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HEALTH

A JOURNAL DEVOTED TO HEALTHFUL LIVING

EDITED BY HON'BLE DR. U. RAMA RAU & U. KRISHNA RAU, M.B.B.S.

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Mr. E. Krishna Iyer, B.A., B.L.,
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HEALTH

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Edited by
Dr. U. RAMA RAU & Dr. U. KRISHNA RAU, M.B., B.S.
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OUR SPECIAL NUMBER

'HEALTH' enters its tenth year of existence on the 1st of January 1932 and to commemorate this happy occasion, we have produced this Special Number. By way of retrospect, 'HEALTH' may be said to have had a safe though not a splendid voyage. Its compass of readers, though small is yet steady. The good done by 'HEALTH' is, though slow, yet sure. We rejoice to find that even in these troublous times of trade depression and political turmoil, our readers have not forsaken us. That augurs well of the future of 'HEALTH'. If 'HEALTH' has not impressed more on the public and has not attracted more numbers, it is because it is a subject, which everyone presumes to know much about. True; one knows more about health and its maxims than one can practise. Our religious scriptures, abound with health rules, People read the scriptures daily, recite the mantras, but fail to follow them. As the people of this country cling on to old traditions and customs, we have tried as far as possible to correlate and interpret those traditions in terms of Modern Science. We have already mentioned in our Editorial of January 1929 number, some of the subjects so dealt with, and we do not therefore propose to reiterate them here. Since then, we have added some more to that list, the chief among them being (1) The Sanitary and Hygienic background of Pongal (2) The Holy Basil (Tulasi) and the Bail (Vilvam) (3) Is common salt a prime necessary of life or a harmful superfluity? (4) Sanitation in ancient and modern India—A comparitive study (5) Compulsory Health Education in Schools (6) School Sanitation

(7) The Hindu Deities on the Hills as Healers and Health givers (8) Birth Control—Continence or Contraception, which is Healthier ?

Mental Health has not escaped our attention. A series of articles from the facile pen of Dr. Noronha, a specialist in that branch of medical science, were published recently in the columns of HEALTH. Another eminent authority, Dr. Raghunatha Rao, D.T.M. Specialist in leprosy has contributed an interesting drama on 'The Great Disease,' which must have dispelled wrong notions among most of our readers about the absolute incurability of that loathsome disease. Our far-off American friends Dr. Podolsky M. D., of New York, and Dr. Charles Hooper, Idaho have not forgotton our 'HEALTH' and have sent us good contributions. Our thanks are due to one and all of them and to the numerous other contributors, who have helped us with their instructive articles from time to time.

The Special Number is a fine collection of authoritative articles from lay and medical men. We have divided them into three sections (1) Health, (2) Infant and child welfare and (3) Diseases. Among articles on Health, the Chief of Aundh, the exponent of the old Surya Namaskar exercise, has contributed an article on 'Healthy Life.' 'Yoga for Health' by Sri Yogendra is the first of the series of yoga exercises which have been promised by him for publication in Health. 'Singing for Health' by Dr. Podolsky and 'Dancing for Health' by Mr. E. Krishna Iyer, B. A., B. L., Advocate, are two other contributions contained in this Special Number. Prof. Mahdava's article—'Public Welfare services by Life Insurance Companies'—is well-worth study. In the section relating to Infant and Child welfare, we have articles on Infant feeding, Eye-Sight among children, prevention of Tonsils and other throat affections which pester the school-going population. In the section dealing with diseases, Dr. F. Noronha deals with mental Health. Dr. M. Kesava Pai, Tuberculosis expert has written a very interesting article on Tuberculosis, which will appeal to laymen. Lt. Col. Ghurpurey, I. M. S., treats about poisoning by snake-bite which is assuming alarming proportions in this country. Some contributions had to be withheld for want of space and they will appear in the succeeding issues. Due acknowledgements of these articles have been given in this number and we trust the authors will bear with us and condone our action.

The prospect of 'HEALTH' is not gloomy. The mist of financial depres, sion will soon be cleared up. Plenty and prosperity will sway the world shortly. The efforts of the Round-Table Conference will, it is hoped, restore peace and tranquility to India. There will then be more money and more leisure at the command of the people to buy 'HEALTH', read 'HEALTH' and preserve their HEALTH.

On this tenth birthday of 'HEALTH' which synchronizes with the New Year Day, we wish all our contributors, subscribers, and advertisers a Happy, Healthy and Prosperous NEW YEAR.

SECRET OF HEALTH.

By

Dr. Parmanand Ahuja, M.B., B.S., *Karachi.*

THE Goddess of Health has gifts in her power which every human being would fain desire for himself or herself. The flag of unity dancing with the breeze on the pinnacle of the temple of Health has a fascination—irresistible and an attraction irrevocable drawing with a magnetic force the cosmopolitan crowd of humanity to the feet of the benign Goddess of Health. In this unhappy land of dissensions and differences where humanity suffers crucification in the fair name of religion, this pulpit of unity alone offers a common place of worship for one and all. In this shrine of beauty we can all come together, irrespective of caste, creed, colour, community, race, or religion, to receive the blessings of the Goddess for the common good of all, for building up our manhood or womanhood in the service of our motherland. Come! Comrades of all faiths!! Let us hasten to this only haven of health, happiness, peace and prosperity which offers us a shelter from all conflict and confusion. Every one firm in his or her own faith can listen undisturbed to the melodious music of this Master Player of health songs on the harp of harmony.

Every one of us is anxious to win the favours of this fair Goddess. But a devotee must bring flowers of devotion to the feet of the Goddess to make her bestow her choice blessings. We must obey her commandments and regulate our lives accordingly. *Tapasya* is necessary and certain *Sadhans* must be practised. These *Sadhans* are simple, but alas! on account of very simplicity, they are simply ignored. Hence all the misery and diseases. Three of them I would mention.

1. Fresh Air.

We are aware that frseh air is essential for a healthy life and that fresh air, and sunlight are invigorating and rejuvinating. Why the flower babies of Nature bloom and blossom without the aid of nurses and doctors? Because they inhale the fresh balmy breezes and drink of the refreshing rays of the morning sun. Air currents and light waves activate and enrich the chlorophyll of plants and shrubs and haemoglobin of human beings both essential for imparting a rich glow of beauty and health to the vegetable and animal kingdom respectively. It is a pity that these two free gifts of Nature are also being converted into taxable commodities in big towns in these days of economic stringency and struggle. But people can draw upon the bounteous unchartered stores of Nature at no cost, by spending with their families and children, leisure hours out of their houses in the open parks and playgrounds.

The unnatural antipathy of those fortunate to possess houses with free inlets for air and light, who keep the shutters of their windows shut most part of the day, especially when there is sickness in the family and free ventilation is needed most, is simply inexplicable.

Even houses freely supplied with air and light are not enough. It is the

active circulation of the blood, that an outdoor excursion automatically provides, which helps the blood forming cells to absorb and assimilate the oxygen of the air and the ultra-violet rays of the sun.

2. Simple Fare.

Simple non-stimulating food builds up the bodily strength. Three factors influence the kind and quantity of food namely, age, occupation and season of the year.

Children require more of growth producing, non-stimulating articles of diet, such as fresh green vegetables, wholemeal bread, fats, fruits, milk etc. Young people can have access to liberal dietary and brain foods like nuts, dried fruits, fresh fruit, cream, butter etc. Old age again requires less stimulant, simple, easily assimilable menu of dietary. A manual worker requires more of whole meal bread, fats, etc; man who has to work more mentally would do better on greater quantity of brain foods mentioned above. Season of the year will necessarily determine a change in diet. Nuts, dried fruit and such other heat producing stuff will be badly tolerated in hot weather. Chillies, condiments etc are unnecessary and should be avoided as far as possible. They put the stomach into bad habit of feeling diffident to digest food without their aid and train the palate in an artificial way of relishing food. Alcoholic beverages etc. form no part of man's daily diet and should never be considered as such. Quantity of food should be as much taken care of as its quality. It is a wrong idea that much food means much strength. It has been scientifically ascertained under well-controlled experiments that an average man, fairly situated, takes four times the amount of food than what is necessary for ordinary life processes. This has a great economic bearing when feeding of large population is concerned especially in a poor country like India. Simplified, it means that an average man takes an amount of food that would be sufficient to feed three other persons besides himself. This, in addition to taxing his digestive organs individually to fourfold the amount of work with consequent exhaustion and premature decay, brings an economic loss to the nation at large, and deprives the masses of even the bare sustenance minimum.

Nothing is more unnatural than to feed the old with rich luxurious food in plenty, under the wrong notion of supplying their waning bodies with nourishing material. Quality of food required varies directively with output of work. When all other bodily organs in old age require rest and general expenditure of energy is at a low ebb, the poor innocent stomach as old as any other organ in the body is unjustly burdened, often times more than even in youthful years, with all sorts of indigestible, unassimilable articles of food which even younger stomachs would despair of digesting properly. Such a state of affairs would seem not only cruel but almost criminal.

An eminent medical man when questioned about the secret of his wonderful vigour and vitality at an advanced age of 126 years, remarked "I leave my plate when I feel I can take as much more as I have taken already." Some one has rightly enjoined "that if people were as anxious to live well as they are to live long, they will more easily achieve their object." Occasional fasting, partial or complete, is conducive to good health.

Freedom from Care.

Mind powerfully influences all bodily functions. Shakespeare has it "that it is the mind that makes the body rich." All physical ailments are influenced, for better or worse, by the state of mind of the sufferer. Faith is synonymous with peace of mind in the art of healing; it is one wing of the bird of cure, the other being the drug. It is related that when cholera was raging severely in Naples and all the hospitals were filled with panic stricken patients helpless to fight against the disease, the King went the rounds of the hospitals. He saw many dying cases and spoke encouragingly to them. He halted at the bedside of a youngman given up as hopeless by the physician in charge. The King sat by his side, took the cold, clammy hand of the dying man into his own and pressed it saying "take courage, youngman and try to recover soon." The King passed on. Next day the Syndic solicited the audience of the King and remarked "Your gracious Majesty's visit to sick men had a miraculous effect. There is reported a general decline in the incidence of the fell disease and many a moribund case has come round and the man you saw this morning marked for death has been declared out of danger by the medical attendant." The royal presence, warm grasp, kind and sympathetic words had worked the wonder.

No amount of nourishing food and exercise can bring health and vigour to the body if the clouds of care hover round the mind. Mind must be at peace to enable the body cells to assimilate the food you take and build up the muscles by means of exercise you induldge in. It is not uncommon to hear, "I have been doing exercise regularly and taking rich diet but my body is weak and undeveloped. But in majority of cases, if truth is ascertained it will be found that the mind was engaged elsewhere when the limbs were moving automatically and similarly the food morsels followed each other mechanically into the mouth while the mind wandered on business affairs or home worries etc. "Work while you work and play while you play" is a sound school slogan applicable at all stages of life.

The sceptic may argue that it is next to impossible to be care free in these days of keen struggle for existence. But I humbly submit that it is only when we put the 'finite self' above the 'self infinite' that hope departs and despair stares us in the face. When the armour of faith in the Omnipotent and the Omniscient is weak, then the demon of despondency overpowers us. The inspiration "Do your best and trust in God" will bring a ray of hope to the heart of many a worn out wayfarer when the sky is cast with clouds and life horizon looks dark and gloomy.

"In the dungeon and on the scaffold looks the eye of Him tenderer then yea to love, mightier than yea to protect and stronger than yea to guard;" words of wisdom which brought solace to the sad soul of a young man forcibly snatched away from the loving arms of his lonely wife about to be delivered and put into prison during the dark days of French Revolution when all was turmoil and bloodshed in the Reign of Terror.

HEALTHY LIFE.

By

Shrimant Pant Saheb Pratinidhi, *Chief of Aundh, Dt. Satara.*

I. What is Health?

Health is that state of an organized being in which the parts are sound, well-organized and well-disposed and in which all the organs perform freely their natural functions.

Health is the most desirable possession of man. It is the most precious, yet to some the most elusive. Health means vim, vigor, energy, both physical and mental. The world's richest man is poor if he has no health.

A powerful physique is to be desired not merely for the sake of *external* muscular development, but for the sake of buoyant health, energy and resisting power.

A mere muscular and strong body will not make you healthy. *Mind* plays an equally important part in endowing you with complete health. Mind, when properly cultivated, is the master-force for health. Mind and body are interdependent.

The ideal of health or education is nicely expressed in the Latin phrase—"*Mens sana in corpore sano*"—which means a sound mind in a sound body.

Most people have an imperfect or erroneous idea of health. They declare themselves to be in good health if only they are not bed-ridden with disease or some form of chronic ailment. In this stagnant phlegmatic existence they do not understand what is to be more than half-alive, which really means to be half-dead.

II. How to Acquire and Retain Such Health.

There is nothing in life more valuable than health, glorious, radiant health. It cannot, however, be bought for money, nor can it be gained through a proxy. The drug stores do not keep it. No medicine, pill, powder or potion can give it you. But it is yours if you work for it.

Among the most important essentials that contribute to superb health may be mentioned:—(*a*) Fresh air. (*b* The Sun. (*c*) Water. (*d*) Food. (*e*) Exercise.

III. Fresh Air.

Pure fresh air is the most essential necessity of life. Without food one can live for weeks, without water for days, but without air one cannot live longer than a few minutes. Yet the value of air is hardly sufficiently appreciated because you get it free.

The value of deep breathing cannot be over estimated. Every person young or old must practise deep breathing at least once a day in the open. Our *Shastras* enjoin deeep-breathing (प्राणायाम) twice a day while performing *Sandhya-Vandana*. Deep breathing not only supplies quantities of oxygen, purifies blood and strengthens our lungs and heart, but it marvellously increases nerve and muscular energy.

One should, therefore, always be careful to breathe fresh and pure air,

especially when indoors and asleep. In spite of the fact that fresh air is most essential to life, hundreds of thousands of people have no conception of its vital importance. There is a peculiar dread associated with night air. The man who walks about bare-headed during day will put on a cap or wrap his head and ears with a cloth and will shut windows before he goes to bed. Bed rooms should always be well ventilated by keeping the windows open at night.

Many have no idea that skin also, like lungs inhales and exhales air through its countless pores. Heavy or tight clothing interferes with its function. Let your apparel be as little, as light and as loose as could be when it is necessary to wear it. Exposure to the air and cool breeze stimulates the action

SHRIMANT PANT SAHEB PRATINIDHI.

of the skin, gives tone to it and enables it to adjust itself to the varying temperature of the air.

IV. The Sun.

Sun-rays prevent and cure a number of disorders. We find that a great amount of ill-health and disease is directly attributable to deprivation of sunlight. Such grave diseases, as rickets, tuberculosis, etc. are graphically described as "diseases of darkness".

It is the ultra-violet rays of the sun that possess the wonderful curative and preventive powers, the infra-red or the heat rays playing but a minor part. Used with discretion, excellent results have been obtained with ultra-violet

rays in the treatment of ailments, as skin-diseases, notably, tuberculosis, infections, baldness, chronic ulcerations, boils, acne etc.

Experiments have proved that muscles under the influence of sun-rays develop into athletic form without the use of massage or electricity, and even in the case of bed-ridden patients. Pigmentation of the skin brought about by exposure to the sun has been found to resist the penetration of harmful germs.

All outdoor exercises, when done in the morning or evening sun will thus yield double advantage—muscular development and cure are prevention of disease, provided, of course, your body is exposed to the sunrays.

We must, therefore, invoke the aid of sun-light in the home, the school, the factory and the workshop. Without the sun, all life—animal as well as vegetable—will be extinct.

"It is then imperative that all of us—men, women and children—should get our full quota of ultra violet-rays, if we want to live long, healthy and useful lives."

"Sunlight is the best tonic, the best stimulant, the best disinfectant, the best health giver: indeed 'It is the greatest of all physicians'."

V. WATER

Water is next to air and sunlight as an essential to life. This could hardly be otherwise when we consider that the body on an average is about 70% water.

In connection with health, water serves four main purposes; drinking, cooking, bathing or washing and curative. We shall however confine ourselves to discussing water for drinking purpose only.

It is estimated that the body needs about three or four pounds of water daily. But requirements of water for drinking differ greatly according to the nature of work one does, the season and temperature, one's weight, the kind of foods eaten, etc. These modifications of the water appetite are based on sound natural laws and must not be ignored.

When should this three or four pounds of water be drunk? Not at one time, of course.

After washing the mouth and teeth well, a glass or two of either hot or cold water in the morning is desirable. Cold water has more tonic effect, while the hot is better for stomach cleansing and as a remedy for constipation, which is often caused by lack of sufficient drinking water.

