

Annual Subscription : Rs. 2. Foreign—Rs. 3. Post paid.

Our office temporarily shifted to:—

'Hawarden' 69, Lauder's Gate Road, Vepery, Madras.

Vol. XX.

JUNE, 1942.

No. 6.

EDITORIAL

IS WAR A DISEASE?

FROM individual quarrels to wars and world wars, all sorts of conflicts are but expressions of that universal animal instinct of self-protection. Besides having instincts like all other animals, man's speciality lies in his faculty of deliberating. In fact man without it is no man. What can make him essentially differ from other species is not this additional faculty itself, but in successfully subordinating other instincts to deliberation and conducting self-protection etc. in a way better than that of other species. But when this worthy superior instinct itself is subjected to other animal instincts, man not only ceases to be the superior, but becomes the worst and the most dangerous of all the species. For, then, what other species are doing unknowingly man is doing deliberately without any essential difference.

Taking self-protection itself, with which we are now concerned, if man fights just for the reason for which other species also do, it means his

thinking is perverted and subordinated to his animal instincts. The world-wide fighting going on now, is, to all accounts, due to fear of fellow beings, which is also always the cause of animal fighting in jungles. But all wars are not fought for the same reason. When Pandavas were refused even five villages, one for each, while they had a real right to rule the kingdom, they had to, and did, fight with their cousins as a duty. The wars of modern times are however, all fought for fear of self-extinction at first and after a little substantial success, for greed.

The very purpose for which the belligerents are fighting now is not worthy of them, much less when they boast of great scientific spirit and advance of scientific knowledge. But the irony is that it is modern science that has perverted and intoxicated their mind with a false sense of having conquered Nature. To conquer Nature is as impossible as to sit on one's own shoulders. The very basis for man's

existence and freedom of will, (the little he appears to have) is Nature herself. Nature has her own laws, the inviolability of which constitutes our freedom of will. Man cannot construct successfully a single machine if Nature refuses to behave as usual. It is by learning to recognise and obey Nature that man has advanced so high in his knowledge of matter

and this worshipper of God on one hand, is the worst godless man on the other. Like the Puranic Rakshasas who did penance for God and got this or that boon, immediately became godless, and set out to destroy all the good in the world till the same God finds a time to wipe them out of existence, the modern man's discovery of the use of steam, oil, coal, iron and elec-

tricity, as a boon from Nature for the extraordinary attention he paid her, soon turned him un-Natural or godless in his dealings with the rest of the world. Science made him godless not only by making him more powerful, but by bringing far off parts of the world nearer by developed communications, which was not the case in the medieval age of geographical isolation. While mechanical power made



Desert Training by British Paratroops.

A member of the Special Air Service is seen just about to touch the ground after a descent.

and its movements. And yet, the infidel talks of conquering Her, instead of acknowledging her supremacy. She is his God at least in making machines. The so-called scientist is yet to know that the same She, the Nature, may be depended on for any other kind of progress. But the boon of machine-making has already turned his head

him greedy, communication with the rest of the world made him suspicious and jealous. This is what science has made him. It is well-known that fear, greed and jealousy are diseased states of mind and with a diseased mind there cannot be a healthy body. Thus the machine age has broken out like a highly contagious, malignant

epidemic turning power after power perverted and war-minded. World wars represent the acute and virulent stage of the disease, the germ of which is godlessness. This can be cured only by belief in God and by fear of God.

God is not very far from the scientist. The very Nature he studies and worships is in Him and He is in it. Nature is very orderly in her behaviour. Where there is order, there is purpose and consciousness. The so-called consciousness of us, men and animals, is really absolutely dependent on the wonderfully unviolable laws of Nature, the God. To ignore that is narrow mindedness by which we mean unsociableness towards fellow-beings. The modern man is yet to learn how to live at peace with others in spite of his scientific advance.

By modern man, we do not mean all men of modern times. Only the majority of the present world population are modernised, that is, have grown unsociable, and intolerent. But there is yet a minority, *viz.* India, with a time-immemorial history of outstanding hospitality and tolerance standing to this day as the emblems of her essential greatness. If any one in India held any influence over the society, that was by means of sacrifices and penances like Mahatma Gandhi whose influence also is due only to his sacrifices and not arms. Sacrifice is what he means by non-violence and he is right. India is the only broad-minded unit in the whole world, because she is the most god-fearing country and her policy alone can extricate mankind from the deadly international mess.

But the one-eyed, perverted mind of the moderner looks at sacrifice and broad-mindedness as weakness and a source of danger. But just look at what the political independence of the belligerents without the spirit of sacrifice and sociableness and God-fearing has brought! It shows that even political independence cannot

bring peace with the disease of fear and jealousy yet untreated and uncured. The more we are intolerent, the more we fear others; and the more we fear others, the more intolerent we grow. This is the vicious circle in which this disease grows.

The countries which mostly fear self-extinction are those which have no sources of raw-materials. England, Germany and Japan are such hand-to-mouth countries whose existence as powers depends on their daily imports of raw materials, and their power lies in machines and manufacturing; whereas India, for instance, is a self-sufficient country, and so, hospitable and tolerant from time immemorial-even in the days of independence. The manufacturing nations must depend either on the goodwill or the political weakness of the producing countries. With such a diseased mind as described above they cannot think of earning the goodwill of India and China, for instance; but on the other hand they hope to keep them permanently under subjection with armed strength. So, the prize of this present world war is the producing parts of the world. Therefore it is not by accident that all the genuinely and actively interested belligerents happen to be manufacturing nations.

None of these belligerents has done an iota of self-sacrifice for the sake of others. If one or more such belligerents will win this war, the world hegemony that will be established will be based only on the notorious and pernicious policy of divide and rule. Not only will the producing countries be partitioned out of identification but all the rival ex-belligerent nations will be dissected out of existence. Any other policy will surely result in the final independence of Raw Materials and the dependence of the Machine. This is what the Machine Powers dread. But the Producers who are more than half of the world-population and are already politically unified

and roused to extreme self-consciousness by the same Manufacturing powers, cannot be held in suppression by the temporarily powerful mechanised nations. It is only idiocy to hope for permanent armed suppression of India and China. Any further estrangement of these two countries may be disastrous for the belligerents. The policy of armed suppression of the legitimate rights of others is not only costly but dangerous in every step keeping both the exploiter and the exploited in constant fear and suspicion. Peace is no peace with fear and suspicion at large. Wars are no wars if they are fought for duty's sake without any fear, or favour, greed or suspicion. Real peace is healthy peace. Such peace is possible only by policy of self-sacrifice and earning the goodwill of others and not by invoking their fear and hatred. Therefore, it is for the belligerents to cultivate the policy of sociability, and sacrifice, in their own interests.

The reality is that the mental stuff of the moderner is evidently not in the control of the thinker himself. No amount of propaganda can cure him of the present psychosis. Because, this insane person has got the armed might in his hand. Might by itself is capable of perverting a normal mind and what to talk of its effects on a chronic lunatic. If drink too is added the picture becomes complete, and bears a striking resemblance to the mutual destruction of Yadu's descendants. The story goes that the invincible Yadavas became one day drunk, and, in that unsociable state of mind, broke out a battle of duels which ended in the complete extinction of Yadavas. The unsociability of a drunkard or a lunatic is understandable and also curable if he submits to proper treatment. But, the

unsociableness of the modern belligerents is hereditary, cultural and above all national! He can be cured only by a superior force. But when all the mighty powers of the world turn mad, the only imaginable superior force is nothing but Nature at present and a world-state in future. Even now we many take the world as a single state, as it has already become one at least in theory. As the constituent members of this world are at war with one another, it can be best called the **WORLD CIVIL WAR**. Whatever the aim of the belligerents may be, we cannot rest assured that every war is won by only one or other of the belligerents. Much less is the war of the type of the two great wars, where nothing but machines and supplies count. Both sides are bound to lose and suffer the utmost and especially the *Haves* more than the *Have-nots*, for it is very harder to lose than to gain. Had the '*Haves*' been broad and sociable in their outlook, shared their comforts and necessities with their fellow beings, and shown an iota of self-sacrifice for the sake of others there would not have been any trouble. But the modernised is a die-hard mind, more dogmatic and fanatic than the worst religious fanatic. Unless that sort of diseased mind becomes a past thing, we cannot expect, the health of peace to be present. He who refuses to change his mind will be forced by Nature to change it. He who refuses to sacrifice willingly will be forced by Nature to do so much against his will. Man may succumb to fear and favour. Nature never. He who refuses to understand Her will be crushed out of existence in the course of time. The whole Universe is a very perfect machine created to enforce the Law of Justice, and woe to him who trifles with it in a playful or arrogant mood.

Prevention of Myopia in Schools

By

DR. R. S. AGARWAL, L.S.M.F.,
Eye Specialist, Delhi.

lighted rooms is gradually giving ground before statistics "

MOST children, when they begin going to school, are free

from myopia, and both the number of cases and the degree of myopia steadily increase as the education progresses. It is believed that the excessive use of the eyes for near work causes myopia.

