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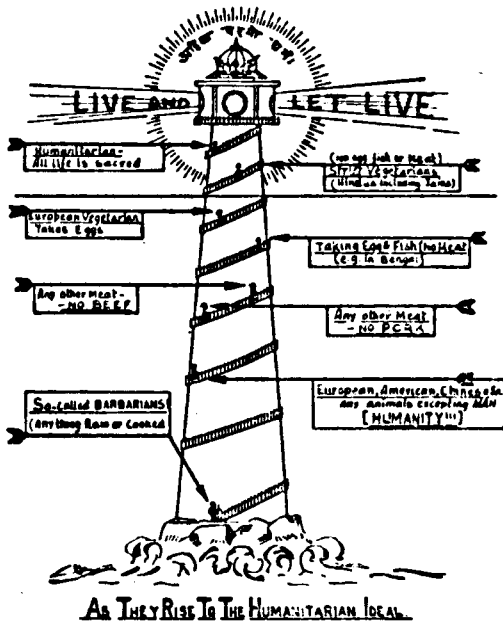


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MILK

THE MOST PERFECT FOOD

(ILLUSTRATED)



BY
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 "MAHARAJAH SIR KIRTI SHAH (Tehri Garhwal)"
 PROFESSOR OF INDUSTRIAL CHEMISTRY,
 Benares Hindu University.
 With a foreword by
 PANDIT MADAN MOHAN MALAVIYA.

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N. N. GODBOLE.

Benares Hindu University,
"Dipawali" (November) 1936.

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FOREWORD.

National health is today receiving the foremost consideration of civilised governments in the world. It is everywhere recognised that it is the basic asset of a nation's welfare. All great countries are therefore adopting well-concerted and comprehensive measures for improving the health, physique, and power of endurance of their peoples.

No doubt heredity, climate and the social and political conditions under which a people live influence both physical and intellectual development. But when all these have been taken into account, it remains true that national health depends very largely upon the national diet. Consequently in the advanced countries of the world, the Science of Nutrition has received much attention during the last few decades, and particularly so since the time of the Great War. Unfortunately in India, the question has not yet received sufficient attention, though we must acknowledge with gratitude the excellent work done in this direction by some distinguished medical men and scientists foremost among whom may be mentioned Sir Robert McCarrison, late Director of Nutritional Research, in South India. And yet there is no country where the need for it is greater. The physical degeneration of the people of India has assumed alarming proportions, both among males and females. In the matter of infant mortality, India tops the list of all the nations of the world. In some towns it has approached 600 per thousand of the children born. The average of life in India is 22 years while that in Great Britain is 52 years.

This is a national calamity. India was the first country of the world to condemn the use of a diet which included flesh, fish, fowl and eggs. It was the first to discover the great advantages of the natural food of man—consisting of cereals and milk and fruits. The staple diet of the country as a whole is vegetarian, and the people have lived for ages upon it, in health and prosperity. But the impact

of the meat-eating west has been undermining the faith of some of our people here and there, and they have been advocating the use of meat, and some of eggs, while the volume of opinion among scientists and food reformers in the west has been steadily growing against the use of meat. It is vital in national interest that this evil should be nipped in the bud, and that the existing knowledge of the Science of Nutrition which has been gathered in Europe and America should be widely disseminated in this country. For it is not merely the want of nourishing food, but also the lack of correct knowledge of what constitutes a well balanced diet, pure and cheap, and yet capable of giving strength, health and vigour, that is responsible for the present deplorable deterioration in the health of the people. Dr. Godbole has rendered a service to the country by writing this book, which he has done at my suggestion, as a means of propagating such knowledge.

The subject may be viewed under two main heads : (1) What not to eat and (2) What to eat. Under the former head Dr. Godbole has naturally discussed the question of vegetarianism and non-vegetarianism (Chapter IX), and of vegetarian *versus* non-vegetarian food (Chapter XVII). He has dealt with the question both from the scientific and the cultural points of view. The scientific objections to the use of flesh food have again and again been pointed out by a band of scientists and food reformers. But the results of scientific research require to be repeatedly proclaimed from the house tops until flesh food is abandoned.

