive and of temporary benefit, whereas things done by the people themselves are both economical and durable."

Sir John Megaw has also said that experts frankly admit that the chief cause in the great decrease of tuberculosis in Great Britain, where it is now definitely under control, is the improvement in the general conditions of living of the bulk of the people. This is a pointer to us in India and emphasize what I have already said about the importance of food, light, air and housing.

But while admitting the paramount importance of general measures of health and sanitation it is also necessary to consider and encourage direct means of attack on the scourge of tuberculosis such as medical and surgical treatment in Sanatoria and other medical institutions. This is the reason for the launching of Lady Linlithgow's campaign against the disease in the form of

the King Emperor's Anti-Tuberculosis Fund. After what I have already said it is not necessary for me to add anything in way of commending to your attention and appealing to your generosity to support this fund. The money collected will supply the sinews of war to all those who are engaged in the fight against the scourge, whether they are engaged in the direct attack in the form of treatment or the indirect attack in the form of improving the economic condition of the masses.

This would perhaps be the right place for me to mention what opportunities for treatment are available to the people of Madras Province for it is often a matter of surprise to discover how little the public know of what is being done in their behalf by both public and private agencies.

The organisations already in existence are tuberculosis, clinics or dispensaries, hospitals, sanatoria and a colony. There are two tuberculosis dispensaries in Madras, one at Egmore and one at the Government Victoria Caste and Gosha Hospital, and a lung clinic at the Government General Hospital, while there are trained workers on tuberculosis at various headquarters hospitals, such as Madura, Trichinopoly, Tanjore, Coimbatore, Vizagapatam and certain Mission Hospitals. The work done at these centres is diagnosis of cases, examination of those in contact with tuberculous people in order to detect early cases of the disease, education and propaganda, the disposal of cases to hospitals or sanatoria and advice on home treatment; a certain amount of preliminary treatment is also carried out. As regards hospitals, there is only one Government hospital in the Province exclusively for the treatment of Tuberculosis the Tuberculosis Hospital, in Royapettah-but some of the other City State Hospitals

contain wards for pulmonary tuberculosis cases, while headquarter hospitals of various districts set aside beds to accommodate similar cases.

There are three sanatoria in the Province, the Government Sanatorium at Tambaram and Mission Sanatoria at Madanapalli and Visranthipuram while a new one is nearly ready to open at Perundurai in the Coimbatore District. All these institutions are doing splendid work and it does not need me tell you that they deserve all the support you can give them financially and in other ways. Their efforts touch but the fringe of the problem yet the suffering they alleviate, the patients to whom they give new hope of life, and the medical men they educate to carry out similar activities throughout the Province are all more than worth while.

A new departure in tuberculosis work in the Province, probably in India, was made in 1921 when a tuberculosis colony was established near the Sanatorium at Madanapalle. This was established for occupation by patients discharged from the Sanatorium who wished to continue living under supervision of the institution, while carrying out occupations such as printing, weaving and gardening. This is a line of work which could easily be extended in order that case of the disease, or those recently cured, might continue to live useful lives in suitable surroundings and still under the fostering care of the parent institution.

The time allotted to me for this talk is nearly completed and much that I should have liked to say is unsaid. I shall conclude, therefore, by again reminding you that tuberculosis is a preventible and a curable disease and that this lays a great responsibility

upon us to cure it and to prevent it. This responsibility must be shouldered by the people and the Government alike, but especially by the people, who can help by spreading knowledge, by supporting tuberculosis institutions, and by doing, each his little bit, to

improve the conditions of living of the people of India. King Edward VII, one of the greatest of England's Kings, although his reign was short, when told that tuberculosis was a preventable disease reported to have said "if preventable, why not prevented."

*A Dangerous Teacher and The Lessons He Teaches about Tuberculosis

BY

Dr. FRIMODT-MOLLER, C.B.E. (Hon.) M.B., Ch. B. (Copenhagen.)

THERE was once a school teacher who had something peculiar about him, a very dangerous peculiarity, which was discovered by others, not by himself and discovered in this way. A Village Doctor found that there were numerous cases of Tuberculosis among children coming to him from a particular school. He reported his observation to the Tuberculosis clinic which investigated the matter, and by the examination of the teachers one was found to possess the peculiarity of having an open Tuberculosis with tubercle bacilli in his sputum, without any idea of his being sick. Further investigation by a simple skin test showed that in the classes in which he had been teaching, 60 per cent. of the children had been infected with Tuberculosis, while only 25 to 30 per cent. had been infected in the other classes of the school. Moreover, it was found that 28 children in the school had developed Tuberculous disease, and of these as many as 22 were in the three classes taught by this teacher, out of eight classes in the school. That the

infection was due to the teacher was proved by investigation of the homes of the sick children. In not a single one of the homes was there found any family history of Tuberculosis, and the younger members of the families were all free from Tuberculous infection, as shown by the skin test.

What this tragic story drives home is the danger of Tuberculosis spreading from a person who himself has no idea of his being sick. This same kind of thing is happening to-day, not only all over the world, but actually in the midst of us, and perhaps among many of you who are listening. For example, in a similar investigation in a district about 150 miles from Madras, there were discovered several people really quite sick with Tuberculosis, without their being aware of it themselves, and spreading infection in their neighbourhood; one was a little girl in a school, another was a tailor in a shop, another a carpenter working in a village, and so on.

* A Broadcast Talk from the All-India Radio.

The story also drives home the fact that Tuberculosis spreads from person to person. There have been many things which have been said to be the causes of the disease, but there is one cause and one only the tubercle bacillus. Poverty, overcrowding and other unhygienic conditions, said to be the causes, are not the primary causes at all, and a person who has never been in contact with tubercle bacilli, will never suffer from Tuberculosis, no matter how poor or no matter how bad his conditions of living are. This is the reason why we find that it is not only poor people who are attacked by Tuberculosis but rich people also, living in apparently the most healthy surroundings with all that money can buy. These rich people have somehow come into contact with the tubercle bacilli, and sometimes, even all their money cannot save them from death from Tuberculosis.

But not all people who come into contact with tubercle bacilli fall sick with Tuberculous disease. By disease we understand that not only have the germs of Tuberculosis infected the body, whether the person is aware of it or not. This is shown also in the Indian investigation already mentioned, where 6,500 people were tested and 1,537 of them showed they were infected with Tuberculosis, but only 7 persons suffering from active Tuberculous disease were found.

What actually turns infection with Tuberculosis into active tuberculous disease is not yet fully known or understood, but everything which breaks down the natural resistance of the body against the infection already there plays a considerable part in the changing of the infection into disease; among such factors are poverty, overcrowding and other bad conditions of living.

I should add, however, that continued exposure of heavy infection from a Tuberculous patient, under conditions where proper precautions against such infection cannot be taken, is a very dangerous thing. On the other hand, the popular idea that it is dangerous to go near a Tuberculous patient or touch him is absolutely wrong and often leads to much groundless fear, and causes unnecessary suffering to the patient. Tuberculosis is not a contagious disease, such as measles and small-pox. Further, the disease does not spread from every infected person, but only from those of them who have developed the disease and have tubercle bacilli in the sputum.

Although I have said earlier that only a very few of the infected persons actually develop the disease, I do not wish to create any impression that Tuberculosis is not a common and serious disease in India. In fact, it is one of the greatest invaliding and killing diseases, and takes an enormous toll of life, specially among young men and women just ready to take their place in the life of the community. It is to combat this great enemy of the people of India that the new Tuberculosis campaign is setting in with force. The problems to be studied and tackled are many, and much preliminary work, which to the ordinary man may seem to have little bearing on the campaign, has to be done. What is the incidence of Tuberculosis in the towns and what is it in the villages? What is the amount of infection compared with the amount of disease? Which are the most infected areas and which are those with the most disease? An attempt has to be made to answer all these questions and many more in the preliminary work, as the way in which Tuberculosis in India is to be tackled and the measures which will have to be taken, depend on the answers to these questions.

In what way is an attempt to be made to find the answer to these questions? One of them and the most important is through Tuberculosis surveys. By this is meant an investigation of the incidence of infection in schools, communities, and of the whole populations in certain areas, by a simple skin test accompanied by further examinations, such as physical and X-ray and laboratory examinations, where found necessary.

It is in this kind of work that the Tuberculosis clinic has now come to the forefront in Europe as an indispensable measure in the campaign against Tuberculosis. In the earlier history of Tuberculosis clinics, the chief work was to examine patients coming to the clinic and to examine home contacts of the patients discovered.