As it was impossible to abandon the educational system, attempts were made to minimize the supposed evil effects of the reading, writing and other near work which it demanded. Careful and detailed rules were laid down by various authorities as to the size of type to be used in school books, the length of the lines, their distance apart, the distance at which the book should be held, the amount and arrangement of light, the constructions of the desks etc.

The result of these preventive measures were disappointing. Some observers reported a slight decrease in the percentage of myopia in schools in which the prescribed reforms had been made, but on the whole, as Risley has observed in his discussion of the subject in Norris and Oliver's system of Diseases of the Eye, "the injurious results of the educational process were not notably arrested".

"It is a significant, thought-dissuaging fact," he continues, "That the increase, as found by Cohn, both in the percentage and in the degree of myopia, had taken place in those schools where he had specially exerted himself to secure the introduction of hygienic reforms."

Further study of the subject, as the *American Encyclopedia of Ophthalmology* points out, "The theory that myopia is due to close work aggravated by town life and badly

In an investigation in London, for instance, in which the schools were carefully selected to reveal any differences that might arise from the various influences, hygienic, social, and racial, to which children were subjected, the proportion of myopia in the best lighted building of the group was actually found higher than in the one where the lighting conditions were worst, although the higher degrees of myopia were more numerous in the latter than in the former. It has also been found that there is just as much myopia in schools where little near work is done as in those in which the demand upon the accommodative power of the eye is greater. It is only a minority of children, moreover, that become myopic; while others remain normal. On the theory that short sight results from any external influence to which the eye is exposed, it is impossible to account for the fact that under the same conditions of life the eyes of different individuals and the two eyes of the same individual behave differently.

All these attempts have aimed at lessening the strain of near work upon the eye, leaving the strain which underlies the optical one. In a slough of despair and contradiction have the misdirected labors of a hundred years led us. But in the light of truth the problem turns out to be a very simple one.

You cannot see anything with perfect sight unless you have seen it before. When the eye looks at an unfamiliar object it always strains more or less to see that object, and an error of refraction is always produced. When the children look at

unfamiliar writing or figures on the blackboard, distant maps, diagrams, of pictures, the retinoscope always shows that they are myopic, though their vision may be under other circumstances absolutely normal. The same thing happens when adults look at unfamiliar distant objects. When the eye regards a familiar object, however, the effect is quite otherwise. Not only can it be regarded without strain, but the strain of looking at later unfamiliar objects is lessened.

The fact furnishes us with a means of overcoming the mental strain to which the children are subjected by the modern educational system. It is impossible to see anything perfectly when the mind is under a strain, and if children become able to relax when looking at familiar objects, they become able, sometimes in an incredibly brief space of time, to maintain their relaxation when looking at unfamiliar objects.

Dr. Bates of America discovered this fact while examining the eyes of 1,560 school children at Grand Froks in 1903. In many cases, children who could not read all of the letters on the Snellen Test Card at the first test read them at the second or third test. After a class had been examined the children who had failed would sometimes ask for a second or third test. So frequent were these occurrences that there was no escaping from the conclusion that in some way the vision was improved by reading the Snellen Test Card. A boy who at first appeared to be very myopic, read after a little encouragement, all the letters on the test card. The teacher asked Dr. Bates about this boy's vision, because she had found him to be very "near sighted". When the doctor said that his vision was normal she was incredulous, and suggested that he might have learned the letters by heart, or been prompted by another pupil. He was unable to read the writing or figures on the blackboard, she said, or to see the

maps, charts and diagrams on the walls, and did not recognize people across the street. She asked Dr. Bates to test his sight again, which the doctor did, very carefully, under her supervision, the sources of error which she had suggested being eliminated. Again the boy read all the letters on the card. Then the teacher tested his sight. She wrote some words and figures on the black-board, and asked him to read them. He did so correctly. It was a dramatic situation, both the teacher and children being intensely interested. Three other cases in the class were similar, their vision, which had previously been very defective for distant objects, becoming normal in a few moments devoted to testing their eyes. It is not surprising that after such a demonstration the teacher asked to have a Snellen Test Card placed permanently in the room. The children were directed to read the smallest letters they could see from their seats at least once every day, with both eyes together and with each eye separately, the other eye being covered with the palm of the hand in such a way as to avoid pressure upon the eyeball. Those whose vision was defective were encouraged to read it more frequently, and in fact, needed no encouragement to do so after they found that the practice helped them to see the black board and stopped the headaches, or other discomforts, previously resulting from the use of their eyes.

In another class of forty children, between six and eight, thirty of the pupils gained normal vision while their eyes were being tested. The remaining were cured later under the supervision of the teacher by exercises in distant vision with the Snellen Test Card. This teacher had noted every year for fifteen years that at the opening of the school all the children could see the writing on the blackboard from their seats, but before school closed, the following

spring all of them without exception complained that they could not see it at a distance of more than ten feet. After learning of the benefits to be derived from the daily practice of distant vision with the familiar objects as the points of fixation, this teacher kept a Snellen Test Card continuously in her class room and directed the children to read it every day. The result was that for eight years no more of the children under her care acquired defective eyesight.

This teacher had attributed the invariable deterioration in the eyesight of her charges during the school year to the fact that her class room was in the basement and the light poor. But teachers with well-lighted class rooms had the same experience, and after the Snellen Test Card was introduced into both well-lighted and the poorly lighted rooms, and the children read it every day, the deterioration of their eye sight not only ceased, but the vision of all improved. Vision which had been below normal improved in most cases to normal, while children who already had normal sight, usually reckoned at 20/20, became able to read 20/15 or 20/10. And not only was myopia cured, but the vision for near objects was improved.

It is difficult to prove a negative proposition, but since this system

improved the vision of all the children who used it, it follows that none could have grown worse. It is therefore obvious that it must have prevented myopia. This cannot be said of any other method of preventing myopia in schools which had previously been tried. All other methods are based on the idea that it is the excessive use of the eyes for near work that causes myopia, all of them have admittedly failed.

Better results would be obtained if we could reorganize the educational system on a rational basis. Then we might expect a general return of that primitive acuity of vision which we marvel at so greatly when we read about it in the memoirs of travellers. But even under existing conditions it has proven beyond the shadow of a doubt that errors of refraction are not necessary part of the price we must pay for education.

Why should our children be compelled to suffer and wear glasses for want of the simple measure of relief? It costs very little, only Snellen Test Cards are needed. No one would venture to suggest, further, that it could possibly do any harm. Why then, should there be any delay about introducing it into the schools? I appeal to all those who read these lines to use whatever influence they possess towards the attainment of this end.

A definite increase in the number of old people dying from tuberculosis has occurred during the past few years. In the year 1940 almost one-fourth of the tuberculosis deaths in the City of Peoria, Illinois, were persons of 60 years or over. As is true the country over, in the age group of 15-34 more women died than men. The hazards of puberty in the girls and the strain and stress of child-bearing are chiefly responsible for this fact. The search for tuberculosis among young women offers a fertile field. M. Pollak, M.D., Ann'l rep. Peoria Mun. Tuber. Sanatorium, 1940.—Illinois.

SOME COMMON INFECTIOUS DISEASES AND THEIR PREVENTIONS

By
Dr. Mansur Husain,
B Sc., M.B., B.S.,
Lucknow.

(Contd from page 251 of Nov, '41 issue of 'Health').

Small Pox.—All children must be vaccinated as early as possible. To evade and avoid it is wrong. On the contrary one must see that the vaccination is successful. If it fails due to defective (stale) serum or some mistake in the technique (e.g., use of strong antiseptics) it should be repeated. They should be re-vaccinated at the age of 7 years. When a case occurs:—

(1) The health authorities should be informed. (2) It should be removed at once to an isolation hospital and if it not be possible it should be isolated under the supervision of a qualified doctor. (3) The infected rooms and clothing must be disinfected. (4) All the members of the family must be vaccinated or re-vaccinated.

It is generally observed that people do not think treatment necessary and leave the young patients to their fate observing only some customary rites to ward of the evil spirit which in their opinion has got hold of the innocent children. It must be realized that it is an infectious and contagious disease attended with high mortality in spite of treatment. It is therefore almost criminal to neglect the measures which safeguard against it and to throw away the chance the treatment offers of reducing the mortality.

Dysentery.—There are two varieties of dysentery. One is more common in India and is relatively less serious disease although comparatively less common. The former is caused by *Entamoeba Histolitica* and the other by three germs called after their discoverers Shiga, Flexner, and Sonner. Both are characterised by frequent desire for defaecation accompanied

by griping, the stools containing mucus and blood. The difference in the two lies in the severity of the symptoms.

The disease is spread by food and water. Either flies or an infected individual contaminates them. The same preventive measures should be adopted as have been briefly outlined under enteric fever.

Unfortunately there is no prophylactic (preventive) vaccine.

