

ESTD. JAN. 1923.

# Health

*A Journal Devoted to  
Healthful Living*

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Annual Subscription Rs. 1-8. Foreign Rs. 2. Post paid.

Editorial and Publishing Offices :—323, Thambu Chetty Street, George Town, Madras

Vol. XVI.

OCTOBER, 1938.

No. 10.

## Editorial

### The Three Immediate Needs of the Indian Villager

THE Hon'ble Dr. T. S. S. Rajan, Health Minister of Madras, made an interesting and instructive speech recently at the Central Co-operative Institute, Mylapore, on the subject of "Rural Hygiene", in which he dwelt on the need for tackling the problems relating to protected water-supply in rural areas, adoption of suitable mixed diet and provision for the supply of good milk for children in the villages, which, in our opinion, are the three immediate needs of the Indian Villager at the present day, and urged on co-operators to undertake village re-construction work on these lines. Co-operation, he said, was a thing not unknown to Indians and the old joint family system, which alas! is now almost extinct,

was really a form of co-operative effort. Co-operators must first understand the wants of the villagers and try to provide them.

The first place is given to protected water-supply. More than 40% of the diseases of mankind is due to impure and unprotected water-supply. The villager is ignorant of the fact that cholera, dysentery, diarrhoea, typhoid etc. are water-borne diseases and instruction must, therefore, be given to the villagers, as to how these diseases break out and how to prevent them. The danger is greater in villages where plenty of water is available. On this point, the Hon'ble Minister observed: "Epidemic Cholera is quite common in villages which are situated in the delta, whereas in the

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villages which actually have no supply of water, you may not have seen the out-break of cholera for a number of years. Plenty of unprotected water-supply is worse than very little water-supply and is more dangerous to health". In villages, generally, tanks had been the chief sources of of supply and had been well-protected in the past. A watchman was always put on guard there and was paid monthly in kind by the villagers on a co-operative basis. This system, for various reasons of which faction and disunion among the villagers are the first and foremost, has been discarded and we now see the sorry spectacle of tanks becoming shallow and the water being used for all purposes—ablution, bathing, drinking, cleaning cattle, ploughs and other instruments. These tanks must be renovated and their catchment area cleared of all bushes and noxious vegetation and the old system of employing a watchman revived, so that they may become sources of good and cheap water-supply. We have already drawn the attention of the Government to the neglect and disuse or misuse of these tanks in our *Health* of Nov., '37. We reproduce those observations here and commend them again to the Government :—

"In villages where there are already tanks and wells, the tanks must be repaired, deepened and reserved for drinking purposes. The catchment area must be kept unpolluted. The wells must be provided with pumps. The old system of appointing a watchman to guard and protect these water-supplies must be revived and the village menials who have no work during a major part of the year may be deputed to this work by turns

without additional expenditure to the state. In the 'consolidated Public Health Act for our Presidency' which, we were told, would soon be placed on the Legislative anvil, penalties for pollution of water-supply in rural parts should be included. We wish there are separate Acts for urban and rural parts, as their conditions widely differ."

The second immediate need is the Diet Reform. Referring to the Diet Problem, the Hon'ble Minister said : "You should remember that of all the dietaries in the world, the South Indian diet is the poorest. Ragi being considered a poor man's diet is given up by the upper classes who have taken to rice. But, they should realise that ragi, even though it is labourer's food, is more sustaining than rice. It will take them through work from morning to evening without fatigue. If they take ragi or kambu, they will have to walk many miles or do some energetic work so that it may be consumed by the body. They are in need of a suitable mixed diet".

Ragi, the poor man's food, is fast disappearing even in the poor man's home in the village parts. He too has begun to eat rice, having come into contact with the industrial labourer of the urban parts. Thereby, the villager's or the agriculturist labourer's physique is also deteriorating and he is not now-a-days able to do sustained work for any length of time.

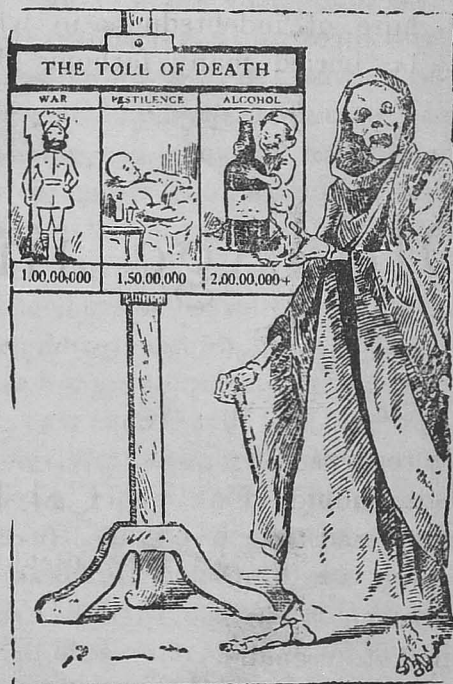
As for the upper classes, we don't think any amount of persuasion will avail and they will never touch ragi even with a pair of tongs. But they need to be told that ragi is useful to them in a different way. It is a

notorious fact that 90% of the upper classes and the middle classes suffer now from a terrible malady called diabetes. According to Ayurveda four kinds of people constantly suffer from some disease or other, *viz.* (1) an over-religious teacher, (2) a Government Servant, (3) a prostitute and (4) a petty trader, who by the nature of their work do not in proper time attend to the calls of nature or take their food at proper time or have any peace of mind. Luxurious eating and comfortable living, mental worry and want of physical exercises, which are common among the upper and middle classes of to-day are responsible for diabetes. In prescribing a proper diet for diabetes, Susruta says: "Even if he were a rich man, he should live in the company of wild animals and live upon wild food-stuffs, such as Syamaka and Nivara grains (Coarse rice), Amalaki (Nellikai) (Usirikai) and wild fruits like Tapidla (wood-apple) and Tinduka. In practice, it has been found that ragi conjee suits diabetic patients very well". Co-operators would do well to instruct the well-to-do also in towns to have recourse to ragi-conjee or ragi-cake, if not regularly at least occasionally, and take plenty of exercise, such as walking, and thus give a deep burial to diabetes, their Enemy No. 1.

Lastly comes Milk. The observations of the Health Minister on this subject are noteworthy and they truly reflect the present horrid plight of the villages. He said: "In the villages they have very little of that precious thing which is so necessary for human life, *viz.* cow's milk. You see tons of it in coffee hotels here but when you go to the villages, you will

feel the scarcity of it. Where there are cows, they do not give milk, for they are poorly nourished. Milk to be good and be called "amrita" should contain the essential elements of life but hungry cows will never give anything like that. There is no village in India which can say that they can get enough milk to meet the requirements of the hungry little children there".