Now there has been much controversy as to whether or not one should drink water during a meal. For ourselves, we never drink water during but take it copiously between meals, whenever we feel thirsty. We have at all times condemned the usual habit of drinking water for the purpose of washing down food that is eaten hastily or without chewing. Some, however, hold that drinking water with meals is all right. Drinking water just before a meal or on top of a meal is often recommended to be a beneficial practice. Our Aryan medical authority says that water when drunk on top of a meal acts as poison while the water drunk after the digestion of food serves as a curative of ailments.

VI. FOOD.

Too many are careless with precious health so long as actual illness does not emphasize its loss. Too many take health for granted and neglect the simple precautions which safeguard

this priceless possession. Especially is this true with regard to the foods we eat—the materials upon which the body must depend to build and repair its tissues, to regulate its vital processes, to promote its growth, health and strength and to provide energy for its activities.

Instead of taking up this vast subject of food and nutrition in detail, we must be content for the purpose of this article with setting forth a few of the fundamental principles regarding food and eating habits of modern man.

(*a*) Do not eat except when hungry.—Natural appetite should guide our eating habits. When this guiding force within us is ignored, we are apt to go astray. "Civilized man has gone very *far* astray in his eating habits and has allowed many of his true food instincts to be perverted, destroyed or replaced by artificial or cultivated tastes and habits. These have brought untold nutritional evils, caused a loss of strength and vitality, encouraged disease and shortened man's life."

(*b*) Man gets proper nourishment from *natural* foods only.

When with a view to improve our foods and flavors we tamper with the natural products, we do so at our peril. We must eat our foods with all the natural constituents *retained* in them. No particle of their elemental value or substance should be removed or destroyed. An example will make this point clear. When, for instance, bran, germ, vitamin, etc. are removed or destroyed from whole wheat or rice and only the white or starchy portion is consumed you subject yourself to a variety of diseases.

Similarly when the husks of dry leguminous grains, like gram, "tur," peas, lentils, etc., are thrown away and the inner pulse only is eaten, you suffer from indigestion and constipation. The discarded husks not only contain a number of essential mineral salts and vitamins, but form a vitally important roughage, so necessary for complete elimination of waste matter from the colon.

(*c*) Over-eating is a most prolific source of ailments and diseases.

Food taken in excess of the body's actual needs is more than wasted. It turns to poison and overtaxes the organs of elimination. It brings about what is called auto-intoxication, which is the primary cause of a number of insidious diseases like cancer. Cultivate the habit of abstemiousness if your desire to possess permanent health.

(*d*) Chew your food thoroughly.

Deliberate and complete mastication is necessary for several reasons.

Firstly, it breaks the food into minute particles so that the digestive fluids can quickly act upon it.

Secondly, it insures proper insalivation. The observance of this rule is especially important when eating carbohydrates or starchy foods, such as whole wheat bread, "chapatis," brown rice, bread made from jwari, bajri, maize etc.

Thirdly, it is absolutely necessary to the full enjoyment of the natural tastes and flavors of different foods.

Fourthly, a less quantity of food will be found enough to satisfy your hunger than the quantity when gulped down or swallowed hastily.

Fifthly, it strengthens the teeth and gum muscles.

(*e*). Excessive seasoning with salt, spices, chillies and condiments should be avoided.

"All such added food flavorings are habit forming to some degree in that once their use is begun the tendency is gradually to increase the dosage, until natural flavors are destroyed or disguised and the natural appetite is submerged by a multitude of artificial cravings. When this stage has been reached, the value of appetite as a guide in the selection of food, either for quality or quantity, is almost entirely lost. Overeating is thus encouraged, resulting either in the break-down of digestion or in obesity."

(*f*). Never eat when worried, tired, angry, excited, mentally or emotionally disturbed, or when feverish.

This rule is observed, as a matter of course, by almost every animal of the earth except civilized man. Food ingested in these circumstances will poison the system instead of nourishing it. Both body and mind should be thoroughly relaxed before eating.

(*g*). Fasting is an important health-restoring and health-preserving measure. For the habitual evils of overeating and loss of appetite fasting is the only infallible remedy. Hence our *Shastras* enjoin us to observe a complete fast once in a fortnight.

Before closing this rather lengthy discussion about food, we think it desirable to mention some of the cheap nourishing food products. Whole wheat, brown rice, jwari, bajri, maize, leguminous grains, (with nothing taken away from them) all kinds of root, bulb and leafy vegetables (raw and cooked), nuts and fruits will nourish one for a life-time especially when eaten with milk, which is one of Nature's greatest and most complete of all foods.

VII. EXERCISE.

It is fairly common knowledge that exerceis of the muscular system is necessary to the maintenance of vigorous health, but that it is also one of the most important natural methods of successful treatment of various forms of impaired health, needs to be emphasized. One of the most prevalent causes of physical ailments is lack of proper all-round exercise.

Children, with normal desires, obtain all the exercise they need in connection with their games, because it is the natural instinct of the child that causes it to leap, jump, run and romp. Men and women, if they are wise, should vary their ordinary occupation with some healthy forms of exercise.

The influence of sedentary occupations towards physical weakness and decrepitude is sad to behold. Everywhere we find men and women taking "the line of least resistance." They always look for easy jobs that do not require muscular work. Physical labor is regarded as menial.

Proper food and proper exercise should go hand in hand if you want to possess radiant health, strength, vitality and energy; but modern civilization robs us not only of natural food but exercise as well.

One should strive through exercise to develop and strengthen the three principal organs of the body, if one wishes to have full enjoyment of health, efficiency and longevity. It has been found by actual experience that the *Surya Namaskar* exercise, when done regularly and methodically will render these three parts fully developed and capable of resisting disease or disease-germs. The three parts are—

(*a*) Digestive organs, comprising stomach, liver intestines etc.—By far the largest number of people suffer from stomachic and intestinal troubles, such

as dyspepsia and constipation—the fountain head of almost all ailments and diseases.

(*b*) Heart and Lungs—colds, coughs, asthma, palpitations, tuberculosis, etc. are some of the symptoms of heart and lung derangement.

(*c*) The nervous system, including brain, spinal cord etc.—Brain affection is indicated by headache, megrim, brain-fag, loss of memory, paralysis, depression of spirit, loss of sleep, pessimism, etc.

The Best Exercise—Surya Namaskars.

All games, whether Eastern or Western, require one or more companions, large grounds, suitable season, some outfit and lots of money.

Taking into consideration all these disadvantages and difficulties and after actually practising for a long time almost all the other forms of physical outturn, we have found that the *Surya Namaskar* exercise is practically the best. We have derived considerable benefit from this exercise alone and therefore, strongly recommend that all boys and girls over eight and all men and women should perform *Surya-Namaskars* regularly and continuously.

Although 62 years old, we have never had any ailment during the past thirty years. We never caught even an ordinary cold, which is generally regarded as inevitable. Even the most dreaded epidemics such as flu, bubonic plague etc., never affected us. It is wrong to boast, but we think, we never shall.

The *Namaskar exercise* has also a wonderful effect on the performer's mind and intellect. Since we commenced this exercise systematically as detailed in our book—"*Surya Namaskars*—*we have been strenuously working *twelve hours* every day. We don't remember a day when we felt wearied or worried. Every year seems to instil into us renewed energy, enthusiasm and ambition.

We are, however, never opposed to outdoor games, sports, wrestling, gymnastics etc. The main point to emphasize is, that along with a variety of sports and pastimes according to taste, time, means and other circumstances, there must be a daily exercise, like *Surya Namaskars*, which can be done all the year round by man and woman, young and old, by the rich and the poor in order to lay a real and lasting *foundation* of normal health and strength, for, this exercise puts one in condition to take part in any sport or athletics requiring strength and endurance.

VIII. Conclusion.

If, therefore, you desire to possess and retain radiant bodily and mental health, as you undoubtedly do, you will be interested in a practical system—simple and inexpensive system—worked out by us after mature thought and long experience and many experiments. The system *Surya Namaskars* if methodically and regularly practised, will enable you in a natural way to lead a healthy, long and useful life.

"Adhere to the principles set forth and a munificent harvest of physical, mental and spiritual attainments will surely be yours."

*"Surya Namaskars" English, 3rd Edition, revised and enlarged. Thirty-one Illustrations. Pages 186. Price with charge Rupee one only. Publisher R. K. Kirloskar, Aundh, District Satara.

HEALTH AND HOW TO SECURE IT.

By

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A few remarks on the general subject of Health may not be amiss.

I define Health as that state or condition of body wherein the subject feels no serious pain or weakness, has no disabilities of body, experiences the normal functioning of all his organs and bodily parts, is able to accomplish easily his daily work, and takes pleasure in life. It must be noted in this connection that health is not necessarily accompanied by long life. Some persons who are always in fairly good health die at a comparatively early age; whereas others who have divers kinds of diseases and afflictions manage to live a fairly long life. A sort of primal life force that overcomes the inroads of disease keeps some persons alive when we wonder why they do not die. My own belief is that the two factors that contribute more than any others to longevity, even more than health, are (1) a strong spiritual nature that depends upon God at all times, and (2), something to live for. The man or woman who depends upon God aligns himself or herself with that strong, perfect, eternal Principal that knows no death, weakness, or decay; and therefore such a man or woman is bound to partake in some degree of that same strength and vitality to which he or she clings. The man or the woman who has something to live for, some work to do, some purpose or goal to attain to, some ambition to achieve, or some loved one to help or to see settled in life, is more likely to live long than one who lives a purposeless existence, without ambition, without aim, without anyone to help or work for, and without any work that needs time for its achievement. Spiritual and useful men and women are the men and women who generally—not always—live long lives even altho' they are not always in good health.

However, every one should desire good health, thank God if he has it, and strive to obtain good health if he has it not. We can do our work much better, and take much more pleasure in life when we are in good health than when we are sick and complaining, even tho' our sicknesses should not be of a grave character.

It is merely a truism to say that good health is obtained by living in accordance with the laws of nature; but we cannot repeat this truism too often, for people have to be reminded of it constantly. We should live regular lives, get the right amount of sleep, engage in congenial and useful occupations, avoid all kinds of venereal vices and excesses, and be careful of our diet. Health is better maintained by a judicious selection of simple foods, varying them from time to time, than by partaking of a great variety of rich dainties. One should be careful to avoid a food that does not agree with him. Under-eating is much better than over-eating. For years my own practice has been to eat but two meals a day. I think that those who chew tobacco can get along with less food than those who do not. I do not recommend the chewing of tobacco, for no doubt it is a vice that one can well dispense with; but I

am inclined to think that it is less injurious than the practice of smoking tobacco.

Altho' the regulation of our bodily habits is conducive to health, doctors are more and more coming to see that the maintenance of health is secured better by the regulation of our mental states than by the regulation of our bodily states, jealousy, hatred, passion and anger, melancholy, anxiety, and worry, are much more subversive of health than occasional overeating, exposure to the weather, and the like. The stress and strain of our life in these modern times calls for the services of a new type of doctor who will combine in himself the functions of a medical doctor, student of nature, psychologist, philosopher, and minister or priest. There is much more to help than the mere functioning of flesh and blood. "Man does not live by bread alone".

YOGA FOR HEALTH.

By

SHRI YOGENDRA,

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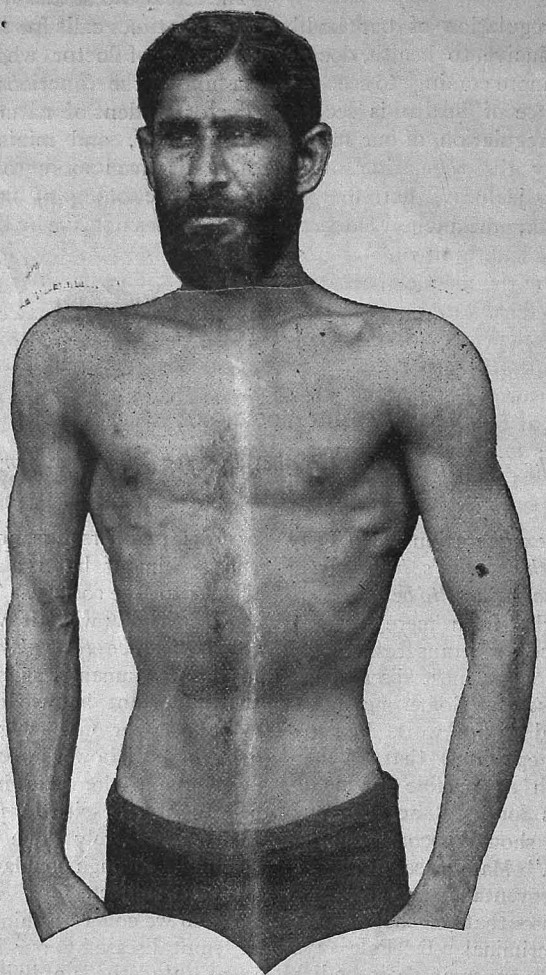
THERE is no exaggeration when I say that *health is man's birthright*—that it *is just as natural to be well as to be born*, and that from mere carelessness, ignorance or transgressions of hygienic laws arise most disease and tendency to disease. Sometime ago, I even advocated in my work *Memorabilia* (practical epigrams) that "A man is just as much responsible for his ill-health as he is for his ill-actions, and that the same should become punishable under law." Many cases of illness, no doubt, are preventable, and Mr. Huxley rightly advises that we should look upon them as criminal. Dr. Pyle says that "Persons who treat their bodies as they please and transgress rules of personal hygiene of which they should have a definite understanding are physical *sinners*, and they are not only committing a crime against themselves, but often against their dependents and future generations." An unhealthy or a diseased person is not only a nuisance to himself but is a drudge and a danger to the society. The world will yet see the day when it will be considered *a disgrace to be sick;* but, in the meantime, humanity suffers for lack of that important knowledge—the knowledge of personal hygiene. Public hygiene may, however, be enforced, but personal and domestic hygiene has to be taught conscientiously. This can only be effectively done by educating the public through popular literature on this vital subject.

When we come to think how often we tempt disease by our irrational and unnatural methods of living, we do feel at times that we *are* physical *sinners*; and, of course, Nature has her revenge on us. Her simple punishment is disease and misery. Every little sign of ill-health, even though it may not show any immediate ill-effect, does leave a permanent mark on our health on the

debit side. Those little acts of ours which produce ill-health deduct more from our years of life and complete living than anything else, and to a greater extent make life a failure and a burden instead of a benefaction and pleasure.



SHRI YOGENDRA.
Showing Retention of breath with compressed abdomen as taught by Yoga breathing.

POSSIBILITY OF ETERNAL YOUTH.

Physiologists of such eminence as Dr. Halliburton and others admit that death from old age is, however, comparatively rare; the common *cause of death is accident*, in which term we also include *disease*. In young age

when the vitality of an individual is at its height, many a disease is overcome, but as the powers of resistance diminish with increasing years, some ailment invited unconsciously mostly through habitual indolence attaks some important organ and leaves the body unable to repel its attack. This ends the history of an individual and we call it death.

That it is possible not only to live for more than one hundred years but even for an indefinite length of time is now acknowledged by the most conservative and critical medical authorities. Bernard Shaw who prophesies in his remarkable book *Back to Methuselah*, a life of three centuries for man, may not be so absurd as at first sight he seems. It is possible, however, that under present conditions of *artificial living*, Mr. Shaw's prophecy may appear a bit too exaggerated; nevertheless, there is a possibility that human life may be extended many years. At what future period three hundred years may become the average of human life we are unable to determine. But in this day and age of advancement, one cannot afford to laugh at such prophecies.

PERSONAL HYGIENE

How rejuvenation is possible at least in the case of a worm is described by Dr F. A. E. Crew in a recent number of "*The Nineteenth Century*". "If the flat-worm, planaria, is starved," he says, "it will shrink from 25 mm. to about 6 mm. and then it will exhibit the same rate of metabolism as does a young one of equal size. The rejuvenated individual not only looks young, but *is* young, and grows again, when fed, into an adult; moreover *this process can be repeated indefinitely*, and it is on record that a planaria has been made to live about *twenty times* longer than the ordinary length of life of this form." "It has been claimed." adds Dr. Crew, "that systematic fasting has accomplished wonders in the case of the human also," and it is quite likely that at some later date we might manage to prolong human life as well.

