

People's health

Sept. 1947

Vol. 1

No. 12



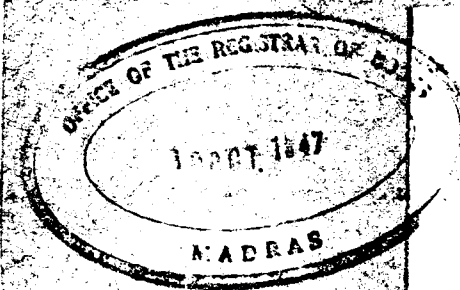
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PEOPLE'S HEALTH

EDITOR: A.V. RAMAN



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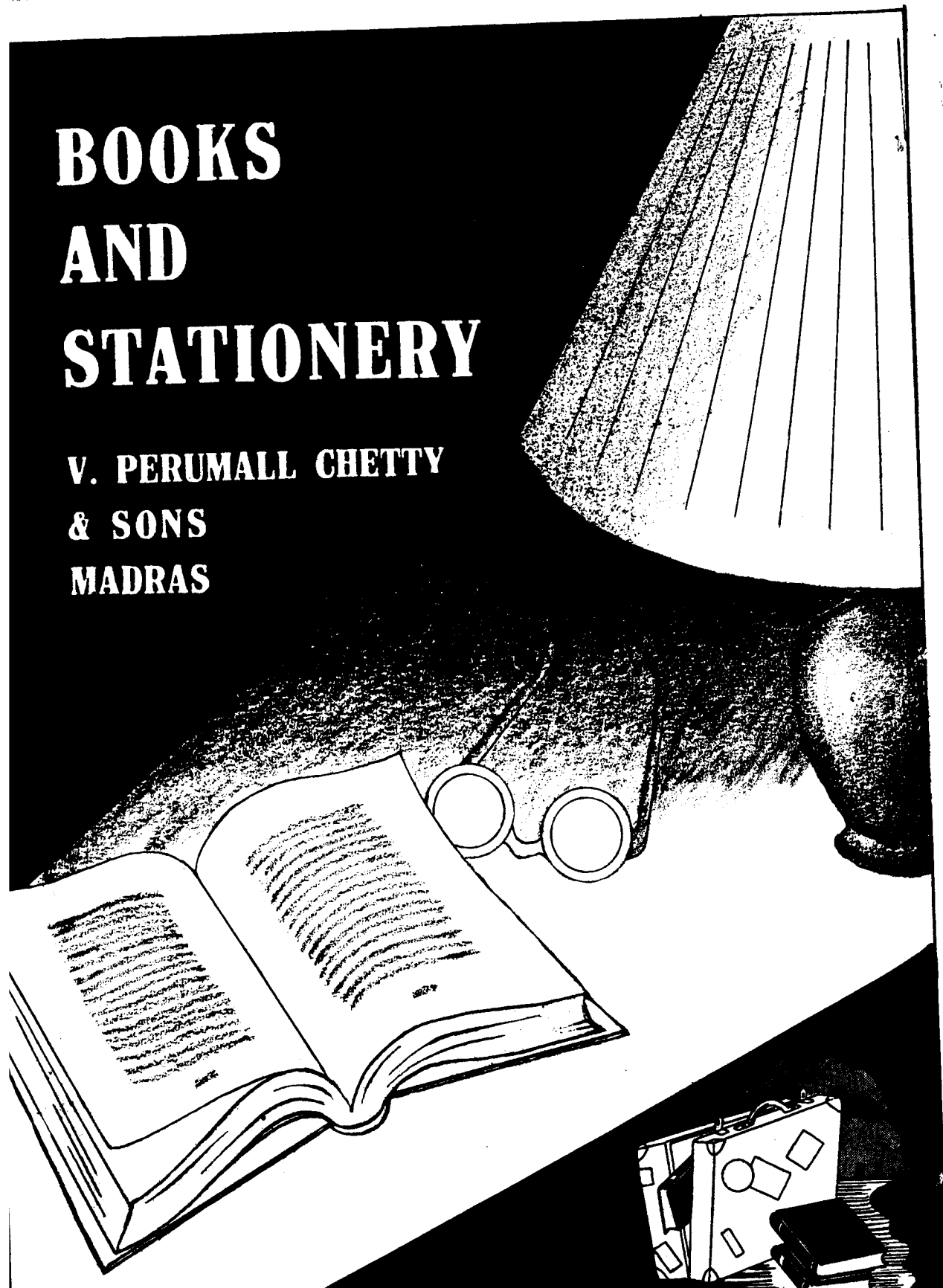
SEPTEMBER 1947