We have said enough already about the milk problem in our *Health* and we do not therefore wish to



Yama—the God of Death has been kept at bay at Salem, where there is less of crime, less of disease and less of hunger now due to Prohibition.

weary our readers with further comments. The food and milk problem in the villages is more an economic problem than anything else and unless the standard of living of the villager is raised, he must perforce forego all the good things he can produce in return for a bare one-day meal for him and his family and for clothing to cover their nakedness. We see a silver lining now in the dark cloud that

has been enveloping the villages and reports from disinterested parties and economists assure us that Prohibition in Salem has already done immense good to the villagers and they are now well-fed and well-clothed. Men and women of the labouring classes and of the lowest strata of Society are putting on a cheerful countenance, look hale and healthy and are enjoying the pleasures of home-life, without brawls and beatings. The Debt Relief Act is also conferring a boon to the agriculturists and is lifting them up from the mire of indebtedness in which they lay buried many fathoms deep

for very many years. Protected water-supply has also been assured and there is a funded capital for that purpose. Every village in the course of a few years may have the benefit of a protected water-supply and may be able to successfully defy the water-borne diseases. Thus peace, plenty and prosperity and freedom from diseases have come in the wake of the Congress Ministry and it behoves every one, not merely the Co-operators, to help them in the arduous task they have undertaken, viz. the betterment of the lot of the diseased and poverty-stricken in the land.

# Old Age and its Ailments

(Continued from page 199, Vol.XVI, No. 9, Sept. 1938 issue of "Health".)

Diet.

**A**s regards *Diet*, it should be remembered that, in adult age the food eaten is intended to repair

waste in the body and to supply energy for the daily activities of life. In youth, of course, the object of food eaten is, in addition, to promote and advance growth of the body. That part of the food which is superfluous or is not required for the functions mentioned above is thrown out of the body by various excretory channels, the solid part as excreta or fæces, the liquid part (which is circulating in the blood) through urine and perspiration. If any of the substances from the food which are not utilised

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P o o n a .

by the body are not thrown out of the body by excretions mentioned above, they remain as foreign matter in the

body and act as irritants and sometimes even as poisons. When this foreign matter remains in the body trouble starts and illness and disease results. As age advances and signs of senility begin to creep in or assert themselves, the endocrine glands as the Pituitary, Thyroid, Parathyroid, Adrenals and the Gonads or the sex glands, which produce internal secretions in the body, as well as the glands in the mucous membranes which produce external secretions as the saliva, gastric juice,

intestinal juice etc. wear out and do not function as well as before. That is why the appetite is lessened, and as our activities are lessened with age, the demand for food should be correspondingly reduced and one should eat less food than before. But do we do it? Generally we don't, unless absolutely forced to do it, as eating less is considered a sign of ill-health and stomach troubles, instead of being considered as a natural sequence of the passage of years and an adjustment to changed condition of the body. Also the excretory glands in the body as the kidneys and sweat glands are not functioning as actively as before. Hence the channels for the removal of this stagnant foreign matter in the body are working at a lower level than before. But if the intake of food is just the same as before and is not adjusted to the varying conditions of functioning of the endocrine and secretory glands in the body or to the excretory or eliminating capacity or power of the system, foreign matter from the food remains in the body and disability and disease is bound to occur. In this way uric acid, urea, urates, oxalates, phosphates, various kinds of proteins and carbohydrates and other substances which formerly could be utilised in or excreted by the body, remain, when in excess, in the system and begin to irritate and poison it. So the important thing to do as age advances is to adjust one's food requirements to the needs of the body. Do not over-eat. Eat only such foodstuffs as are easily absorbed and assimilated. Cereals or grains and potatoes, being predominantly starchy, are heavy and tend to produce gas and flatu-

lence. So their intake should be curtailed to the absolute minimum. Similarly beans and lentils and other dicotyledonous seeds should be considered in the same way and their consumption also should be reduced to the minimum. Fruits, succulent as well as vegetable ones like tomatoes, fresh roots and leafy vegetables should be eaten in good quantity. Every diet has a caloric or heat value and consists of Proteins, Fats, Carbohydrates, Mineral salts and Vitamins. But the satiety value or feeling of satisfaction after food is also an important factor and this is mainly responsible for our over-eating, specially cereals like rice, because we go on eating till we feel satisfied and then consider that our hunger is appeased, though the body does not require all that food for its needs. This satiety feeling can be met with by drinking liquids in addition to eating leafy and green vegetables and fruits. All these go to fill the stomach and satisfy without adding heavily to the caloric or nourishing value of the food. Milk and curds and butter-milk should be taken for this purpose. These also help in filling the stomach and producing a feeling of satisfaction. Milk, as such, should not be taken in large quantities for it contains calcium, though in small amount, and there is a tendency in old age to a deposit of calcium in tissues causing atheroma and such other diseases. In non-vegetarians, one or two eggs is a good substitute for milk. So also is cheese. Meat should be taken in small quantities as any excess is likely to remain in the body as foreign matter since the emunctories (excretory glands) are not working on the same level as

before. Soup should be considered as a food for its satiety value.

#### Exercise.

As regards *Exercise*, one should see that the object of exercise in old age is to keep up the tone of the muscles of the body and to keep the excretory functions active. Muscular exercises for the limbs are not so necessary as those for the trunk. Violent exercise to weary one or causing strain or fatigue should be avoided as, though at the time, it may feel agreeable and pleasant, its reaction or after-effects may be harmful. Take regular exercise and see that all the joints in the body are properly moved at least once a day. The kind of exercise to be taken or games to be played depends on what kind you have been used to in your earlier life. Mild muscular exercise and games like Badminton and Lawn Tennis can be kept up to a good age, whilst more violent games like Cricket, Hockey and Football have usually to be given up. Golf is practised by good many well-to-do persons in Great Britain up to a late age. But most persons after the age of 50 years prefer and take to walking as the chief form of exercise. It is not an unusual sight to see groups or troops of pensioners going out for their morning walk or ramble in most of the towns and cities in this country. Some walk 2—3 miles, while others 5—6 miles a day. But what should be kept in mind is that for some days in the week, say twice a week, a good perspiration or sweat-out should be aimed at. For, a good perspiration is a very desirable way of getting rid of any poisons or excesses in the body. Exercise should help

to keep up the tone of the muscles and the suppleness of joints. Over-stretching or over-bending should be avoided as it may likely lead to strains and sprains. Muscular development or feats of strength or athletic feats should not be the ambition as age advances, but just sufficient exercise to keep up the muscular tone to prevent the body getting flabby should be the aim. When active exercise cannot be taken or even to supplement it, passive exercise as massage or *Malish* (Hindi word) is very desirable.