Diphtheria—is an infectious disease which, although locally less troublesome in the beginning, has serious complications. Commonly in the throat, and nose, and rarely in other parts a small membrane is formed and from here a specific poison is absorbed which weakens the heart, affects the kidneys and nerves. Usually children between the age of 2 to 5 years are attacked. Generally people mistake it for an attack of ordinary cold which it resembles at the outset.

The disease is contagious. In speaking coughing or sneezing tiny droplets from the mouth of the patient are ejected and enter the nasal passages of those near him and thus the infection may spread directly. Indirectly the infection may be conveyed by eating or drinking utensils, towels, handkerchief, slate pencil, toy, bugles etc.,. Some times it assumes an epidemic form.

Prophylaxis.—Every case of inflammation of the throat and of nasal discharge particularly if accompanied with hoarseness or swelling or a peculiar offensive odour of the breath must be referred to a doctor who

should be allowed to get bacteriological examination done if he thinks it necessary.

When a child gets diphtheria:—1. It should be reported to the health authorities.

2. Either the child should be sent to a hospital or isolated in the house under the supervision of the treating doctor.

3. The clothing and utensils in contact with the child should be disinfected.

4. All the contacts should get their throat examined and the doctor should be given a free hand in getting the bacteriological examination of the throat swab done or in doing Shicks test. On the basis of these examinations preventive injections should be taken to develop immunity against the disease.

5. Children from an infected house should not be allowed to mix with other children *e.g.*, in a school.

6. Convalescents should be isolated for not less than four weeks and the doctor should satisfy himself that they do not become carriers.

Whooping Cough.—It is a specific disease caused by a germ (the B. of Bordet and Gengou). In the beginning there are only catarrhal symptoms which are soon followed by paroxysmal cough. It mostly occurs in children and is very highly infectious.

Its chief features are fits of coughing and laryngeal spasm at the end of which a whoop occurs. The child often vomits or even faints.

1. Isolation must be enforced. The disinfection of the clothing and utensils of the patient must be done. Arrangement must be made for the open fresh air but proper care must be taken to avoid the spread of the disease.

2. A qualified doctor should be called in and proper treatment given.

3. The general health and throat

condition of the contacts should be attended to.

4. The injection of the serum of the convalescents is regarded by some as a good preventive. A few injections of the whooping cough (pertussis) vaccine may prove useful in developing immunity.

Measles.—It is an infectious disease occurring in the form of epidemics, attacking mostly children under the age of 10. It is extremely infectious. It is caused by extraordinarily minute germs which can pass through a filter and are called a virus. In the beginning there is a catarrh of the upper respiratory tract and fever and on the fourth day the typical rash appears. Some of its complications are serious *e.g.*, broncho-pneumonia. When there is an epidemic every attention must be paid to the general health, nose, and throat so that the vitality may be kept up. The most important thing is to avoid infection.

When a child in a house develops measles he should be isolated and every precaution must be taken to limit the spread of the infection. The health authorities must be notified. The child should be put under the treatment of a physician. There is no easy method of prevention. Injection of blood serum of healthy convalescents provides the only chance of conferring temporary immunity which lasts for about a month.

Influenza.—It is an infectious disease occurring sporadically sometimes in epidemics and less commonly in pandemics. Its real cause is not known with certainty. It may be a virus or a germ called after Pfeiffer. Sometimes it is a mild and sometimes serious, attended with high mortality, especially when, after a period of quiescence, it assumes a virulent form and becomes epidemic or pandemic. As we do not know the cause we do not know how to safe-guard against it. The only thing is to remain fit.

SUN LIGHT

IN HEALTH AND DISEASE

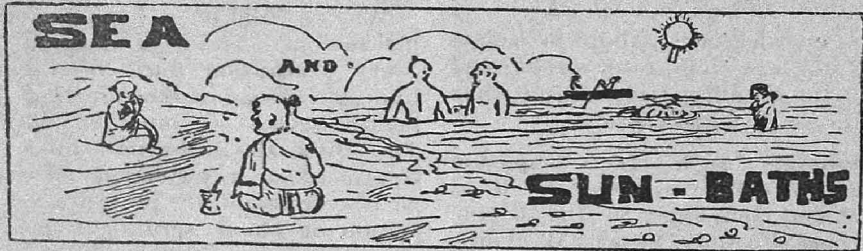
Sun, the Health Giver.—Sun as the source of light and heat has been

BY PARMANAND AHUJA, M.B., B.S., *Karachi.*

praised alike by Scientists and Shastras. In the Vedic lore one meets with innumerable mantras chanting the glory and greatness of Surya giving light and energy to the universe. It is under sunlit canopy of heavens that plants, herbs and shrubs don their verdure green; grass blades sprout and spring up; flowers bloom and blossom; birds and beasts flit and frolic from tree to tree and field to field. Shut them in lightless cellars with no rays of the Sun or artificial light reaching them and you

The human skin exposed to ultra-violet rays generates vitamin D, so essential for growth and development of bone and teeth in man and animal and for building up resisting power against infectious diseases like pneumonia, typhoid, measles etc.

Sun not only regulates the clock of night and day but also the seasons of the year which in their turn determine and decide the production of seasonal fruits, flowers, vegetables etc., which form such an integral and essential part of the human economy.



will find a poor colourless sickly growth of all these, ultimately resulting in early decay and death. So sunlight possesses the power to activate and energise something in the leaves of the vegetation and petals of flowers and on the veins of the living creatures which give them life, beauty and colour. The heat-rays of the Sun supply them with energy to live and grow and the ultra-violet rays of the Sun's spectrum are responsible for Vigour, Vitality, Colour and complexion. The Chlorophyll in the vegetable life and the Hæmoglobin in the animal cells are thus activated upon by the ultra-violet rays of the Sun.

Sun-light as Disinfectant.—The sunlight, besides possessing these life-giving properties, has potentialities of destroying injurious disease germs and thus acting as powerful germicide and disinfectant. Germs of disease like that of tuberculosis are destroyed if exposed to strong sunlight for an hour or so. Pottinger says, "The surest enemy of the tubercle bacillus is light". Clothes, utensils and other articles infected with excreta, sputum etc. from sick persons are disinfected and deprived of all their baneful effects if exposed to strong sunlight for sufficient time.

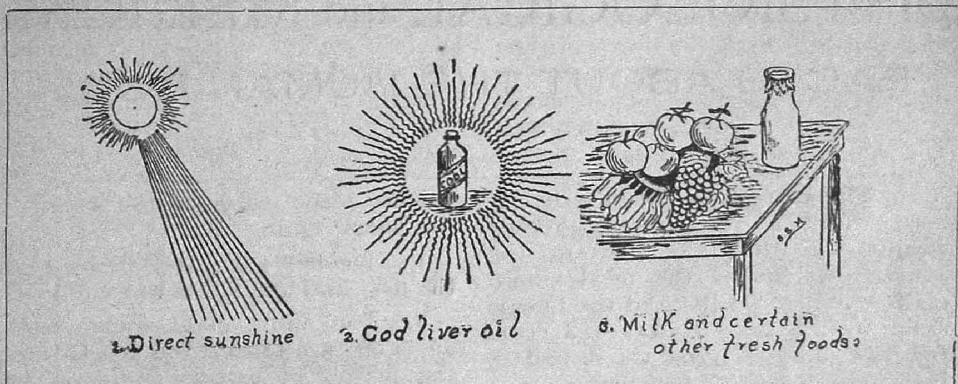
It is now an established fact that

cows fed on fresh green fodder in open sunny pastures yield greater and richer quality of milk than those kept indoors on dry grass.

Now the above are some of the common facts known about the benefits of Sunlight, but how many of us apply them in every day life both in health and disease. In a country like ours where sunlight is available practically 12 months in the year, we seldom make use of it in the way it should be utilized.

Some Practical Uses.—Science has now explored the uses of Sunlight and is exploiting it to the full. Heliotherapy or the treatment by light of diseases like tuberculosis of lungs and

cies, joint pains etc. Tuberculosis sinuses and wounds in particular and other wounds in general heal quickly if exposed to sunlight daily in a clean neat place free from flies. Weaklings amongst children with rickety constitution, with bone maldevelopment, pot-bellies, bowel complaints, marasmus etc., derive great advantage and improve well under a daily sunbath. The Ayurvedic method of open air treatment for such patients used to be "to spend the sunny hours inside the grove of lemon trees with he-goats round about him." Children in light clothing should be allowed to play freely in sunny places. Certain skin diseases like eczema, psoriasis, etc.,



bones, joints, coughs, colds and catarrh, wounds (tuberculous, especially), rickets etc., has now passed the stage of trial. In countries where Sun is sparingly available, or only for a few months in the year artificial sources like mercury vapour lamp etc. are being pressed into service for the treatment of such diseases.

But all of us can avail of the sunlight and derive benefit both in health and disease and as much as possible during winter months. Women and children and men should pass some hours in the open sunny places in the town and village alike, particularly those in a weak and debilitated state of health or predisposed to any such complaints like, cough, colds, tuberculous or rickety tenden-

show quicker healing signs if exposed to sunlight.