The author tells his readers that "non-vegetarian food whether it be eggs, fish or flesh, is open to very serious hygienic objections, that it is positively harmful and leads to a multitude of diseases. And that in a country like India, where high-temperatures are common and where there is hardly any efficient supervision or legislation to control the production and distribution of eggs, fish and flesh, the danger accompanying non-vegetarian food cannot be exaggerated." (page 72). Some years ago Dr. Kellogg, the great American who has earned the gratitude of mankind and of the dumb creation by his powerful advocacy of a fleshless diet extending over more than sixty years, summed up his experience in the following passage : "After more than fifty years' personal experience with

the fleshless diet and an unequalled opportunity to observe its effect upon both the well and the sick, the writer feels that he can say with full confidence that any reader who will make a careful study of the relation of meat-eating to intestinal toxemia or auto-intoxication, and will make even a brief trial of a well balanced and meatless bill of fare, will certainly be convinced of the immense advantages of the fleshless regimen and, in fact, of the impossibility of ridding one's self of the dangerous bacteria which infect the colon of every meat-eater and which give rise to colitis, appendicitis, and many other disorders (including headaches, high blood pressure, arteriosclerosis, and even Bright's disease), by any method other than the exclusion of fish, flesh and fowl from the bill of fare and with them the putrefactive bacteria which the butcher's meats always contain in countless millions."

Attention may also be drawn in this connection to the verdict of the International Scientific Food Commission which consisted of food scientists of four great nations, selected by their governments as experts, who decided in 1918 that no absolute physiological need exists for meat, since the proteins of meat can be replaced by other proteins of animal origin, such as those contained in milk, cheese and eggs, as well as by the proteins of vegetable origin. As Dr. Kellogg said years ago "the report of this, the most authoritative body which has ever spoken upon the food question, may be justly regarded as the last word upon the subject." The author further reinforces his argument by quoting the following important statements of Sir Robert McCarrison: "If the food contains enough milk and milk products then it is not necessary to eat flesh meat at all." "Enough milk is not less than a pint a day, and a quart if possible." "Eggs are not so good as milk." "One ounce of any of the 'dals' contains as much protein as one ounce of meat, nearly twice as much as one ounce of eggs, and seven times as much as one ounce of whole milk;" (page 76). It may be added, "that eggs, which undergo putrefaction as does meat also, can be eliminated from the bill of fare without injury, provided milk is eaten, and also provided care is taken to make a liberal serving of greens a part of every day's menu to ensure an adequate supply of food iron."

Dealing with the cultural and humanitarian point of view of flesh eating, Dr. Godbole well observes: "Man does not live for bread alone. As a representative of the highest evolution of rational beings, he has to live for some ideals. The loftiest of these ideals it cannot be denied is 'to live and let live'. This ideal is embodied in the great Sanskrit motto "अहिंसा परमोधर्मः", 'not to injure the innocent is the highest form of religion.' It is for these reasons that the staunch vegetarian refuses to include in his menu anything like eggs, fish or meat. But the strict vegetarian stands on humanitarian ideals when he extends the conception of humanity from man to all creatures having life and feelings—the cow, the sheep, the pig and so on. The European conception of humanity strangely enough stops at human beings, and does not include the life of animals like the cow, sheep or the pig, (or the egg with life in embryo) which it thinks are outside the scope of humanity. The humanitarian in India looks upon the life of a cow that has yielded milk all her life time with the same feeling with which he looks at the life of one of his own relatives, and rightly too. If in addition to this, the question of food efficiency, cost and hygiene all help in preserving the ideal, there is no reason why this view should not be considered as the loftiest one to be fought for."

Dr. Kellogg has well pointed out the contrast between slaying to eat and eating vegetables. "When man slays to eat, what a picture arises, with knife and axe he turns upon his trusted friends,—the sheep that kissed his hand, the ox that ploughed his field. The air is filled with shrieks and moans, with cries of terror and despair: the soil is wet with warm blood, and strewn with corpses." Look now at the other picture: "When animal eats vegetable, there is no pain, no sorrow, no sadness, no robbery, no deprivation of happiness; no sun-light shut out from eyes that were made to see, no sweet melodies for ever shut away from ears that were made to hear, no simple delights denied to beings that God made, if not in his own image, at least so nearly like his image, man, that the man whose eyes have been enlightened by the study of nature may look down and see in the millions of beings that God has made to share with him the divine spirit, the breath of life, some traits of himself that must now and

then bring blushes to his cheek or strike deep into his soul barbed arrows of remorse." A contemplation of this contrast should turn a man's mind away for ever from flesh, fish and fowl.