The *yogins* in India who claimed the knowledge of the process of rejuvenation some thousands of years back even before the death of Christ leave us a number of secret practices as a precious treasure-chest; and from my own personal knowledge I can assure the readers that their methods and technique are absolutely in conformity with the known Laws of Nature and the modern revelations of the medical science. There is nothing absurd in the claim of eternal youth, for we are assured by eminent medical authorities as Dr. Fisk and Fisher that "so far as science can reveal, *there seems to be no principle limiting life.* There are many good and bad reasons why men die, but no underlying necessary reason why they must die. Carrel, whose work in the war zone has contributed so much to surgical process, has kept tissue cells of animals alive outside of the body for the past seven years. These cells are multiplying and growing, apparently unchanged by time, to all appearances *immortal* so long as they are periodically washed of poison and nourished in a proper medium. *If we would at intervals thoroughly wash man free of his poisons and nourish him, there seems to be no reason why he should not live indefinitely.*"*

* (See Supplementary Notes 'The Conquest of Chronic Diseases.') Also refer to my book 'Yoga on Personal Hygiene' for details as to the method by which man can be washed free of his poisons and to series of articles which will appear in this journal on the subject.

SINGING FOR HEALTH.

By

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Many measures are now-a-days advocated for regaining and preserving health. The makers of tooth pastes and tooth brushes would have us believe that tooth cleaning is a paramount means of keeping healthy. The physical culture faddists recommend vigorous exercises, the diet maniacs advise dieting for the same purpose. Even the advertisments in the subway trains have some tin to offer to keep one in trim: tonics, pills, glandualar extracts. vitamines. The impression they all convey is that health costs money. But this is not so. The natural means of gaining health are the best, and they are the cheapest in every way. One of them is singing!

We are all familiar with the bald-headed barber who offers a bald headed gentleman a hair tonic which is supposed to grow new hair. His is decidedly not a very convincing testimonial for a hair tonic. Yet I do not recall a singer who was not a very convincing voucher that singing keeps one in fine trim, Caruso, I recall, was not a puny, anemic, weak sort of chap. Neither are McCormack, Scotti, and other professional singers. What about the prima donnas!

The first observations of the healthful effects of singing were noticed by the French composer and musician, A.E.M. Gretry (1741-1813). "I placed, "he said," three fingers of my right hand on the artery of my left arm, or any other artery in my whole body, and sang to myself an air, the tempo of which was in accordance with the action of my pulse: sometime afterward I sang with great ardor an air in a different tempo, when I distinctly felt my pulse quickening or slackening its action to accomodate itself by degrees to the tempo of the new air." Modern physiologists have established the fact that singing has a very beneficial action on the circulation. It accelerates the blood flow, revitalizes the tissues, eliminates toxins and other poisonous wastes. It gives one a general feeling of well being, without having to exert oneself to strenuous exercises to obtain the same ends. Setting up exercises are essentially for the purpose of getting the blood to move faster. Very few people seem to care for a daily dozen prescribed set of vigorous motions. Why not, then, sing a lively tune, a song with lots of pep and go.

And yet that is not all, for singing has also a marked influence on respiration. It undoubedly strengthens the throat and lungs. By a purely mechanical process it expands the chest and puts an end to any vicious habit of breathing through the open mouth, instead of the nose. It is a well known fact that pulmonary and chest complaints, as well as catarrh, are rare among singers. Indeed, I have known some physicians to say that singing not only prevents chest complaints, but it may also be used actually as a curative measure against them.

The digestive process also comes in for its share of benefit. In 1881,

Dr. Walter H. Walshe, of London wrote a treatise, "Dramatic Singing Physiologically Estimated," wherein he asserts that singing is of marked benefit in jaundice, liver complaints and indigestion. It aids in extracting the nutritive elements of food, and facilitates digestion. This is easily explained by the fact that singing involves deep breathing, and deep breathing leads to considerable oxidation of body tissues which occasions hunger and increases the appetite. What more natural way is there? What need is there for tonics and pills when a good song will do?

Teachers of singing have always noticed that the appetite and digestion of children being trained to sing are always superior to non-singers. The trainers of choir boys, when questioned as to the digestive prowess of their young charges always make statements such as these :"Singing always makes boys hungry." "Singing is certainly appetitizing." And the late Professor Philip Armes, of Durham, England, said that his boys have the "appetites of horses and the digestion of ostriches." We have here a sort of double action, the mechanical exercise of the muscles of the abdomen, throwing back of the head, and deep inspiration, while the increased amount of oxygen absorbed improves the blood.

Several years devoted to a study of the influence of music on the human body has led me to the conviction that this influence is very profound. Not everybody can play an instrument or go to concerts to get the benefits of music; but everybody can sing, at least to his own satisfaction. Music is as necessary in our daily scheme of things as is eating and sleeping. A certain period during the day—say about fifteen minutes, should be set aside for singing. The results will not long be in materializing. The reward will be a general feeling of good health and a supreme satisfaction with life.

DANCING FOR HEALTH.

By

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The Plate and Pot Dance.

In the variety of dances particularly of the stage, what are called as 'plate and pot dances' have of late become very popular. From the strict point of view of art they did not for some time appear to me of great intrinsic value, as they had more of acrobatics than art. The very difficulty and skill involved in the two varieties perhaps go a great way in producing the effect on and causing the admiration of one and all, that they do now. In spite of my having learnt them early enough, in my practice of the art, I was reluctant for a long time to display them in public, partly on account of some slight prejudice against them, and partly on account of my sense of the lower value of the same compared to other exquisite varieties of the Indian art. But, however, I could not but realise that the very weakness of these varieties from

the point of view of art happened to be their strength from the point of view of physical culture.

In short, the dances consist of jumping on the plate, and moving the same, front and back, in circles and in so many other ways according to the varied rhythm and imaginative poses of the dancer. The plate will have some water in it and while in motion the water should not be spilt. From the ground or from the plate you jump on to the top of a mud pot about a foot and a half in height and display many varieties of artistic poses and movements all the time keeping correct and varied rhythm.

Though the thing is easily said, to jump on the plate and pot in quick and correct rhythm, to keep perfect balance, and to show various rythmic poses and movements thereon require no ordinary control of limbs and muscles of the body. When you jump up, you have to descend gently and gracefully on the circular rim of the plate and on the top of the pot; else, the rim of the metal will tear your feet and the mud pot will break. You have to descend and rest upon them as lightly as a bird perches upon a twig on the branch of a tree. A too heavy or too tall a man or woman cannot hope to attempt these with any amount of success. Even a person of normal weight and height cannot bring down all at once his whole weight on these as you throw down a log or stone. You have to skip up and descend on them with a spring and rest mostly on the toes.

Some seem to go in for specially made pots and plates of extra strength. For my part I have never done it, I have used only household brass plates and ordinary mud pots chosen from the heap in the market and these have never failed me. I may also say that any special make of these things takes away the necessity to use special skill, agility, blitheness and art, and instead of those you may as well use a block of stone or wood.

The control of the muscles relating to the feet and particularly to the toes and the strength of these parts are greatly developed in these excercises, while the various movements and poses displayed and above all the task of keeping the balance in an apparently effortless manner, all these involve great exercise to the whole body.

I gradually bore down my prejudice against these by giving an artistic turn to what have been mainly mechanical acrobatics. The plate with water is to represent the oceans and the pot the other parts of the cosmos. On the pot, among other poses, that of Lord Nataraja is taken so that the whole thing is an attempt to represent some thing like a dance of joy over creation. Resting on one foot all the time with the leg slightly bent you pose with the other limbs. *Vide* Frontispiece. (The kind of expression and other details of the pose are matters more pertaining to the field of the art proper than of physical culture). Only those who have attempted the same can understand the extraordinary effort and the control of balance involved in the pose.

PUBLIC WELFARE SERVICES BY LIFE ASSURANCE COMPANIES.

By

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During the last one decade life assurance has, even in this country, developed rapidly and has assumed large proportions. Between 1920 and now (or rather the end of that decade), premium income alone has increased from 146 lakhs to 390 lakhs, new business written during the year from 517 lakhs to 1,729 lakhs (or Rs. 2,875 lakhs if we include the business of non-Indian com panies also), and the total business remaining in force from 31 crores to over 82 crores, against which the life assurance funds now remain at nearly 19 crores of rupees. These are large figures, but, in other countries—particularly in the United States and Canada the development is even more marked, and it is estimated that the insurance in force (at the end of 1926) in these two countries is approximately three times as much as in all the other countries of the globe combined. Practically half of the population is insured in regular life assurance companies, omitting another ten per cent. or so covered otherwise, say by employee's funds etc. It has been estimated that the national wealth of the U. S. was $ 360,000,000,000, of which the corporate wealth was $ 90,000,000,000, and the assets of the life assurance companies alone, amounting to 13 billion dollars, formed over 14 per cent. of the corporate wealth. Thus life insurance is not only a public institution, because of its large clientele and vast accumulation of wealth, but by its very nature it is a business which comes into close contact with the weal and welfare of the nation. It is a business entering into the homes of a large proportion of the people at regular intervals over a long period of years, in times of prosperity and in adversity, in the joys and sorrows of the population at large, and having immense opportunities to educate, advise and protect especially in matters of morbidity and mortality. These opportunities have naturally led offices to operate not merely as business propositions, but to carry also social programmes for individual and community health. Conscious of the tragedy of unnecessary sickness and premature death, of disturbed working and unsatisfactory social conditions, and with the firm conviction that the preservation of health and occupation and the prolongation of life was a joint concern, life insurance offices have converted agents into health messengers, medical examiners into nursing ministers, have co-operated with health officials and other welfare organisations—in demonstration, survey, research, etc.—and have endeavoured in every way open to them to relieve distress, both of body and of mind, and to secure a healthy contented, long lived community.

The greatest amount of this work is naturally through published literature which appeals first to the eye and then to the mind. One company in America

has distributed more than 450,000,000 copies of pamphlets, or booklets, usually in colour and with appropriate illustrations, written in several languages and dealing with preventible diseases, with child care, and personal and community hygiene. "Influenza," "preventing Diphtheria," "Give your baby a Fair Chance" are some of the common tell-tale headings. Not only individual policyholders receive these, but they are distributed also to health officers, to associations and societies which have health and social activities as a definite part of their programme. Reciprocally insurance managers and insurance agents are represented on several hospital boards, visiting nurse associations, tuberculosis committees, Red Cross, Y.M.C.A., Boys Scouts, Rotary Clubs, Kiawanis Clubs and kindred organisations. This activity is not merely limited to publicity, demonstration or even advisory work. The services of a large number of agents are being constantly requisitioned in campaigns for the eradication of disease, in segregation work, in inoculation duties and so on. In1916 a company co-operating with the National Tuberculosis Association began and financed a seven year experiment in tuberculosis control in the town of Farmingham, Mass., and the death rate from this disease which for some years had averaged to 121 per 100,000 in that town dropped at the end of seven years to 38 per 100,000. A maternity centre and public clinic was opened by one company in Thetford Mines in the Province of Quebec, as a result of which the infant death rate dropped from 300 per 1,000 births to 96 at end of 3 years work, and now remains steadily at 79 per 1,000.

Another effective medium for reaching the population at large is advertisement. One company has instituted an extensive advertising campaign as part of the programme to improve health, prevent disease and prolong human life. Magazines having a circulation of 17 millions in the United States and Canada are selected, and the advertisement specially designed to combat ignorance, carelessness, neglect and other factors which cause needless sickness, death or sorrow. Subjects treated in these advertisements have been tuberculosis, parental care, maternity, child care, pneumonia, automobile accidents, diphtheria, heart disease, overweight, mental hygiene, care of teeth, periodic health examinations, value of holiday and fresh air, sunshine and recreation, use of milk, proper cooking, education, citizenship, budgeting, home ownership, need for recreational facilities, "clean up" campaigns, and just before elections, a non-partisan appeal to vote.

But there is today a much more effective medium of reaching the population at large with the motion-picture. Realising this at least two companies have used this medium as a health messenger to the community. One company has prepared a film entitled "One scar or Many" for combating small-pox, one entitled, "Working for Dear Life", for educating people to the necessity of an annual health examination, and one entitled "New Ways for Old" to aid anti-diphtheria campaigns. These films have been shown to 8 million peoples. Various prints of these films are, of course, loaned to several local Boards of health, various organisations for welfare work, in some instances even outside the country. Likewise the radio permits of reaching untold numbers. Two companies broadcast daily sitting-

up exercises, while one company makes the broadcasting of health programme a regular Sunday event. The broadcast message for the sitting-up exercises is followed with frequent demonstrations of exercises themselves. And in these and many ways is a close association promoted, and maintained, between the general population and the life assurance offices in the country.

While community work and group relief is not neglected the greater part of the service of life assurance companies must be directed to cure the illnesses and to save and extend the lives of their own policyholders. One company offers visiting nurse services in more than 4,300 cities and towns in the United States and Canada. Whenever a policyholder entitled to this service becomes sick, postal cards, which have been left at the home by the agent, may be mailed to the district office; or if the agent in his regular visit observes sickness he immediately reports it himself, and a visiting nurse is sent out. The nurse calls at the home, assists in carrying out the doctor's instructions, advises those at home regarding proper care, and does everything to make the patient comfortable. More than 3,000,000 such visits were made in 1926 by this company, and more than 56% of the requests came from the patient, family or physician, while only 30% from the agent and the remaining 14% from employers and other sources, which points out how greatly the policyholders themselves appreciate the service.

Further several companies offer periodical free examinations in some form or another to their policyholders, and these cover also chemical and microscopical examinations of urine, blood, tissue etc. One company gives the privilege of examination through a paid agency as a contractual right. Such service is necessarily individual, optional and may very often result in nothing in particular, but one company reports that the cost of such free service is so small that it is necessary for only one policyholder out of several hundred to have his life extended but a few years by reason of this service, to recoup the entire cost. And in fact the experience to date shows that a far higher ratio of added life time is secured. (In a crude way it is estimated that the claims have decreased by about 20 per cent., in a period of 10 years as a direct result of such service). As for the wider national service rendered by insurance offices and referred to in the former part of this essay, it is claimed that a cumulative saving (by one such insurance company only) of over 240,000 lives more than to be expected from the mortality improvement in the general population for the period 1911 to 1925, and a saving in death claims of more than $53,000,000, had occurred; and this company had laid out by the end of 1925 on its welfare work some $22,500,000 only. Apparently this service, like the quality of mercy is twice blessed—it blesseth them that give and those that receive.

From this last consideration alone such service ought to appeal to Indian insurance offices as well, and also with greater emphasis to those few who have already made small beginnings in this direction. It certainly cannot be stated that the scope and need for such activity are any the less in this country. Neither is the available staff wholly inadequate or incompetent. They can always be initiated into the technical skill and the enthusiasm and social will that is so much present among

them can be easily turned to good account by the more directly concerned health officers and welfare organisations. Surely too the offices can invest some little money on this acoount—varying of course according to the capacity and the resources of the companies themselves. Taking aggregate figures for this country, the recent Blue Book publication reports 143,000 policies having been issued freshly last year, and it may be assumed that on these some 15 lakhs of rupees of medical examination fees must have been paid. Instead of distributing this amount in an unsystematic and cursory manner, as it is certainly done at the present time, it might be more usefully invested on some 500 medical men specially selected for the purpose on an annual salary, or allowance, of Rs. 3,000 each. This band, forming the special branch of insurance medical service, could of course attend to the normal duties of examining fresh proposals—and this would work out to under one case per day per person on the average—but would in addition find itself free to attend also to the current illnesses and periodical examinations of actual policyholders besides participatifig with the local officers in such work as is calculated to benefit potential policyholders. More money of course can also be found when it is remembered that 15 lakhs of rupees above referred to forms only a small proportion of the annual accumulation to funds (about 157 lakhs) or even of the annual "expenses of management" (amounting to Rs. 118 lakhs). And all this, it is being maintained in this essay, will be to the mutual good of the public and the insuring offices. These are modern developments and movement must be in the direction of progress, and it is idle or suicidal to let things slip. The proper business of railways may be said to be transportation, yet they vie with each other in giving comfort and convenience, in catering for refreshment and retirement, in providing sleeping bunks and smoking cars. And who should say that life assurance offices have nothing to do with organisations for the extension of life, and maintenance of health?

"SOME HEALTH LESSONS FROM AN ANCIENT HINDU SCRIPTURE."