The disinfecting and sterilizing properties of sunlight also should be fully availed. Once a week or so all bed coverings, beds and other articles in a sick or healthy room should be exposed to the strong sunlight for few hours at a stretch. This could be done more advantageously daily in the case of a sick person if alternate coverings are available.

The town dwellers especially in congested parts of the town where sunlight is a forbidden fruit, should make it a point to pass their spare hours in open sunny spots.

A Word of Warning.—A word of warning is necessary. It is mostly the ultra-violet rays of the sunlight

which possess both the health giving and healing powers, and not the heat rays. The former are at their maximum measure in the rising and setting rays of the Sun and should be availed of during those hours. The heat rays should be avoided as far as possible, which become intense as the sun rises in the mid-day sky. Care should be taken to protect sensitive parts, like the neck and the head from the heat rays. The exposure to even ultra-violet rays of the early sun-rise or sunset when the diseased parts of the body are to remain

stationary under the Sun should be regulated beginning with a few minutes and gradually increasing the exposure time a few minutes daily till the maximum of one hour is reached. This will also vary according to the season of the year.

The invigorating ether around us, the smiling sunshine under the vault of heaven above us and the mother earth beneath us should give us health, happiness and freedom from disease if we make proper use of these free gifts of nature.

PHYSIOLOGICAL and MEDICAL FACTS ABOUT THE HUMAN BODY

By W. C. HANSZE, L. M. P. (MADRAS),

Formerly Medical Officer of Madampe Group, Kahawatta. P.O. Ceylon.

1. The average height of a newly born infant is 18 inches; average weight 6.77 lbs. In Britain the average weight of the newly born male child is $7\frac{1}{2}$ lbs., of the female child $6-\frac{2}{3}$ lbs. It takes 3 years for the child to grow the second 18 inches, so as to be 3 feet high.

2. Average weight of adult male, 145 lbs., height 5 ft. 7 inches, chest measurement of male (England) 36 inches, drawing strength between hands, 75 lbs.

3. The skeleton is one inch shorter than the measurement of the living person—skeleton weighs about 14 lbs. —there are 240 bones, The body contains about 12 lbs. of blood; about $6-\frac{1}{3}$ ozs. pass through the heart in each beat, and in adults from 65 to 75 beats occur per minute. All this passes through the lungs and is revived by the oxygen of the air—as bright red blood goes by the subdivisions of the arteries to every minutest portion of the body, and returns laden with impurities as dark

venous blood through the veins to the heart again.

4. The heart is a little larger than the fist, and weighs about 9 to 11 ozs.

5. The adult male brain weighs 49 to 50 ozs., female 44 to 45 ozs., the nerves of motion and sensation from every portion of the body end in the brain and spinal cord.

6. The lung consists of about 174 millions sacs or cells at the end of minute tubes that unite to form larger tubes, and these form the two bronchial tubes, and these unite in the windpipe, opening into the mouth and nose. At each breath the lungs are filled with air, the purpose of which is to oxygenate the blood. The blood absorbs about 30 ozs. of oxygen per day, sufficient to consume in the tissues of the body the carbon from about 3 lbs. of bread. The utmost amount of air expirable at one breath is calculated at 200 to 250 cubic inches.

7. The stomach lies beneath the lungs, near the centre of the body,

and in a sac of a capacity of about a pint (without distension) in which the food is changed by the digestive juices and ferments.

8. The liver, to the right, and beneath the stomach, weighs 50 to 60 ozs. it changes the starch of foods to sugar, secretes bile, and otherwise aids to digestion.

9. Spleen, to the left of stomach, about the size of the fist, weighs 5 to 7 ozs., and its functions are undetermined.

10. The intestines about 34 feet in length; the digestion of the food and the absorption of its nutrient qualities into the acteals and the blood is completed in the intestines.

11. The two kidneys weigh each about $4\frac{1}{2}$ ozs., about 1000 ozs. of blood passes through them in an hour, and by them the waste fluid portions of the food not useful to the blood are strained out. The waste fluids of the body are also exuded through the pores of the skin. The area of the surface of the body is about 2500 square inches, it contains about 7,000,000 pores each about $\frac{1}{4}$ inch of an inch long, or a total length of nearly 28 miles of pores.

12. The secretions of the body, saliva, gastric juice, chyle, bile etc., which are absorbed from the blood and reabsorbed by it in twentyfour hours, amount to 25 lbs.

13. Why is food required ?

Answer :—The question seems almost absurd, so familiar is the fact; and yet the answer to it involves one of the grandest chapters in the history of science. In its simplest form it may be given in three words: it is fuel, we require food frequently, and a lamp oil, because we are burning away. The air we breathe into our lungs contains oxygen which combines with, or burns, the muscles or other organs of our bodies just as it does the coal in a fire. About 30 ozs. of oxygen a day are thus consumed, requiring about 12 ozs. of carbon to replace the waste, or say, 3 lbs, of bread. The heat produced in a man's body in the course of a day is considerable in quantity, though not very intense in quality. Taking the average, it is enough to raise five and a half gallons of water from freezing point to boiling point, and this amount is the heat that would be given off during the burning of a pound of coal. All this heat comes from slow wasting or burning of the substance of the body, so that it is evident that, if we did not make up for this constant loss by eating food, our organs would soon be wasted away and consumed.

14. Comparative energies of Lungs in Different attitudes of the Body :—If the air inspired in a lying position is taken as one, then is the air inspired in a sitting position 1.18; standing 1.33; walking one mile per hour 1.9; walking 3 miles per hour 3.22; walking 6 miles per hour. 7.0; riding 4.05; swimming. 4.33.

The pretty young teacher was explaining the difference between concrete and abstract.

"Concrete means something you can see," she said, "abstract something you can't. Who'll give me an illustration?"

A boy in the first row raised his hand. "My pants are concrete," he said. "Yours are abstract."

The Human Skin and Radiation

BY DR. P. M. MEHTA, M.D., M.S., F.C.P.S., (*Director, Solarium, Jamnagar*).

THE basis of ray therapy is the absorption of radiations. On absorption, they are converted into thermal, chemical, mechanical or electrical energy or, perhaps, into some other unknown form. The effects are produced at the point where they are absorbed. Skin and mucous membrane are the only media known through which light is administered to the body. As penetration varies with different wave lengths, the site of their absorption in the skin also varies. Some are absorbed at the surface, some in the middle, some in the corium and others still deeper. The skin is not only a mere covering of the body, but it is an active organ having heat regulation of the body, as its prime function and indirectly influencing the nervous, nutritional, circulatory and excretory functions of the whole body.

Thin though the membrane is, it accommodates within its various layers, pigment, sweat and sebaceous glands, hair follicles, nerve terminals and capillaries. Any of these structures may be affected as the rays have different ranges of penetration.

A brief description of the structure of the skin, therefore, will be helpful in the understanding of its reactions to radiations. When a medicine is administered orally or by injection, the doctor knows that the dose prescribed has gone into the patient's system so easily. They have to effect entrance through the most wonderful line of defence which Nature has provided for our protection against incessantly assailing factors. The human skin is this line of defence. As its strength varies in each individual, the dose has to be varied accordingly. A normal individual has about 15 sq. ft. of skin. The skin varies in thickness in different regions of the body

from about one half to several millimeters. In a general way, the skin consists of three layers—the epidermis, the dermis or corium and the hypodermis or subcutaneous tissue. The epidermis separates the tissues beneath from the outside air. The deeper cells of this layer are constantly growing and dividing. As they multiply, they spread outwards towards the surface. As they spread, they become cut off from their blood supply. Only the deepest epidermal cells are well nourished. The rest are in various stages of starvation. The superficial cells, being remotest from the blood stream, actually die. The outer-most layer is, therefore, composed of dead cells. These dead cells are dry and horny, and form a tough barrier between the outer world and the living tissue. The epidermis has three other layers besides this—corneal one (or the lucid), the granular and the germinal.

In the last named layer is developed the important pigment, melanin. This pigment is found in the deep part of the germinal layer in the form of granules and diffused colouring matter. Amongst the coloured races, the pigment is found in the derma and even the horny layer is stained. It has been said that the primary function of the pigment is to arrest the excess of sunlight which has a lethal effect. By absorbing most of the visible rays which penetrate the horny layer, the pigment protects the blood vessels and the living tissues in the deeper layer of the epidermis from the lethal effects of sun's rays. This is why we have coloured races in the tropics. White men who expose themselves to the sun of the tropics become bronzed and thus immunize themselves from sun-burn. Pigment protects the underlying structures from an excess

of light. It absorbs the visible and ultra-violet radiations and by converting them into heat can activate the sweat glands.