The modern clinic, however, does not just wait for patients to come to it, but goes out and examines whole groups of apparently healthy people in order to

find out such people as the dangerous teacher with whom I began, who are apparently healthy and doing their ordinary work, and are yet scattering widely the disease of Tuberculosis and innocently causing much slackness, distress and even death. This kind of survey also often discovers people in whom the disease is really developed but has not yet shown the symptoms which would lead them to seek medical advice. Such people have an infinitely better chance of overcoming the disease, if they are rightly treated and cared for, than if they wait until they are obviously sick.

Modern Tuberculosis workers are no longer sitting in the forts of their treatment-institutions, but are marching out to meet the enemy in the open country. But no fight against Tuberculosis can succeed if the people among whom the fight is taking place, view it with apathy or resent investigations. The fight needs the co-operation of all of you and of every one.

* A Talk on "Tuberculosis"

BY

The Hon'ble Dr. T. S. S. RAJAN, *Minister for Public Health, Madras.*

YOU know very well that a big movement has been organised by Her Excellency the Marchioness of Linlithgow, the Vicereine to drive away the dire disease called tuberculosis from our midst. In this very laudable attempt an appeal has been made to all those who could join hands with Her Excellency by contributing what little they can in the way of augmenting the funds for which she has appealed.

But monetary help is only one method of approach to the question though it is a very important instrument necessary in the work and more than money the absolute lack of knowledge with regard to the disease and the manifold causes that go to produce the disease are things which many people in our country are not aware of. Therefore while powerful agencies are at work to collect the resources that are necessary for this

humanitarian work, an equally important line of approach to tackle this problem has become necessary. The education of our people with regard to the disease and its prevalence is of primary importance in any campaign against tuberculosis. Tuberculosis is a disease, which, if we are intelligent and sensible, could be prevented. I for one would utilise all my resource more for prevention of tuberculosis rather than for its cure. Well, any day the adage, "prevention is better than cure" is as true of tuberculosis as it is of any other disease. Tuberculosis affects really people who are young in life and on whose system a great demand is made both as regards the growth of the body as well as the very many necessary equipments that are to be secured during adult life. Intellectual pursuits contribute a good towards the demand made of the system in young people. Added to these, if there is a history of heredity in the family, the risk becomes much greater in those young men who are put through a course of collegiate study rather than on those who have not had such inheritance. In the interests of future humanity and their well-being, this hereditary taint should as far as possible be avoided. It is bad enough to suffer from what is apparently an incurable disease but it is a worst crime to transmit it to one's own off-springs. Therefore the question of prevention of tuberculosis is ever so much greater than the cure of it. It is well that the man in the street, the average citizen who is very ignorant of the nature of the disease, is told exactly what tuberculosis is. But it is not so easy as it looks because the signs and symptoms of a disease, which often baffles even medical men are things that would not easily be made available to the ordinary man. But still there are certain very outstanding things about tuberculosis which even a lay man

could understand. (A gradual diminution of the weight of the body which under normal conditions of adult life should be growing is a serious indication to show that something is wrong in the body.) The wasting away of the body is a sign which shall be apparent even to the most ignorant of us. That is why the disease is popularly called "Consumption", meaning thereby that it consumes the body. Therefore, if an adult young man or a growing child does not grow in terms of his or her age, well, it must set one's mind think about that condition seriously, for very often wasting is the most insidious and perhaps the first symptom of tubercle disease. Added to this wasting, a peculiarly burning feeling either of the palms of the hands or the soles of the feet or of the eyes with a certain amount of languor and lassitude that ought not to find a place in young adult life, is a thing that ought not to escape notice. Here also it is an indication that something wrong is happening with the individual. In Tamil and in Ayurvedic literature, this condition is called *Asthi Kangai*, meaning the burning away of the prime resources of the body. It is easy to correct and also to arrest the disease at this stage. But what often happens is that people do not notice the symptoms and even if they do they do not know the cause of it. The disease sets in so insidiously that the patient is not forced to take to bed and is not physically incapacitated to such an extent as to make him an invalid and draw the attention of people about him to the nature of his disease. Therefore, for one thing or other an indifferent line of treatment is adopted while the environments which produce the disease are utterly ignored. A lot of time is wasted and money spent uselessly while a proper understanding would have saved a good deal of the initial trouble. Therefore it is that I

* A Broadcast Talk from the All-India Radio.

am laying stress on this particularly early symptom of this tubercular trouble which if developed would lead to serious consequences. I would like parents of children and guardians of those who are in adult life to notice particularly this growing emaciation, this constant burning away of the system which is absolutely unwarranted at this time of the life of the individual.

The second condition which very often starts the trouble is perhaps the type of disease which is called in medical technique pulmonary tuberculosis or tubercular disease of the lungs. After a certain period of wasting a slow dry cough sets in, which persists often throughout the year sometimes aggravated by inclement weather or by physical strain which the system could not stand. When once a complete picture of high fever, wasting, spitting of blood and sputum supervene, you may take it that the disease is fairly well set and requires not only skill but time and energy to tackle it.

Thirdly, enlargement of the glands in the neck and in the groins, particularly in young people is a thing which should be noted and early attempts to deal with that situation by prompt medical aid would save a lot of young men from the future consequences of this initial trouble of tuberculosis of the glands. Very often people do not think seriously about it till the disease begins to give trouble either in the way of producing fever or as it often happens by glands themselves breaking down and become a case for surgical interference.

The other types that are not very numerous but still often prevalent is the disease of bones due to tuberculosis particularly in young people of a weak constitution. Either it is chronic swelling in bone or the breaking down of

an ulcer which does not heal for which the disease is responsible that exhibits the true nature of the complaint which has crept into the system. Malnutrition, lack of fresh air and sun light and ill adapted and ill timed food, all these, combined with a certain amount of mental exertion do contribute to the development of the disease. People who work all day long in farms and fields in the bright sunlight do not get this disease and very often they are practically exempt from it. But all those people who are shutting themselves in their houses to whom the struggle for existence is not so very great as to drive them to open fields for work and who are in a way intellectually inclined, take the disease early and easily. It stands to reason therefore that given plenty of sun light and abundant fresh air and the habit of doing hard exercise in open air and sun light and a fairly well balanced diet, it will be easy to prevent the disease from taking deep roots in the system. But when once the disease has set in medical men have to be consulted and there is no use trying to do half measures for treatment in its entirety alone would save the system. It is here the efforts of doctors, tuberculosis clinics and sanatorium treatment come in. There is no specific remedy against Tuberculosis. The remedy that is adopted is only to fortify the system against the attack and therefore in the eradication of tuberculosis from our midst the prime duty of all social workers and medical men is to concentrate more on the preventive aspect of the disease and to seek such remedies as would give the necessary protection as well as resistance to the disease by the human body. It is essentially a disease of civilization, of over-crowding in towns under bad hygienic conditions and where competitive life has made struggle for existence very keen and its other attendant evils. It is why we see

such large numbers of tubercular people in crowded cities rather than in ordinary out of the way villages. Added to these, poverty of a type unique in the world has become part and parcel of our national life and it adds its own quota to the causation of the disease. Therefore, the whole question is a question of not only re-organising the country and the people on sound economic

conditions and under proper hygienic and sanitary surroundings but at the same time imparting to the people the correct knowledge of the disease and to so educate them as to prevent themselves from getting attacked by this fell disease and it is only to give this particularly popular version of the disease as I understand it that I have given this talk to you to-day.

Heredity

WITH

Respect to Twins

To the Editor:—Because the male of any particular cross or breeding is a twin or has twins in his ancestry, is the result of that cross more apt to be twins than if the male's family shows no tendency toward twinning? My impression has been that twinning was dependent on the female's inheritance in this respect, as the behaviour of the egg inside the female determined whether or not she gave birth to twins, and the sperm which fertilized the egg could not affect the behaviour of the egg. This is not a question of whether the offspring may inherit a tendency to twin from the father.

E. A. L. TENNESSEE.

Answer:—It is necessary first to consider why there are twins. In considering this question, one of the first facts that arises is that twins tend to repeat themselves in the same family;

that is, the mother of a pair of twins tends to have twins again. This shows, then, that twins are not altogether accidental but that there is a cause which produces them and persists in a given pair of parents of twins.

Second, a large number of pedigrees of twin offspring show that while in many cases the mother is herself a twin or has twins among her close relatives, in other cases, which are only slightly less numerous, the father is one of twins or has twins among his relatives. If twins appear in the close relatives of both the father and the mother the probability of twin offspring is enhanced, but there is a large proportion of cases in which only the father has twins among his relatives, just as there are other cases in which only the mother has twins among her close kin.

In order to get further into this problem, one must recognize that twins are of two types; namely, the so called "identical twins", which are believed to be derived from a single egg, and the "fraternal twins", which have developed from two different eggs which happened to develop in the maternal uterus at the same time. The latter are no more closely related to each other than children of the same parents born a year or more apart.