#### Feasting and Fasting—Laxatives.

In India, there are so many holidays and occasions for feasting that one is often tempted and sometimes coerced into over-eating on such occasions. At these times, one should attempt to get rid of the excess of the food eaten by more exercise and a good perspiration. It is not desirable, though occasionally it may be necessary, to have recourse to laxatives and purgatives to empty the bowels of the excess load. But another good way to get rid of such excess is to do an occasional fast. If one is not feeling quite up to the mark, to 'miss a meal' now and again is a good dictum to follow. Then the body gets a chance to use up the excess for its daily working, the balance is restored and no evil effects follow.

#### Habits.

So far I have mentioned how to regulate one's diet and exercise, to keep healthy in old age. Also remember that your habits, as regards smoking, chewing or eating tobacco and pan, drinking and other habits, which, on account of long use, may

have become a part of your nature and hence uncontrollable, will have to be guarded against and regulated in old age. Excess in them is to be avoided and their consumption and use should be gradually reduced. Tobacco and alcohol may not harm you when you are young and active, though both these are neither desirable nor necessary. When young and active, a person can get rid of any excess of these absorbed in the body, by the emunctories or excretions but if their quantities in use remain the same and the activities of young age subside, the excess is bound to produce ill-results. So also with tea and coffee. After 40 years of age one is a fair judge of what amount suits one without causing any harm. Here instinct should be your guide and reason should control your habits. The word moderation in everything should be your motto and watchword in old age.

#### **Respiration and Breathing.**

I will end this article with a few words on *Respiration* or Act of Breathing. The views expressed herein are my own and based on personal observation and experience. I am not aware of having seen them anywhere before or of their having appeared in any book.

#### **Ribs—Number and Attachments.**

The Ribs in the human body are generally 24 in number, 12 on either side of the chest. All the ribs are attached to the spine behind but only seven of these, the upper seven, are attached to the sternum or breast-bone in front through their cartilages. The next three are joined to the cartilage of the rib above, also through their cartilages. That is, the

8th is joined to the 7th, the 9th to the 8th, the 10th to the 9th, in front. The front ends of the 11th and 12th ribs are free and not attached to any bone or organ and hence they are called Floating ribs. There must be an object in this arrangement if everything in the body is made with a definite purpose or if 'there is a divinity that shapes our ends'.

#### **Types of Breathing.**

There are three types of Breathing which human beings can do and practise, the thoracic, the thoraco-abdominal, and the abdominal. These are the recognised types of Breathing. In the thoracic type, the upper six ribs move sideways and in front and with them the upper parts of the lobes of the lungs. The thoraco-abdominal type moves the lower six ribs, the 7th rib acting more or less as a fulcrum for the 8th, 9th and 10th ribs. If a forcible expiration is taken in this type of breathing (thoraco-abdominal) which means moving or pushing out the lower half of the chest sideways and then retracting or pressing it in, the contracting muscles press on the liver, the spleen and probably on the solar plexus (which is situated behind the stomach and practically rests on the spine) and this serves as a massage for these structures. The third type of breathing is purely abdominal, where the abdominal walls are pushed out in front and retracted afterwards. If this retraction is done forcibly, it causes a forcible expiration or expels the air out from the lungs with force. In this, the contracting abdominal muscles press on the intestines and abdominal organs like the kidneys and probably on the adrenals and act as a massage

for them. So it is desirable, if not necessary, that a person should practise all these three types of breathing for a few minutes every day. With a little practice and patience one can inhale air and expand mainly the upper part of the chest only. Take a deep inhalation expanding the upper part of the chest only as far as possible, when you cannot inhale any more, stop or rest for a few seconds and then gradually and slowly exhale. When at the end of exhaling, try to contract the muscles of the upper chest wall and by this forcible expiration you can force out most of the remaining or residual air in the upper parts of the lungs. After this forcible expiration, stop for a few seconds and then start the inhalation again repeating the whole process. Do this about three or four times at a time once or twice a day. That will be found enough. This is thoracic respiration.

#### **Thoraco-abdominal Breathing.**

Then do the thoraco-abdominal breathing. In this, while inhaling, expand only the lower part of the chest which merges into the upper part of the abdomen. The inhalation of air should be done while expanding this part of the chest which can expand sideways a good deal. Take a deep inhalation and when you cannot inhale any more, stop for a few seconds and then begin to exhale. Do this also slowly and gradually and at the end of it contract your lower thoracic and upper abdominal muscles. Then rest for a few seconds and begin the inhalation again repeating the whole process. Doing the expiration forcibly by contracting the muscles, not only some abdominal organs are massaged but the remaining or

residual air in the lungs is completely forced out. Do this also 3 or 4 times at a time, once or twice a day. Remember that in both these types of breathing the inhalations should always be slow and deep and so should be the expirations. It should be known also that with deep thoracic breathing some movement of the lower chest and of the abdomen takes place and with the deep movements of the lower chest (thoraco - abdominal breathing) some movements of the upper chest and lower abdomen also occurs.

#### **Abdominal Breathing.**

The practice of the third abdominal type of breathing consists in bulging out in front the lower part of the abdomen below the ribs, then rest for a few seconds and then retract it. At the end of retraction, contract the abdominal muscles forcibly so that pressure is felt inside the abdomen and this makes the air come out of the lungs in a forcible expiration, the retraction of abdomen consequent on the contraction of the abdominal muscles presses on the abdominal organs and to some extent massages them. Do this breathing about 3 or 4 times at a time, stopping at the end of each retraction a few seconds before repeating the process by bulging out the abdomen again. To do this 3 or 4 times at a time, once or twice in the day, is enough. Occasionally one can combine these types of breathing in the same act of respiration. One can do 1 and 2 or 2 and 3 or even 1, 2 and 3 together in the same act of breathing once or twice in the day.