The derma is very dense and tough and so canalised in all directions as to leave passages for blood vessels, lymphatics, sweat glands and nerves. Its muscles are chiefly of the unstriated type. It contains hair follicles and sebaceous glands and a considerable amount of elastic fibres. The tactile corpuscles are located in the papillæ which project into the true skin but many reach down to the subcutaneous tissue. The sebaceous glands which supply the hair and skin with a natural brilliantine, are closely related to the hair and empty their ducts in the upper third of their follicles. It is estimated that there are two to three millions of sebaceous glands and they daily secrete about 2 grams of sebum. The ducts of the sweat glands, which are located in the deepest portion of the derma and the subcutaneous tissue, pass through the dermis into the epidermis.

The skin performs various functions, chief of them being protective, sensory, heat-regulating, respiratory, secretory and excretory. To the radio-therapist, the heat-regulating and protective functions of the skin are of great importance in determining the dose. Man is a warm-blooded creature and is generally warmer than his surroundings. The body is, therefore, continually losing heat to the cooler atmosphere around it. To compensate for this loss of heat, there are internal sources of heat production which keep its temperature up. The continual chemical activity of our muscles and glands unremittingly replaces the heat lost by the body through the skin. The balance between this internal heat production and the external loss of heat determines the temperature of the body. Now both these factors might vary. Production of heat is greater in active hours than when we are at

rest. During severe exercise, the activity of our tissues and muscles is very much increased resulting in an excessive production of heat. Similarly, the state of the atmosphere may vary. It may be cooler or warmer, dry or humid in varying degrees. As it is essential for body efficiency that our temperature should be kept constant, Nature has provided us with two mechanisms in the skin which perform this work in a most wonderful manner. These are:—(1) Variations in the size of the blood capillaries. (2) Perspiration.

More than one-third of the blood in the body is always flowing along the skin. This enables the skin to exercise the equalising influence on the temperature of the blood and to control its circulation in the deeper structures of the body. When more internal heat is produced, generally the blood vessels in the skin dilate, and the hot blood rushes to the surface to be exposed to the cooling action of the air. Conversely, if we feel too cold, the blood vessels contract, the blood, having no excessive heat to give away, avoids the skin.

Perspiration is due to the action of the sweat glands, which number from 2 to 3 millions, and which throw out about 700 c.c. of perspiration per day, and are capable of secreting more when necessary. It consists largely of water. It evaporates and cools us. It is our most efficient temperature regulator. By its activity, it is possible for us to withstand the temperature of a hot chamber.

Another function of the skin with which we are concerned in radio therapy is its protective function. It is a tough rampart, protecting the body from all harmful contact—physical, chemical or bacterial. It is, in fact, an expansion of the nervous system. Skin has a net-work of sensory nerve terminals, which are sensitive to the slightest touch or irritation. If the attacking irritant is mild, the skin

remains unaffected, but if it happens to be the cause of constant trouble, the skin in course of time becomes habituated to the irritation and ceases to be sensitive to it. This adaptation of the skin is brought about by hypertrophy of all its parts. But, there is a limit to this power of the skin. If hypertrophy were an unending process, the skin would become so thick that it will not be able to perform its various indispensable functions and will destroy the body sooner than the irritant. The body, however, has to be protected from the irritants against which the excessive hypertrophy of the skin is not useful.

Now, if the irritant is so strong that it pierces through this line of defence and enters the blood stream, then follows a battle royal in our tissues. The blood vessels in the affected spot dilate, causing an increase in the blood flow. This phenomenon, known as inflammation begins with redness and develops further stages according to the strength and intensity of the irritant. The exuded leucocytes and serum offer opposition to the intruder. After the enemy is

destroyed, the inflammation subsides gradually. When the irritant is a radiation of sufficient intensity, then too, similar result follows. This hyperæmic reaction of the skin to radiations is technically called erythema. The erythema caused by ultra-violet rays has a peculiarity of its own. It takes a longer time to appear and lasts for several days or weeks which is not the case with erythema caused by other irritants. This erythema of long duration is of a particular help in fighting chronic infections like tuberculosis.

Penetrability.—We must, therefore, know how far each of the rays penetrates the skin, the only medium through which they are administered. Out of the whole gamut of spectral energy, solar radiation is the region of least penetrability. In the solar spectrum, red and short infra-red are the most penetrating, and ultra-violet and long infra-red are the least penetrating. While the visible and short infra-red penetrate to a depth of a few centimetres, ultra-violet about 3000A penetrate the skin about 1 mm. —*The Indian Medical Journal.*

Some Points on Communal Feeding

According to the WAR-TIME NUTRITION BULLETIN for October-Nov. '41, some interesting experiments have been made in Aberdeen School canteens towards educating children to eat more wholesome food. The "Oslo breakfast" was instituted without much success, but it was found that various foods, at first unpopular, could with a little discretion be made acceptable. For instance, haricot beans, which were rejected when served whole in vegetable pie, vegetable stew and haricot mutton, could be made more palatable by mincing. A few tins of small beans in tomato sauce were also successfully added to haricot mutton. It was found that the children enjoyed fish pie when it was made with white fish, such as cod or ling, but not with salt fish; so salt fish was added only gradually to the pie, and in this way the children accepted it without complaint. Potted herring was also a complete failure until it was gradually mixed into a popular white fish pedegree. Experiments with fish flakes and powder have also been successful.

Vegetables, especially green ones, have been mixed with meat on the plate, so that they could not be picked out and felt on one side. Stews have been made with plenty of carrots and turnips, and shepherd's pie with alternate layers of mashed potatoes, mashed vegetables, and minced meat. No difficulty was experienced with milk puddings or with whole or wheat-meal bread. It is curious that lemon and pineapple were not favoured as flavourings, though pineapple tartlets were liked. It is pointed out that the attitude of those serving the meal is of importance. If such people are tactful they may be able to persuade children to try new dishes more readily, and they can also inculcate pride in cleanliness.—*British Medical Journal.*

THE DELICIOUS PROBLEM

(By "Heches"),

A STUDY of human nature and psychology will soon reveal even to a superficial observer that among the many instincts in man there is, the instinct of pleasing one's self with what time and wealth can furnish. To gratify this craving of the soul different people take to different kinds of pleasures. The nature of pleasures chosen in a way reflects the stamp of the man. Some take to innocent and harmless pleasures which are legitimate and some to injurious and harmful ones. In making this choice, sometimes even the greatest men err, because the delight and pleasure they derive from indulging in a harmful habit, overcomes them. For instance, the use of intoxicating drinks takes hold of some.

There are many such drinks as wine, beer, toddy, arrack etc., and it is just to stop people indulging in these that the prohibition campaign had been launched upon. The evil of drinking has been in India ever since its history began. It is said that in "Thirukkural" a highly ethical work of the Tamilians, we hear of the condemnation of the pleasures of the cup, as it is assigned to be the origin of all sins and in Islam the use of intoxicating drinks is a crime second to none but fornication.

One noticeable thing which will attract much heed of a furnished intelligence is the fact that following the dictates of Quran, when once the "Mauzzin" who calls for prayer in the mosque, rambled throughout the streets of Medina, crying that Islam forbids the use of intoxicating drinks, all those that were traditional slaves of the "Liquor Paramountcy" held their liquor casks upside-down in the streets, thereby causing a flood of liquor flow through them incessantly,

to prove their staunch adherence towards their obedience to the Islamic codes. This testifies to the importance that in coincidence with the rise of Islam, the setting of the use of liquor, occurred in the firmament of Pure Muslims.

Condemned as it is, by both the religions, and if it is not incorrect to say, the only religions of India, it is a pity indeed, as to how this habit has taken such a strong hold of both Muslims and Hindus. Perhaps, it is the fault of these two religions in having pronounced the use of intoxicating drinks as a crime, which made the people all the more inquisitive to know or experiment with what actually this much condemned drink was; and finally fall a victim to it. Any way, it was a marvellous success for the Devil. If we go into the depths of some of the most abominable crimes ever perpetrated by man, we find the chief factors for the committal to be the two "W's Wine and Woman.

The Muslim kings as a religious duty and sometimes as a political move, introduced prohibition. In the north, the names of Allauddin, Khilji, and Aurangzeb Alamgir and in the South the name of Tippu, the Tiger of India cannot be forgotten in this connection. Tippu Sultan gradually worked up the prohibition and it is a remarkable coincidence that one hundred and fifty years subsequent to this experiment, in the very part of the country which finally and effectually was rendered dry by a Muslim ruler, the hand of a Hindu Premier came to effect the same reform, which no doubt adds to the dignity of the Congress. A more auspicious place could not have been chosen by the Congress ministry to start the prohibition campaign at.

The excise department has been the most lucrative source of income to the Government and the move of the Congress was towards prohibition. In Salem, Chittoor, Cudappah and other districts, this experiment had been an incredibly marvellous success, not minding the great loss the Government had incurred in this direction. People who had taken to drinking had been persuaded to take more harmless drinks like tea and coffee. Toddy and liquor shops have made room for tea and coffee clubs. In working up this idea, the Government had a fearful up-hill work. Leaders preaching against drinking were stoned, hooted and disgraced publicly. But an insult in a noble cause is no insult.