The latter type of twinning is often thought to be due slowly to the fact that the mother has a tendency to ovulate, or ripen, two eggs at the same time, whereas in mothers that never produce twins there is no such tendency. Were this the whole story one would expect such fraternal twins to indicate merely a maternal tendency to double ovulation. This may well be an inherited tendency. One would not expect the father to play any role in such twin production. This is not the whole story, however. Studies that have been made on the ovaries of reproducing women indicate that instead of being a relatively rare thing, occurring in about 1 per cent of cases, double ovulation is frequent and occurs in at least one twenty-fifth of all cases of ovulation, or perhaps more frequently. Why then do two-egg twins occur so infrequently when double ovulation is relatively so frequent. The answer to this question is found in studies that have been made on lower mammals, such as pigs and mice. Such studies have shown that in many cases a half or more, of the young that started development in the uterus died before they were born. In many cases the litter that is born of such mammals is only one-fourth as numerous as the embryos that started development in the uterus. This result is due to the fact that embryos die, especially at very early stages of development, become

entirely resorbed and leave no trace of their former existence in the litter that is born.

In women, also, it frequently happens that one of a pair of twins dies at an early stage and becomes more or less resorbed. If not resorbed it is born as formless mass which demonstrates the former existence of a twin. Instead of only about 1 per cent of the population being one of a pair of twins it is probable that 4 or 5 per cent of the population are one of twins, the other member of the pair having never been born.

Why does one of the twins so frequently die in the uterus? It is probable that early deaths are vastly commoner than is usually believed. The death may occur so early that the miscarriage is entirely overlooked. Children that are born are the residuals of much larger progeny, most of which die in embryo. What is the cause of these embryonic deaths? They are believed to be due to defects in the genes which control development—defects so gross that development cannot proceed far. Children that are born are the fraction who carry a more or less satisfactory gene combination in the fertilized ovum. The defective genes may come from either the egg or the sperm, as these two cells play an equally important role in development. If there is a gross genic defect in the sperm, it may result in the early death of the embryo, and such a genic defect is an inherited thing. Though it may not affect all the sperm cells it will be distributed through the ancestry of the father. If the father's line has one or more of these defects, there will be an enhanced probability of intra uterine deaths. If the paternal germ cells are relatively free from these defects, then there will be a diminished probability of intra-uterine deaths. In such a fraternal strain, relatively free from so called

fatal or lethal factors, twins will be relatively common. Thus it may be that the father's side of the house contributes toward twinning as truly as the mother's side does.

In regard to one-egg twin production it appears that this is due to some change in the developing embryo, which causes it to develop abnormally; rarely does it evolve into a pair of joined or Siamese twins, more frequently into

twins that are entirely free from each other except that they have a common placenta. Why does an egg sometimes undergo division into two individuals? That is not known, but there is a tendency for the production of such one-egg twins to be hereditary, and statistics indicate that the sperm cell plays as large a role here also as the egg cell.

—"Hygeia."

Fruit Cures in The Treatment of Heart and Blood Diseases.

WE are accustomed to consider the symptoms of decompensation essentially from the mechanical point of view. But these disorders are connected with fundamental changes of cell metabolism and they can be influenced successfully by dietetic treatment. Symptoms of decompensation may be improved frequently only by dietetic measures which are able to regulate the metabolism.

According to W. Heupke, of the Medical University Polyclinics in Francfort of Maine, the diet in such cases has to contain small amounts of water, little sodium chloride and relatively much potassium, which works as diuretic, basic salts in abundance, and a moderate amount of proteins. Low salt diet, milk days, raw food diet days, fruit cures and fruit juice days are of advantage in such cases of decompensation.

Some details can be given. In a diet of that kind only the fourth part of the calories ordinarily taken may be consumed; this means a relief for the metabolism. The amount of proteins is no more than a third of that of a normal diet in a Karrel diet (1000 g. of milk a day) and 1/12 of the normal diet in a fruit day. It is furthermore a low

fat diet and contains relatively few carbohydrates, thus favouring the circulation in the portal vein and diminishing the meteorism which increases the pain in persons with cardio-vascular disease. The consumption of mineral salts is much diminished down to the sixth part. Sodium and Chlorine are diminished to the tenth part in Karrel diet and to nearly the twentieth in fruit cures. While potassium and sodium are consumed in the same amount as in a normal diet, potassium is increased three times as much as sodium on Karrell days and six times in fruit cures. Foods yielding a basic ash are preferred to foods yielding an acid ash in fruit cures while there is on an average excess of acid foods in the normal diet.

The main difference between a normal diet and milk fruit-days is the noticeable diminution of the mineral intake and the excess of diuretic ashes. The effect of this kind of diet depends essentially on their different mineral composition. That is the pathologic explanation of the successes which can be attained by fruit and milk cures in the treatment of cardio-vascular diseases.

—"The Indian Medical Journal."

Heart Failure and the Heart Muscle

By A PHYSICIAN

WHAT do we really mean by heart failure? It is a fear that is at the back of the minds of many people with valvular disease of the heart, who have seen it in the reports to the coroner on cases of sudden death.

The heart is a pump which maintains the circulation of blood throughout the body. The motive power behind this pump is the heart muscle. There are four chambers in the pump separated by the valves, so that the stream of blood can go always in the same direction. If these valves fail to close completely and allow a trickle of blood to flow back, the heart muscles can overcome this deficiency or incompetence. It can hypertrophy or grow bigger; so that a more powerful contraction will drive on the increased amount of blood, as well as squeezing down more tightly around the leaking valve. This hypertrophy is just the same as that we are more familiar with in the arms and legs of an athlete, being the response to the increased demands made upon it by the larger volume of blood that the chamber now contains.

But the heart muscle has distinct properties, as well as a different appearance, from the other muscles of the human body. Like all other muscles it is obedient to the orders given it by the brain and nerves, but were these to fail even for an instant the heart muscle would continue in its work. It can produce its own stimulus to contraction, and obeys this rhythmically so that the heart beats remain regular although perhaps at a slower pace.

The great importance of the heart muscle can thus be recognized and it is a failure on its part to function properly that will have such disastrous results.

How then can we maintain our cardiac muscle in the best condition for its efficient work?

Simply this means adequate food, exercise and freedom from worry. The heart muscle has first claim on the rich arterial blood, for it is supplied by the first branches of the aorta. It is important therefore in illness to provide a sufficiency of glucose; since this is readily absorbed, and can be utilised by the muscle without alteration. The blood should not be starved of water lest it become thick and viscid, to increase the work of the pump in maintaining the circulation.

The heart muscle can indicate that it has been called upon for too much work by the symptoms of breathlessness or dyspnoea and pain which is felt behind the breast-bone and in the left arm. Dyspnoea indicates a lack of oxygen in the circulating blood while pain is due to a lack of blood itself to the muscle. Short of these symptoms, exercise is good for the heart muscle since it maintains its maximum efficiency and prevents any tendency for fatty tissue to form around the heart muscle, embarrassing it.

The heart muscle can also be hindered by pressure on it from below. A large amount of carbohydrate food and the taking of fluids with meals facilitate fermentation and the distension of the stomach with gases. A loaded transverse colon with hard faecal masses, that should have been passed on, can also press upward on the heart.

The load on the heart muscle can be considerably relieved by raising the feet and legs to the horizontal position. When the pulse rate 80 per minute, he benefit of a fifteen minutes rest per day is considerable. — "*New Health*."

How to Treat

Your Doctor

THIS article has rather a curious title, and you wonder what exactly it is leading to. You naturally expect your doctor to treat you, not the other way round. You expect efficient and up-to-date treatment; and you expect treatment which you sincerely hope will cure you. But your doctor also expects you to treat him properly. Here are quite a number of ways in which you can help him in his work.

The Call.

First having decided to call him in, let him have your message as early in the day as possible. You may live on the north side of the town, let us say, and if your message does not reach the doctor until nearly dinner-time it is quite possible that he may already have visited your district (perhaps even your street) and your call arriving late means that he has to go over the same ground again. Accidents and sudden illness, of course, come into a different class. Do you wait until the patient is seriously ill before sending for help. Many diseases are easy enough to tackle in the early stages, but difficulties are apt to arise if these diseases remain untreated. You cannot reasonably expect your doctor to drag a patient back from the grave. That is neither fair to the doctor nor to the patient.

Any medical man who has been in practice for some time will tell you

that the words "as soon as possible" attached to the message mean less than nothing to him. Ninety per cent. of all messages bear that same tag. A patient may have been ill with a "spotty face" for three weeks and yet these words will appear on the note asking the doctor to call. Put your name and address clearly on the message. You have no idea how often a call is received bearing no address and the signature, perhaps of "Mrs. Smith." Indicate, if possible, the nature of the complaint. If you mention "Sore-Throat" the doctor will in all probability bring a "swab" with him. If you omit that he will have to return home for one, and in such cases delay is dangerous.