Vol. 1 No. 12

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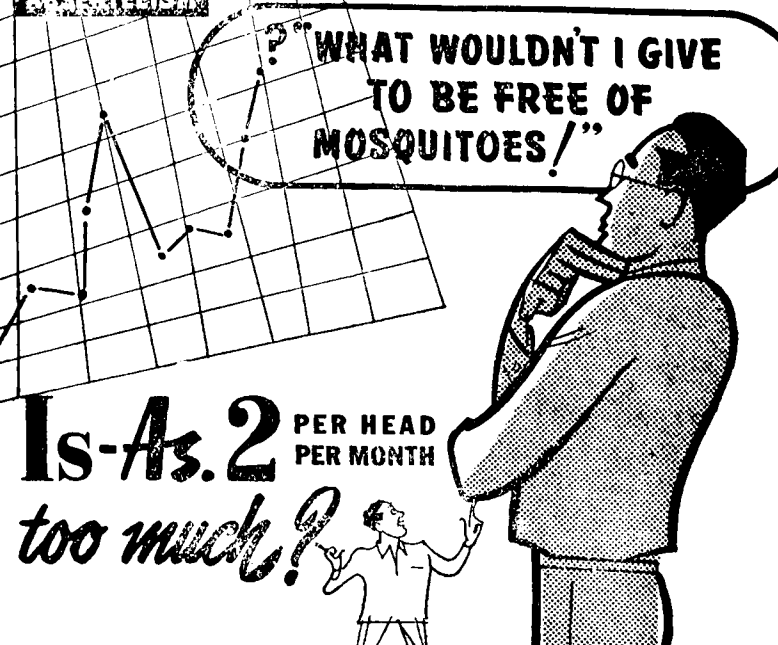
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PEOPLE'S HEALTH

A Pioneer in the Field of Public Health

Vol. 1

SEPTEMBER, 1947

No. 12

CONTENTS

Subject & Author	PAGE
Editorial	602
Reconstituted Milk—by K. V. Sundaram Ayyar	607
Gospel of Health—by V. V. Srinivasa Aiyangar	611
History of Physical Education—by N. N. Gupta	616
Dodging the Tubercle Bacillus—by Ezra Bridge	621
Hand book for City Employees	624
Principles Governing School Lunches	626
Control of Water supply means the Conquest over Cholera—by M. A. Beg	627
History of Sanitation—by Fred B. Welch	629
Eat in peace	634
The Health of the State is the State of your Health—by Purtej Singh	635
Pioneers in Public Health—by Mohan	637
Milk Goats—by "Z"	640
Book shelf	644
What do they say about it ?	647

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PLEASE NOTE

The Current Volume of 'People's Health' comes to a close with this, the twelfth issue of the Magazine. Kindly Check up your back numbers. We shall issue, in due course, an exhaustive index to the first volume. When you receive it, please have the volume bound.

- Despite our appeals, some subscribers have not as yet, paid their annual subscription. They are requested to remit it without further delay.
- This propaganda magazine is being published at considerable expenditure of time labour and money. The cost of printing and paper alone exceeds the price at which the magazine is sold. To meet but a fraction of the excess expenditure, we have been compelled to fix the annual subscription at Rs. 12 from October 1947 to September 1948.
- Such subscribers as are unwilling to continue as annual subscribers, are earnestly requested to inform us beforehand. In all cases where no intimation is received, we shall send the magazine as usual.
- Kindly remit Rs. 12 at your very early convenience.

Manager, "People's Health", 'Lloyd Corner', Lloyd Road, Madras, 14.



VOL. I
No. 12

SEPTEMBER, 1947

ISSUED
MONTHLY

Human corruption proves always too hard for human eloquence; it is ever found to have strong enough footing in the heart to stand it out against all the golden sayings of the tongue—MACLAURIN.

EDITORIAL . . .

TOWN PLANNING IN PRACTICE

In 1915, Bombay placed on the Statute Book an Act to regulate Town Planning. In 1919, the United Provinces passed an enactment for the purpose. In 1920, Madras passed its Town Planning Act and in 1922, the Punjab followed suit. After 1921, it would appear that interest in town planning steadily declined in India, except Punjab and the States of Hyderabad, Mysore and Baroda.