Now, a question facing a careful observer is: whether the infliction of a law or regulation can make a man give up a thing he has taken to, in the real sense. Mere persuasion to keep a man away from committing an evil act might not very much succeed unless he gives it up as a result of his own moral convictions. We had heard of people, addicted to the evil habit of drinking, moving into unprohibited areas to enjoy the pleasures of liquor and that with a vengeance! Cases of smuggling and illicit preparation of liquor being brought to light, prosecution were made, and culprits booked; but it can be said with much confidence that these can be only short-lived, for

these people will have to fly to the skies, when once prohibition is introduced in the whole of India by the Government.

Apart from the prohibition campaign, the country and especially those addicted to this bad habit should also be enlightened pre-eminently on the evils of drinking. We heard one fine morning America having gone dry. The streets were flowing with the liquor emptied from the casks but a few days later, they all took to it again and it became wet and terribly wet. It was just like a flash of lightning in a cloudy night in the history of America. Prohibition should be introduced in districts after districts with a view to make our Presidency, why, the whole of India, dry within a few years.

This is really a laudable idea and there can be no two opinions on this question among sensible people. As it is to our knowledge, it has worked and might work great hardships on the Government finance which it will make up by other means but not the means which may cling to the earning of displeasure of the lay public.

We long for the day when all the creative and forward looking minds with entire hopefulness, turn to the attempts of making not only the whole of India but also the alien settlements go dry, and every citizen of India, should view the prohibition campaign not merely as a political duty but as a religious obligation too.

Influence of Antepartum Diet

Ebbs and his associates studied the antepartum diets of 380 women with low incomes. A group of 120 women found to be on a poor diet was left as a control, the diet of a group of 90 women on a poor diet was supplemented with milk, eggs, oranges, tomatoes and cheese during the last three or four months of pregnancy and the diet of 170 women on a moderately good antepartum diet was improved by education alone. The mothers on a good or a supplemented diet enjoyed better health, had fewer complications during pregnancy and proved better obstetric risks than those on a poor diet. Miscarriage, stillbirths and premature birth as the result of the pregnancy of the women on poor diets were more frequent and the incidence of death and of illness among their babies up to the age of 6 months was many times greater.—*Journal of the American Medical Association.*

KEEPING QUALITY AND NUTRITIVE VALUE OF WARM MILK

THE following extracts from the Report of the Marketing of Milk in India and Burma (1941 publication) would seem to point out to the advisability of conducting a thorough investigation by nutrition research scientists and dairy experts in regard to the keeping quality and nutritive value of *warm* fluid milk

By

R. V. LAKSHMI RATAN, (*Senior*),

Mylapore Madras.

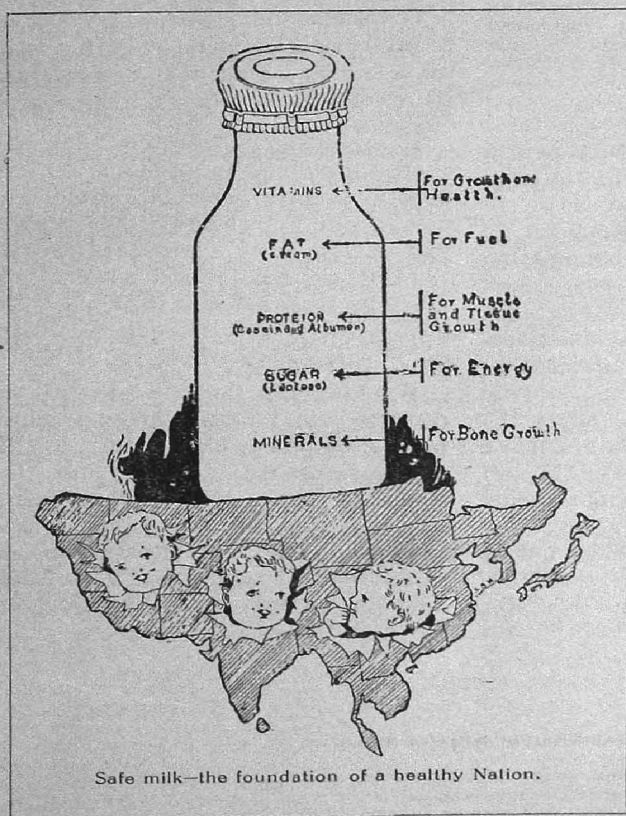
kept warm during handling, storage and delivery, within what period such milk should be consumed and such other details, have to be ascertained by actual tests, and recorded.

If a process could be devised to keep the milk warm and sweet without affecting its nutritive value for about 24 hours or so, the very costly and complicated cooling arrangements, pasteurisation, etc., could be avoided.

Heating the milk and keeping it at an elevated temperature is better suited to the warm climate. Besides, it is a comparatively cheaper method of prolonging the saleable life of milk. It is observed that milk keeps at about 150°F for a longer time than at ordinary day temperature or say 80°F. to 100°F. (pp. 137).

Mention may be made here of the new method of processing adopted by the Military Dairy Farms some years ago. All milk is heated to 145°F. for 30 minutes. The usual procedure in farms which have a refrigerating plant is to cool the milk to 40°F for sending to camps or hill depots and to 50°F. for local sales. At farms where refrigerating plants are not available, the

milk is cooled to 60°F—65°F in cold weather through use of ordinary water. But in summer the procedure is to issue the milk hot as discharged from the heater. Experience has shown that milk issued hot had a lower bacterial content on delivery to customers than milk cooled by water and issued warm. This method is followed on some 30 farms,



during storage, handling and transport by lorry, rail, boat, cycle, etc. To what elevated temperature the milk should be heated as soon as it is drawn from the animals, the range of temperature at which it should be

and the quantity of milk thus processed is approximately 30,000 lb. per day. (pp. 139).

The above method has much of wisdom in it for it helps to keep milk sweeter for the same period but at a cheaper cost compared with fully pasteurised milk. It is also felt that it would appeal better to the dietary habits of the people at large than chilled pasteurised milk. This method seems to deserve a much wider extension in this country. (pp. 139):

In a personal communication dated 1st November 1941, Mr. F. Ware, Animal Husbandry Commissioner with the Government of India, writes to me to say :—

*** As far as I am aware, no work has been done in India to study the changes, if any, that takes place in the nutritive value of milk handled at 145°F for a longer period, viz., 24 hours, as mentioned by you. I may however, point out that in Northern India it is a common practice for country sweetmeat shops, to keep milk simmering almost the whole day at about 125°F, and to sell it from the shops in this condition.***

A news item that appeared in the *Hindu* recently, under the caption "Keep Milk Warm", says :—

What is the best treatment for milk to keep it from going rancid? The general practice has been to chill the milk at once after it leaves the cow and again after pasteurization. Recent experiments suggest that milk keeps better if it is warmed.

The best way to prevent rancidity, according to scientists at the University of California, is to keep the milk at a temperature between 80 to 90 degrees Fahrenheit for one to three hours. In tests, they found that milk thus treated remained sweet for over 30 hours, compared with the 12 hours' freshness of milk which had been cooled.

The agent responsible for "turning" milk does not become active unless cooled. When it gets busy it breaks down the fat globules chemically.

In reply to my reference on the

matter, Dr. W. R. Aykroyd, Director, Nutrition Research, Coonoor, informs under date 10th November 1941, as follows :—

The heating milk for various periods at temperatures of 125°F or above has little effect on its nutritive value. Heating tends to destroy vitamin C, but milk is not a rich source of this vitamin which can easily be obtained from other articles of diet. Prolonged heating at high temperature might have some effect on vitamin B₁, but again the amount of this vitamin present in milk is small. Other vitamins are scarcely affected. Powdered milk, which is dried at a high temperature, is for practical purposes equivalent to fresh milk when reconstituted, except that it contains no vitamin C. The success of reconstituted dried milk in infant feeding is evidence of this.

The successful application of heat to preserve milk for a longer period, say 24 or 30 hours, will serve as an inducement to the Municipalities, consumers and producers to establish with Government aid, co-operative organisations worked under proper technical supervision for the supply of warm fluid milk from the rural areas to cities and towns. It may at the same time tend to increase the activities and income of even such villages as are situated at a distance of about 150 miles from a large consuming centre if they have the advantage of possessing of good milch breeds living in natural conditions and the necessary facilities for the supply of warm milk to urban areas.

It is, therefore, necessary that Government should immediately cause investigations to be made in the directions indicated above.

The Function of Tears

A protective device of nature is the germ-killing property of tears. It has been noted that the membranes lining the eyelids and covering the eyeball in front are relatively free of bacteria, and that infection following operations on the eye is rare. Actual tests to demonstrate the efficacy of tears in destroying germs are described by Drs. Richard Thompson and Edward Gallardo in the *American Journal of Ophthalmology*. Tears were obtained from a number of individuals and pooled. Crushed onions held close to the eye were used to stimulate the flow.

Fifty per cent concentrations of tears stopped the growth of staphylococci, but a twenty five per cent concentrations did not.—*Good Health*.