The Visit.

Well, the doctor has arrived at your door and has rung the bell. Do not keep him waiting on the doorstep while you shout through the house, "Yes, it is the doctor," after which there is scurry and bustle and slamming of doors. Your call indicates that you have peeped out of the window and seen the doctor's car. Why keep him waiting? Having opened the door there is no need to apologise for the state of the house, the fact that your hair may still be in curlpins, or that you have not changed your dress. Your doctor has come to see the patient, not to look at your permanent wave or the dress you happen to be wearing. Having

got to the patient's room there is no need to tell the doctor the disease which you imagine the patient to be suffering from. That is his business to find out, and your own diagnosis may be very far from correct.

What the doctor does wish to know is what is the patient complaining of. Has he got a cough? Has he been perspiring? Has he been sick? Has he any pain? Some relatives seem anxious to talk, not about the patient but about their own complaints. A doctor cannot attend to two patients at once. Please let him see the one who is in bed before you begin to relate your own trials and troubles.

Now a hint to the patient. If you are suffering from a cough the doctor is almost certain to wish to examine your chest. Let him see your chest without any fuss. Remember he has seen a chest before, and it is little use expecting him to diagnose a tuberculous condition if you only show him as much of your chest as could be covered by a twenty packet of cigarettes. He will never be able to discover disease in that way. Suppose you injure your ankle; it may be that he will wish to compare the sound one with the injured one. Many years ago I met with a case where a girl had injured one ankle and naturally I asked to see the sound one too. After a great deal of fussing and delay she was ultimately persuaded to show the other ankle, and the reason for her reluctance was soon obvious; only the injured ankle had received attention from soap and water.

Diagnosis.

Do not try to drive your doctor into giving a diagnosis right away. There

are so many diseases in which it is utterly impossible to say right off, "this is so and so and that is something else." Many diseases begin with the same symptoms, and it is impossible to differentiate between the various ailments till a little time has passed. Again in the artificial light it is extremely difficult to say that a certain case is definitely scarlet fever. It might quite easily be mistaken for German measles. Do not push for an immediate declaration of the disease. Let the doctor look at the patient again in the daylight and the diagnosis will be more certain and probably more correct. Anything which passes from a patient (by whatever channel) ought to be kept for the doctor's inspection. Do please give the doctor a chance to get the patient better by following out in strict detail every instruction he has given you. When he says liquid food, he means liquid, and not solid. No matter how difficult it may be to keep to these instructions, you must follow them. He is not ordering liquid diet for his own amusement, but for the benefit of the patient. It is quite useless asking, "Couldn't he have this or that?" Your doctor has said "liquid" and let that be the end of it.

Do not believe all the tales you hear about the doctor. He and the vicar and the minister are public figures and any little gossip spreads like fire. Finally, your doctor must live. He has his family to keep and all the heavy expenses which a profession entails. That being so, surely it is your duty to pay him the fees which you are owing him. You were glad enough of his help at the time. Surely he is entitled to some financial return for it.

—"Better Health."

CHILDREN'S LAUNDRY.

THE clothes of babies and very young children are often so fragile that it is a very good plan if the mother can possibly manage it, to wash them by themselves. They need more frequent washing than most other family articles, but as a rule they are more easily cleansed.

First we must sort the little garments into wollen, flannels, silks, cottons, etc., and then, in each pile, we must separate white from coloured articles as the latter need slightly different treatment.

Many mothers like to get woollens and flannels out of the way first while others may prefer to do them while the white cottons are boiling.

Most of us know that in washing anything made of wool the chief dangers are shrinkage, loss of correct shape and change in colour. We can to a very great extent avoid these dangers by using such a method as I described a few months ago when talking of the making and washing of a baby's woollen vest.

The woollies should not be put to steep but should just be gently shaken to get rid of any loose dust. We then need water as soft as we can get, rain water if possible. If rain water is not obtainable and the water of the district is very hard we can soften it somewhat by boiling and by adding a little powdered borax dissolved in hot water. The use of a good yellow soap will also greatly help.

The next point will be to prepare two very good frothy lathers with the soap or soap jelly or flakes. It is

easiest to make these lathers with hot water and to cool them down to just a comfortable warmth as we are ready to use them.

Put each woolly garment (the cleanest first) by itself into the lather, squeeze all parts gently, then squeeze out most of the moisture without wringing or twisting. Repeat this process in the second lather, then rinse in two clear waters of about the same temperature as before.

The little pile of woollies should be done as quickly as possible—then, unless they are very small indeed, they can be folded, with care for their shape in a clean white cloth and passed loosely through the mangle or wringer. Tight pressure would tend to spoil the wool fibres.

The drying should be done at once in moderate heat and a good draught, if possible, out of doors. It is best to lay the garments flat though the smallest and lightest of them will do quite well on the thick bar of a clothes-horse or a ceiling drier. As they dry they should be pulled gently from time to time into their proper shape.

Woollies washed and dried in this way should need no ironing. Flannels are dealt with in the same way but can be finished off by smoothing over with a cool iron.

Silks also can be washed in much the same way. The water should have no borax and may be used a very little warmer though still not hot. Most silk garments should be rolled up while still damp and later smoothed with a moderately hot iron. Tussock silk, however,

should be allowed to get rough dry and be ironed on the wrong side.

Coloured woollies and silks should be washed quite separately from white articles and even the woollies must not have borax in the water as it acts as a mild bleacher as well as being a water softener.

We will leave the napkins for a while and think of the other white cottons. These will hardly need steeping but, if you prefer it for all your white cottons, they can lie in cold water while you prepare your water for boiling. You will need to put into it a little shredded best yellow soap, preferably in the form of jelly which can be made beforehand from odd bits. It will perhaps be necessary, as before, to soften the water as it can then be heating in the copper or a galvanised pan or pail.

These clothes can be washed in hot water, soap can be rubbed directly on the dirty parts and they can be gently rubbed. Then wring out the suds, put the clothes into your prepared water, bring to boiling point and boil for about 10 minutes. Rinse well in three warm waters and finally in cold blued water.

White cottons can be dried in a hot place indoors or, better still, in hot sunshine out of doors. Before they are

really dry, fold and roll them tightly ready for ironing. If starch is used at all for babies' clothes it should be very weak indeed and should be kept completely away from any part (e.g. neck and wrist of gowns) where it might irritate.

Coloured cottons must have no borax, must be washed in cooler water and not boiled unless the colours are known to be quite safe. Steeping in cold water with a little salt helps to fix the colour. In drying, avoid any great heat.

The washing of napkins is not difficult but needs much care to avoid chafing baby's very tender skin. Those that are merely wetted can be soaked and swilled well in cold water, then washed in hot water with a little soap and boiled occasionally in clear water. The soiled and stained ones after a vigorous swelling can be left out to soak in cold water. They can then if necessary, be scrubbed with a small hard brush have their stains rubbed with soap and lie again in cold water. Then wash in hot soapy lather, boil, rinse, dry and air well.

The most important points are to cleanse thoroughly and to avoid soda or anything else that might irritate.

—"Better Health."

REVIEWS.

An interesting venture, in the form of a Monthly Health Journal entitled "Arogyamargam", has been launched by the Madras Health Propaganda Board. The first number, which has just come to hand, is attractively produced, and should have considerable popular appeal. The Board intends to devote a large share of its editorial space to Maternity and Child Welfare, in the conviction that it will be part of the journal's function to combat "time-long customs, environment and blinks and substituted a belief in destiny and fate when attacked by disease and death. The Board adds: "The sense of hygiene and sanitation has to be felt by the masses."

—"Mother and Child."

Perils of Delivery to : : : : : The Child.

THE human foetus is peculiarly liable to injury during birth because it is so fragile. Even at the term of pregnancy it is still relatively immature and runs far greater risks than the more robust young of other animals. Mr. Eardley Holland, F.R.C.S., discussing the perils of parturition to the child, said in the course of a recent Chadwick Lecture that the greatest risk was that of head injury, owing to the large size of the skull and its softness and incomplete closure by bone. Nevertheless it was not true that birth injuries were becoming more common although some people were led by statistics to believe this to be the case.

To appreciate the scope of the problem its effects must be studied in three directions, namely, the still birth-rate, the infant mortality rate for the early weeks of life, and what may be called "natal morbidity", by which is meant permanent mental or physical crippling as the result of injury. There are two sources of information, the national statistics by research workers and the results of special investigations into large samples of cases of still-birth and infant mortality. The infant mortality rate for the first year of life has fallen very remarkably during the last 25 years; but there has been relatively little fall during the early days of life, and it is in this early period of life that birth injuries operate in causing death.