By

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Too often have I noticed an impression prevailing particularly amongst a large section of the English educated Indians, in every province of India that health can be secured either by simply reading the work of some modern health authority or by swallowing the attractive theories of some European or Indian health faddists. That there are faddists amongst health workers also, as in other professions, does not seem to have been clearly understood by them. Thus, we have the food faddists who preach that good health depends upon a particular variety of foods being taken in a particular way. We have water faddists, who, styling themselves as "Hydropaths," claim to give good health by water alone and we have also Heliofaddists.

who proclaim that good health can be got only from certain colours sunlight or artificial light or atmosphere. While recognising clearly, that food, water, air, and colors and sunlight are all essential for good health, it is necessary to exercise our sense of proportion and study for ourselves, as to how much and of what kind of any one of these several constituents of good health, we actually require, to enable us to maintain our health. Others, who profess to rely exclusively on the ancient Indian religious scriptures, for their health education, go to the other extreme; they would shut their eyes to all modern researches, and would refuse to be benefitted by modern advances in the science of health. Truth, as it often happens to be, lies midway between. That there are good health lessons in some of our modern health literature, cannot be gainsaid. But, this does not preclude our enquiring into the past, and seeing for ourselves as to how health was maintained by our ancestors. In the past history of every nation and in the religious scriptures of every country, numerous health lessons lie buried, and I sincerely believe that it would amply reward any one who can exhume all these buried lessons of good health, and bring them to the surface. Let us make a start with our own motherland, whose glorious past, is still an object of admiration to the other nations of the world.

Any one who sets about, to find health lessons in the ancient literature of this country, will soon realise that health and religion have been inseparably connected in the past and that health lessons have been taught with a tightly fitting religious garb on them. There must have been ample justification for this investing of health lessons with the sanctity and importance of religious lessons. This justification we find now in the fact that despite innumerable invasions into our country by alien races, who played not a little havoc with not only the hearths and homes of our ancestors but also with everything that was regarded as precious by them, we still contiune to exist as the descendents of such hardy ancestors. This is because they have bequeathed to us an invaluable legacy, which we have inherited in the shape of a "Health cum Religion". That every ancient Hindu religious literature has aimed at giving lessons on good health, is evident from a consideration of the meaning of the terse saying शास्त्राणि सुखार्थाय, which is current in South India. This terse saying when translated, means that all *shastras* (Scriptures) are for happiness. That happiness depends upon good health, is a matter of common knowledge. So, it is reasonable to interpret this saying as meaning that all scriptures are for good health. Here, the word "Health" is used in its broadest sense; and it embraces not only physical but mental, moral and spiritual health too. That physical health alone, however perfect it might appear to be, is not enough to enjoy real happiness, and that mental, moral and spiritual health are also essential, have been forcibly pointed out by this terse proverb. Is this proverb true? Perhaps, there is no need to answer this question, as proverbs, (as their very names imply) spring up from human experience extending over a considerable period of time and have moral basis as their tap roots. Let us therefore accept the truth of this saying and try to see if there are, really, lessons of health in our ancient Hindu scriptures.

Those readers of "Health", who have had the good fortune to study the illuminating editorials on "Birth control", written by Dr. U. Rama Rao, must have noticed that the worthy editor had quoted extensively from a very ancient and very valuable book called "Manu Smriti" alias "Manu Dharma Smriti" or what is popularly known amongst western scholars as the "Code of Manu". That Manu was the best law-giver in ancient times, is undisputed. And it speaks for the excellence of this Code of Manu that it still forms the basis of our modern Hindu law. It must not be supposed, then, that health lessons are found only in the Code of Manu, and not in other scriptures. Far from it. What Manu has really done is that he has tried to codify all the chief laws, governing human conduct, that lies scattered in the four Vedas, the 108 or so of Upanishads that are extant now and in the 18 Puranas; and also in other works that attempt to annotate or comment on the three aforesaid principle scriptures.

Manu's Code has been translated into English and has been freely quoted from, by several writers on health subjects. But, there are other scriptures which have not been correctly translated, as yet, into the English language or in any other Indian vernacular but they contain many valuable lessons on health. Even if I were to attempt to enumerate very briefly the verses (Slokas) or the sentences which contain valuable lessons on health, in some of the scriptures mentioned above, I fear, I might have to take up all the available space in "Health". So I prefer to begin with the consideration of a little known (amongst exclusively English educated Indians at least), but most valuable treatise on health, in Sanskrit, entitled "Sadachara Smriti" "**सदाचारस्मृति,**" by Sriman Madhwa Acharya, one of the three great philosophers of Southern India.

Before attempting to detail the health lessons found in this valuable book, it is necessary at the outset to explain as to what the very title of this book means. The word **सदाचार** may be split into the two words **सत्** and **आचार**. **सत्**=good; **अचार**=conduct, **स्मृति**=a law book, or a code book, so, the whole title means, a law book or a code book on good conduct. The same word may be split in another way:— **सदा** and **आचार**, **सदा**=always **आचार** =conduct; which means, a code on the conduct to be adopted always. This latter interpretation of the title of the book, gives an added importance, inasmuch as it implies an element of authority or compulsion. We shall presently see what the provisions of this code on good conduct are:—

That early rising is conducive to good health, has been pointed out, by fixing a time at which, one is required to leave his or her bed. **पश्चिमभागे षड् घटिका कालात्मके ब्राम्हेमुहूर्ते, उदुद्य,** means that approximately 2½ hours before sunrise, one has to get up from bed; say—at about 3-30 A. M. or so. Any one who has had to memorise either some lines of poetry or some particular passages in prose or some formulae in mathematics, and who has done it in the small hours of the morning, will readily testify to the ease with which one can memorise difficult lessons in the early hours of the morning. For the mind is, then, refreshed, and alert; and it can receive any kind of impression like a clean sheet. Soon after

getting up from bed, the next immediate task is to think of God and to pray to Him for His guidance. This wise injunction serves to supply a necessary reminder and a corrective to certain vain and naughty men, who are likely to forget the existence of a supreme "Creator"

Then follow the rules which govern the answering of nature's call. Here at the outset, it has to be understood that all these rules were framed at a time when people were living under exclusively rural conditions and there were probably no man-made dusty, smoky and congested towns. As at least 90% of the population of India, is still rural, it is necessary that these rules should be strictly followed, if *Rural Public Health* is to be maintained.

ग्रामद्बहिः=outside one's village, **निर्ऋतिभागे पश्चिमभागेवा**=either to the South-west or to the Western part, **शुद्धभूमौ** in clean ground **कगालास्थिभस्मादिरहितयां**, free from skull, bones, ash etc. **तृणशुष्क पत्रैः भूमिं आच्छाद्य**= having covered the ground around with grass or dry leaves, **जलपूर्णपात्रं दूरतः संस्थाप्य**=having kept a vessel full of water (for ablution purposes), at a distance **अस्पृष्ट्वा**=without touching (the vessel) **वस्त्रेण**=with cloth **शिरः घ्राणं च प्राच्छाद्य**=having concealed or covered the head and the nose well, **निर्जने**=when there are no human beings about **मौनेन**=silently **ऊर्ध्वं, अधोभागं, तिर्यग्भगं चा नवलोकयन्**=without seeing either upwards or downwards or sideways **मलमूत्रे विसर्जयेत्**=evacuations to be finished.

देवालये=in temples, **यज्ञस्थले**=in sacrificial ground (any sacred place) **श्मशाने**=in cremation ground, **अग्नौ**—in fire **उदके**=in water, **तडाके**=in tank or lake **समुद्रे**=in sea or ocean, **तदीतीरेषु**=on river banks **अश्वत्थादि द्रुमच्छायायां**=under the shade of trees like Ficus religiosa, **अग्निगोब्रह्मणा सूर्यस्पे मोदकाभिमुखं**=facing fire, cows, Brahmins (respectable persons) sun, moon, water source (e.g.) lake, tank, river, sea or ocean, etc; **नकुर्यात्**=one should not answer calls of nature. **स्वविष्ठां न पश्येत्**=one should not see one's dejecta; **दृष्ट्वाचेत्**=if seen perchance, **सूर्यगोब्रह्मणादिकं पश्येत्**=one should see (thereafter) the sun, a cow or a Brahmin (any cultured and respectable man); **तथा व्रीग,ह्यदिणुषांगारादिमार्गे** in paths strewn with burning charcoals (fire) (i.e.) in forests where wild fires are common and in marshy jungles where wild fires are frequent, **सस्यस्थाने** in fields with standing crops, **नख, लोम, कीट, लताच्छादित स्थले, क्षेत्रेषु** in places covered with nails, hairs, worms, or creeping plants, **विण्मूत्रेनोत्सृजेत्** excretions not to be evacuated."

Let us now enquire into the "raison de etre" of these injunctins and see, if they have any modern scientific basis underlying them.

That one should answer calls of nature outside one's village, is in the best interests of not only his own household but also in the interests of public health. In villages where the modern water carriage system of removal of excreta is unthinkable, as it is too costly, and where other methods of removal of excreta are equally costly, it is necessary that villagers should defecate in a separate plot of ground, outside the village,

so that, the whole village and its sources of water supply may be free from faecal pollution. But why should this defaecation ground be situated to the west or to the south-west of the village? Probably because it is these two directions that face the morning sun (in India at any rate) and so, effective drying and thereby natural disinfection of the excreta, can be secured more easily in these directions than in others. That the ground should be clean so as to facilitate the action of the nitrifying bacteria of the soil, is pointed out by saying that, there should be no bones, ash etc. etc. It is a matter of common knowledge that dogs are very fond of bones; and so when they bite bones contaminated with excreta, they carry lots of germs, eggs of worms etc, on their faces and mouths; and by playing with such dogs, human beings may contract such infectious diseases as typhoid, cholera or hookworm etc. That is why I suppose, it is insisted upon that the ground where one has to defaecate should be free from bones, ash, etc. That the spot where one has defaecated should be clearly demarcated so as to warn the unwary passers by, is shown by the words "having covered the ground around with grass or dry leaves etc."

The importance of taking enough water for ablution purposes with one self, before going to defaecate, is well stressed by the words जलपूर्णपात्रम्. This clearly shows that the now very prevalent appalling and nasty practice of using any and every collection of water for ablution, is condemned. Not only these collections of water are contaminated but the animals that drink these polluted waters, serve as carriers of several dangerous disease-producing germs and worms, which are easily communicated to man.

The foul emanations from excreta such as Indol, hydrogen sulphide, etc, are not to be inhaled; and so it is laid down that the nose and the head should be covered with a cloth. To answer calls of nature in the presence of a crowd of people is not only wrong from the point of view of etiquette but also morally wrong. Sexual inverts develop exhibitionist tendencies by the continuance of this nasty practice of defaecating in the presence of a crowd of people.

Very frequently, people begin to sing or chew pan, or smoke bidis and cigars while defaecating. That such practices are undesirable, is shown clearly by insisting upon the observance of silence while defaecating. That one's attention should be concentrated upon his or her bowels so as to secure a complete evacuation, is shown by the words, "without turning the face upwards, downwards or sideways etc," which actions might divert one's attention from the bowels.

That such sacred places as temples, sacrificial grounds, cremation or burial grounds, resorted to by people very frequently, should not be polluted, is emphasized clearly by the next sentence.

Water sources such as tanks, lakes rivers or sea, should be scrupulously guarded from faecal pollution; and this is strongly insisted upon, by the next sentence. In this connection, it has to be confessed painfully, that such wise injunctions are more honoured in their breach than in their observance, by our village folk now-a-days. As for the towns people, they are the worst offenders. That these wise *shastraic* injunctions are flouted by present day Indians, has been bitterly complained of, by

no less an authority than Surgeon Major Mac Nally, who, in his "Sanitary Hand book for India", written as long ago as 1889 says,—"The insolent defiling of the river water, by the human herds who go there, makes river-water one of the dangerous sources of water supply etc." Wholesale faecal pollution of rivers, tanks, lakes and sea coast has become the order of the day: and this, despite the clear warnings of the *shastras*. It is a pity some of the present day Indians know neither their own *shastras* nor modern hygiene. A strict observance of *shastraic* injunctions alone, will solve the problem of rural public health, as modern hygienic measures, however perfect they might be, are too costly for the 90% of the Indian population—(viz). dwellers in rural areas.

The horrible condition of the river banks, in towns situated on such river banks can better be imagined than described. In summer, even the river bed becomes a defaecating ground. That these malpractices have no sanction in Hindu *shastras*, will, now at least, become apparent to those who swear by such *shastras*, in season and out of season, despite their ignorance of them.

Excreta deposited in shade and protected from direct contact with sun's rays, are dangerous sources of infection for hookworm, cholera, typhoid etc, and so it is forbidden to pass excreta underneath the shades of trees in general and the ficus religiosa tree in particular. Respect should be shown to such celestial beings as the sun and the moon; and so, it is laid down that none should evacuate his or her bowels, while facing the sun or the moon etc. None should see his or her own excreta, as this is likely to create a strong disgust. If seen perchance, the sun, a cow, or a Brahmin (any cultured and respectable person) should be seen at once, so as to forget the unpleasant impression created by seeing one's own dejecta.

Defaecation in fields containing crops is strictly forbidden, but unfortunately this wise injunction is not at all honoured. It is only too common to see fields with crops being simply used as public latrines or trenches. Workers in such fields, stand a great chance of acquiring infection with hookworm and other helminths, and with other germs such as of dysentery, cholera, or typhoid. Ground covered with hair, nails, worms, or creepers, etc., effectively shields the excreta from the action of the nitrifying bacteria of the soil, and so, such a ground should be avoided.

If the excreta is to be effectively nitrified, disinfected by the sun's rays and rendered harmless, it should be passed on the clean dry ground, in such a direction that will allow direct contact with the sun's rays. This seems to be the gist of all the injunctions, so far discussed.

(To be continued).

THE SUPREMACY OF MOTHERHOOD.

By

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"I hold that the two crowning and accursed sins of society of the present day are the carelessness with which it regards the betrayal of women and the brutality with which it suffers children" said Ruskin years ago. We have to admit that the society of today also deserves the rebuke of Ruskin. From Mr. Franklin Garton the authority on Eugenics, downwards to the latest writers on the subject, all have declared that we must breed for motherhood and even if we do not we shall have to reckon with it. The vast importance of Motherhood as a factor in the evolution of all the higher species of animals and its absolute supremacy, inevitable and persistent whether recognised or ignored, in the case of man, is a factor that we have to reckon with. We may do a hundred things to tackle the problem of the Infant-mortality, but if it fails to reckon with Motherhood, it is foredoomed to failure. So long as the race is made up of mortal individuals and so long as everyone begins life as a helpless baby in the womb of its mother, the supremacy of motherhood must be the first and foremost concern of Society. The mother is the divine carrier of the baby, and who knows the little thing hidden in that wonderful organism called the uterus is a Newton, Shakespeare, Budha, Mohomed, Christ or Gandi of the future. But we all know that at its birth this great Newton or Christ is the most helpless thing alive and the potentialities of which avail it not one whit. It is in more need of care, immediate and continuous, than a baby microbe or a baby cat, whatever the unpublished glories of which its brain contains the promise: and in the total absence of any apparatus, mechanical, legal or scientific, which can provide the mother's love, individual motherhood, in its exquisitely complimentary aspects, physical and psychical, will remain the dominant factor of history so long as the final judgments upon every present and the final determination of every future, lie in the hands of helpless babyhood which will be the case so long as man is mortal. Dr. Saleeby, in his wellknown book on "Evolution, the masterkey" has described the new born baby and his helplessness in the following words:—"Unable to stand, much less to wander in search of food: very nearly deaf; all but blind; well—nigh indiscriminating as to the nature of what is presented to its mouth; utterly unable to keep itself clean, yet highly susceptible to the effects of dirt; able to indicate its needs only by alternately turning its head, open-mouthed, from side to side and then crying; possessed of an almost ludicrously hypersensitive interior; unable to fast for more than two or three hours, yet having the most precise and complicated dietetic requirements; needing the most carefully maintained warmth; easily injured by draughts; the prey of bacteria (which take up a permanent abode in its alimentary canal by the eleventh day)—where is to be found a more complete picture of helpless dependence?" Thus the human baby who is to become the most capable is the most helpless at birth. What is the

meaning of this paradox? Creatures other than the human baby are endowed with the instinct at birth. A purely instinctive creature reacts to certain sets of circumstances in certain effortless, perfect and fixed ways. The reactions are the whole of its physical life. They need no education, being as perfectly performed on the first occasion as on the last and in many instances being performed only once in the whole history of the creature. In order that an intelligent creature should be evolved it was necessary that instinct should become plastic. Intelligence should not be superimposed upon a complete and final instinctive equipment. You cannot determine your own acts if they are already determined for you by your nervous organisation. The incomparable superiority of intelligence depends upon its limitless and creative character, in virtue of which, as Disræli puts it "men are not the creatures of circumstances: circumstances are the creatures of men." Motherhood is therefore supremely important in the case of man, because of the absolute dependence upon it of intelligence, the solitary but unexampled weapon with which it has won the earth. Hence in breeding for intelligence we cannot afford to ignore that upon which intelligence depends. Even if we produce genius at will, we should find our young geniuses just as dependent upon motherhood as the common run of mankind. Newton himself was a seven month's baby, and the potentialities of gravitation and the calculus and the laws of motion in his brain could not save him: motherhood could and did. Many admit the importance of physical motherhood, but very few understand the psychical aspects of mother-hood. Really speaking the most important profession, namely the motherhood, is being entirely carried on by unskilled labour. Many of our great men have published many warm and unqualified tributes to their mothers, not on the score of heredity, but on the score of the psychical aspects of motherhood. The physical functions of motherhood from the moment of birth onwards can be effected, no doubt, at though great cost, by means of such artificial means as incubators or milk laboratories, but there is no counterfeiting or replacing the psychical components of the complete maternity and a generation of the highest intelligence born by unmaternal women would probably succeed only in writing the blackest and maddest page in history.