The Finest Instrument Known to Man

THE human brain is no doubt the finest instrument which is known to man. By means of this marvellous structure, the simple, inanimate food we swallow today when transfigured by the processes of digestion and assimilation may tomorrow be thinking, talking and walking. This wonderful thinking mechanism, with its hundred billion cells and trillions of branching filaments, requires for its perfect working the finest adjustment of essential conditions. Just the right amount of blood from the heart, the proper supply of oxygen from the lungs, the right amount and kind of nutriment from the stomach and intestine, the constant removal of waste products by the blood and lymph, the necessary repair of worn parts by adequate rest and sleep—these are a few of the conditions essential for healthful, forceful brain activity. How seldom are these conditions perfectly realized! We even take less pains to supply this marvelous instrument with the conditions necessary to secure the most efficient activity that we do in the feeding and care of valuable animals, such as race horses, prize cattle and experimental animals.—*Good Health*. (U. S. A.)

Effects of Evacuation and of Air Raids on Children

SOME interesting studies have already been conducted in England with regard to the effects of evacuation and of air raids on the child population of certain areas.

Psychologists who have carried out these studies are of the opinion that exposure to even a single "harmless" air raid can do great damage to a child's psyche, be he ever so "normal" and "fearless" on the surface. It has been noted that "previously good and intelligent children become suddenly obstreperous, destructive, mischievous, lazy, truant from school, and, in short, unmanageable in the billet to which they have been evacuated". One of the frequent symptoms is the inability to engage in any work during leisure. They are at a loss to know what to do themselves and seem to fear the responsibility of making any decision. They fail to show perseverance with any playful enterprise and soon begin to prove a nuisance to themselves and to others. The Rorschach test which gives essentially a personality picture, has been positive in 65 per cent of the observed cases. The effects are more pronounced when evacuation is added to the bombing of air raids. It has been noted that emotional difficulties have been either started or made worse as a result of evacuation. In a large number of cases anxiety syndrome, general nervousness, enuresis, stammering, pilfering, truancy, sleep walking, accompanied by anxiety and other dreams, which are evidences of mental disturbance, develop.

It has been noted that the immediate effect

of evacuation, which is separation from parents and from a known and accepted environment is worse than the immediate effect of raiding. The prognosis seems to be good for cases not complicated by neurotic trends. Removed from the billet, where the problem of "what to do in my free time" creates the main trouble, they tend to become better pupils in a hostel or residential school. Psychotherapeutic interference is unnecessary, and the routine and discipline of a happy life among other boys remove very soon all strain from off their minds.

It is interesting to know that deaths due to aid raids have fallen less heavily on children aged 5-15 years than on any other group, largely due to their evacuation.

Let us take a leaf out of these experiences to meet the air raid menace in India.—*Science and Culture*.

The Low Price of Milk

A QUART of milk at a cost of ten or fifteen cents a quart is fully equal to a pound of meat, which costs four or five times as much; and milk, when free from infection, is an exceedingly wholesome and necessary food to complement the average diet, especially for children. Some eminent authorities say that the average adult requires at least one pint of milk a day and the average child a quart. Nevertheless, cow's milk is by no means for babies a full substitute for the special nutriment which it receives from its mother's breast, which contains not only nutrient material especially adapted to an infant's nutritive needs but protective elements which shield it against disease, and afford it protection against such plagues as cholera, typhoid fever, dysentery, and other bowel troubles.

Cow's milk to be wholesome must be free from the numerous infectious elements which it is liable to contain beside the filth germs which it receives from the barnyard and contact with the cow, consisting largely of colon germs. It is also shown to be a vehicle for diphtheria, scarlet fever, tuberculosis and various other deadly infections.

A comparatively new danger from this source is the germ of undulant fever, once commonly known as Malta fever. This disease had spread so rapidly that, according to a recent work by Dr. Harris, one-tenth of all the people in this country are infected with this germ; and about one-tenth of one per cent of those infected, or one person in a thousand, is continually suffering from this disease, which is characterized by a recurring fever, accompanied by symptoms so closely resembling those of other maladies that the presence of undulant fever infection is quite generally overlooked for some time before the real trouble is recognized.

Fortunately, pasteurization of milk will destroy nearly all of these infections. Sterilization is needed to destroy all harmful germs,

but pasteurization and proper care of the milk will prevent at least the most serious effects of milk infections.

It is to be hoped that the time may soon come when pasteurization of milk will be required by law throughout the country.

The one perfect protection against serious injuries from the use of infected milk and infected meat is the return to the original diet of man, which all biologists now recognise as having been derived exclusively from the vegetable kingdom. Fortunately, this may be easily done. Tens of millions of Oriental people have lived and flourished for five thousand years without the use of meat or milk. In modern times, both meat and milk have been used to a small extent in both China and Japan, but most of the inhabitants of these great countries have been practically plant feeders for several millenniums, and have flourished greatly on their meatless and milkless regimen. They are today rapidly increasing in population, and show great national strength and vigor; while the meat-eating nations of the world are all degenerating, and show such a strong trend to depopulation that their ultimate disappearance is confidently prophesied by most eminent statisticians.

Human experience has clearly shown that departure from the eating habits of our early ancestors has led to degeneration and race decay, and that the only hope for the races lies in a great return-to-nature movement. Fortunately, the way is well prepared for such a movement by the great progress made in recent years through the researches into the nature of foodstuffs and the animal experimentations carried on in nutrition laboratories.—*Good Health*. (U. S. A.)

Does the Skin Breathe

ACCORDING to tradition the concept of the skin breathing arose many centuries ago when a nobleman in an effort to adorn his young and beautiful wife painted her skin with a coating of gilt paint. Her prompt death with symptoms of suffocation is said to have given rise to this notion. Its modern use is an atavism that should be discarded. What actually happened in the case of the unfortunate lady was interference with loss of heat and water from the skin.

Most gases and urinary constituents are eliminated to some degree by the skin, the total amount varying with different persons and conditions. As a rule, however, most substances are absorbed by the skin as readily as they are eliminated. For instance, if a body area is immersed in a high concentration of carbon dioxide considerable quantities may be absorbed. Perhaps a better way to state the case would be to say that the skin has the capacity to exchange metabolites, but it is incorrect and misleading to say that it breathes.

The Comment on the statement that "the less clothing you wear the better" is highly pertinent. Like all generalities, it holds only for certain conditions and circumstances.—*J. A. M. A.*

Soaps and their Germicidal Capacity

A REVIEW of "The Germicidal Action of Cleaning Agents" by W.D. Pohle and L.S. Stuart, in the *American Journal of Diseases of Children*, Jan. '42, runs as follows:

"These authors tested soaps and their germicidal activity by determining the rate of removal of transient and resident flora from the hands of 32 subjects by washing. Ten basins were placed in a row, 2 litres of distilled water added to each and a certain amount of granulated soap put in every basin. The hands were then lathered for twenty or thirty seconds and the soap worked over the hands for seventy-five seconds; fifteen or twenty seconds were used in rinsing, the whole process taking two minutes. The process was repeated in each of the nine remaining basins, the hands not being dried during the interval. The total washing time was thus twenty minutes. They then drew up removal curves by plotting the bacterial counts per basin from the first to the tenth. It was concluded that an infinite number of washings would be necessary to get rid of all bacteria and bring the curve to zero."

The failure of this modern device to clean hands suggests that our ancient custom of cleaning hands with clean earth after answering calls of nature should not be disregarded as unmodern or unscientific until the contrary is proved.

Be a Miser of Health

A MAN who hoards or accumulates money for its own sake is called a miser, and is regarded as unwise, because money can do him little or no good unless it is used.

But health is different. It is one of the conditions which makes life worth living. The more we possess of it, the fuller our lives may be and the greater our capacity for enjoyment and usefulness. We often hear people speak of having lost their health. Inquiry shows not that their health has been lost, but that it has been thrown away. It has been squandered or dissipated by neglect, or used up in some foolish or vicious manner.

We inherit health or our capacity for enjoyment of health from our parents. This inheritance is what we call constitution. Constitution, like wealth, is something which may be conserved or wasted. Physical abuse of all sorts, gluttony, intemperance, poison habits, such as smoking, the use of tea and coffee and condiments, and indulgence in anything which does the body harm, weakens resistance to disease, and prematurely wears out the bodily machinery. Unbiologic habits of any sort have the effect to prematurely wear out the constitution and threaten life, just as wasteful expenditure of an inherited fortune leads to bankruptcy and penury.

Natural death is rare. It is true that many die by accident; among these may be included deaths resulting from infections. But the majority of deaths, at least those resulting from chronic disease, are due to physical abuses, wrong habits of living, neglect, overuse of bodily junctions, and mistreatment of the body in various ways unconsciously, or

even knowingly. These are the things that cause premature death.