The next question—what to eat—is already answered in what has been said before. "The bill of fare which wise nature provides for man in forest and meadow, orchard and garden, a rich and varied menu, comprises more than 600 edible fruits, 100 cereals, 200 nuts and 300 vegetables—roots, stems, buds, leaves and flowers—to say nothing of milk and various other dairy products" (Kellogg). The author reminds the reader that for the normal growth and repair of the human body, and for generating the energy which is necessary to maintain its normal temperature, the normal food of man should include carbohydrates, fats and proteins, in certain definite proportions. By a diagram he shows the composition of milk, which contains carbohydrates, fats, proteins, mineral salts and vitamins, A. B. C. D. and E. He has put in a number of comparison tables showing the food value of milk as compared with that of different kinds of meat and eggs and of a large number of cereals, fruits, nuts and vegetables, and has reiterated the conclusion, well established by scientific research, that both for the young and the adult, Cow's milk is the most valuable—the most perfect—of all human foods, and at the same time the cheapest nourishing material which is available to man.

As the author has pointed out by references to the Vedas which are by common consent the oldest books extant in the world—and the Ayurveda, the Medical Science of the Hindus—the ancient sages of India were the first to recognise the high value of cow's milk both as a preventive and curative medicine and as nutritive food giving health, strength and long life, and marked the gratitude that man owed her by making it a matter of religion, of conscience and justice, that the life of a fellow creature, who served man as a most beneficent nurse should be protected by law. She is described in the Vedas as *Aghnaya* (one not to be killed), and held as an object of veneration. Excepting a few, in Indian States, the cow is still protected by law. But it is a great national misfortune that as the British people have been used to taking beef in their own cold country, since the establishment of British rule in

India, an appalling number of cows has been slaughtered in British India for supplying food primarily to the Europeans, in lamentable disregard of the deepest religious sentiments of the great bulk of the people, and of their economic and hygienic interests. The result of the consequent paucity and dearness of milk is writ large in the high infant mortality, the very low average expectation of life, and the increasing debility and decreasing vitality of the population of the country. Attention may be drawn here to the table (opp. p. 21) which shows the comparative consumption of milk and butter in India and other countries of the world. It has to be noted with regret that milk is many times dearer in Bombay than it is in London, Denmark and New Zealand. As the author says: "All the evidence available points to the conclusion that the consumption of fresh milk in India is very small when compared with such countries as the U. S. A., Denmark, Sweden and Switzerland. Since the desire for milk is wide spread and the consumption is relatively small, it would appear that the difficulties in the way of economic milk production and distribution in India are formidable." (page 23).

In India, attention has repeatedly been drawn during the last forty years to the milk problem. Sir Robert McCarrison wrote in 1928 in his excellent book on "Food":

"The greatest nutritional need of India at the present time is the production of more and of purer milk, for there is no more important food-stuff than this and none on which the public health is more dependent.....The rising generation must realise the importance of pure milk to the well being of the people, and see to it that India shall become as enlightened with regard to milk-production and to milk-distribution as other countries."

"If the food contains enough milk and milk products then it is not necessary to eat flesh meat at all. 'Enough' milk is not less than one pint a day, and a quart if possible; but few children in India consume anything like this amount."

As Prof. Kanga has pointed out in his valuable brochure on "Dietetics, Food and Race", Sir Robert McCarrison has shown by his classical experiments on rats that among the national diets of India, the Sikh diet is the

best. This consists of whole wheat chapaties, *urdkhi dal* (pulse), green vegetables in plenty, butter, fresh milk in plenty and "occasionally meat." In the U. P. and Rajputana, *Moong*, *Masur*, *Arhar* or *Chanaki dal* is used in the place of *Urad*. "If", says the professor, "the last item in the Sikh diet, *viz.*, "occasionally meat" is replaced by the Soya bean, it will be an ideal diet for the vegetarian; and as the Sikh diet has been found to be best among the national diets of India, and as Soya bean is undoubtedly superior to meat in its food value, the Sikh diet modified as suggested here would be certainly a more nutritive diet than the Sikh diet. The superiority of the Sikh dietary would be not only maintained but considerably enhanced by replacing meat by Soya bean."