A list of birth injuries would include almost every tissue and organ in the body, but intracranial injuries are the commonest and constitute the most important problem as regards production, prevention and diagnosis. Mr. Eardley Holland pointed out that the chief problem as regards causation of birth injury is a mechanical one, a consideration of the stresses of labour and the varieties of strain on the body of the foetus. Even natural labour may result in injury, although this is uncommon; most injuries follow difficult or instrumental labour. Premature babies are especially liable to injury because their heads are so soft and plastic. Injuries are not entirely unavoidable, but it is possible to reduce their number by good and sound obstetrical practice, especially by restricting the use of forceps to cases in which their use is clearly indicated by the condition of the mother or the child, and by the early diagnosis of breech presentation and its conversion into head presentation before labour begins.

The immense boon which has been conferred on woman by the increased use of anaesthetics during labour has certain disadvantages for the child, Mr. Holland feels, in that labour may be prolonged and the necessity for using forceps may be rendered more frequent.

—"Mother and Child."

ANTISEPTIC PROPERTIES OF HUMAN MILK

IN an attempt to demonstrate "inhibins" and bacteria-transforming enzymes in milk, Dold and his co-workers obtained both human and cow's milk in a practically sterile condition by combined anti-septic and aseptic technics. To test for bacteriostatic properties, 5 cc. of fresh milk was mixed with an equal volume of 3 per cent melted sugar that had been previously cooled to 50 C. The resulting 50 per cent milk agar was poured into a petri dish and allowed to solidify. After solidifying the milk agar plate was inoculated with one loopful of a 1:2,000 to 1:4,000 dilution of a twenty-four hour broth culture of the test micro-organisms and the inoculation spread evenly over the surface by means of a glass spatula. The micro-organisms thus tested included the diphtheria bacillus, *Staphylococcus aureus*, streptococcus, *Bacillus coli*, *B. prodigiosus*, *B. Pyocyaneus*, *B. anthracis* and an unidentified wild yeast. As controls, the same inoculation was made on heat inactivated (100 C) 50 per cent milk-agar plates. A profuse (++++) or very profuse (++++) growth was usually noted on the heat-inactivated controls, with no demonstrable growth (-) or only slight growth (+) on the unheated milk-agar plates. Study of the thermostability of the growth inhibiting factor showed that the "inhibins" in cow's milk are not inactivated by heating 80C for seven minutes but are destroyed quantitatively by seven minutes' heating at 85 C. In human milk the "inhibins" are completely inactivated by heating at 56 C. for thirty minutes. Human milk can be repeatedly frozen and thawed without reducing its "inhibin" titer. Human "inhibins", however, gradually deteriorate on standing, almost complete in-activation being noted after from twelve to twenty-four days'

storage in the ice-chest (5 C). In their study of the bacteriostatic factors in saliva, these workers had previously shown that saliva which does not completely suppress bacterial growth has the property of transforming virulent diphtheria bacilli into non-pathogenic strains. These transformed strains give sub-cultures apparently identical with stock strains of the pseudo-diphtheria bacillus. Similar salivary transformations of toxic or virulent pneumococci *B. anthracis* and *B. prodigiosus* have been reported by other investigators. Practically identical transformations were demonstrated in fresh human milk. The bacteria transforming factors ("mutines" in milk are slightly more heat-resistant than the "inhibins") Thus far, however, no serious attempt has been made to identify the natural milk antiseptics.

—*Jour. A. M. A.*

The therapeutic uses of human milk were known in India from time immemorial though empirically. Human Milk has been a domestic remedy for conjunctivitis. Its local application on the forehead in cases of head aches attendant with high temperature must be known to every practitioner in Southern India. After reading the above one can now value the use of Human Milk in infections but its value in reducing fever by local application seems doubtful till some scientist is able to discover the therapeutic effects of Human Milk by local application. The healing effect of Saliva especially in animals is universally known as every animal keeps licking fresh wounds till they heal unless they are very extensive. Even in human beings constant licking of small fresh wounds and abrasions has a healing effect especially in children who usually do not have foul mouth.

—*"The Medical Practitioner."*

OPEN AIR EDUCATION

BY

SIR GEORGE NEWMAN, K.C.B.M.D., Chief Medical Officer.

IS a Means of Direct Preventive Medicine. The anaemic child improves in regard to the haemoglobin content of the blood, the emaciated child increases in weight, enlarged glands diminish or disappear, lung troubles improve and even vanish. The individual attention given to the child by the nurse and teacher, the opportunities for bathing and personal hygiene the adequate meals, the rest hour, and the special arrangements for physical training engender and foster habits of personal cleanliness and health difficult to secure in the crowded conditions of the ordinary day school. In this way open-air education tends to restore the enfeebled body to a normal condition of nutrition and energy, helps to dispel many of the nervous conditions incidental to child life in towns, and serves as a most valuable adjunct in the prevention of all forms of constitutional disease, including tuberculosis.

—"Better Health."

The Influence of Pregnancy on the Teeth of the Mother

GINGIVITIS was observed in 73 out of 100 pregnant women, and 58 of these had real pregnancy-gingivitis, caused by insufficient care of the teeth, lack of vitamins, and especially dental caries. Dental decay is very frequent in pregnant women. The teeth of 75% of young pregnant women (age about 24) were carious, and the condition of the teeth had become much worse during in more than half of these women. They all belonged to the poorer classes and gave little attention to their teeth, but even when that is allowed for the harmful influence of pregnancy on the teeth is not explained. Thoma draws special attention to the lack of calcium in the food which, together with the great need of the foetus for calcium, causes a serious decrease of the calcium content of the mother's organism. The foetus takes most calcium from the mother's reserve in the last 6 months.

The great importance of local and general care of the teeth of pregnant women cannot be doubted. Food rich in calcium must be prescribed, as well as calcium preparations, phosphorus and vitamins C and D, because these enable the organism to derive the maximum benefit from the calcium given per ounce.

—"The Review of Therapeutics."

Malaria Control

in Mysore

A REPORT on Malaria Control work in Mysore has recently been issued by the Public Health Department of the State.

The work covers three broad lines ; the use of Paris green anti-malaria engineering, and the use of biological methods.

In a group of ten villages with varying degrees of hyper-endemicity in the Irwin Canal area, the experiment of control by the use of Paris green only has been in progress for two years with adequate control, and the results are very encouraging.

A number of villages in the same area have been selected where all the water courses, natural valleys and irrigation channels within a two furlong radius are being graded, and different methods of lining the sides are under progress, and the effect under study. Further arrangements are also being made for installing appliances for intermittent flushing of natural water course as a cheap and permanent means of controlling anopheline breeding.

The larvicidal fish, gambusia, is being extensively used in both rural and urban areas. This is a cheap and efficient method for anopheline control, but its use is limited to special conditions and has often to be supplemented by other measures. Experiments on rendering the natural waters unsuitable for anopheline breeding by changing the chemical and organic contents of the water are under progress. Expert opinion considers that measures of this kind seem to offer the only hope for tackling the rural malaria problem permanently on a large scale.

—“The Medical Times.”

The Role of The General Practitioner and Public Health.

IN asking myself the place of the general practitioner in national fitness, I am rather surprised at the small part he plays. If you look at the various epochs of an individual's existence, where health questions impinge on it you must notice what a tremendously large part is played by the public health officer in that large percentage of people for whom physical fitness is happiness as well as bread and butter. It is especially to them that appeals are addressed.

The ante-natal and maternity work is passing to the midwife, who is supervised by the health authority. The post-natal, pre-school and school years are regarded as the public health officer's Maytime. He claims teeth, tonsils and eyes; he cleans the individual's ears and paints his face purple. He claims his infectious illnesses and a main share in inoculations, immunizations and vaccination, and leaves the family doctor the chest and the "tummy". It is only when the individual becomes a fledgling and chooses his doctor that the family doctor gets a chance. The point I wish to make here is that the general practitioner has little influence on the well being in the early life of the individual because of the circumstance that this care has been taken over by the public health officer. A larger use of part-time services would save some reduplication and interference and provide a less changeable service. This is mainly an economic problem and exists to some extent because that officer has the financial backing of the local authority.

There remain three lines of activity for the general practitioner, and the

first of these is instruction in measures for maintenance of health.

The first is instruction in health matters. The public has a colossal appetite for matters pertaining to health, and it is, in the public's important interest that it should be in possession of true instruction, free from many of the quaint ideas of the cranks and the extremists which so often characterize published and spoken statements on health matters. I honestly think that the general practitioner, with his wide experience of people, fads and circumstances, is best fitted to give unbiased opinions of the value of health measures.