The mother of the future should have motherliness in addition to sound health. State and Society have a duty to the mothers of the future. It is a national duty and it must be performed in every detail. The system of our education must be changed in such a way as to give the right kind of education to the girls so that they may understand every detail of the aspects of physical and psychical motherhood. Ignorance and indifference are the root causes of many of our social evils.

If we turn for a moment and see who are the present day great leaders of the world, we may see that they have hailed from the poor of the world. That is the very reason we have to make proper arrangements to teach the poor among us about this great truth. The poor are ignorant and neglected and the rich are indifferent. Thus our girls grow up to motherhood without any knowledge of the sacred functions of motherhood and its supremacy. Many of them are neither physically or psychically fit and yet they give birth to children. Some die in teens, others live in death, while only a few survive to manhood. Unless and until our country awakes to the supreme need of recognising the supremacy of motherhood as a supreme national problem, our country will be left behind in the race of nations in the world. If mother India wants to hold her own in the polity of the nations of the world, the supremacy of motherhood of India's woman should be realised.

INFANT FEEDING.

By

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The high mortality among infants in this country is a matter which forces itself to the serious consideration of the public. This excessive waste of life, with all its attendant sufferings, is in a large measure due to errors which arise from ignorance of the simplest hygienic rules of dietary and nursing. When it is remembered that about 20 per cent of the children born die within the first year of their lives in India as compared to only about 6 per cent in England the question of rearing up healthy and vigorous children is of the deepest concern to every one, and in particular to every mother in this country. It is essential therefore that every young mother should have at least an elementary knowledge relating to the well being of her baby; these include simple hygienic rules about food and drink, cleanliness, clothing, and the due protection from chills and damp.

The selection of proper kind of food and care in feeding infants are of paramount importance. A young and inexperienced mother is apt to be frequently led by the older ladies of the household or locality who are as ignorant as she is. A large proportion of the early deaths is due to diarrhoea, dysentery, cold and coughs, and wasting diseases as the result of malnutrition. And one important cause of this enormous amount of preventable diseases and loss of life with all its attendant pain and suffering—is to be found in the use of improper substitutes for mother's milk.

A healthy baby, if born at full term, should weigh about seven pounds and measure about a foot and a half. Under ordinary conditions an infant should weigh about double in six months and treble in twelve months. If the child does not increase at the rate of one pound a month during the first year of life its nutrition cannot be considered to be satisfactory.

The natural food for an infant is the mother's milk which consists of water in which four different classes of foods are present. These are proteins (curd), fats (cream and butter), sugar, and salts. There is in addition another very important ingredient called the vitamins which assist in healthy growth. The vitamins are also called food accessories and are of various kinds and have been compared to sparks which fire the petrol in a motor engine. These are therefore the materials furnished by nature in the form of mother's milk for building up the growing infant's body. Where mother's milk forms the sole source of nourishment of an infant for the first nine or ten months of its life there should be nothing to upset the child's digestion. But the trouble comes where this natural food for the baby—i.e., the breast milk—fails or is not available; it then becomes necessary to substitute mother's milk by some other food which resembles closely human milk. Fresh cow's or goat's or ass's milk is then the best substitute for mother's milk. Cow's milk however requires to be modified by dilution since it contains more of curd and less of water than human milk. Ass's and goats' milk more nearly

resembles mother's milk in composition than cow's milk does. Goat's milk however is richer in cream but poorer in protein than the milk of the cow. Buffalo milk should not be given to infants as it is too rich and indigestible for them.

Milk for children should be kept covered in a cool, well-ventilated place to prevent flies, dust, etc, sitting on it. Flies come from all kinds of undesirable places and may carry from dustbins, manure heaps, privies, etc., many kinds of germs which grow and multiply rapidly in milk which is also very good food for them, and so diarrhoea may result. Contaminated milk may also produce diphtheria, dysentery, cholera, typhoid, fever, etc. It is therefore always safe to boil milk before use in order to kill the germs. But prolonged boiling should be avoided as it destroys the vitamins. As an alternative to boiling, the milk may be scalded by placing a cup of milk in a saucepan of boiling water and leaving it to stand for about 20 minutes without putting it on the fire. In most of the European countries and in America milk is *pasteurised* with a view to destroy the germs in it. Even in some big towns in India this is done. This process consists in heating the milk to a temperature between 145° to 150° F and keeping it at this temperature for about half an hour and then rapidly cooling it. Pasteurisation does not affect the nutritive value of milk but at the same time renders it safe to drink.

Most scrupulous care should be taken to secure the cleanliness of all jugs, pots cups, spoons, etc., which may be employed in the preparation of infant's food. Much diarrhoea and sickness in children can be prevented by taking care in this direction. Care should also be taken that the meals are not too frequent or too large in quantity. Young mothers with a view to build up their children rapidly are often inclined to overfeed them.

It is a great mistake to feed a child whenever it cries. All cries are not from hunger and a mother should learn to distinguish them and should know that a little crying does good as it is a sort of exercise for the child, while frequent feeding does harm. All changes in the diet and any increase in the quantity of food should be gradual. Abrupt variations are very likely to derange the organs of digestion. Infants cannot digest starchy foods e.g., bread, biscuits, potatoes and other vegetable foods until they are eight or nine months old. Nature does not provide at this early stage of life any material by which infants are able to digest starch. Such food materials as arrowroot, cornflour and sago—no matter how carefully they may have been prepared—are so essentially unlike mother's milk that when used they act during early infancy as irritants, and are in reality poisonous for the child. Infants cannot also digest rice water which poor Indian mothers generally feed their children with. In cases where there is any tendency to diarrhoea lime water is very useful and a teaspoonful of ripe orange juice once a day or on alternate days helps to give a healthy tone to the system and also to establish a regular action of the bowels. Where an infant is breast-reared a time sooner or later arrives when it must be weaned. No age can however be fixed which would apply in all cases, but if an infant is steadily gaining in weight and if other conditions are also favourable it should be nursed until about nine or ten months old and should then be weaned.

FOOD AND INFANT FEEDING.

By

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It is an indisputable fact that a suitable and sufficient food is one of the chief sources of well-being to the human body. The tissues of a living body are constantly undergoing wear and tear which need renewal. This reneval is effected by food and the power of the body to utilize it for its various needs.

The chief nutritive constituents of foods are proteids, fats, carbohydrates and water. An elementary knowledge of these constituents together with food values is essential for the proper planning of daily dietaries; as it is not the quantity alone which is absolutely necessary, but a suitable quality capable of supplying real nutrition is also indispensable for the physical needs of the body.

Proteids (milk, meat etc.) and water are essential for tissue building; fats (butter and ghee) serve as a potent source of heat; while carbohydrates (Sugar, starch etc.) rank first as producers of muscular energy. It will be obseved, therefore, that to meet the physiological requirements of the body, the food should contain all these essential elements in proper proportion, which is, roughly speaking, one-third by weight of proteids and fats and two-thirds carbohydrates. Such a diet can be made up by adopting a mixed (animal and vegetable) diet, or vegetable food alone. Opinions widely differ as regards the value of non-vegetarian foods. The trend of growing opinion based on modern researches is in favour of vegetarian diet. It has been abundantly proved that the proteids of flesh, foods, apart from their high percentage, are harmful to the system. While on the other hand milk has got a high nutritive value. Fresh and dry fruits and green vegetables are rich in vitamines, and carbohydrates.

With these preliminary remarks on food in general I would pass on to the subject proper of this article, viz. Infant feeding. In a vast country like India with its appalling infant mortality consequent on the illiteracy of the masses, their chronic economic distress and a deplorable ignorance of the elementary principles of hygeine; with the early marriages still defying the Sarda Act and the consequent high birth rate and natural deterioration, the question, of infant feeding is of no small importence. It is, indeed' a pity that there prevails a sad lack of accurate knowledge of the principles and practice of infant feeding amongst the rich and the poor, the literate and illiterate alike.

Generally speaking, it may be said that the infants require the same food constituents as the adult. But a knowledge of physiology goes to show that the forms and proportions of these constituents must be different from those used for adults or for children over two years of age. It can be readily understood that foods which require mastication, such as potato, bread etc., are not suitable for an infant until its teeth are sufficiently developed. The pancreatic secretion, which plays the most important part in the digestion of

starch does not attain to its full power before the 11th. or 12th. month: hence during the earlier months of life starchy foods must not be given, the carbohydrate element being supplied in the form of sugar. Most of the so-called patent infant foods contain starch and are therefore difficult of digestion at this period of life. Again, the powers of the gastric juice, which aids in the digestion of proteids, are but feeble during the earlier months of an infant's life; and any but the most easily digestible of proteids quickly overtax the stomach. This is particularly noticeable in the difficulty which the infants find in digesting the casein in cow's milk.

Infancy is certainly the age of construction and never does anything occur comparable to the extraordinary rapidity of growth in infancy. The evidence of this wonderful activity of tissue growth at this period lies in the fact that an infant should actually double its weight in five months, and treble it in twelve. Hence in order to supply sufficient material not only to compensate for the waste but also to serve for the building of the growing structure, food should not only be given much more frequently than in later life, but it should be in such a form that it shall be capable of ready absorption and assimilation. Besides this, an infant requires a considerably larger proportion of heat producing elements (fats) in the food than adults do. This fat plays an important part in the growth of the tissues, and it has been proved that when the food is deficient in fat, the growing bones begin to show signs of rickets.

Containing as its does a large proportion of soluble proteids. and still larger proportion of soluble carbohydrates, mother's milk is the ideal food fulfilling all the requirements of early infancy; and nearer any other food approximates human milk in character, the more suitable it is for infant feeding.

The average composition of human-milk is as below:—

Proteids (casein and albulactin)	...	2%
Fats	...	3·5%
Salts	...	2%
Water	...	87·3%
Milk sugar (lactose)	...	7%

The importance of breast feeding, therefore, can hardly be over-estimated. The selfishness of those women who take resort to artificial feeding, because suckling interferes with their social pleasures and engagements, cannot be too strongly condemned. Artificial feeding of infants is responsible for a large proportion of fatal cases of Diarrhoea, and a vast majority of the cases of disorders of digestion. Even when scanty secretion of milk or other circumstances render it impossible for the mother to feed the child entirely at the breast, it is most important that she should continue partial breast feeding; for it has been shown that partial breast feeding considerably diminishes the risk of fatal diarrhoea, and also the liability to other disorders which result from artificial feeding.

During the first few days of birth, before the milk secretion is established, the child should be put to the breast every 4 hours; thereafter it should be fed every 2 hours up to the end of the first month; every 2½ hours, up to the end of the third month, and every 3 hours, until weaning. If there is reason to believe that the quantity of milk secreted is below the average, artificial feeding should not be hastily resorted to. The quantity may be quite sufficient for the needs of the child. The weight of the infant is the most reliable

criterion of this sufficiency; and so long as it is increasing, it is not only unnecessary but unwise to make any addition. Mother's milk may be increased by her taking milk and gruel freely. Malt extracts may also be given to increase the flow.

As regards the time of weaning no hard and fast rule can be laid down. As a general rule an infant should not be weaned earlier than the end of the 10th. month, nor later than the end of the twelfth. So far as possible a child should not be weaned in hot weather, nor should it be weaned when teething is causing disturbance, or the infant is suffering from other digestive troubles.

Weaning should under no circumstances be sudden, it should be gradual. The breast feeds should be gradually replaced by artificial feeds, until at the end of a few weeks the entire meals consist of artificial food. In this way the child gets accustomed to its altered diet, and digestion, too, is not disturbed.

This much, I believe, will suffice so far as the general principles regarding infant feeding are concerned. In a subsequent article I shall deal with artificial feeding of infants.

PREVENTION OF MYOPIA IN SCHOOL

(Myopia *means* Short Sight)

By

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Ram Eye Hospital, Buland Shahr.

THE most important parts of the body are eyes. The eyes are the windows of the soul. A student's future—his education, his livelihood and enjoyments—depends upon the preservation of good eyesight.

There is no doubt that most children when they begin school are free from this defect (Myopia) and that both the number of cases and the degree of Myopia steadiy increase as the educational process progresses. The cause is strain on the eyes and mind due to unnatural educational system.

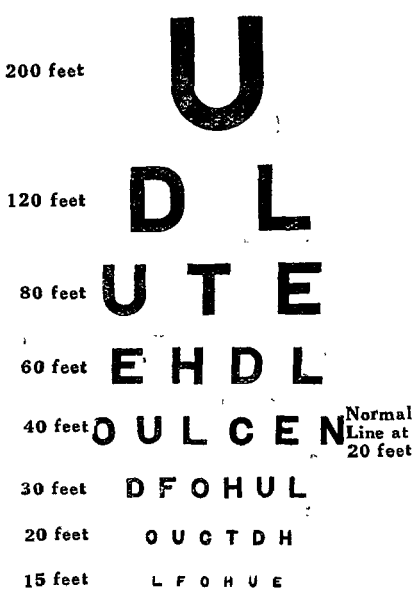
Civilized children are shut up for hours everyday within the four walls of their schools in the charge of the teachers who are very often nervous and irritable. The children are often compelled to remain for long periods in the same position. The things they are required to learn may be presented in such a way as to be excessively uninteresting; and they are under a continual compulsion to think of gaining marks and prizes rather than the gaining of knowledge for its own sake. Many children cannot bear these unnatural conditions and hence they are under a strain and thus the school children suffer from Myopia. Doctors who treat these children prescribe glasses because they think that there is no other cure for Myopia than specks.

Careful and detailed rules were laid down by various authorities as to the sizes of type to be used in school-books, arrangements and amount of light, construction of desks etc.

The results of these preventive measures were disappointing and the prevalence of Myopia is increasing.

SNELLEN'S EYE TESTINC CHART.

Read this chart at 20 feet distance and keep the record of vision of each eye in the form of a fraction, with the distance at which the letter is read as the numerator and the distance at which it ought to be read as the denominator. The figures above the lines of letters on the test card indicate distance at which these letters should be read by persons with normal sight. Thus if you read at 20 ft. distance the 80 ft. line with right eye, and at 10 ft. distance the 200 ft. line with left eye. then write :—R. V. (vision of the right eye) = $\frac{20}{80}$ L. V. = $\frac{10}{200}$



NOTE—*This figure is reduced to 1-5th the original size.*

Dr. W. H. Bates, the famous eye-specialist of America has formed a plan on the principle that unfamiliar objects always produce strain and familiar objects always relieve strain. For this purpose, the daily reading of Snellen's Eye Testing chart from twenty feet is usually sufficient. In schools the eye testing chart should permanently be placed upon the wall of each classroom, and every-day the children should silently read the smallest letters they can see from their seats with each eye seperately, the other being covered with the palm of the hand in such a way as to avoid pressure on the eyeball. This takes no appreciable amount of time and is sufficient to improve the sight of all children in one week and to cure the defective eyesight after some months, a year or longer.

Children with markedly defective vision should be encouraged to read the chart more frequently. Children wearing glasses should not be interfered with, as they are supposed to be under the care of physician, and the practice will do them little or no good while the glasses are worn.

Though not necessary, it is a great advantage to have records made of the vision of each pupil at the time when the method is introduced, and thereafter at convenient intervals annually or more frequently. This may be done by the teacher.

How to test the vision ?