ITS WORKING—A SCANDAL

So far as Madras is concerned, the Presidency had been literally groaning under the provisions of the Madras Town Planning Act. So long as a top-ranking administrator held the reins in his hands in the early days, he was able to implement the intentions of the provisions of the Act with understanding, equity and justice, whatever be the wording of the several sections. But after him, matters drifted. Even those who administer the Act, do not

seem to understand the implications of the provisions of the Act. They do not therefore enforce its provisions with any sense of value or fairness. Our purpose now is not however, to discuss this aspect of the question.

We wish to draw attention to a notification which has appeared on page 205 of the Fort St. George Gazette, dated 8th July, 1947. It is notified that further extension of time till 31st December, 1947, is granted for the preparation, publication and submission to Government by the Tinnevely Municipal Council, of the detailed town planning schemes called for in G.O. No. 1999-P.H., dated 18th October, 1927. *Prima facie* it is scandalous that even after the lapse of 20 years, a further extension of time should have been granted. This is not an isolated instance of the kind; there are many such instances. That there is something rotten in the working of the Act is well-

known. No remedy, however, has been thought of.

"The permitted provisions of a planning scheme are so very liquid that a timid, corrupt, ill-advised, lazy or merely inexperienced council, by its giving of consents to applications for individual exemptions may make a complete mockery of its own plans."

"Some of these authorities undoubtedly do the best they can, but on the whole they are sadly inadequate for the work. Many of them are too small or too feeble to withstand pressure on the part of powerful interests; too impecunious to afford sound expert advice; too blind and bigoted to accept it when it is given. And often it must be admitted they are too open to nepotism to be charged with a duty that demands complete detachment and impartiality."

So says a well-known town planning consultant.

A GLARING INSTANCE

Each of the schemes promulgated under the Madras Town Planning Act of 1920, contains a schedule of lands proposed to be acquired for the scheme. According to section 33 of the Act, the lands may be acquired either under the Land Acquisition Act or under the Land Acquisition Act as modified by the Town Planning Act. In the latter case, under section 34, the notification under section 14 sanctioning the scheme operates as a declaration under section 6 of the Land Acquisition Act, and under section 35 (2) (a), the compensation payable for lands so acquired is the market value as on the date of the publication of the preliminary notification under section 10 or 12. Section 34 also provides that if the land is not acquired within 3 years from the date of the notification under section 14, sanctioning the scheme, the said declaration ceases to have

effect as a declaration under the relevant section of the Land Acquisition Act.

The result of this legislation therefore is that the Municipal Council, as the responsible authority under the Act, has to take steps to complete acquisition of the lands required and proposed to be acquired within three years of the date of sanction of the scheme. If that is done, the Municipal Council gets the benefit of paying for the lands at the lower market value as on the date of the preliminary notification. If that is not done, then the declaration expires and if, thereafter, lands have to be acquired for the purpose of streets, etc., fresh proceedings will have to be instituted under the Land Acquisition Act and the value payable will be the market value on the date of such fresh declaration under the Land Acquisition Act.

We understand that not merely the Madras Corporation but most of the Municipal Councils have completely defaulted in taking the necessary steps for acquisition of land in pursuance of the schemes. One instance is that from Salem. We refer to the case of Bommanna Chettiar vs. The Province of Madras, reported in 1945 (2), *Madras Law Journal*, page 69. In that case, the party recovered back the possession of land acquired on the ground that the acquisition had not been completed within three years and was therefore illegal.

We now give facts relating to the Cathedral Road (South) Area Town Planning Scheme, Madras, for which the Corporation of Madras is

the responsible authority. In this case, the preliminary notification under section 12 was made on 19th August 1930. The sanction of the scheme under section 14 was published in the *Gazette*, dated 13th December 1938. The scheme provides in the schedule a list of the lands to be acquired for the 50 feet North-South Road "AA" connecting St. George's Cathedral Road with Murray's Gate Road. This acquisition should have been completed by December, 1941, and in that case, the value payable by the Corporation to the owners would have been the value as in 1930 (subject to the qualification which will be the subject-matter of another paragraph). In 1940 the Corporation had funds specifically sanctioned for the purpose of acquiring lands and making the said road sanctioned in G.O. No. 2457-L.A., dated 5th June, 1940. But the Corporation took no steps to acquire the lands and finally diverted the fund away for other purposes.