#### **Uses of these Types of Breathing.**

Practice of these types of breathing is good for any age and is very



useful in old age. It keeps up the tone of the muscles of the trunk, of the lungs and of the abdominal organs and some of the endocrine glands by pressure on them. Deep and forcible breathing for a short time every day opens up all the alveoli or air-spaces in the lungs for the time being. In ordinary breathing the lower part of the lungs is not ordinarily exercised and this is the part which, on exposure, is likely to be first affected, causing Bronchitis which, if not guarded against, may lead on to Pneumonia. In addition, in the abdominal breathing above described, due to the contraction of the abdominal muscles, their tone is kept up, the abdominal organs get pressed on and massaged and this helps them to function properly. The intestines also do not tend to sag down and visceroptosis of other organs is also prevented. Massage of the solar plexus, which is considered to be the centre and regulator of vasomotor disturbances and emotional reflexes, controls these and helps to stabilise the nervous reactions. This massage is effected by pressure exerted at the end of forcible expiration by the contraction of the muscles of the lower part of the chest and the upper part of the abdomen. In fact it is a good plan to take a few deep thoraco-abdominal respirations when one feels excited or nervous or apprehensive. After a few

of these breathing exercises, one regains one's balance and feels composed and calm. When you need it, just try this and you will know its value.

#### Endocrine or Ductless Glands—Retarding Old Age— Rejuvenation.

The abdominal respiration or breathing, by pressing on the adrenals, keeps them active and they are one of the main endocrine glands which are considered to be responsible for one's vitality. The adrenals, the thyroid and the pituitary glands are the chief ductless glands in the body, which along with the gonads or the sex glands and some other glands like the parathyroids keep up the proper functioning of the body. These endocrine glands are also vitalised in Yogic exercises as in some Asanas of Hatha Yoga and in Pranayama. So, in old age when one is feeling depressed and weary, lethargic and dull, it is good to take a few grains of thyroid gland, now and again. A course of Iron and Arsenic, along with the thyroid, is also recommended to be taken sometimes in retarding old age by keeping up endocrine activity. Old age is caused by changes in these ductless glands primarily and the modern attempts at Rejuvenation by transplantation of glands or methods to increase their internal secretion are based on this principle.

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#### What Elderly People Should Eat?

Many elderly persons suffer from rheumatism, arthritis, high blood pressure, or a combination of two or more of these diseases. Such individuals should take particular care to keep the diet an easily-digested one. Cereals, fruits, vegetables, and milk should chiefly be used; and gas-forming foods, meat, condiments, tea and coffee should be strictly let alone.

The elderly person's dietary should consist of simple, easily-digested foods—those low in protein and fat and liberal in vitamins and minerals. Such a program is not hard to follow, and a happier old age is almost certain to be the result.—*The Oriental Watchman*.

# A Dangerous Teacher and the Lessons He Teaches About Tuberculosis

By Dr. Frimodt-Moller, C.B.E., (HON.), M.B., CH.B., (COPENHAGEN),

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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 tuberculosis 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. The same kind of thing is happening today, 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.

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

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\* A Broadcast Talk at the All-India Radio, Madras.

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 tuberculosis 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, but have also made him actually suffer from that disease. 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 tuberculosis disease were found.

What actually turns infection with tuberculosis into active tuberculosis 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 tuberculosis 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 tuberculosis 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.



Open Air and Sun-shine are the Enemies of Consumption.

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 has 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.

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### Early Signs of Tuberculosis.

The earliest physical sign in the chest in tuberculosis is a decrease in both chest expansion and in lung resonance, on the affected side. Apical rales, increased after coughing, are corroborative.—*Od Quarterly*.

# Nutrition in Health

By Dr. M. A. Ramachandra Rao, M.B., C.M.,

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(Continued from P. 75, Vol. xvi. No. 4, April '38, issue of Health.)

I HAVE told you that the second purpose of food is to provide material for producing energy. Even when the body is at rest a certain amount of heat is produced by the working of the lungs and by the working of the heart muscles. The heat or energy is at its minimum during rest and increases according to the work done by the body. It is highest in labourers working hard. The unit of heat is expressed in calories. A calorie is a unit of heat required to raise the temperature of 1 gm. of water through 1° centigrade.

An expert Commission of the League of Nations has drawn up the following statement about energy requirements:—

(a) an adult, male or female living an ordinary every-day life in a temperate climate and not engaged in manual work, is taken as the basis—an allowance of 2400 calories per day is considered adequate to meet the requirements of such an individual

(b) the following supplements for muscular activity should be added.

Light work	75	Calories per hour of work.
Moderate work	75 to 150	do
Hard work	150 to 300	do
Very hard work	up to 300	calories and upwards per hour of work.

This energy is supplied by the intake of foods. Every food-stuff

produces certain amount of calories and in order to get the required number of calories a well-balanced diet should be aimed. Food as you know contains proteins, fat, carbohydrates, minerals and vitamins in various proportions. To maintain a balanced diet, there must be in every man's food:

Protein	... 65	grammes per day.
Fats	... 45	grammes per day.
Carbohydrates	... 350	grammes per day.

in addition to minerals and vitamins. 2500 caloric diet can be obtained from cereal itself but that kind of diet is defective for it has been found out by experiments that a well-balanced diet should contain 1 part of protein, one part of fat and 4 parts of carbohydrates in addition to important minerals and vitamins. Every food contains Protein, Fat and Carbohydrate in various proportions, in addition to Minerals and Vitamins.

*Proteins*:—Protein is found in large quantities in pulses, milk, milk products, meat, egg, fish, etc. The outer layers of the grain are richer in protein than the inner and when wheat and rice are highly milled there is some loss of protein as well as of other valuable food factors, such as vitamins and mineral salts. Among the vegetable foods, the pulses are the

richest in protein. Leafy and root vegetables and fruits do not contain much protein. In cereals, such as Rice, Ragi, Wheat, Camboo, Cholan, it is found in small quantities.

*Two kinds of Proteins* :—There are two kinds of proteins. (1) animal protein and (2) vegetable protein. These are the things required for the growth and repair of cells of the body. Hence for infants and children protein is very important. There should be about 100 grammes of proteins per day and of these about 30 grammes should be of animal protein, for the animal protein closely resembles in structure to the tissues of human beings and hence very easily absorbed, whereas the other proteins from vegetables must undergo changes in the stomach and transformed into suitable proteins for absorption. Proteins, more than the required quantity, give rise to diseases. e.g. Kidney Diseases.