The following questions and answers before the Royal Commission on Agriculture in India in 1926, clinch the matter so far as the importance of milk in the Sikh diet is concerned.

Q. 1479—Sir Henry Lawrence: Could you tell us a little more about this question of milk in diet? Do you regard a greater supply of milk as a very important matter for the rural population?

Health Commissioner (India): I think so. I have very little doubt that a population which has access to large quantities of milk is enormously benefitted thereby.

Q. 1480—Is there a geographical distribution? You say there are certain areas in India where they have sufficient milk and certain areas where they have not?

Health Commissioner: I do not think there is any doubt that much more milk is consumed in certain areas than in others, which means that the amount of milk is more readily available. In the Punjab, for example, the Sikh community drink, generally speaking, fairly large quantities of milk.

Q. 1481—With good effect on their health and constitution?

Health Commissioner: We have only to look at them to see that.

Q. 1484—Then, for people whose economic condition does not permit them to have a very generous diet, you

would consider milk a very important substitute and any improvement in the milk supply as a matter of very great importance to India ?

Health Commissioner : A matter of the very greatest moment

It is a matter for deep regret that notwithstanding these emphatic statements by men competent to speak and entitled to be heard, little action has yet been taken in any province to improve the milk supply for the people. It is a matter for thankfulness that Lord Linlithgow has drawn public attention to the indisputable scientific fact that a liberal supply of milk is an essential constituent of diet for growing children and that good nourishment in the early years of life is essential to the building up of a strong constitution in after life. It is now equally well-established that milk is necessary to maintain health and strength and vigour throughout life. This is evident from the "Drink more milk" campaign that has been carried on in England and Europe and America for sometime past, where both official and private enterprises have been organised for distributing cheap and pure milk to the people. It is devoutly to be hoped that the interest which His Excellency the Viceroy is taking in this matter will lead to a well planned national endeavour, in which the British Government and the public and the Indian States, will co-operate to secure an adequate supply of pure and cheap milk to the people, and humane treatment to the cow and her progeny if not to all other innocent creatures of God.

The chapter on breeding or feeding deserves special notice because the Government and the public need reminding that feeding is as important as breeding. The Royal Commission on Agriculture in India said in their report in 1928 : "The two important factors in cattle improvement are feeding and breeding. We place feeding first because no outstanding improvement in the way of breeding is possible till cattle can be better fed. The crux of the situation is the period of scarcity which in most, though not in all parts of the country, is the two or three months preceding the break of the south-west monsoon. Since it is the curtailment of uncultivated land as population has increased during the past century that is the most obvious cause of the present overstocking of village

grounds, it is not surprising that many witnesses have advocated the extension of grazing land." Along with breeding it is necessary simultaneously to improve the economic condition of the farmer who would then be in a position to buy good cattle, feed it well, and maintain it in proper condition. Reserving of pastures for grazing, special provision for the supply and protection of stud bulls, putting an end to the slaughter of milch cattle, and last but not least introducing a system of collecting milk from the countryside and transporting it where necessary in dry ice vans, to cities like Bombay and Calcutta and other large centres of population and thereby putting a stop to the importation of cows for milking purposes into those centres, these are some of the immediate problems that must receive full attention before the question of an adequate milk supply can be solved.

The illustrations given in the book are happily designed and show originality in the manner of their execution. They are meant to be at once educative, explanatory and convincing to the layman, whereas to the scientist they will be of more than common interest.

In concluding this note, I endorse the following observations of Prof. Kanga :

"If India is to become a strong and virile nation then it is the duty of Government, Municipalities, educational and other public bodies and the leaders and Panchayat of every community to see that no boy or girl leaves the school without getting an adequate knowledge of the important subject of dietetics and that no section of the public is without cheap and scientific dietaries suitable to its taste, purse and need."

M. M. MALAVIYA.

Dehradun,
25th November, 1936.

INTRODUCTION.