In these circumstances, if now the Corporation wants to acquire lands for the purpose, it will have to resort to a fresh declaration under the Land Acquisition Act and the value payable for the acquisition will be the market value as on the date of the new declaration. The question is who is to pay the extra cost. Should not the officers of the Corporation and the members of the Council responsible for causing this loss be made to foot the bill?

The other matter referred to by us is this. Each notification under section 12 fixes the date within which the Municipal Council

should prepare the scheme. In every instance, the Corporation has defaulted in preparing the scheme within the time limit and subsequent notifications have been made extending the time. The Corporation, however, goes on treating the date of the first notification under section 12 for the purpose—*vide* advertisement by the Corporation in the *Hindu* on page 6, dated 28th December, 1945. In this connection, we find that in land case 4 of 1941 decided by the Chief Judge of the Court of Small Causes, the Court decided that in view of the repeated defaults and extensions of time, the date of the last notification which the Corporation complied with, must be taken as the date of the notification under section 12 for the purpose of section 35 (2) (a) and it is clear that this will apply equally to the words "date of the notification under section 12" in section 24 (a). In that case, the learned Judge followed the decision of Justice Sir Vepa Ramesam in the case reported in *Indian Law Reports* 55—Madras 391. On appeal to the High Court in Appeal No. 457 of 1942, Their Lordships Justices Krishnaswami Ayyangar and Somayya accepted the date of the notification under section 12 as 25th April, 1936. Here again, the question arises, where the Corporation has lost the benefit of the earlier date by its delay for years in preparing the scheme, whether the Corporation officials concerned should not be surcharged in respect of the extra cost involved to the responsible authority by such delay. In the case we have referred to in this paragraph, they had to pay

compensation on the basis of 1936 price instead of 1930 price.

The foregoing facts have been brought to the notice of Government so early as January, 1946. It is most surprising that no action has been taken on this scandalous state of affairs. Are we to conclude that the Government also are acting in collusion with the Corporation authorities?

CONSTITUTE A SPECIAL COMMITTEE

In Britain, before the Local Government Act and the Public Health Act were introduced, two committees were appointed. They took evidence of all persons who were qualified to tender it. The record of the evidence tendered before these committees forms the quintessence of knowledge on this subject. Here in our country, legislation is undertaken as a rule by those who wield power in their plentitude of wisdom! When once an Act is placed on the Statute Book, no one worries about its working, except perhaps the officials who suggest stray amendments here and there. The Madras Town Planning Act has been in existence for the past 27 years. The Bhore Committee have made certain recommendations in regard to town planning legislation. Is it not high time that the Ministry should have the working of the Act examined with a view to finding out the defects and rectifying them? Obviously there are organisational defects. These also should be examined.

PUBLIC HEALTH ENGINEERS THEIR TRAINING

We understand that the Government of India are after all taking

steps to train Public Health Engineers in the All India Institute of Hygiene at Calcutta.

The Bhore Committee have recognized that the improvement of man's *physical environment* is an essential part of the campaign for promoting public health. They have laid special stress on the importance of environment.

The Committee have realized that the subjects relating to it are of *'such importance and some of them raise issues of such complexity as would seem to justify special investigation before decisions can be reached in respect of them.'*

The Committee have admitted that they have had neither the time nor opportunity for a detailed consideration of these problems. It should be remembered that the profession of Public Health Engineering had no place in the Bhore Committee. They co-opted Prof. Subrahmanyam of the All India Institute of Hygiene and Public Health as a member of a Sub-committee; without the status of a member of the main committee, it is not reasonable to think that he could have shaped the policy of the committee on the subject on the lines accepted by the profession.

We strongly recommend to the Government of India that they should constitute a special committee of competent Public Health Engineers to investigate the entire problem and to submit a report to them before they come to a final decision on the training of Public Health Engineers.

RECONSTITUTED MILK

BY

K. V. Sundaram Ayyar, M.Sc., F.S.I.C.,
Government Analyst, Madras.



MILK may be considered to be unique and the most essential of all foods. Milk is indispensable for the sustenance and growth of children. To quote Shrader, for the sick and the aged, milk cannot be substituted by anything else. In those countries where milk is abundantly used, the average expectation of life is high. It is a well-known fact that in India milk consumption is very low, probably lower than in any other civilized country. Though the importance of milk in the national diet is recognized at all hands, milk production in the country is deplorably deficient even to meet the demands of our children, school children, expectant mothers, the sick, the invalid and the aged for whom a sufficient quantity of milk is necessary and should be ensured. No other food article contains so many of the essential nutritive ele-

ments as milk. Yet, milk which is sold in our cities is heavily adulterated. There is an Act in force in the Madras Presidency, which prohibits the addition of water to milk. Though some vendors selling such watered milk are being prosecuted and fined, the evil practice of selling adulterated milk still prevails.