*Fats* :—Fats are fuel food and occur both in foods obtained from animals and from vegetables and it is well to use both. Examples of animal fats are butter, ghee, and fish oils; examples of vegetable fats are margarine, cocogem, gingely oil, olive oil, groundnut oil, coconut oil. Fats are first class fuel foods and we need less of them as they produce, weight for weight, more than twice as much energy as either proteins or carbohydrates. In digestion, fat is split into fatty acids and glycerol and these pass through the intestinal wall. When fat reaches the tissues through blood it may be burnt as fuel and if not required for combustion it is stored in sub-cutaneous tissue as a reserve fuel during want and sickness. Subcutaneous fat is deposited more thickly and evenly in females and

hence the feminine curves. Hence, women can stay in cold water much longer than men-bathing places are examples-the layer of fat acts like a blanket preventing loss of heat from the body. After a wreckage, females survive very often and not men. Sometimes it is a curse when large amount is deposited. Fat is quite essential for two reasons.

1. Keeps pangs of hunger a little longer as fat is slowly digestible.

2. Animal fats are better than vegetable fats as they contain an abundance of vitamins A and D (fat soluble vitamins) and are necessary for growth and health and for maintaining the resistance of the body against infectious diseases. Vegetable oils do not contain vitamin A, and hence when vegetable oils are used, other food stuffs rich in vitamin A, should be included. In India, milk, butter and ghee which contain vitamin A are very scarce and very often ghee is adulterated. Those who cannot get enough of milk, butter, and ghee and whose religion allows them to eat animal foods should include, liver, egg, fish, or fish oils in their food, and those whose religion does not allow them to eat these things must if they cannot get milk, butter or ghee, eat plenty of green leaves, such as, spinach, watercress etc. and yellow vegetables such as tomatoes and carrots or sprouted grains to help to supply the vitamins that are lacking in the vegetable oils. But it is difficult to get from these vegetable sources all the vitamin A the body needs, so that milk and milk products are necessities which few Indian children can do without if they are to remain in vigorous health.

*Needs of fat* :—The standard about a century ago, was 100 grammes per day. Now it is put down as 50 grms.

per day. Fats are needed (1) to provide energy and vitamin A to make tissue firm, to prevent loss of heat by the body, to fill out its contours thus adding to its beauty, to protect delicate organs like kidneys from injury and also to help the body to use calcium which is one of the most important body building mineral materials. Calcium will not be absorbed from intestines if there are not enough fats.

(2) To protect the velvety lining of the stomach and intestines from injury by harmful substances produced in them when food is not of the right kind by their greasy nature and by the soapy substances which are formed from them in the bowels.

(3) To prevent the tendency of swelling of feet and legs amongst people whose food contains little or no animal fats.

(4) Lastly animal fats keep the body protected against infection by microbes.

*Carbohydrates* :—These are the second *grade classes of fuel foods*. They include starches and sugars of every kind. The foods containing carbohydrates are arranged in the order of their value :—

(1) White and brown sugars, jaggery, honey.

(2) Sago and Tapioca.

(3) All cereal grains, rice, ragi, maize, barley, wheat, oats, cholam and cambu.

(4) Dried fruits.

(5) Dhals and Grams.

(6) Nuts and seeds. Dried peas and beans.

(7) Potatoes, garlic, yams.

(8) Fresh fruits.

(9) Green leafy vegetables.

As with every other ingredient of food—protein, fats, mineral salts and

vitamins—so with carbohydrates it is best to mix the sources from which we obtain them. It would not be wise to use jaggery or sugar alone as these are too concentrated and harmful nor could we obtain all the carbohydrates from vegetables and fruits as we should have to eat a large amount of them and our stomach and intestines are not designed by nature to receive and deal with so much vegetable food. Nor can we rely on peas, beans dhals and grams as we should then take too much proteins. So a mixture of all carbohydrates containing food is good. All cereals are mostly made up of carbohydrates though they contain some proteins, fat and mineral salts. They are all of about equal value as fuel, foods and energy producers. The carbohydrates are most economical and cheapest of all ingredients of the food. Besides being necessary as fuel for production of energy and heat, carbohydrates enable the body to make proper use of proteins and fats of the foods. When the food contains all the essential ingredients—proteins, fats, carbohydrates, mineral salts and vitamins in proper amount and proper proportion to one another, then the carbohydrates part of it, is easily and completely digested and none is left in the intestines. But when there is too much carbohydrates in food which is a very common fault of Indian diets, a lot is left over in the intestines, where it ferments, and produces gas, and irritating acids. This may result in flatulence, indigestion and diarrhoea. Too much carbohydrate prevents other essential ingredients of the food—proteins, vitamins and mineral salts—from being properly absorbed. Diets which contain too much carbohydrate cause dental decay. Too much rice and sweetmeats is the common cause of diabetes among well-to-do people in India.

(To be continued.)

# Health Education for Children

“**H**EALTH” has been defined as “something more than physical fitness, the mere absence of disease. It is a state of mental, spiritual, and physical fitness, an harmonious adjustment of the individual life to the social environment”. In other words, health is dynamic, an active state of living. “Fitness” means much more than physical strength, a well-developed body. It is also a condition, created by the combined influences of wholesome food, good sleep, regular exercises, and suitable rest. The absence of this healthy condition is responsible for more misery of body than any other preventable disease.

2. How is this positive “HEALTH” to be achieved? At what stage of life can we, most effectively, tackle this problem for the benefit of the Nation? A League of Nations’ enquiry into the period of life, when men are most liable to attacks of all diseases, has revealed that it is the “Period of adolescence”—5 to 16 years of age. In this connection, one is reminded of the importance of the famous saying, “the Child is the Father of the Man”. And, therefore, it is this young period of life, the childhood and the youth, that must be carefully looked after and nurtured. Regarding this aspect of the problem, the prenatal care of expectant mothers and the child welfare scheme have to be reckoned with, which I hope to discuss separately in another issue.

3. The Health Policy of all advanced countries to day, Europe, America,

By

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and elsewhere, is “to insure a healthier second generation, a still better third generation; and to promote a healthier and fitter Nation and Race”. Has India any such policy? None. Have the Indian public leaders devoted their attention to this major problem of building a healthy and fit Nation, as much as they have done with regard to politics and political activities? It is too obvious to escape one’s eyes that the children of to-day and the college students (the rising generation) are distinctly poor in physique and bodily health, which is indirectly affecting the body politic of our country. Therefore, India needs a Health Policy to build a healthier and fitter Nation.

4. The child’s health practices and habits are influenced by the parents at home, the teacher at school and his environments. To the child, the father or teacher is an authority, for the children “do as the teacher or papa says”. These health practices, arranged through regular health-programmes for children should be imparted according to the interest, needs, and the age of the child.

5. The school health programme for the health education of children, that could be carried out without



much trouble and expense by the educational authorities are :—

- (1) To arrange for *hygienic* condition of teaching ;
- (2) To *train* pupils to live hygienically while at school ;
- (3) To *provide* for the correction of physical defects, as far as possible ;

as safety practices, mental and social health, sanitation and health services should also be given to the children.