It is, for instance, only by instruction that Mrs. Brown will be taught to realize that the highest court of medical appeal is not Mrs. Smith next door; and the shop assistant will come to realize that sitting about from two to ten on Wednesday with a member of the opposite sex is not the sure way for fitness. Unfortunately, the general practitioner is barred by his code from propaganda, such a valuable weapon in the hands of the public health officer.

Next, I would like to say a little about an activity which one often hears referred to, which it is suggested should be taken up by doctors, namely, the periodical examination of fit adults. Here would seem to be an ideal outlet for the practitioner's capabilities in the prevention of illness. Yet it is one which has never appealed to the profession as a whole, and one which I, personally, hope will never be adopted as customary. My reasons for saying so are two-fold. Should a person be assured that no signs of ill-health can

be detected he may be buoyed up by a false sense of security which might make him neglect important symptoms later. The fact that no signs of defect can be discovered does not mean that they do not exist; it means that they cannot be detected by the facilities offered in an ordinary medical examination. A complete examination such as would include complete X-ray and chemical analysis, would be the only examination worth considering for this purpose, and if I tell you that this would cost anything upwards of thirty guineas, you will realise that for most people this is not within the bounds of practical politics.

And, finally, I come to the important role of the practitioner in safeguarding the health of the people. Far and away the most valuable contribution he can make to this is in carrying out the work he is trained specially for and loves best. By conscientiously caring for the sick and to the best of his ability, relieving their troubles and rendering their restoration to health as expeditious and as complete as far as in his only human power lies he is surely playing the greatest role of all in the maintenance as well as the restoration of health. When in charge of a case of illness does he not guard against complications, and when consulted does he not impress upon the patient such rules of health as seem applicable to his case? He gives advice to people how to maintain their health as he has opportunity, and he encourages them to come to him for examination as soon as they feel anything wrong, and if he had a larger share in the public health services he would do even more in the way of prevention, but that line of approach is so often closed to him. He is the backbone of the staffs of all the smaller hospitals throughout the country, as well as the numerous homes and other institutions where love of work is his only reward.

But I need not amplify, for these facts are known to you all. In view of the fact, however, that the purpose of this meeting is publicity, may I be allowed to make an appeal on behalf of the general practitioner and his work. The first thing he asks for is loyalty; loyalty in giving him a chance by telling your symptoms early and fully; loyalty in believing his opinion even when it does not happen to fit in with your own, and in his treatment even when it does not meet with your own or your neighbour's ideas as to what he ought to do—he ought to know best. Loyalty in not forsaking him because the woman next door or your mate at the works or the shop persuades you that there is something else the matter and that another doctor would know better how to deal with that; loyalty in carrying out his treatment to the letter and with patience. In being loyal to him, you are but being loyal to your own interests. I know a man who walked through several streets in the town on his way to the doctor's surgery with a bandage on his neck. As he is a well-known man he had lots of inquiring friends, and he arrived at the surgery with nine different cures for boils, mostly different, which hardly put him in the best frame of mind for yet a tenth. And it turned out not to be a boil after all.

In conclusion I shall summarize, and, first, I shall say to local authorities that the health services will be all the better for more co-operation with the general practitioner. There will be less interference, less misunderstandings, and less overlapping; and I consider it is nonsense to give as an excuse the fact that he is not sufficiently trained in preventive medicine.

He is not likely to give his whole-hearted support to the lighter, what I would call the recreational, type of health activity, of which I may take

keep-fit classes as an example. He feels that the first essential of exercise is the open air, and he will, I am sure, give all his support to developments along the lines of playing fields and more open spaces, inter-school, inter-municipal and national physical contests. I believe that if we could revert to the days of the games that brought ancient Greece and Rome to their glory, and appear to be raising Germany and Soviet Russia to a high plane of physical development, with a stadium in every large centre, the home of prowess and skill rather than games or recreation, and blessed, if not financed, by the municipality, then I think that the prevention of ill-health would begin a stage farther back than at the clinic.

In the matter of public health instruction, it is pleasantly noticeable how the press is helping, but here again the matter dealt with is often merely recreational rather than scientific; a sop to the prevalent belief that you cannot make people healthy if you do not interest them, and you will not interest them if you do not entertain them. But when it comes to technical matters, which are obviously always good—"copy" the press is too often ill-informed. A compromise could be effected here with benefit all round, whereby the press, in return for taking steps to be better informed on medical matters—and this is where the doctor can help—will be supplied with facts in their true perspective.

Let us teach the public to learn to avoid fads and fashions rather than fear symptoms, and, in the words of Robert Louis Stevenson, "to stop their ears against paralyzing terror and run the race that is set before them with a single mind."

The general practitioner acting normally as family doctor is an indispensable instrument of national health policy, and without his assistance as health adviser and as a principal liaison between the homes of the people and the statutory medical services, these services cannot, in modern conditions, function to the full extent as part of a comprehensive policy for promoting and safeguarding the health of the people.

This is a weighty sentence, and the important thing about it is that it is given not so much as my own opinion as the opinion of a very important and unbiased committee. Here is another.

"We regard it as of primary importance that the organisation of the health services of the nation should be based upon the family as the normal unit and on the family doctor as the normal medical attendant and guardian. It is not for disease that provision has to be made, but for persons liable to or suffering from disease. The first essential for the proper and efficient treatment of individual persons is therefore not institutional but personal service, such as can be rendered to people in their own homes only by a family doctor who has the continual care of their health; to whom they will naturally turn for advice and help in all matters pertaining thereto; who will afford them such professional services as he can render personally; and who will make it his duty to see that they obtain full advantage of all the further auxiliary services that may be otherwise provided."

W. W. FORSYTH, M. B. B. Ch.—

Journal of the Royal Sanitary Institute.

Milk-In-Schools Scheme

VISCOUNTESS Astor asked the Parliamentary Secretary to the Board of Education whether he is aware that a controlled experiment on 8,000 elementary school-children, conducted over a period of one year, proved that children who receive a ration of one-third of a pint of milk in addition to their normal diet show a greater increase in weight and height than children who did not receive this milk ration; and whether, in view of this, the Government will take steps to continue the subsidy whereby milk can be provided both for elementary school-children and for children attending open air nursery schools as part of their long-term milk policy?

MR. LINDSAY:—I am aware of the results of the controlled experiment to which the Noble Lady refers. With regard to the second part of the question, I would refer to paragraph 20 of the White Paper on Milk Policy in which it was stated that the Government regarded the continuance of the scheme for the provision of cheap milk for school-children as an essential feature of their proposals.

VISCOUNTESS ASTOR:—Do not the Government consider this is a vital necessity, and cannot they bring pressure to bear upon those local authorities who are failing in their duty in this matter?

MR. LINDSAY:—We are doing it almost every week by persuasion and by speech.

May we remind Viscountess Astor of the recent epidemic which affected practically only those children who got milk in schools? This "addition of milk to the diet" as being beneficial in causing an increase in weight is fallacious. Other foodstuffs would have a similar effect and prove infinitely safer than milk which is an excellent culture medium for micro-organisms.

—*"The Medical Times."*

How Colour Influences Health

IT has long been known that the colour of living rooms and the rooms occupied by patients in hospitals has a decided influence upon mental states and sense of well-being. This fact has generally been attributed to the psychologic influence of colours because of their associations, black, and sombre colours suggesting funerals and so having a depressing effect, while bright colours have a cheering influence because of their association with festivity and gaiety.

Recent observations, however, suggest very definitely that the effects recognised may be physical rather than mental and that they may be explained on purely physical grounds. It is known that light rays are totally reflected by white and totally absorbed by black. Red, blue, green and other colours absorb all rays except those of their own colour.

It is evident, then, that when light enters a room the walls of which are dark in colour, a considerable part of the incoming light is absorbed by the walls, and a person occupying such a room will not only be living under a shadow, but under a very dark shadow, and will be almost wholly deprived of the influence of light.

On the other hand, a person occupying a room the walls of which are white, or nearly white, and hence which reflect instead of absorbing a large part of the luminous rays, while he also will be living in the shadow, will nevertheless be surrounded by such a volume of reflected or diffused light that the absence of direct sunlight will be in a large degree compensated for.

Experiments made by the writer have clearly demonstrated that the varying effects of light are the result of very tangible differences in the action of different colours in relation to the rays of light.

One experiment consisted of growing plants in chambers, the walls of which were painted different colours; white, black, yellow, red, green and blue. Light was admitted into the chambers in such a way that it could reach the growing plants only after having been reflected from the chamber walls.

Plants grown in the black chamber showed no chlorophyll in their leaves. The plants grown in the blue chamber showed a slight trace of green. Those in the green chamber showed a trifle more colour than the blue, but only a very faint, greenish tint. In the red box, the plants were green, but very pale. In the yellow and white boxes the plants had the natural green colour of oats grown in the open.