Keep the chart at twenty feet distance from the student and ask him to read with each eye separately. Write the result in the form of a fraction with the distance at which the letter is read as the numerator and the distance at which it ought to be read as the denominator. The figures above the lines of letters on the test card indicate the distance at which these letters should be read by persons with normal sight. Suppose Mr. Mohan Rau aged 15 years

reads at 20 feet distance the 80 feet line with right eye, and at 10 feet distance the 200 feet line with left eye then write :—

Date.	Name.	Age.	Vision. R. E.	Vision. L. E.	Date.	2nd Test. R. E.	2nd Test. L. E.	Date.	3rd Test. R. E.	3rd Test. L. E.
4-7-30	Mr. Mohan Rau.	15	$\frac{20}{80}$	$\frac{10}{200}$	4-3-31	$\frac{20}{40}$	$\frac{20}{200}$	2-12-31	$\frac{20}{20}$	$\frac{20}{60}$

A certain amount of supervision is absolutely necessary. At least once a year one who understands the method should visit each class room for the purpose of answering questions, encouraging the teachers to continue the use of the method and making some kind of report to the proper authorities. It is not necessary that either the supervisor, the teacher or the children should understand anything about the physiology of the eye.

This scheme will save many a student from becoming myopic. Try it in the schools at least for a year and keep the record. Compare it with the results of the previous year or compare the results of two classes—one having the eye testing chart and the other without it. You will be convinced of the fact.

Then why should our children be compelled to suffer any more and wear glasses for want of this simple measure of relief. Lot of money is spent in spectacles every year. This system costs practically nothing. Simply there is the need of a Snellen's test chart in every class room. It will be better if a good and methodical chart is placed in every class-room. Such a chart with important instructions costing only annas four can be had from Ram Eye Hospital Bulandshahr.

No one would venture to suggest that it could possibly do any harm. Why, then, should there be any delay about introducing it into the schools. I appeal to all who read these lines to use whatever influence they possess to introduce this system of preventing myopia in schools.

PALMING.

Those who are not benefitted much simply by reading the chart should practise other methods, out of which I explain only one exercise known as 'palming'

Keep the Snellens' Eye Testing chart at twenty feet distance. If you are unable to see any letter of the chart at this distance then reduce it.

Suppose you read the second line of the chart at twenty feet distance.

Now do 'Palming.' "Close your eyes and cover them with the palms of the hands (the fingers being crossed upon the forehead) in such a way as to avoid any pressure on the eyeballs. Remember the black letter of the chart or any other black thing familiar to you. Keep the eyes closed till you see the black object." Now open one eye and look at the chart, you will have a flash of improved or clear vision and you might read the other lines. This clear vision will remain only for a moment. When this clear vision begins to become dim, close the eye and open the other. When the clear vision of the open eye begins to become dim close that also in the same position. Now again remember the black colour. Again open each eye and look at the chart. Keep this practice for at least fifteen or thirty minutes and you may soon find that you can keep your eyes open longer without losing the improved vision.

After a time by daily practice you will be able to read the normal line. As your body requires daily exercises, you must also read the chart daily simply to maintain sight. This would take no appreciable amount of time, but is sufficient to maintain sight.

This scheme of preventing myopia has been introduced nearly in all the high schools of this district, and I have cured many a student of defective vision without glasses.

DISEASED TONSILS AND THEIR PREVENTION

BY

DR. M. SANJIVA RAO, M. B. & B. S.

Ear, Nose and Throat Institute, 20, Thambu Chetty St., Madras.

POPULARLY known as growth of flesh in the throat, 'diseased tonsils' are daily coming more and more into prominence, and the busy practitioner is often heckled with numerous questions pertaining to them, by the anxious parent, which, though willing, he has not always sufficient time to answer satisfactorily. I am therefore compiling together some of the questions on this subject, which have been asked of me from time to time, answers to which I believe, will be of some benefit to your readers.

Q. How is it we hear more frequently of enlarged Tonsils now-a-days? Is the disease increasing?

A. The disease is undoubtedly attracting more attention, because,

(*a*) The disease is steadily increasing consequent on,

i. the over-growth of population in all large towns and cities, without corresponding increase in the sanitary and town-planning arrangements,

ii. the increasing poverty of the masses, resulting in poor feeding and lowered vitality of the children.

(*b*) The medical profession as a whole is realising the importance of early recognition and treatment of diseased tonsils, in order to nip in the bud various deformities and diseases, which they give rise to, and are therefore entirely

preventable. This has resulted in more cases being brought to light, partly by observation during ordinary medical practice and partly by the scheme of medical inspection of school children, which is being systematically done in all civilised countries.

Q. Where are the Tonsils situated? Are they mereley useless appendages or have they any useful function?

A. The Tonsils are situated in the throat at the back of the mouth and nose, guarding the entrance to air passages and lungs below. They are compartively larger in size and very active in early childhood, when the infant's lungs are weaker and of lower vitality. As the child grows up, with the increasing vitality of the lungs, the tonsils gradually shrivel to the normal adult size. Their function is undoubtedly protective. Many a cold and sore throat, with which the child is attacked, is effectively dealt with by the Tonsils and prevented from spreading downwards and causing inflammation of the air passages, such us bronchitis, broncho-pneumonia etc.

Q. How do healthy Tonsils get diseased?

A. I said before the function of the tonsils is mainly to protect the infants' delicate lungs, by mounting guard-like sentries at the entrance into the lungs below. Repeated attacks of cold and sore throat or life in over-crowded and damp slums entailing constant inhalation of stagnant, putrid, dusty atmosphere or poor nutrition of the child resulting in lowered vitality of the body as a whole and increased susceptibility to infectious diseases like influenza, measles, small pox, chicken pox etc. all work havoc and seriously injure the defensive power of the tonsil. Under the conditious of life just mentioned, the tonsils get repeatedly sore and enlarged, their defensive powers, rapidly diminishing, until in the end they are converted into mere bags of pus or septic material. At this stage, they are *not only not useful* to the child, but their presence is *definitely harmful*, as they obstruct the natural nose-breathing and poison the blood stream, leading to very serious and far-reaching consequences. Diseased tonsils have very aptly been likened to choked filters.

Q. What are the consequences of neglecting diseased tonsils?

A. These consequences can be conveniently classified under three headings.

(1) Obstruction to natural nose breathing.

(2) Direct spread of infection from the diseased tonsils to the neighbouring parts.

(3) Poisoning of the blood stream.

(1) *Obstructed breathing.* — During natural breathing through the nose, the inhaled air is properly warmed, moistened and purified. When this is obstructed the child breathes through the mouth, keeps its mouth open day and night and also snores at night. The air being not properly purified, causes repeated attacks of cold, sore throat and inflammation of air passages and lungs. Due to the bad breathing the chest and lungs get deformed, and instead of being rounded off on either side as in the normal child, the chest is shallow, sunken on either side, with the centre prominent, and easily predisposes the child to diseases like Tuberculosis etc. The nose also gets pinched and narrow, the mouth and teeth are deformed, and the child gets a dull vacant expression, a picture which when once seen will never be forgotten.

(2) *Spread of infection to neighbouring parts.*—The commonest of these is discharge of pus and deafness in both the ears, due to infection spreading up the tube connecting the ear to the throat. If this continues for any length of time irreparable damage will be done to the child's ears. The nose also gets infected, resulting in repeated attacks of cold etc., which makes the conditions still worse. The air passage and lungs may also get directly infected and again pus may be swallowed in the consequent digestive troubles.

(3) *Poisoning of the blood Stream.*—These are too numerous to mention, but briefly they are various diseases of the heart, joints etc.. repeated eye-troubles, stunted growth of the child and backwardness at school, low fever resembling consumption, repeated attacks of boils, abscesses and so on.

Q. How is a lay man to suspect the existence of diseased tonsils in his child?

A. Obviously, it is unnecessary to enumerate the graver constitutional disturbances, as in these cases the family physician will be consulted, and the cause discovered. But diseased tonsils ought to be suspected when,

(1) A child constantly keeps its mouth open both day and night or snores at night, or

(2) a child has constant or recurrent attacks of discharge from the ears or deafness, or

(3) a child gets repeated attacks of cold or sore-throat, or

(4) a child has a poorly developed sunken chest, or poor development and growth compared with other children of its own age, or

(5) when the child is backward at school, or easily tired and unable to concentrate, or

(6) when the child speaks with a nasal "twang" in his voice, or

(7) when the child feels a tendency to choking while eating or drinking a continuous sip of water, or

(8) when the child gets attacks of bleeding from the nose, or

(9) when the child has carious teeth.

Q. How can this disease be prevented?.

A. These measures can only be briefly described under four headings.

(1) Better conditions of living,

(2) Better nutrition of children,

(3) Prevention of colds,

(4) Care of the mouth and throat.

(1) *Better conditions of living.*—Every man, woman or child must have a sufficient quantity of pure air to breathe, in order to live a healthy life. We expect the Government to do its duty in this direction, by clearing away the slums, de-congesting the cities by carefully planned extension schemes and provision of sufficient parks and play grounds, prevention of the dust and smoke nuisance from streets and factories and so forth. But at the same time it must be emphasized that every individual too has definite responsibilities in this direction. Filth and putrifying matter must be promptly removed, the house must in every way be clean and neat and children must always be allowed sufficient open air recreation.

(2) *Better nutrition of children.*—While admitting that this is mainly an economic problem, there is one aspect which I wish to emphasize, namely the milk problem. In infants milk is the sole diet, while in older children milk and its products, butter and ghee form the most important portion of the dietary especially in the supply of vitamins and fat. In our country a few people are

vegetarians by religion, whilst a very large majority are compelled to be so by sheer poverty, as such, milk and its bye-products form the only source of supply of fat. It will thus be seen that we must fight hard for the supply of pure unadulterated milk and its products, as without it an important source of our nutrition will disappear, and lower the body vitality.

(3) *Prevention of colds.*—The most important points to remember in this connection are that especially children should not be exposed to sudden changes of temperature and draughts, as for example when,

(1) a child is given a hot bath and left exposed,

(2) coming out of a hot stuffy atmosphere in a theatre or cinema, into the cold atmosphere outside.

(3) Direct exposure of the uncovered body of the child to a cold draught from the window.

(4) no person with a cold or sore throat should be allowed near a child much less kissing the baby or otherwise fondling it.

4. *Care of the mouth and throat.*—Besides the routine training of children from the very beginning to keep their teeth and mouth clean, care of the mouth and throat is a very important item in the treatment of infectious fevers of children e.g., small pox, measels, chickenpox etc., etc. These diseases invariably attack the throat primarily and many a case of diseased tonsils can be definitely traced to its origin during one of these fevers. The old superstitions that these fevers are due to irritations of a Goddess and require no treatment etc., must give way to systematic and rational treatment. I daresay if these matters are borne in mind, many a child, which is growing up into a sunken chested, emaciated lad, probably to fall a prey to such diseases as tuberculosis, will develop to the full vigour of youth and be a useful member of society.

THE PROBLEM OF MENTAL HEALTH.

BY

DR. FRANK NORONHA M.B.C.M., D.P.M.

Supdt. Mental Hospital, Bangalore

IT is not generally realised that mental health is as important as bodily health. Whereas much attention is paid to the latter, the former is allowed to take its own course. Physical health does not connote mere avoidance of disease. It involves the maintenance of the body in an efficient state of function and the same is true of mental health. The functions of the mind are more complex than those of the body and a knowledge regarding these functions has yet to be popularised. Broadly speaking mental functions imply social relationship, in which an individual has to attain "the greatest success with the maximum of satisfaction and with the least friction and tension." He must please himself and be pleasing to others. Disturbances arise in trying to maintain this social relationship. These may be of any degree. They

may be tolerable and yet incapacitate the individual from being a useful social unit or they may be so pronounced as to lead a person into criminality or insanity.

To attain the greatest success with a maximum of satisfaction may be a counsel of perfection, but from the point of view of mental health it must be the goal of every individual. No person can claim to be perfect in bodily health, but every one is advised to take such care of his body as to keep it in a highest state of physiological efficiency. Similarly as regards the mind defects may exist such as some peculiarities of behaviour, some "twists and kinks", eccentricities and the like. The existence of these defects has to be recognised and measures taken to counteract them, especially if these defects lower the efficiency of the individual for sustained work.

The fact cannot be too strongly emphasised that mental disorders are of different grades of intensity, of different varieties, affecting all ages, all grades of society, all conditions of life, and are brought on by a variety of causes. This wide view of mental disorders is a necessary preliminary to a proper understanding of the problem of mental health. Let every one divest his mind of the crude idea that mental disorder is insanity and that it is restricted to any particular set of people or that it is due to the influence of evil spirits. Such ideas lead to the neglect of mental health with serious consequences to some people.

A large proportion of any community is subject to a disorder which though not of such a nature as to constitute insanity is yet serious enough to handicap them in their social relations. The eccentrics, faddists, hypochandriacs. the semi-responsible, the swindlers, the inveterate liars, the truants, and the habitual criminals are victims of a disorder which is fundamental in the mental sphere. This aspect of the question displays a wide field for investigation and serious thought and makes it imperative to adopt measures for the relief of these sufferers and for the prevention of others from similar complaints.

Investigations into the causes of those conditions have revealed that those root causes could be traced to the early life of the individual, when the habits and reaction patterns are being formed. In the plastic period of childhood it is possible to inculcate habits and emotional attitudes of the right sort which if neglected, might lead to mental irritability of some kind or other. All those who have the care and control of children should concern themselves as much about their behaviour as about their vaccination, tonsils, heart and lungs.

The period of adolescence is fraught with serious consequences to the life of the individual. Apart from the physiological changes that are incidental to this poriod, the way is opened for the display of independence and freedom from parental control. At the present day, the spread of youth movement, the multiplication of youth leagues and kindred organisations has contributed not a little to emotional instability and to the creation of erroneous notions of independence in the minds of the rising generation and has tended to mar the career of many a promising youth. Nor the influence of the cinema has been an unmixed blessing for unsteady youths. Without deprecating the above mentioned institutions, it must be said that guidance to the

young men and women, is of supreme importance and those who undertake to promote youth organisations will do well to study the mental problems associated with adolescence and help to direct youthful energy along mentally sound lines.

Closely connected with this question is the problem of the youthful offender. The reclamation of the juvenile offender before he becomes a confirmed criminal is not attempted in this country in such a sustained, organised manner as the importance of the subject deserves. The apathy of the public in this regard is reflected in the scant attention paid by Government to this socially vital subject. Facilities must be afforded for the investigation of behaviour problems in children and institutions established where such cases could be systematically treated.

The mental factor in labour troubles and industrial conflicts is too often ignored. The conflict between capital and labour is a conflict between view points and a study of the emotional and other influences which affect the conduct of the disputants on either side will help solution and adjustment far more effectively than the mere application of the machinery of the law.

At every stage of life and in every phase of social activity, problems of mental health are encountered and a wider diffusion of its principles is as necessary for the well being of the community, as hygienic principles are to ward off infections and to raise the standard of bodily health.

SNAKES.

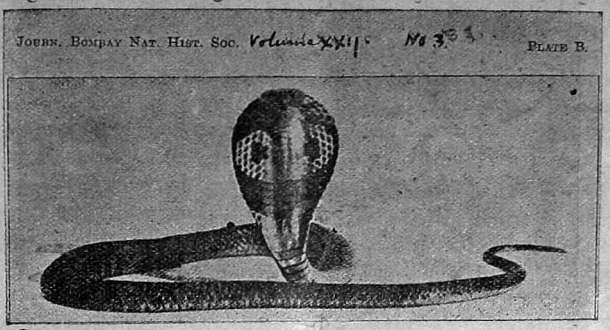
By

Lt. Col. K. G. Gharpurey, I.M.S. *Civil Surgeon, Ahmednagar.*

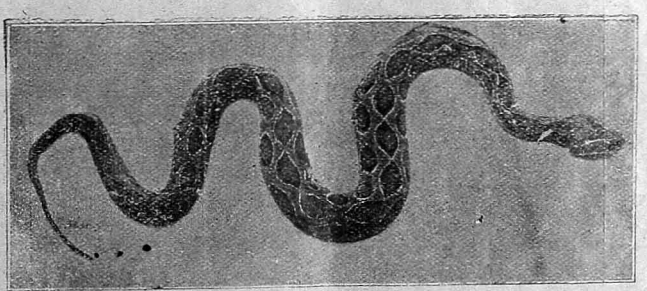
Thousands of persons die every year in India from snake bite. If one includes Indian States, one can say that at least about 100 persons die every day from snake bite in the whole of India. All these deaths are not necessarily due to snake poisoning. It is commonly supposed that most snakebites are poisonous. It is not so. The majority of snakes are non-poisonous and of the poisonous ones only four kinds are dangerous to man and likely to cause death. These are the Cobras, Russell's Viper, Phoorsa or the Echis and the Kraits. Other snakes, even if long and big as the Python and the Dhamans, cannot cause death. The belief that most snakes are poisonous is responsible for a good deal of unnecessarily violent treatment at the hands of ignorant persons like snake curers, and if this maltreatment was stopped, some lives would be saved of persons who now die of snake-bite though there has been no snake poisoning. So it is desirable, if not necessary, that one should be able to recognise these four kinds of dangerously poisonous snakes.