6. The fourfold aims of this general scheme of health education for children are:—

- (1) To instruct children and youths, so that they may conserve and improve their health habits ;



Physical activities are essential for girls as for boys. The picture shows girls of Lokamanya Seva Sangh, Vyayam Shala, Vile Parle, taking 'Lathi Exercise'. In view of the larger employment of women in the Police Force in India to-day, this is doubly advantageous i. e. as a health giving and as a bread-winning Exercise.

- (4) To provide physical activities *suited* to the health needs of the pupils ;
- (5) To *teach* pupils useful health knowledge ; and
- (6) To encourage pupils to *practise* hygienic living, outside of the school.

• Apart from these health instructions, other health knowledge, such

- (2) To establish in them the habits, and principles of healthy living, which in later years will assure the greatest possible happiness and service in personal, family, and community life, and thus prepare him or her for the future citizen to lead a health campaign ;

- (3) To influence parents and the

community through this  
Health education ; and

- (4) To promote a healthier and  
fitter Nation and Race.

With regard to health education, the Board of Education, England, has suggested that "the health and well-being of the child is the primary foundation of its education ; to live well is good, but it is necessary first to live ; and in order to live, we must obey the laws of Health"

7. The laws of Health are simple, based on the FIVE fundamental necessities of healthy life, namely:

- (1) Wholesome food ;
- (2) Cleanliness ;
- (3) Sleep ;
- (4) Exercise ; and
- (5) Rest.

These laws of Health must be taught to every child in its own vocabulary, so that the child may be aided to take a regular, enthusiastic, and intelligent interest in a health programme, chalked out for its benefit. The value of such instructions varies with the amount of interest and enthusiasm evinced by the educational authorities concerned.

8. The above programmes of health education are absolutely essential to India, if we are to build a healthier and fitter Nation. The deterioration of students' health has been strongly commented on by Mahatma Gandhi, in the July issue of "Harijan". It is about this problem of the health of the children of to-day, that I had discussions with Mahatma Gandhi and Rashtrapathi Subash Chandra Bose, who but for political pre-occupation would have taken up this Health policy and question already. The public should not forget that "the onward March of a Nation depends upon the feet of little children"; and hence all efforts should be made to improve the health of the children of to-day, the citizens and props of the country to-morrow. And the present is the most propitious moment to inaugurate a Health Policy to build a healthier and fitter Nation. By one such policy, we would have not only built a healthier India within a decade from now but also considerably reduced the present heavy expenditure on Public Health, which now annually amounts to 1½ crores of rupees, in the Madras Presidency.

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### Athletics.

"Athletes must pay attention to the fundamental needs of the body. These needs are simple and involve no exercises, drugs, or apparatus. The essentials are an adequate supply of oxygen and fresh nutritious food. I am a great believer in wholemeal bread and fresh fruit."—Sir W. Arbuthnot Lane.—*Health for All*.

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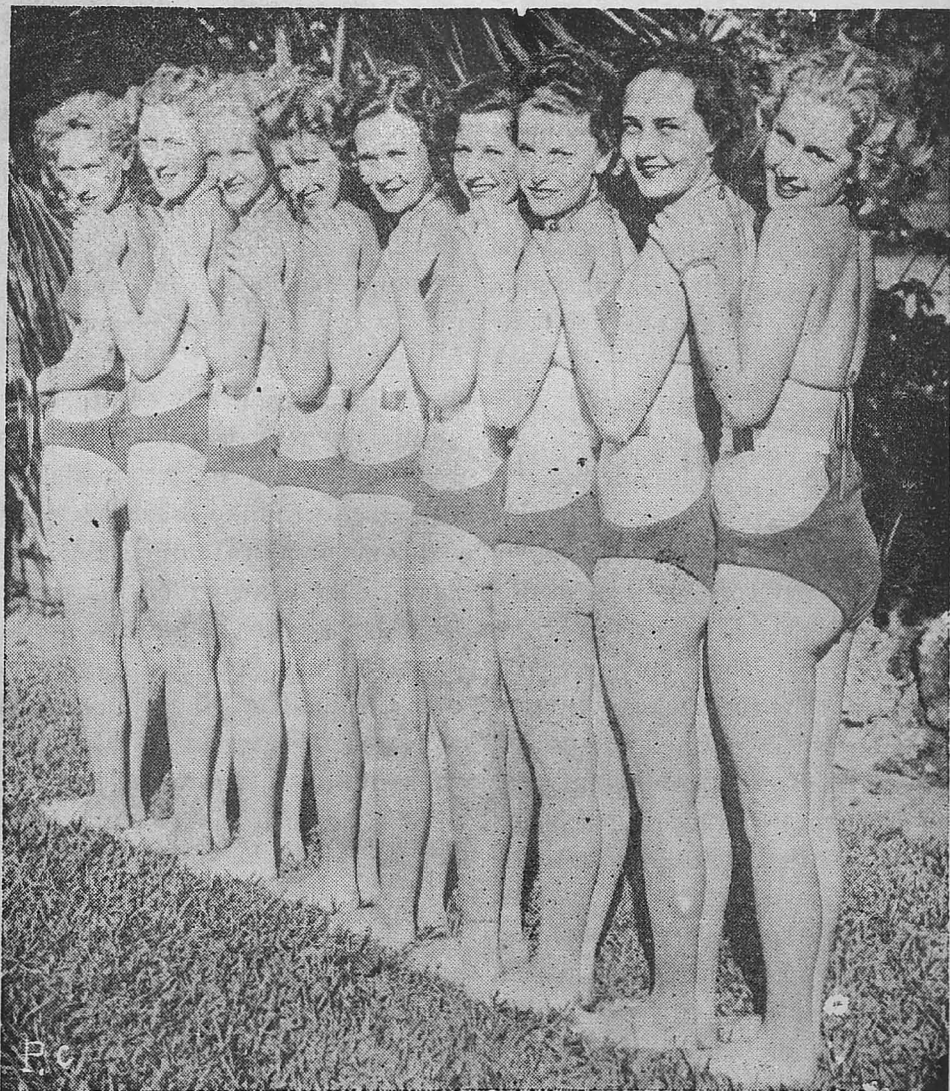
# Meat-Eating

By K. R. Vaidianathan,

Palghat.