This experiment shows clearly that dark walls absorb from the light rays something which is essential to the life processes of plants, and since it is known that cell of life—protoplasm, whether animal or vegetable—is essentially alike in its fundamental requirements, it is a reasonable conclusion that human life, as well as plant life, must be definitely and materially influenced by the colour of the light reflecting surfaces with which they are surrounded. It may be true specially of human beings who spend their lives indoors, such as teachers, students, professional men and persons engaged in business or scientific pursuits which keep them within walls.

Thousands of people, especially those of the well-to-do classes, are shut up for months, and even years, in dark walled chambers into which the direct rays of the sun never penetrate. Such places are dangerous habitats.

Sun-illuminated air is different from air which has not had the magneto-electric touch of the solar beams.

Graber observed that the earthworm, which habitually lives in the dark, when placed in a box half of which was covered with a red glass and the other half with a violet glass, at once placed itself under the protection of the red glass, toward which it behaved the same as toward total darkness. Although we

are ordinarily unconscious of the fact, there is no doubt that our life processes are influenced—to a degree far greater than we are able to appreciate or comprehend—by these subtle emanations from the sun which are known as the chemical rays. We may indeed, be influenced by still more subtle emanations from those far-away sun which we call the fixed stars; so there may have been something more than poetry in the question of the ancient sage "Canst thou bind the sweet influences of the Pleiades?" The discovery of the "cosmic ray" by Milliken reveals ground for support of this conjecture.

DR. JOHN HARVEY,
—"New Health."

Balancing the Physical Budget

BALANCING the financial budget is a subject whose importance is being driven home by hard times, and many who are struggling to make such a balance are upsetting another one of even greater importance. At such a time it would seem the part of wisdom to examine the other budget and consider the factors that throw it out of balance.

When in health the "physical budget" rarely comes into the field of consciousness; but when accident or illness drives one to the hospital the "cost of medical care" becomes a live subject, and one begins to consider how it may be avoided. A prudent man insures his house against fire and takes out a policy on his life, but he waits until he has lost his health before he is willing to protect

it. He has often heard that it is cheaper to keep well than it is to recover from illness, but he will not believe it until he is confined to his bed. Despite the campaign for health examinations the average man of strong muscles is willing to take a chance on his greatest possession, is willing to gamble that he can keep well without help from any one. Perhaps he could in a less complex environment. After he has lost his bet, the bitter tonic of experience teaches him that he would have been far wiser if he had set aside a small sum to pay a health director.

A decade ago many of our loud speakers were saying "the family doctor is as dead as a dodo." Soon voices were heard wailing in the wilderness, and now the demand for the return of

the family physician is heard on every hand. Many members of clinical groups now realize to their sorrow that the relationship between doctor and patient always has been and always will be a dual relationship. This return to the appreciation of the family doctor seems to justify the use by him of the title of health doctor. He is the man who has made a complete examination and knows all your strong points and weak points; he knows the value of X in your physical sum; he can tell you how far you can go and when to stop; he knows your normal capacity and can appreciate what has been lost by illness; he keeps a complete history and full notes of each examination; he can tell you what your condition was last year and the year before; he knows whether you are losing or gaining ground; he takes pride in helping you to keep well; he knows where to call for help when needed, and he is interested in seeing that you get a square deal from all consultants.

Most illness may be considered avoidable accidents. The man who contracts small-pox or allows his children to contract diphtheria is not only considered negligent but also culpable. Why should a sick man be blamed for getting sick? Because he could easily have avoided small-pox by having himself vaccinated; and by neglecting to do so he endangered the lives of others.

• Not only self-interest but the interest of the community demands that each individual try to keep well. The community is doing its part in a big way by providing parks and baths, proper ventilation, pure food and clean streets. But the individual who never consults a health director or who does not know where to find one is not doing his part.

Who can estimate the boost one may receive from the possession of a health certificate? A man who passes an insurance examination often feels so proud he wants to tell his friends. The restoration of his confidence in his physical state may be a life-saver to the man who dreads cancer and is afraid to be examined. It may be demonstrated beyond question by the statistics of insurance companies that frequent physical examinations lessen not only morbidity and mortality but also expense. If that is true, is it not a wise plan for each individual to select a health director, one whom he can respect and trust, and go to him before getting sick, in order that the first examination may show his normal state? At this time the health director should explain to him what his limitations are and tell him what to avoid. He should tell him how to live and keep his health; he should discuss diet, the kinds and amount of exercise, the importance of elimination, the amount of sleep, the kinds and amount of clothing to wear, his limits in the use of tobacco and alcohol, and finally the necessity of avoiding overfatigue and worry. Then he should tell him what are the danger signals in his case, signals which should cause him to ask for advice.

Such a plan should enable one to say, as I have heard said; "My doctor has taught me how to live, and now I don't need him." You may call this suicide, but it is very soothing to the mind of a conscientious physician. Twenty or even ten dollars a year may enable the average man to avoid being sick, and those who cannot afford that amount may be examined in the free clinics. This is the cheapest insurance against the kinds of accidents which are most likely to happen to you and me.

—"Hygeia."

Advance of

Public Health Bill

THE Government of Madras have published their Bill which contains several clauses dealing with every aspect of Public Health. The Bill is a comprehensive measure with over a hundred and forty-four clauses. Its object is to make provision for advancing the Public Health of the Province of Madras. It comprehends almost of every modern Public Health administration and advantage has been taken in drafting the measure of the law and practice in other Countries especially in Britain. Many of the sections in the Bill being indeed on the basis of the English Public Health Act of 1936.

The Bill fully recognises that the objective of Public Health administration in the progress of the Countries is not merely the prevention of diseases. The goal is that of providing conditions of a healthy life, clean and good food, pure drinking water, proper shelter and housing and generally hygienic surroundings.

The Bill seeks to establish a Board of Public Health which is designed to be an expert one and a representative body. The Minister for Health will be the President, and the Director of Public Health its Secretary, the other Members of the Board will be the Minister for Local Administration, the Surgeon-General, one member elected by the Legislative Council, and two by the Legislative Assembly.

The salient features of the Bill are as follows:—

1. The Constitution of a Public Health Board for the Province.
2. The statutory recognition of the Director of Public Health and the vesting of adequate powers in him for the effective discharge of his duties.
3. The taking of power—
 - (a) to compel the employment of Health Officers by important local authorities; and
 - (b) to fix the scales and the conditions of service of the public health establishments employed by local authorities.
4. Provision that local authorities should earmark a definite percentage of their income for public health expenditure;
5. The imposition of an obligation on local authorities at the discretion of the Government to provide a sufficient supply of drinking water;

- and provision for the compulsory levy of a water tax for financing water-supply schemes;
6. Effective provisions for securing proper drainage, and a sufficient number of public latrines, etc.;
7. The prevention and abatement of nuisances;
8. Adequate measures for the prevention and eradication of infectious diseases;
9. The prevention, treatment and control of venereal diseases;
10. Maternity and child-welfare measures;
11. Mosquito control;
12. The reservation of areas for residential purposes, control over sanitary buildings and the abatement of overcrowding.
13. Registration of lodging houses;
14. Food control; and
15. Special provisions regarding fairs and festivals, including the levy of a pilgrim tax in the case of water-borne traffic and of tolls on vehicles.

—H. P. Board.

Baby's Sleep

WHEN baby sleeps, he grows. During the first few weeks of life a healthy infant sleeps from eighteen to twenty hours a day. As he grows older, he requires less sleep. At six months of age he may take sixteen to eighteen hours of sleep, a day; at one year, thirteen to sixteen hours a day up to two years, when it should be from twelve to thirteen hours in the twenty-four.

It is important that baby's sleeping period should be regulated from birth. Even after a child is three years old,

it is best that the nap be at the same time each day. Never give baby medicine to induce sleep. Soothing syrups often contain drugs that are dangerous for an infant to take. On the other hand, walking the floor is unnecessary. Habits are easily formed, and once formed are not easy to break.

There are many things that can be done to induce sleep; for instance, baby will go to sleep better just after a bath or when the bowels have been emptied. This makes sleep restful. It is not absolutely necessary for the

household to be quiet, for when baby is young he can become accustomed to going to sleep when there is noise; but the older he gets, the more sensitive he is to noise.

Do not take the baby out late at night. You are stealing flesh off his little body when you rob him of necessary sleep, just as much as if you were depriving him of his food. Nature's sweet, undisturbed sleep is baby's safeguard and requirement for daily growth and development.

Big pillows are not best. See that there is sufficient protection from cold under baby as well as over him. Often a fond mother smothers her little one with covers, while the mattress is thin, and the cold comes up and reaches the child through the mattress. Bedding should be aired and sunned every day. There should be no unpleasant odour in the nursery. In extreme cold weather or in cool sleeping apartments, pin the covers over the baby's shoulders, and give him long sleeves to protect his

If Baby sleeps with his mouth open, grinds his teeth during sleep, if his muscles twitch, or he wets the bed frequently, such symptoms should be reported to the family physician.