WHAT WE GET FROM MILK

Milk contains fat, proteins, a sugar called lactose, salts and various vitamins which have been found indispensable for the growth and maintenance of life. Milk contains especially vitamin A and it is not altered on boiling. Deficiency of vitamin A in the body leads to the diminution of eye-sight and also predisposes to other diseases. It is specially needed for growing infants and children. This vitamin is contained in the fat of the milk. The fat content of milk—the butter

fat—has properties and composition unlike any other vegetable or other animal fat. It is very easily assimilated. Various kinds of sugar occur in plants, but milk sugar is distinct and is found only in milk. It has been established that lactose exercises a beneficial influence on intestinal hygiene by favouring growth of micro-organisms which decrease the growth of the putrefactive and other harmful types. Moreover, lactose is necessary in the formation of nerve and brain tissues. Protein forms the substance of our flesh and the proteins in milk are just suited for body needs. There are some ten essential proteins which are the building materials on which the human body is constructed. No single food stuff other than milk contains ever so many of them. Calcium is an important element of bone and milk contains as much as is contained in water saturated with lime and has the advantage over it, of easy assimilation. As so many of the essential body requirements are found in milk and in proper proportions, milk is aptly designated as nature's 'most nearly perfect food'. It behoves every one of us to take at least one *ollock* (8 ounces) of milk every day to keep us fit and healthy. McCollum, a world renowned American authority on Nutrition, advocates the consumption of one quart (6 *ollocks*) per capita per day.

"The effect of adding 1 point (1½ *ollock*) of milk daily to what was considered a good diet in an institutional boarding school caused in boys 6 to 11 years of age, an increase in height of 2.63 inches and an increase in weight of 6.98 pounds, as compared with increases of only 1.84

inches and 8.85 pounds respectively in similar boys who did not receive this supplement of milk. It was also noted that among these extra milk children there was less illness, especially nasopharyngeal catarrh, a reduced tendency to chilblains, a better condition of the skin and greater alertness and high spirits. Other work along similar lines, has completely demonstrated that the addition of milk to the diet of school children increases their average weight, height, strength, vitality and general health"

(J. H. Shrader—*Milk Production*.)

MORE MILK, BETTER MILK

Not only should more vigorous methods be adopted to put down adulteration of milk but also the supply of milk should be increased. The breeding of good milch cows and buffaloes should be encouraged. This can be achieved only by scientific breeding on the lines obtaining in England and U.S.A. The yield of milk per milch animal, in spite of India having the largest cattle population of any country in the world, is notoriously low when compared with those of western countries. It is now well-established that the yield of milk is dependent on the pedigree of the animal more especially on the sire. The farmers owning the cattle on whom the public depend for their milk are too poor and ignorant to put into practice the methods of improved milk production successfully adopted in other countries. Even if they start in right earnest now, it will take two or three generations before plenty of milk could be produced as a result of new orientation in milk production. There is no early prospect of any improvement unless the production and

sale of milk is municipalized or nationalized.

HOW MADRAS LEADS

Madras has taken the right step in attempting to remedy the inadequate supply of milk by starting a factory to produce 'reconstituted milk'. Now milk is being produced at a daily rate of 1,000 gallons (12,500 measures) a day. There can be no doubt that this venture on the part of Government would afford some relief to the people of the Presidency Town.

It should lead to more consumption of milk. This "reconstituted" milk is made from skimmed or separated milk imported from America and Australia where the freshly-drawn milk after separating the fat is dried to a powdery form. The resulting white powder is cheap and could be kept without spoiling for months. As water constitutes the main bulk of milk, the disadvantage of its keeping and transport is removed, if it is made into dry powder.

HOW IS IT DONE?