**I**T is certain that man cannot live without food. He daily requires it. Every day he is consuming large quantities of food. But the term

only. They detest the sin of meat-eating. They shudder even at the thought of killing a living being! They



Sun-worship is now becoming a fad in America. Here we see a group of women semi-nude, singing and dancing to the Sun-god. This gives tan to their skin and also Vitamin D.

food is wide and largely general and does not specify which—vegetable or flesh. There are people who are strict, orthodox vegetarians. They are pure, austere and holy and take vegetables

foster a bitter apathy for its smell, a traditional repugnancy for its 'un-thinkable' taste, and a hideous dislike for its bloody sight! The non-vegetarians on the other hand, have no

scruple to crumble down the tender tendrils of fellow-feeling and sympathy simply for the sake of a momentary 'sweetness' in their palate! They will be the greedy gluttons of anything that caters their dear palate! They may smuggle up the dish even literally!

Apart from the moral point of view it can be shown that meat is not the proper article of food. It can be proved that vegetables are the only proper food for human consumption.

We know that Sun is the source of all energy. All of us owe our existence to him. But if we stand in the sun and try to derive his energy on the ground will that sun be the source of our energy? Is it possible? Are we capable of receiving the sun's energy directly? Are we capable of sapping out the energy from the sun? Does our hunger vanish away when we stand in the sun? Let a cow or a buffalo stand in the sun and try to appease itself of its hunger—Is it possible? No. We want a medium to get that energy. We cannot receive the sun's energy directly. We have not developed the power of photosynthesis which the plants are able to perform! We are unable to carry on the work of photosynthesis in us. Some one other than ourselves has to perform this work for us. So plants evidently are the only capable receivers of sun's energy on which every other member of this world has to depend for its sustenance. It has already been proved that animals (Man being only a thinking animal) cannot directly receive the sun's energy. We want a medium and it can be said with certainty that the vegetable kingdom is the only existing medium. Some men live upon

the vegetables, some upon the flesh! Some animals live upon the vegetables, some upon the flesh. Let us first understand that flesh, as it is, has no life or energy. It is from the vegetable-kingdom that the animals derive their energy. Men live upon the animals; but the animals have stored up their energy from the plants. Lions and tigers live upon the vegetarian animals. Whether it be the tiger, the lion or the brutal man of a flesh-eater, the energy or strength obtained is only from the vegetable kingdom but through the medium of the flesh! Looked at from the hygienic point of view, the animals slaughtered for consumption may be subjected to diseases. Then we unnecessarily invite diseases. Moreover, flesh when consumed will naturally create in us the animal natures, passions, carnal desire, greediness, anger etc., which altogether go to make a brute!

From the moral point of view also flesh-eating is forbidden. Man assumes that he is the monarch of all he surveys and takes the law into his own hands. He takes advantage of the weak situation of the animals, their dumb state of simple subjection and he asserts his own unquestioned authority! The poor innocent animals that innocently march towards the slaughter-house, never think that they are marching towards their own doom! In the words of Pope, "They lick the hand just raised to shed their blood". The innocent goats that frisk about the green, the innocent birds that pour forth their throatful of music, never in their little brains suspect man's treacherous ways! It is a sin to kill our own kith and kin. We have Nature—bounteous Nature, to feed us with plenty with a motherly affection!



You may ask whether we are not killing our own kith and kin (vegetables) for our food. You may argue that vegetables too have life'. I agree. They have life. But does a plant die when we cut it? Does a tree or plant

wither away when we chop off a branch from it. Just prune a plant and the plant grows with a new vigour. So, we do not really annihilate or destroy its progeny. On the other hand we are only helping it to grow !

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## ● Topics from Medical and Health Periodicals ●

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### Signs of Good Health

THERE are certain signs that boys and girls show which indicate whether you are in good health.

Some of these signs tell whether you are eating enough of the right kind of food.

Here are some of the signs that you could be glad to show :

Weight kept up to the standard for height and age.

Skin clear, smooth, and good healthy colour, with rosy cheeks.

Eyes clear, dry, bright, and no dark circles.

Hair smooth, glossy, and live.

Teeth sound, clean, healthy, with pink gums.

Posture erect, sitting and standing. Shoulders up, chest up and forward, abdomen in.

Muscles firm, appetite good, sleep well.—*Selected*.—*Good Health*, (U.S.A.)

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### Grape Juice as a Blood Builder

TESTS lasting nearly three months on sixty orphanage children in Chicago showed that grape juice is an excellent source of iron and is effective in building up the hemoglobin in the blood. Ten ounces daily aid in preventing secondary anemia. The study was made by Drs. W. Fishbein, Joseph K. Calvin and Johanna Heumann, who

give the results in the *Archives of Pediatrics*.

Half the subjects were used as controls, the two groups being in about the same state of health. All received a good diet, including plenty of fresh fruits and vegetables, milk and eggs. On an allowance of ten ounces of grape juice daily, there was a gain of 8.1 per cent in hemoglobin, as against 4.4 per cent for the controls. Ten children were selected from each set who in the beginning had the lowest showing in hemoglobin. Those having the juice made a gain in hemoglobin forty per cent greater than did the other ten.

The children enjoyed the fruit juice and tolerated it well. It seems desirable to include the juices of other than citrus fruits in the diet of institutionalized children, since variety is of great importance.—*Good Health*, (U. S. A.)

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### Depopulation and Diet

Mr. Arthur L. Marshall, Laxfield, Suffolk, writes in *Birth Control News* as follows :—

The decline of the birth-rate in this country dates from the early eighties. An increase in deliberate contraception is no doubt partly responsible, but its influence has certainly been exaggerated, for it can have

had little effect among the very poor and almost none in rural areas. Various factors are under discussion as tending to an increase or decrease of population; for example, improved housing conditions, shorter hours of work, a higher standard of living, diminution in drunkenness, and shorter hours of sleep. The present process of depopulation is by no means confined to this country, and in seeking for a world-wide cause I have wondered whether enough attention is being paid to recent changes of diet as possibly unfavourable to fertility. Experimental work on vitamin deficiencies gives colour to this suggestion.

The alteration in our food has been considerable. The bread of to-day is very different from what it was, and many people live largely on tinned foods of various kinds, and chilled, frozen, and preserved meat, fish, and food. Even in agricultural districts the flour used for bread has changed in character, and in the country as in towns, condensed milk has largely replaced skimmed milk in the diet of the poor. As possible causes of a diminished birth-rate these alterations in nutritional habits seem to me well worth consideration.

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### How Cold Baths Improve the Blood.