It is wise to turn small infants about every hour while sleeping. During the first week or so the head should rest an inch below the body.

This helps to remove the mucus in baby's throat. Do not cover his face. Keep him comfortable by using hot water bottles if necessary. Test each bottle by placing it next to your face. Also see that it does not leak.

The daily bath for baby is needed to keep the skin clean. Besides the cleansing bath, a tepid bath acts as a tonic. Bathing also equalizes the circulation.

The temperature of the bath should be regulated according to age. Have the water at 99-100 degrees at birth, gradually diminishing to 90-95 degrees at six months, and 85-90 degrees at one year. Do not guess but use a bath thermometer for testing the bath.

In bathing the baby, hold him with your left arm, well supporting the back, neck and head, leaving the right arm free for washing the baby. Because of the large pores on the soles of the feet and the palms of the hands, keep the baby's hands and feet exceptionally well bathed to help elimination. Do not use strong soap on the tender skin of a baby. Never use a hard instrument in cleaning baby's ears or nose. Keep the nails cut close to prevent scratching. Use the toothbrush as soon as teeth appear.

The most important thing to be considered in clothing the baby in cold weather is that the same amount of clothing should be on each part of the body, guarding well the parts farthest from the heart. The ankles and the wrists should be especially protected. Where the blood comes next to the skin, extra protection should be used in order not to chill the blood. If the skin is kept warm, the blood is not allowed to become congested. This precaution will prevent many attacks of illness in cold weather.

--"Good Health"

Obey Doctor's Orders!

"He can help only if he has your full co-operation."

THERE was a time when the family doctor was content to prescribe for his patient after counting his pulse and inspecting his tongue. Science has made the profession of medicine much more exact than it was in the days of our fathers and grandfathers. To use the clinical laboratory, the X-ray, and other technical methods is now the common practice of physicians. The doctor of to-day is not content to advise treatment until he has a fair knowledge of his patient, a history following the line of normal and abnormal conditions for years, often extending back to baby-hood.

Treatment may be immediately followed by a quick recovery, or it may consist of a series of habit-forming practices, a re-education, that will benefit the patient for years to come.

If any member of the family is ailing, call a physician and get an intelligent check-up, and follow his instructions as to procedure. Do not throw obstacles in his way by administering traditional remedies passed down from grandmother. It is surprising how many relics of the ancient medicine man still exist in this land of professed enlightenment.

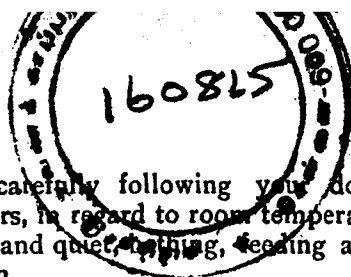
Your first need is to discover the cause of the trouble—the ache, the pain, the cough, the fever. So wonderfully is the body constructed that if the cause of trouble is removed, in nine cases out of ten, so we are assured, recovery will follow with little or no treatment or medicine.

In spite of the multiplicity of hospitals, many even yet cannot have hospital care in case of illness. The patient

must often be cared for in the home without the constant attention of a physician, and with the aid of the practical rather than the professional nurse. Co-operation of the patient and those in charge of the case with the physician is most important. The instruction of the doctor should be carried out scrupulously; the closest attention should be given to laws of sanitation, isolation, disinfection, rest, diet, protection from noise, and from well-meaning but unwise visitors.

If a well-trained nurse makes specific note of the doctor's orders, it is doubly important that the inexperienced or untrained attendant in the home should know and understand the instruction and follow it. When the doctor calls, write down all his orders. Between his visits keep an accurate account of any unusual symptoms or other details that should be reported to him. Do not depend upon the memory, but write these things out and report from your notes. This is called keeping a chart. Your physician will appreciate this bit of technique more than you imagine, and it may mean the difference between life and death to your patient. On this chart should appear notations concerning temperature, pulse rate, respiration, body functions, any peculiarities of appetite, and similar details. The doctor will interpret these items to you and explain what should be done for the recovery and comfort of the patient.

Confusion in the sick room, too many visitors, and other distracting matters may cause sleeplessness and nervousness that make necessary the administering of harmful drugs by the physician. Often this may be avoided



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AROGYA MARGAM

by carefully following your doctor's orders, in regard to room temperatures, rest and quiet, bathing, feeding and so forth.

If the physician advises that the patient should not be moved, obey him. Serious results frequently follow disobedience in this respect.

Certain big things should stand out in the mind of any one attending the sick. Sleep is Nature's great restorer. Do every-thing possible to protect a sleeping patient. Even though the time arrives for giving medicine or treatment, if the patient is sleeping normally, let him sleep. If you have reason to doubt the wisdom of this procedure, ask the doctor. He will either confirm your judgment or correct you. Then again, follow his advice.

Proper diet holds an important place in the care of the sick. It is coming more and more to be recognised as one of the most essential items. The up-to-date physician expects his diet prescription to be followed to the letter. In many cases a digression from orders may prove most disastrous. Generally speaking, in case of high fever the patient is placed on a liquid diet, consisting of fruit juices and the broth of vegetables and grains. To feed such a patient with a diet of heavy or inappropriate foods might produce serious results. There are a number of diseases in which recovery depends ninety-five per cent upon proper diet and correct administration of it.

The absolute necessity of keeping a fever patient in bed the prescribed length of time has recently been forcibly impressed on my mind. A hard-working professional man recently came under my care. Six days before he had suffered a slight attack of influenza. He stayed in bed two days, and feeling much better, went back to his work, although he still had a slight rise of temperature. Four days later he was

back in bed, but after a few days' treatment he repeated the experience, going again to his office, with a slight resulting fever. During the remainder of the six weeks he continued to have relapses. I found he was running a temperature of 104 degrees. He was suffering from acute bronchitis with some symptoms of broncho-pneumonia.

I told the family of the serious condition, but even then remonstrated against remaining in bed. There followed weeks of the bravest battle a man ever put up under the care of competent nurses; the disease had such headway and his vitality was so weakened by repeated relapses in the early stages of the disease that it seemed at times his would be a losing struggle. Septicæmia, a blood-stream infection, made his case a grave one; but the family co-operated to the limit, and at the end of eight weeks he was on his feet again.

This whole experience, which came so near terminating fatally, was the result of presumption on the part of the patient. Had he remained in bed for two or three days after his temperature was normal, and had he been careful not to over-exert himself for a short time, doubtless he would have saved himself a long and expensive illness.

Take your doctor's advice. Let him guide you as to the time to resume your duties. The convalescent period is possibly the most critical part of your illness. Do not get up too soon.

Simple rules, all of these, just commonsense producers if we stop to think seriously. Fresh air, sunshine, good water to drink and plenty of it, judicious use of hydrotherapy, proper diet, rest, and sleep—these are the natural medicines, which every person called upon to attend the sick can administer, especially if there is faithful co-operation in carrying out the doctor's orders.

"Good Health"

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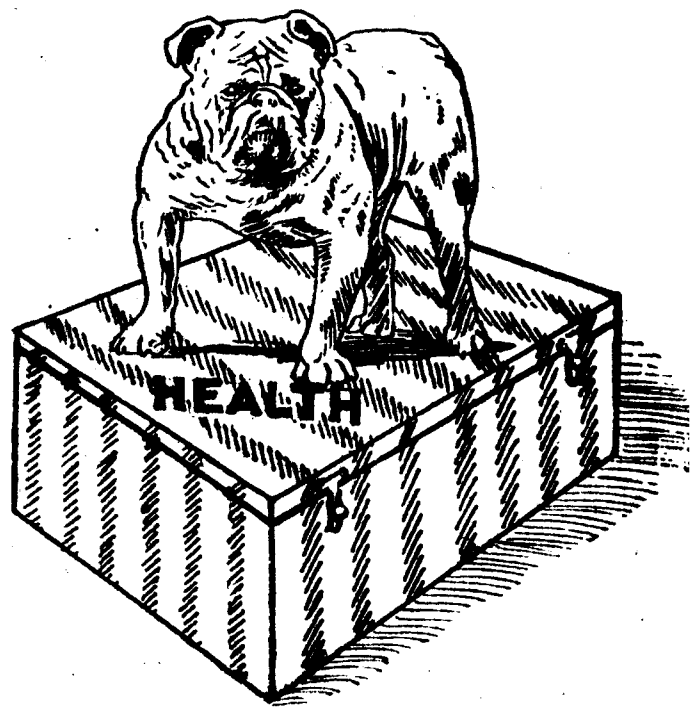
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