A man who cultivates health by avoiding everything known to be antagonistic to the interests of the body is said to be a health miser. He consciously does nothing he knows will waste his bodily energies. Those great protective organs, the heart, lungs, stomach, colon, liver, kidneys, and skin, when properly cared for and required to do only the necessary work, are so highly efficient, and perform their work so easily that they are capable of supporting life much longer than the usual life span—perhaps several times as long. The human body rarely, if ever, has an opportunity to wear out from natural use. An eminent French physician said many years ago, "Man does not die; he kills himself."—*Good Health*. (U. S. A.)

Prevention of Tuberculosis

AS has been mentioned above, there are two important factors in connection with causation of tuberculosis; the tubercle germ which may be termed the 'seed', which actually causes the disease, and the general health and resisting power of the body which constitutes the 'soil'. A person who is in perfect health may contract tuberculosis but only does so if he is exposed to a very intense degree of infection, whereas a person who is feeble, ill-nourished and in poor state of health will readily contract the disease even if he only comes in contact with a mild degree of infection. A very large number of human beings become infected with tubercle germ, and post-mortem examination reveals that over 80 per cent. of all people have been infected with it at one time or another during their life, but the majority of them have been able to successfully overcome the infection due to their good bodily health and powers of resistance. Hence the disease must be combated in two ways: (1) by preventing the spread of infection; and (2) by building up the health of the body so that it can resist any likely infection to which it may be exposed.

Obey the following laws of health and protect yourself against tuberculosis;—

(1) Avoid all predisposing causes like overcrowding, insanitary conditions at home, at work and in school, bad posture, worry and anxiety, purdah, etc., in fact anything that lowers the vitality.

(2) Avoid close, intimate and prolonged contact with any person who is suffering from cough, fever or other signs of tuberculosis. Do not sleep in the same room with him. If you have to attend on a tuberculous patient, learn how to avoid getting infected.

(3) Keep yourself in open air and sunshines as long as possible. When indoors keep all the windows and doors open to admit fresh air. When in bed do not cover your face; if mosquitos trouble you, use a mosquito net.

(4) Drink plenty of milk, eat fresh fruits and vegetables. Take as much wholesome and nourishing diet as you can digest.

(5) Take regular exercise, bathe daily and breathe deeply through the nose to keep fit.

(6) Keep a correct posture, head up, chin in, and do not stoop.

(7) Do not live in over-crowded or insanitary houses.

(8) Avoid dust and flies.

(9) Do not suck pencils or fingers—they may be infected or dirty.

(10) Do not spit to wet your fingers for turning over the pages of your books.

(11) Do not spit. It is a filthy habit and spreads disease.

(12) Consult a doctor at once if you find that you are gradually and progressively losing weight; that you have a cough on rising in the morning and after meals, or pain in the chest; that you have low fever in the evening; that you have cough, and that your sputum is frothy and tinged with a little blood; that you have loss of appetite; and indigestion; that you sweat at night and have to change your clothes after going to bed; that you are looking pale and run down with loss of energy; that you have a hoarse voice, which disappears and recurs again. When any of these symptoms appear consult a doctor at once to find out whether you have any serious disease. Delays are dangerous.

Diet in Diarrhoea

WHEN diarrhoea is due to ingestion of irritating matter with food, Bickling advises the administration of a purgative to clear the irritating matter from the intestines and a day or two of starvation to rest the alimentary tract. During this period of starvation enough water should be allowed to prevent any feeling of thirst, but large amounts of fluid should not be taken because of the resulting stimulation of the intestinal movements. Barley water, lemonade, plenty of sugar drinks made with marmite or beef-extract may also be taken, as a rule. As a result, diarrhoea soon ceases and patient's appetite returns. The patient's usual diet may then be resumed, or he may be given for a few days a simple non-irritating diet. Diarrhoea from any cause which lasts for more than two or three days, requires more care, because the patients may become weakened and may lose weight as a result of starvation itself, quite apart from the condition which is causing the diarrhoea. In this case, he advises plenty of sugar which prevents condition of ketosis from developing as a result of starvation. Sugar is a concentrated food which is completely absorbed. It may be given with orange juice, barley-water, and in milk flavoured with tea, coffee or cocoa. When diarrhoea lasts for more than a week, and especially if it appears to last for much longer period as in cases of ulcerative colitis, and in some cases of typhoid fever, an attempt should be made to give a diet with a high caloric value, in order to prevent much loss of weight during the illness, for if this occurs, convalescence will be greatly prolonged after the patient has recovered from the disease which has caused diarrhoea. If it is considered desirable to give fluids only, on account of loss of appetite, soreness of the mouth, tongue,

rendering mastication impossible, or if the patient is fatigued by mastication, a diet of considerable caloric value, can be given by the use of raw eggs, milk, cream, sugar, and orange juice. Hicking gives a specimen of a diet with a caloric value of 1600,

7 A.M. Orange juice 5 ounces. Water 5 ounces. Sugar 1 ounce.

9 A.M. Milk 10 ounces, Cream $\frac{1}{2}$ ounce, Tea to flavour,

11 A.M. Milk 10 ounces. Cream $\frac{1}{2}$ ounce. Sugar $\frac{1}{2}$ ounce. Cocoa to flavour.

1 P.M. Milk 5 ounces. 1 raw egg. Sugar $\frac{1}{2}$ ounce,

3 P.M. Milk 5 ounces, Cream $\frac{1}{2}$ ounce, Sugar $\frac{1}{2}$ ounce. Coffee to flavour.

5 P.M. Milk 5 ounces. Cream $\frac{1}{2}$ ounce, Marmite to flavour:

9 P.M. Milk 5 ounces. Sugar $\frac{1}{2}$ ounce, with any flavour. Water may be taken between feeds if required,

This diet may produce an abdominal distension or cause nausea and so may have to be reduced in total volume, or sugar and cream may have to be reduced in amount. But in an illness which may last many weeks, it is most important that an attempt should be made to give a diet of adequate caloric value. Alternative feeds in the above diet can be replaced by junket, custard, and other milk puddings; white bread from which crust has been cut with butter, honey or jelly; and lightly boiled eggs.—*The Practitioner*.—*Med. Bull.*

Potential Poisons in Meat

A TOTAL of 27,208 animals—cattle, sheep, swine, goats and horses—were condemned under Federal inspection before slaughter in one year as being unfit for human consumption, while 223,548 were condemned after slaughter. Thirty-five different diseases were involved. There are thirteen other diseases which render carcasses subject to rejection as human food. The extent to which meat may cause ailments of the gastro-intestinal tract was made clear in an address by Lieutenant-Colonel Orville E. McKimi, Veterinary Corps, United States Army, which was published in the *New York State Journal of Medicine*.

In one year, 743,777 pounds of poultry were similarly condemned, mostly on account of tuberculosis. The law does not now require that all poultry must be eviscerated and inspected before being frozen. If the intestines are left in the body, there is always some undigested food in them. This quickly decays on defrosting, causing foul odors and putrefaction poisons which impart to the flesh a putrid flavor, to which the French give the name of *haut gout*. Meat offered to which the army and the CCC to the amount of 23,312,444 pounds (nearly 12 tons) was rejected in 1938 under Federal inspection, the price placed on it being \$1,158,411.

These figures by no means represent the full extent of the diseased meat menace of human

life and health in America. They are, in fact, merely suggestive, for it is frankly announced by the Government that at least one third of all meats slaughtered is eaten without being subjected to Federal inspection. And there is reason to believe that this uninspected meat if examined, would show a much larger proportion infected with loathsome and dangerous disease, since it is well known that it is a common practice to send for slaughter to places where there is no inspection, animals known to be infected with disease, and so certain to be rejected at Government-controlled slaughtering places. Animals and fowls which have tuberculosis, anthrax, tapeworm embryos, foot and mouth disease, and various other disorders, may thus be sold on the market. The gravest danger is from the carcasses of animals which have died from disease or by accident, or so-called "cold slaughter." In such cases, toxins may develop in the meat which are deadly in their effects and highly dangerous.

Another source of risk is the commercial chopped meats, containing "everything from trimmings of fat and gristle to old, wrinkled frankfurters." Poisons developing in putrid fish are more intense in their action flesh of warm-blooded animals. Shell-fish, such as oysters, lobsters, crabs and shrimp, are particularly dangerous because the shell favours accumulation of the toxins as they form.—*Good Health*. (U. S. A.)

In Lighter Vein

"HAS your mother told you what every young girl should know?"

"Yes, a millionaire bachelor."

*

*

*

"HERE is a letter from your wife saying you are the father of a ten-pound boy."

"Does she say anything else?"

"That's all, except at the end of the letter she says, 'Truly yours'."

*

*

*

SWEET Young Thing: "There's a rat in my room."

Hotel Clerk: "Make him come down and register."

*

*

*

JUDGE: "So you deceived your husband."

Wife: "On the contrary, Judge, he deceived me. He said he was going out of town and he didn't."

*

*

*

ROMEO: Juliet, dearest, I'm burning with love for you."

Juliet: "Come, now, Romeo, don't make a fool of yourself."—*Medical World*.