MORE than forty years ago the remarkable discovery was made by Professor Winternitz, of Vienna, that general cold baths have the effect to increase the number of active cells in the blood to a very remarkable extent, the increase sometimes amounting to one-fifth or even more. The writer has repeated these experiments, and has found the results to be as indicated. The white corpuscles are increased to a much larger extent than the red cells, sometimes being nearly doubled. The increase is observed within half an hour after a general cold bath, when reaction has taken place. It must not be

supposed, however, that the cells added to the blood are actually formed in this short time. There is little doubt that the increase in the number of cells which may be counted in the blood is due to the fact that cells which have been held idle in some deeply seated part are brought out into active circulation by means of the bath, and thus made useful. The effect, however, is practically the same as though new cells had been formed. This is one of the ways in which the cold bath increases the resisting power of the body. It rallies the blood cells, so to speak, calling them out from their hiding places, and preparing them to fight with vigor the battles which must be waged every moment in defence of the body.—*Good Health (U. S. A.)*

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### Colleges Cultivate Disease

NOT only our colleges but our public schools, from the primary school to the university, are regular incubators of disease. Children enter school at the age of five or six years and at once begin to deteriorate because of the unwholesome conditions to which they are exposed and the neglect of our educators to train their bodies for vigorous physical manhood and womanhood as well as to train their minds. Herbert Spencer declared that in the education of a man, we must begin by making him a good animal. Montaigne, Rousseau, Jean Paul, and other educational reformers, held the same view, but the curricula of modern colleges clearly show that the body receives little consideration in our modern educational system.

The average graduate carries away from high school or college not only his diploma but a damaged body, flattened chest, impoverished eyesight, weakened muscles, impaired nutrition and faulty elimination. He

may be able to talk well and to write well, but if he has any proper ideas of what to eat or when to eat, he didn't get them from the school curriculum, and it is more than probable that through his school contacts, he has acquired vices that are sure to damage his health and threaten his life.

Our schools and colleges ought to do as much for the bodies of students as for their minds, and instead of presenting on commencement day groups of graduates "sickled o'er with a pale cast of thought," maimed and crippled for life, they should present as their finished product young men and women with such robust, vigorous bodies, such abounding vitality, such fine physical bearing, that they could be properly given certificates of superhealth and well-trained bodies, as well as informed and cultured minds.

With a statistician telling us that at the present rate of deterioration and depopulation, the white nations of the world will within a few decades lose their dominance in world affairs and in a few centuries become extinct, it is high time that educators should become thoroughly awake to the fact that the school is the last hope of civilization. The school must enlarge its aims and include among its objectives superhealth, efficiency, and longevity, as well as mental training.—*Good Health*, (U. S. A.)

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### Italy's War on Flies

ALTHOUGH it has been recognised for a long time that the common house-fly is a danger to health because it is a disease-carrier, little has been done about this enemy in those democratic countries that claim to live under the most modern hygienic conditions. Italy, an avowed dictatorship, is the first one to start a real war against the common house-fly. There have been all kinds of ordinances issued in all the countries of the world, and

foodstuffs especially have been protected more or less against contact with flies, but a real extermination, as was done in the case of the yellow-fever-carrying mosquito, has not yet been attempted: Italy is now embarking on such a war.

In 1924 the directors of the Montecatini Baths began to use a mixture of molasses and sodium arseniate against its hordes of flies; this mixture, known in Italy as "miafonine," gave excellent results. The national government was so impressed that in 1934 it chose Spoleto, a city of 15,000 inhabitants, renowned as the most fly-infested locality in the peninsula, for an experiment on a high scale. Miafonine was used liberally; it was placed in homes, groceries, butcher-stores, fruit-stores, pastry-shops, bakeries, and markets; stables, slaughter-houses, chicken-coops, privies, hog-pens, manure-heaps, and gutters were impregnated with it; and after two successive summers of intensive warfare the only flies to be found in Spoleto were in its small museum—and they were dead.

Last year the plans were laid for a nation-wide war on flies. With the first signs of spring the campaign has been started in earnest. Everywhere can be seen small strips of any kind of material impregnated with miafonine; the minute a fly alights on the apparently succulent repast, it remains there for good. Since there is danger that the dead flies may fall, or may be blown on food, a few simple regulations have been issued compelling all dealers to cover foodstuffs with cheesecloth. Heavy fines, and even gaol sentences, are imposed on anyone who disobeys the injunctions; and one may safely assume that there are not many infringements of the law. The result can be predicted already: flies will become a rarity in Italy.—*Medical World*.

### Sentiment

SENTIMENT lies deep beneath the surface, but it makes its force felt, as all those come to realize who offend it by treating flippantly the subjects of life, death, love, and religious beliefs.—*Kalends of the Waverly Press.*

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### Eating Fruit and Milk Together Not Harmful

EATING acid fruit and milk together is not harmful, nutritionists say; milk curdles anyway when it comes in contact with acid gastric juices of the stomach.—*Od Quarterly.*

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### A New Discovery

DENTISTS have made a new discovery. It seems that wheat and not sweets should be accused as the culprit in tooth decay. The experiments which determined this fact were carried on by dentists in the United States Navy Medical Corps.—*O. W.*

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### Baths as Healing agents

BATHS as healing agents were used even in ancient times. The Romans, conquerors of the Greeks, adopted the public baths from the Greeks, and Rome alone could boast of eight hun-

dred and fifty public baths, some of which received several thousand bathers each day. These bathers did not come only for pleasure but to seek healing, to strengthen their bodies, or to maintain good health. The example of the Romans was followed all over Europe and many countries were renowned for their baths.—*O. W.*

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### Fat-Producing Germs

TO meet the chronic scarcity in Germany of both animal and vegetable fats, microbes discovered and trained at the Fermentation Institute at Berlin are being used as fat-producers.

"A suitable food for these microbes is the crude sugar made by chemical treatment of saw-dust or wood chips. In proper culture solutions containing this sugar, microbes of the correct race apparently eat hugely and can be grown and fattened...Between two to three times as much fat is produced as the wood sugar used."

"Sixty or seventy successive harvests of the fattened microbes can be grown each year in the same tanks and culture solutions, more than one crop of fat and oil each week. The quality of the fats obtained is said to be as good as that of other vegetables or animal materials."—*Good Health, London.*

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### CORRIGENDUM.

In the article on "Village Uplift" published in the August '38 issue on P. 175, please insert after 'houses' in line 13 of Col. 2, the words 'of the other side. The rooms or houses...' It will then read as "In each case the rooms or the houses of one side block the ventilation of the rooms or the houses of the other side. The rooms or houses have an adjoining verandah inside".

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