The hood of a Cobra (1) is characteristic when the snake is seen alive. When killed, the skin on the neck of a Cobra can be stretched and expanded and one may see on it the mark which looks like a spectacle or a single eyeglass. Under the neck there may be some dark coloured plates in series in between the white plates.

A Russell's Viper (2) is marked in a characteristic manner. It is

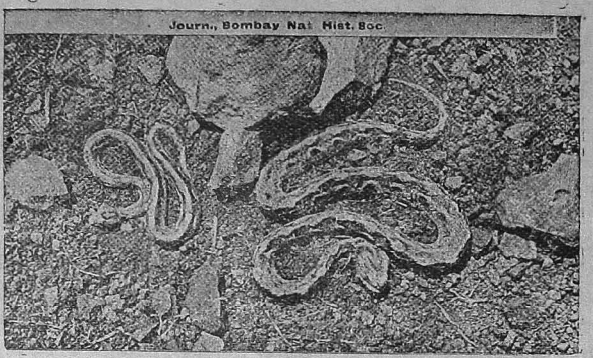


(1) COBRA

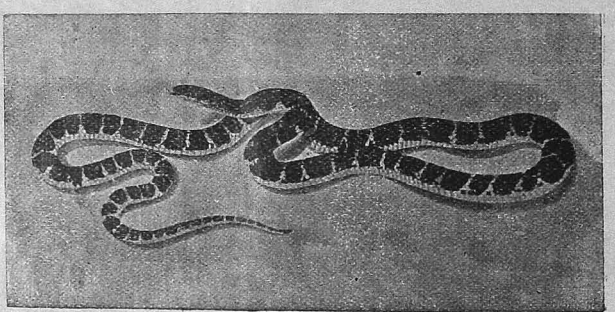


(2) RUSSELL'S VIPER

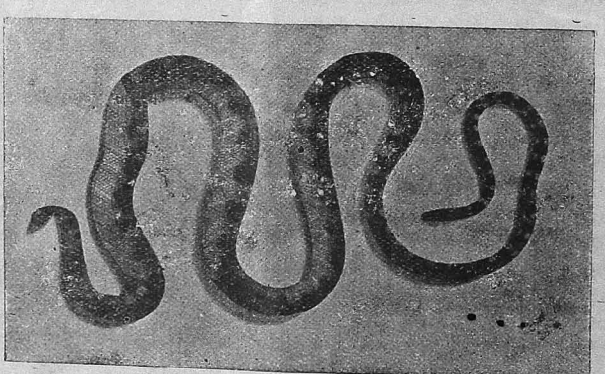
[*Illustrations in Lt. Col. Gharpurey's article on 'Snakes'. To face p. 42.*]



(3) PHOORSA OR ECHIS



(4) COMMON KRAIT



(5) SEA SNAKE

[*Illustrations in Lt. Col. Gharpurey's article on 'Snakes'. To face p. 43.*]

a biggish thick snake with three series of big black spots on its back one in the centre of the back from behind the head to the tail and one on either side of the back. Once seen, a Russell's Viper should not be mistaken for any other snake.

The Phoorsa or the Echis (3) is a small snake usually not more than 2 to 2½ ft. long. Its head has a white mark something like a bird's foot print. There is a sinuous white line along either side of its back and some rhombic white diamond shaped marks on its back along the centre.

The Common Krait (4) is usually of a blackish colour and has got white linear bars across its back which usually begin some distance behind the head and go nearly to the end of the tail. There is a common snake called the Wolf snake which resembles the common krait superficially and is often mistaken for it. This wolf snake is nonpoisonous and it is usually of a brown colour and the white lines or arches across its back begin very near behind the head and do not reach quite far back to the tail, differing from a Krait in this respect.

The banded Krait is a big snake and has got broad yellow bands on its back.

If a snake that has bitten a person does not belong to one of these four dangerously poisonous kinds, one can safely say that there is no danger to the life of the person from the bite.

If a person is bitten by one of these above mentioned poisonous kinds, the wounds should be cut deeply and well washed and a ligature tied above the wound immediately, to prevent the poison being circulated and absorbed. The ligature should be on the thigh if the bite is on foot or toes or on the arm if the bite is on hand or fingers. The ligature should be tight and should not be kept longer than 20 minutes. It should be arranged to send the person at once to the nearest dispensary or hospital. It is a waste of time to send the bitten person to a snake curer or a *Mantric* or a herbalist because all these are useless when a snake has poisoned a person. There is only one remedy for snake poisoning and that is Antivenene. This counteracts snake poison and is injected by doctors in the bitten person. In Cobra and Russell's Viper bites, Antivenene in an absolute specific.

If a person is bitten by a poisonous snake, there will be seen only two punctures or sometimes only one puncture on the bitten part as only the fangs (specialised teeth) in a poisonous snake can inject poison. These punctures do not get sealed with blood clot, but a sanious watery discharge flows out from them for a long time, if there is poison in the bite. The part bitten gets inflamed and gets discoloured bluish green like a bruise if the bite has poison in it. The person also usually has acute pain in a poisonous bite which comes on immediately after the bite and lasts a long time. If none of these local signs are very marked, the probability is that no poison is injected in the snake bite.

All Sea-snakes (5) are poisonous. They are easily distinguished by their flat tail, compressed sideways, whilst land snakes have a round tail.

THE CAUSATION AND PREVENTION OF CONSUMPTION.

By

RAO BAHADUR DR. M. KESAVA PAI, M. D.

Supt., Tuberculosis Hospital, Madras.

TUBERCULOSIS or Consumption has been existing in the world from time immemorial. The Egyptian mummies show definite evidence of the prevalence of the disease during the time of the Pharoohs. There are vivid descriptions of the different types of the disease in the ancient literature of Greece and of India. During recent times the disease has been known not to have existed in certain areas in different countries far away from communications e. g. the interior of Africa, America and Australia, but the establishment of the highways and free intercommunication as a result of exploration and colonization have now resulted in the disease being universally prevalent in all parts of the world.

Consumption is responsible for from 1/8 to 1/10 of the total mortality from all causes. Probably 5 million people die yearly from the disease in the whole world, which means that every 5 or 6 seconds one human being dies from the disease in some part of the earth. Most of the countries of Asia and of the eastern parts of Europe have a higher mortality from the disease than the modern countries like England, America and Australia. In fact there is sufficient evidence to show that the disease is probably on the increase in those countries on which the stress and strain of modern civilized life is having its depressant effect on economic conditions without a corresponding improvement in the socail, economic, sanitary and hygienic conditions of their peoples.

Tuberculosis is a highly polymorphic disease, attacking different organs and tissues and varying in its manifestations at different periods of life. It is highly prevalent and deadly amongst infants, produces milder disease in the growing child and is again very fatal in the adults. It attacks the lungs in the vast majority of cases, the disease being then known as consumption. When it attacks glands, it is called Scrofula and when it attacks bones and joints it produces the well known deformities like hunchback, lame legs etc. In children it is the commonest cause of abdominal disease resulting in distensions and diarrhoea and is a frequent cause of death by convulsions due to tuberculous disease on the membrane of the brain. In fact there is probably no organ or tissue which is immune from attack by the disease.

The infectious nature of tuberculosis was known even to the ancients, but it was about the middle of the last century that Villemin, a Frenchman, proved by inoculation experiments that the phlegm of consumptives was infectious and could produce the disease in animals. In 1882 Robert Koch, the great German bacteriologist discovered the tubercle bacillus, which is now acknowledged to be the germ causing tuberculosis in all its forms.

With the discovery of the germ of tuberculosis, there was a strong reac-

tion in the scientific world as well as amongst the lay public with regard to the infectivity of tuberculosis. The universality of the disease not having been fully recognized and the advanced and dying cases only having been detected, the idea of infection with tuberculosis was associated with a dread of the disease and its victims, so much so that a consumptive is looked upon even at this day by the ignorant as a social leper. Towards the end of the last century it came to be recognized by the scientific world that a large number of persons suffering from tuberculosis made a successful recovery. Today it is established that the vast majority of the infected make a thorough natural recovery and it is only a very small minority that get into an advanced condition and succumb to the disease.

It has now been proved both by postmortem evidence and by other tests that the germ of consumption is so universally present in civilized society in all countries that practically every human being by the time he passes childhood becomes infected with the living germ of consumption, but due to the natural resistance which the body possesses against foreign substances like germs over 95 % of human beings get over this infection with little or no trouble or symptoms of any consequence. It is the remaining 5% that show signs of varying degree of the different active manifestations of tuberculosis and of these a certain percentage only succumb to the disease. It is thus evident that the patients we see in our everyday experience suffering from active tuberculosis constitute a minute fraction of those that are actually infected at one period or another of life with living germs of tuberculosis, but due to the resistance of the natural forces of the body either do not develop tuberculosis at all or contract the disease and recover. Tuberculosis is thus known at the present day to be a disease from which recovery is the rule and death the exception, an idea quite in contrast to that held about 50 years ago when it was considered to be one of the most fatal of diseases. This change in our conception of the disease in three different eras has been described by a writer on tuberculosis as follows :—

1. *The Victorian Conception*—" A fatal disease; when recovery ensues, the diagnosis must be revised ".
2. *The Edwardian Conception*—" A widespread disease as a pathological finding, but always dangerous and often fatal when causing symptoms ".
3. *The Georgian Conception* — " A widespread disease terminating usually in uneventful recovery amongst the highly resistant majority of the population but dangerous to a minority with low resistance ".

Is tuberculosis very infectious ? This is an important question which ought to be grasped and understood in its true perspective. Since the discovery of the germ of the disease by Koch in 1882, there was in the earlier years a tendency to regard the disease as infectious in the same sense as other bacterial diseases, but later clinical and epidemiological experience has considerably modified our conceptions. In infections there are two factors to be considered viz., the 'seed' and the ' soil '. In most infectious diseases it is the seed that is more important from the point of view of infection. Thus the germs of typhoid, cholera,

dysentery, diphtheria, influenza etc are so virulent that when they invade the tissues of man, they multiply rapidly in them and produce the symptoms of the disease in the course of a few hours or days i.e. long before even a strong person could develop a natural resistance to the disease. This is not the case with tuberculosis. The germ of tuberculosis is a far less virulent and far less active organism and when it invades the tissues, it usually takes such a long time to grow in them and produce the disease that the vast majority of individuals especially when they are strong and well nourished successfully develop a natural resistance against the germs which prevents the onset of the disease. In such cases not only is the disease prevented from attacking the individual but the body develops a resistance against the disease preventing the person from getting the disease in its usual form in later life. It is thus clear that in the case of tuberculosis the soil i.e. the tissues of the body, is the predominant factor and the seed, of little or no importance unlike the other infectious diseases where the seed is more important than the soil. The secret of tuberculosis prevention therefore lies in developing the natural resistance of the tissues by proper attention to diet, personal hygiene, purity of air and general sanitation, just as the key to the prevention of the common infectious diseases like typhoid, plague, cholera etc lies in the prevention of infection with the germs by destroying them in various ways. In a few words tuberculosis, of all the infectious diseases, is the disease in which the tubercle bacillus plays quite a minor part and the general health of the body and its consequent resistance the major part, the converse being the case with the other infectious diseases. Whereas it is expedient to try and avoid contact with most of the infectious diseases, there is no object in doing the same in the case of tuberculosis, first because the factor of infection is the minor one and secondly because the disease is so universally present that it would be impossible to avoid infection even if one did attempt it. The right and the best thing to do is therefore to fortify the body and the tissues and make them unsuitable for the invasion and growth of the germs which can be done by proper attention to food, ventilation, physical exercise and personal hygiene.

Seeing that the factor of infection is much less important than the factor of soil and surroundings in the causation of tuberculosis, let us now briefly recount the various causes why tuberculosis is much more prevalent in India and in Asiatic countries in general and in the Eastern countries of Europe than in America, Australia and the western countries of Europe. About 75 years ago both in England and in the United States the incidence and mortality from tuberculosis was almost as bad as it is in India today, the death rate having been about four per thousand from the disease at that time as it is in India today. In the course of 75 years the mortality from the disease in England has gone down more than 75% and in New York, statistics show that it has gone down by 90% during the same period. On the other hand in India, evidence goes to prove that the mortality has risen appreciably during the last few years. The causes of these diametrically opposite conditions existing in these countries can now be examined.

From what has been said already it is evident that tuberculosis is a disease

resulting from infection taking root in a soil which is congenial for its development, that it will flourish in a population that offers a favourable soil for its propagation and that conversely it will die away in a population where adverse conditions are offered to its propagation. Thus when the economic conditions of a country are favourable and the food material and resources are sufficient; when the population is not larger than the resource of the country can sustain; when sanitation and hygiene are sufficiently advanced to offer favourable conditions for the maintenance of the general health of the masses; where facilities exist for early detection of tuberculosis in childhood and early adolescence enabling the disease to be arrested in its earlier manifestations, where facilities for the treatment of the disease in the early and convalescing stages exist in the Sanatoria, and tuberculosis colonies of the country, where the public health administration is so well developed that all possible cases of tuberculosis are dignosed in their early stage either at Tuberculosis dispensaries or otherwise; where medical education has made such progress that the doctors practising all over the country do not miss the disease as it manifests itself in its early stage, the stage, at which it can with surety be arrested; where the general physical tone of the population is, as a result of a combination of all the above factors well above par and can successfully resist the infection by offering an adverse soil to the tubercle bacillus; it is not difficult to understand how tuberculosis should now rapidly be on the wane. Thus Great Britain, the United States and similar modern countries possess all the favourable conditions, economic, social and hygienic which can resist tuberculous infection. The populations of the United States and of Australia are well below what the food and other resources of the country can maintain and the standard of living and social and sanitary conditions are all that could be desired at the present stage of the world's progress. In fact statisticians seem to consider that in the course of the next half a century tuberculosis will be practically non-existant in these countries.

What are the conditions in India which have led not merely to a highly prevalent incidence and mortality from tuberculosis but to an actual increase of the disease in the country during recent times? It is the poverty of the country; the very poor food conditions prevailing mostly as a result of poverty and partly as a result of ignorance: a population far in excess of what the country can maintain with its present resources; early marriage and the resulting high birth rate which is too much of a strain not merely on the mother but on the already poor and scanty resources of the family; want of facilities for early detection and diagnosis of the disease; want of facilities for treatment in Sanatoria and other institutions; poor sanitary and hygienic conditions prevailing; poor wages for the working classes coupled with insufficient facilities for their comfort and recreation; unhealthy domestic surroundings and dwellings, the result of a defective public health administration and absence of tenement laws; want of education amongst the masses and complete ignorance of the ordinary rules of health; in a few words conditions quite adverse to the maintenance of an average standard of health amongst the masses, thereby affording a very favour-

able soil for the propagation of tuberculos infection. In fact it can be said in general terms that the prevalence of tuberculosis in a country bears a direct ratio to the economic conditions existing. The poorer a country the greater the prevalence of tuberculosis and the richer the country the more free it is from the disease.

City life which from the very nature of it offers adverse conditions for living is more conducive to a higher prevalence of tuberculosis than life in the country. The fact that in India today more people are crowding into cities and towns from the villages to earn their living than half a century ago ; that the cost of living has increased out of proportion to the wage earning capacity ; and that the population of the country is outgrowing its resources, is directly responsible to the increase in the incidence of and mortality from tuberculosis.

The remedy for the above sad state of affairs is not by any means a simple one. There is no single measure which by itself can help the country in getting rid of the white plague which is decimating its population at the rate of perhaps a million a year. The loss to the country in life and in money is certainly worth the maximum expense and effort that could be put forth to combat the ravages of the disease. Economic conditions cannot be improved even in one generation nor can ignorance of the laws of healthy living be rooted out during that short period. Population cannot be decreased to suit the country's present resources nor can exploitation of these resources be made to keep pace with the increasing population in the short space of decades. Institutions for the detection and treatment of the disease require money which is always wanting even for more urgent requirements. The salvation of the country can therefore be worked but slowly and patiently.