During the course of a private conversation at the Vice-Chancellor's Lodge, one day, the subject of the food problem of India came up for discussion, particularly the question of milk and other vegetarian and non-vegetarian food stuffs. It was thought necessary to find out the relative importance of non-vegetarian foods in Indian conditions and also to examine how far milk could be made to replace these. As the literature on this subject was far from complete, I was asked by our Vice-Chancellor Pt. Madan Mohan Malaviya to write a treatise on this subject and I took up the work immediately.

The main question was to examine the uses of milk as the most perfect food. All over the world, both in the West and in the East, there is a new wave of milk consciousness. Nations that once believed only in maintaining liquor bars have now begun to encourage milk stalls. Country-wide campaign is being carried on in many Central European Countries demonstrating that both in cost and in food value, milk was any time superior to eggs, fish and meat. India has believed in the efficacy of milk as a perfect food for centuries past. The constant impact of western ideas has influenced a small section of the people to believe that non-vegetarian food was more efficient than milk but it is gratifying to note that milk has re-established its supreme place once again all the world over.

The dangers accompanying the use of non-vegetarian food stuffs in India are of a serious nature. As against the one advantage of easy assimilability of the nitrogen, the disadvantages are overwhelming. The abnormal heat of the tropical climate coupled with the want of strict sanitary control and cold-storage makes the use of non-vegetarian food a very risky one. There is no doubt that meat of all kinds, beef and pork particularly, are cheaper in India than in Europe or America, firstly because of the religious scruples (of the Hindus who would not touch beef and of the Mohammedans who would not take

pork) and secondly because for want of control one does not know whether the meat on the market comes from a diseased, dead or a slaughtered animal. The fish and the egg are not open to less serious objections.

It is also worthwhile examining another serious aspect of this non-vegetarian question. This involves the consideration of the tremendous amount of vegetarian food that must be consumed by cows, buffaloes and goats etc., before it is assimilated and converted into a raw material for slaughter-houses. In the interests of national economy, would it not perhaps be more useful for man directly to use this vegetarian food in other forms rather than convert it into non-vegetarian food and then reuse it ?

The problem of milk supply in India is an extremely perplexing one. There is no other country in the world that worships the cow as a sacred animal. Indeed according to one orthodox view in Hindu India, the cow is the home of Thirty-three crores of Gods and Goddesses (making an average of one Deity per Indian!). In all provinces in India, even today, the cow is specially worshipped by womenfolk once a year in the evening, two days before Divali as a token of peace and prosperity. It is equally a paradox, however, that very little of pure and unadulterated milk is available in the country. The Indian agriculturist and the Indian milkman who look upon cow-slaughter as a religious crime do not seem to think that dilution of milk with water (or *vice versa*) is a still greater crime. The explanation for this mentality is to be found more in the economic conditions than in religious beliefs. Though not in intellectual pursuits, poverty is certainly a bar in the economic struggle for existence.

It would be a great mistake to interpret the religious importance attached to the cow as being a superstition. In India, religion is very often only a garb and a cover to disseminate cultural, sanitary, scientific and economic ideas. The value of the cow and the bullock to the Indian agriculturist cannot be minimised, the former for its milk and the latter as the beast of burden. The importance attached to the horse in the west as a valuable beast of burden both in agriculture and in war is a parallel

conception. Though not on religious grounds, the flesh of the horse scarcely finds a place in western menu, except in times of a siege. The horse is as indispensable in the west as the cow and bullock are in the east. The religious significance attached to the cow in India is synonymous with the economic sanctity attached to the horse in the west.

Even in a country like Japan where the science of drinking milk was unknown, and people were afraid of taking it lest horns might grow on their heads, there is now a country-wide awakening in favour of milk and the production of milk, butter and condensed milk has reached appreciable figures. In the year 1930, for a total population of 64 millions in Japan, the production of milk amounted to 110 millions of litres, condensed milk amounted to 13 millions kilogrammes and butter amounted to 4 and a half millions kilogrammes. For a country that did not dare to take milk even in its tea, the above figures are certainly praiseworthy.

The following pages are written with a view to examine the question of milk from all aspects. No attempt is made to appeal to sentiment in preference to scientific reasoning. It is hoped that they will serve the purpose of disseminating the correct knowledge of milk as the most perfect food.

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