What are the various methods by which we could lessen the prevalence of the disease in India, as they have successfully done in the west? For any effort to succeed in this direction there must be complete co-operation between the Government and the people. The improvement of economic conditions ; the development of the resources of the country by the department of industry and agriculture ; the free institution of co-operative Credit Societies to help the ryot and labourer and thereby improve his earnings ; the institution of social reform whereby early marriage could be put an end to and the *purdah* system mended or ended ; the institution of sanitary reform whereby the living conditions of cities, towns and villages could be improved ; proper attention to town planning to improve housing conditions and ventilation and establish parks and open spaces for recreation ; the opening up of congested areas and slums in the towns and cities by constructing suburbs and establishing railway and bus communications therewith ; educational reform whereby the construction of schools on open air lines, the curtailment of hours of indoor work for pupils and the teaching of elementary hygiene in schools ; the establishment of institutions like tuberculosis dispensaries, hospitals, sanatoria colonies etc. not only for early detection and treatment but for the practical education of patients and their families in the most hygienic methods of living, the improvement of the food supply by the education of the ryot in modern methods of agriculture, manuring of the soil and cattle breeding ; the

institution of maternity and child-welfare centres for the education of mothers in the best method of bringing up children, for childhood is the age at which the soil can be made resistant or sterile for the infection with tuberculosis; the institution of scout movements whereby the young and growing child can be given practical lessons in the advantages of open air life, self help and co-operation; the exercise of philanthropy by persons endowed by God with the good things of the world, whereby they could exercise the privilege which they possess of being able to help their fellow brethren in distress and in need; the activity of propaganda workers and societies in disseminating the knowledge amongst the masses of the causation and prevention of tuberculosis by lantern and cinema lectures, demonstrations, health exhibitions, health weeks and the like; the institution of Social Service Leagues and health leagues whereby voluntary workers could try and help their less fortunate brethren with whatever is necessary for the improvement of their knowledge and the amelioration of their suffering each and all of these measures must work hand in hand before the disease could be made to lessen its ravages in the country. Let us hope that the example which the west has already set us in this direction will be followed by the coming generation of our men and women thereby ridding our mother country of this great scourge of the human race.

ON GOAT MILK.

BY

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THAT a society named: "British Goat Society" has been in existence in England may not be known to many people in this country. The society which was constituted in 1879 has been doing very good work in trying to disseminate much useful knowledge regarding the keeping and breeding of goats and in breaking down the common prejudice against goats and against the use of goat milk for infant feeding. The prejudice against this very useful animal is due to many causes, the most important of which appears to be the difficulty in preventing her from nibbling the branches of almost every kind of plant. Those who desire to lay out a nice garden, either for artistic or kitchen purposes, are the avowed enemies of the goat. There are again those who think that the milk of the goat is too strong to be digested by the stomach of the human infant and that it is only fit for the use of dogs and poultry. These and other prejudices are being broken down by propaganda in favour of the goat and the use of its milk and milk products and various problems connected with the keeping and breeding of the goat have been tackled by this Society.

It may interest those, curious to know something about this Society, to hear that His Majesty the King is the Patron of the Society and among the office bearers are gentlemen and ladies of titled ranks. The Society has a large

number of life members, honorary members, cottage members and associatesin it. There are nearly 80 Societies affiliated to the British Goat Society. The Society runs a monthly journal which is the Society's Official Organ, containing articles and correspondence on all matters to interest goat owners and breeders. The Herd Book is published quarterly or half-yearly and the Year Book annually. It contains very interesting articles on all matters connected with the goat, splendid illustrations, the rules and regulations of the Society etc. I am indebted to the Year Books of this Society for the materials on which this article has been based.

So far as I am aware a society of this kind does not exist anywhere in India. That an industrial country like England can reasonably boast of a well organised Society of this kind with a number of affiliated societies in different parts of the country is sufficient proof that an organisation of this kind in this vast, agricultural country of India has tremendous possibilities in adding to the labours of other organisations which aim at improving the health and welfare of the people in other ways.

Pure milk is no less an essential to health than pure water. It is the most important food for babies and growing children. It is estimated that in America 3 times as much per head is spent on milk and cheese as in the British Isles and that even in America it is only half of what it ought to be. How the amount of milk consumption per head in India compares with that of other countries has not been estimated. But I am sure the comparison would show the very inadequate consumption of milk per head owing to the great poverty of the teeming millions of the population in this country.

The goat has few rivals as an animal of great utility. The praise of goat milk has been sung by poets and physicians. Cheese, butter and cream can be made out of the milk. Goat leather makes rugs and Morocco binding for books. Roast kid is considered a delicacy. Its manure is valuable. It is an animal which gives handsome profit to the owner. She is the poor man's cow and at the same time a docile and attractive pet. Goats are very useful creatures and scripture tells us that they were of great esteem among the ancients. They climb very steep ascents and can live even among rocks and crags, inaccessible to the cow. Their browsing habits and hard living probably account for their freedom from the diseases to which the cattle are subject.

It is a common impression of the public that the goat milk is unfit for the preparation of cream, butter or cheese. It is not so. Goat milk can make very good cream, cheese and butter. It is said that really well-made butter from goat milk is most delicious. The dislike of some people for goat milk is due to its odour and taste which are characterised as 'goaty.' It is the male goat which has the strong odour, especially, in the rutting season. If the she-goat is kept separate and is properly looked after her milk will not be disliked for its peculiar odour and taste.

The goat is not by nature an indoor animal. It is a forager. It feeds on practically all kinds of plants and leaves. In India one plant has been named "Adu Thoda" (Ada Thoda) meaning, not touched by the goat, being a rare exception among plants from the point of view of the goat. This plant is used for medicinal purposes in India. The comparative freedom from disease of the goat is probably due to the greater

abundance of iodine, calcium and other minerals and also vitamins in its diet.

As the goats are usually allowed to graze on open pastures and as they eat practically all varieties of leaves and shrubs, it is possible that goat milk contains a greater proportion of that invaluable element in nutrition *i. e.*, iodine than the milk of the cow, which is to a greater extent stall-fed. It is now well known that iodine plays a very important part in the proper assimilation of calcium and phosphorus which are necessary for the physical and mental growth of the growing infants and children. It plays a vital part in connection with the resistance of the body to bacterial and other infections. Dr. J. B. Orr, Director of the Rowett Research Institute, has shown that the iodine content of milk can be raised or lowered by making corresponding alterations in the total iodine of the diet. As in the case of vitamins the concentration of iodine in milk depends mainly upon the amount of this element ingested in the food. The higher iodine content of goat milk should, therefore, make it more useful than cow milk, which may be deficient in this element.

Calcium is another important constituent of goat milk. It is also present in cow milk. The amount of calcium in goat milk compares more favourably than that of cow milk. The need for calcium in the body is greater during acute and chronic illnesses and during the period of growth when the bones are being built. This probably is one of the reasons why goat milk is of considerable value during growth and convalescence.

The following reasons have been suggested to account for the easy digestibility of the goat milk.

(1) The smaller size of fat globules
(2) The thinner walls of the fat capsules.
(3) The greater assimilability of the fat.
(4) The minuteness of the casein molecules.
(5) The greater amount of albumin.
(3) Slower precipitation of the casein during digestion in the form of light rather than as thick, heavy curds.

The above reasons may not probably support the contention of the superiority of goat milk over cow milk. But there is abundant evidence to show that the curd from goat milk is lighter and more flaky in character than that from cow milk. There is strong positive evidence that it is the salts in goat milk which are responsible for the condition of the curd. This probably accounts for the easier digestibility of the curd of the goat milk formed in the stomach and of the fat which is imprisoned in the curd.

Goat milk is said to be good for the insomnia which is due to indigestion or to the early stage of heart disease. The fat globules of goat milk being more minute and in a more perfect state of emulsion than those of cow milk, the former appears to be more easily digestible than the latter.

The goat is immune to tuberculosis unlike the cow or the buffalo. The udders of the goat are usually clean unlike those of the cow which are mostly dirty. Goats are cheaper, more easily kept and more easily milked than the cow. Goat milk is better tolerated by the stomach to those who suffer from weak digestion.

In the Island of Malta there is a disease which is known as Malta fever or Undulant fever which is caused by the infected milk of goats which act as

carriers of the organisms which cause the disease. But fortunately this disease does not appear to be present to any appreciable extent in other countries including India. The cow is more subject to diseases than the goat. Among the stocks of cows may be noticed such diseases, as tuberculosis, Johne's disease, contagious abortion, etc. But these diseases do not afflict the goat.

The following table gives an analysis of the milk of the goat and the cow as compared to human milk.

	Milk of		
	Goat	Cow	Human
Water	85·6	87·5	86·4
Dry Substance	·7	·7	·9
Casein	3·5	3·5	1·0
Fat	4·6	3·5	3·5
Albumin	1·3	·5	1·2
Sugar	4·3	4·3	7·0

It would appear that except for a little less water, more albumin and fat in goat milk, there is little difference from cow milk, but goat milk contains more casein, 3 to 1, and less sugar 4 to 1 than human milk. There is no need to add water, barley or lime water or for boiling, sterilising or pasturising to goat milk given to children. It is said that constipation seldom troubles babies fed on goat milk. It has been conclusively proved that several forms of non-pulmonary tuberculosis in children, such as, tuberculosis of the neck glands, bones, joints and intestines arise from drinking milk from tuberculous cows. All these diseases can be avoided by feeding babies and children on goat milk. In the absence of certified cow milk it is safest to use goat milk. Dr. B. D. Z. Wright has described many cases of children having been successfully treated with goat milk and saved from many serious illnesses.

"'The day when tuberculosis will be eradicated from our dairy herds is a far distant one'. But we goat keepers think differently, and we hope the day is very near now, when we shall see the establishment of community herds and depots in towns nearby for the organising and supplying of hospitals, nursing homes and private patients with this most valuable of all milk. There would be little need of "Grade A" milk, and so much talk and discussion on "Pastuerisation" etc., if such was the case."

Miss Richards remarks in her book on "Modern Milk Goats" that in the city of St. Francies they have a contract for daily supply of goat milk for the tuberculosis patients of its great "City Hospital" and that its usefulness in fighting the disease has been well tested and proved. She points out the following differences between cow milk and goat milk :—

"(1) The fat globules in goat milk are smaller in size and are in a more perfect emulsion than those in cow milk and that therefore goat milk is more easily digestible.

(2) The goat milk is alkaline in reaction where cow milk is acid and this may be a matter of importance to persons suffering from hyperacidity of the stomach.

(3) Goat milk has a laxative effect for children who suffer from constipation. It is a specific for children who have difficulty in digesting their foods and in all cases of malnutrition for adults suffering from diseases of the digestive tract, for tuberculosis patients and for all persons convalescing from all kinds of sickness who need to

have their impoverished bodies rebuilt with the greatest possible speed and ease."

Those who are accustomed to cow milk so long will be unwilling to go in for goat milk. It is but human nature to cherish our superstitions. For innovations to find acceptance much propaganda will have to be done as in England, America and elsewhere. There is no need to decry the cow or disparage her milk but the points in favour of goat milk do require broadcasting. "To say that goat milk, produced under proper conditions constitutes an ideal food, nutritive, digestible, odourless, palatable and practically immune from disease is to make no extravagant claim."

The International Congress on Goat Breeding was held at Antwerp last year. The previous Congresses were held at other places in the continent. Mr. A. W. Barker writes in the B.G.S. year Book in favour of goat milk as follows:—

"(1) Goats are immune to Tuberculosis, so there is no need to test and certify their milk for this germ.

(2) Goats, compared with cows, are very cleanly animals, so there is comparatively little danger from contamination by dirt.

(3) Goats are easily kept as domestic pets, so that the control of milk, can be absolutely in the hands of the parent or the user.

Goat's milk then is superior to cow milk for the following reasons:—

It is more easily digestible than cow milk by infants and invalids.

It is free from tuberculosis.

It is clean,

It is rich in butter fat.

It contains very valuable salts.

Two cases have quite recently come to my notice in my own neighbourhood; cases of two babies who were unable, owing to some digestive trouble, to retain any cow milk, and whose parents were at their wit's end with anxiety. Certain goat keepers offered a trial with goat milk. It was retained from the first dose, and the children speedily restored to health. Facts are stubborn things. These cases are continually recurring wherever goats are intelligently kept.

The pity is that so few medical men know the facts or encourage the use and supply of this milk.

Of course as long as the prejudice exists, the number of goats will be kept down to meet the needs of their owners, and there will be no goat milk on the retail market. But once the prejudice is broken, demands will be met with supply, and large herds and goat farms will come into being.

Now for those parents who can believe what I have written, and are willing to try this safe milk, I will say that goats are easily kept even in towns. They require small sheds, or stables which, any handy man can put together in a back garden or yard."

In conclusion I may point out that in the ancient Indian Systems of Medicine Goat milk has been very highly spoken of in the treatment of many diseases, as will be seen from the following quotations which are translations from the old and reputed Ayurvedic and Siddha Medical Works:—

AYURVEDA.

"The following are the properties of goat milk:—

(1) It produces heat. (2) It gives bodily strength. (3) It cures intestinal colic. (4) It is an antidote for many poisons. (5) It is an

anthelmintic. (6) It cures chronic fevers (7) It cures all the lung lesions. (8) It combats anaemia and anasarca. (9) It is the best of all milks and good for children in the absence of breast milk.

It is *contraindicated* in (1) pregnancy. (2) atrophic liver diseases and (3) headache.

Its bad effects can be counteracted by (1) honey, (2) sugar (3) buttermilk and (4) lime juice."—(*Vastu Guna Deepika*).

2. "As the goat eats only very little and that too of bitter and pungent things and as it drinks very little water, but does more roaming and wandering, its milk is the most easily digestible of all milks. It is very efficacious in phthisis, in chronic fevers, in asthma, in dysentery, in all cases with a tendency to haemorrhage (i.e. epistaxis, malaria, haematemesis, and haemoptysis) and also in ordinary diarrhoea."—(*Vaghbhatta*).

3. "Goat milk has got a slighly bitter and sweet taste, has a cooling tendency on the body, is astringent and easily digestible. It effectively cures diarrhoeas, and dysenteries, and the haemoptysis and hectic fever of phthisis pulmonis, and also relieves the paroxysmal hacking cough of phthisis"—(*Charaka*).

4. "Goat milk has the same action as that of cow milk. It is a general tonic, improves memory, gives life and strength. It is a galactogogue and laxative; *cures* chronic fevers; scanty micturition and haemoptysis; it is good also for tuberculosis of the lungs. It improves the digestive power and is itself early digestible. It is astringent and effectively cures all dysenteries. It relieves also the spasm of asthma. As the goat is in the habit of eating always pungent and bitter plants and drinking only very little water, its milk can be safely administered in the treatment of all diseases".—(*Sushruta*).

5. "Goat milk has got a slightly bitter and sweet taste, has a cooling effect on the body, is astringent and is the most easily digestible of all milks. It is effective in arresting all kinds of haemorrhages. such as, epistaxis, malaria, haematemesis and haemoptysis. As the goat is in the habit of eating always pungent and bitter plants and drinking only very little water, its milk can be safely administered in the treatment of all diseases"—*Bhavaprakasha Nighantu and Saligram Nighantu*).

6. "Goat milk is effective in diseases due to combination of the vatha and pitthadoshas, effective in asthma, in dysentery; effectively heals ulcers; useful in cases of anasarca; increases the digestive juices and is itself most easily digestible.

Used as a vehicle with other medicines for tuberculosis.

N.B.—In all cases it is used after straining seven times and cream shall not form at any time".—(*Siddha medicine*).

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Dr. P.T. Patel, M.D. (Lond.), M.R.C.P., (Lond.), Bombay. "*How to enjoy Perfect Health*" Dr. K. Govindan Menon, L.M.P., Vayithiri, Malabar. "*Infant feeding and Management.*" Dr. S.C. Barooah, Dibrugarh. "*Care of a Typhoid sick*"—(*Hints to attendants*). Mr. Chowdhuri Javandi Lal Dutt, M.A.L.L.B., Ajmer- Merwara, "*The State, Educated Indian and his Health*" and "*A Query.*" Dr. Prafulla Kumar Das, M.B.D.P.H., (Cal.) L. O. (Madras) Sylhet. "*Growth of Public Health Act in England.*" Dr. J. Roy, Nowgong, "*Anti-Malarial measures in Nowgong Town, Assam.*" Dr. K. L. Narayana Rao, M.B.B.S., Madras. "*How to avoid constipation.*" Dr. U. Venkata Rao, Madras. "*Baldness, its causes and Prevention.*" Dr. Anil Choudhury, M.Sc., M.B.D.T.M., Calcutta. "*The management of typhoid group of cases.*" Dr. T. P. Sundaram, L.M.S., Madras. "*Care of the eyes.*" Dr. D. B. Gosthokar, Ahmedabad. "*Faulty infant Feeding and the diseases it gives rise to.*" Dr. Durlabh Dhruv, M.S., F.R.C.S., D.L.O., Bombay. "*Marriage and Pregnancy in Tuberculosis Girls.*"

Photograph of a Home-made Poster used by Mr. J. A. Caseby when lecturing on Goats.—*By Courtesy.*