If this skimmed milk powder is dissolved in water and butter fat is incorporated, in proper proportions, it results in milk which has the same composition and nutritive properties of natural milk. But, as butter or ghee is so very difficult to obtain and is also very costly, the Government are adding deodorized cocoanut oil in amount just equivalent to the butter contained in milk. Cocoanut oil like most of the vegetable oils does not contain vitamin A. The ideal

way would be to add Cod Liver Oil concentrate which is known to contain all the needed A and D vitamins. But some may object to its incorporation due to the inevitable odour or for other reasons. Government are therefore adding carotin, the yellow pigment contained in the vegetable root carrot. Carotine is dissolved in cocoanut oil and then mixed with milk. Carotine is the parent substance of vitamin A and can replace it for body needs. It satisfies the need of the body just as well as vitamin A.

The question may be asked if milk could be reconstituted by mixing carotin, cocoanut oil and skimmed milk powder with water, why it should not be done by us in our houses instead of Government in a factory by machinery. If cocoanut oil is mixed with milk and shaken by hand, the oil seems to be dispersed in milk, for the time being, but after a short time, it separates again and floats on the top as an oily layer. The natural butter fat in milk does not separate in this manner as it is in the form of fine emulsion. The fat is dispersed in milk into countless small particles that they do not easily separate. To artificially achieve this, handshaking will not do. The help of machinery is needed.

In the Government factory, pure and good water is treated to the proper temperature in aluminium vessels. The proper quantity of milk powder is dissolved in this warm water. Cocoanut oil containing the required quantity of carotine is added, kept mixed for half-an-hour by agitators worked by electricity.

The mixture then flows through a cylinder at one end of which are minute holes and at the other end a high pressure acting piston. The holes are so very small that ordinarily the milk would not flow through them. But under the high pressure of 1,400 pounds the piston forces the milk through the holes and the fat is split up into countless tiny particles and is uniformly distributed throughout the milk. The hot milk is pumped after its exit from the cylinder into a reservoir from where it is immediately cooled and then collected in sterile glass bottles which are sealed immediately then and there taking all the sanitary precautions to ensure its purity. These bottles are then kept in cold storage in order that they may be preserved in sweet condition till they are distributed. If contamination is prevented, milk can be kept without spoiling for a number of days in cold storage.

ADVANTAGE OF RECONSTITUTED MILK

The milk thus prepared offers some advantages over natural milk. Milk can be had at all times. Its composition especially as regards fat and vitamin A contents is not always constant. Some even assert

that the reconstituted milk because of the fat being in much finer state of sub-division, is easier to digest, than natural milk.

Above all, this milk can be taken as such, as the conditions of production mainly ensure a hygienically pure quality of milk. It is ideally, adapted for making curd and butter-milk.

OPEN MORE FACTORIES

More factories like the one established in Madras should be constructed all over our country. The problem of milk scarcity will be solved. An adequate supply being established, the temptation for milk vendors to adulterate milk will be removed, thereby ensuring the supply of pure milk to growing children, expectant and nursing mothers who need it most. The establishment of milk factories is a costly affair and as the profit realizable can only be moderate, it is unlikely to attract the attention of our industrialists who want big and quick dividends. With the changing times, let us hope municipalities and philanthropically minded people, would take up this venture which would contribute to the health, longevity, and productive capacity of the people.

VALUE OF MILK

The real value of milk in furnishing some important ingredient not supplied by other foods, especially for children and for warding off certain diseases, was recognized in Europe during the last half of the eighteenth century.

—DR. A. W. BITTING.

GOSPEL OF HEALTH

BY

V. V. SRINIVASA AIYANGAR, B.A., B.L.,

Advocate

(Continued from page 514, Vol. I., No. 11)

VII. *The Sources of Health.*—We have already had occasion to observe that it is to the human body itself and its wonderful formation and functioning that we owe the maintenance, the loss and the restoration of health. To enable the body so to function efficiently, it is necessary that it should be enabled to do so. Human wisdom and human effort have both to be directed continuously for the maintenance of robust and if we may say so, over-flowing health, or whenever it is found decreased or lost, for its restoration to a condition of joyous health. In this discourse we propose to advert, if not exhaustively, at any rate comprehensively with all the sources of health furnished to man on this earth and in this life. These sources are Divine and have been graciously provided by God Almighty. It will therefore be useful to contemplate all the sources from which we do derive and may derive our health. These sources



must be understood and appreciated by every man in their different character as resources. Without a proper and wise understanding it will not be possible to bring about their effective subservience and with reference to us. There are, perhaps, hundreds and hundreds of such resources. It will require a person who has possessed of a mastery of all the sciences relating to man even to attempt to make any exhaustive list. But, while such a thing may not be possible having regard to the limitations of knowledge and the impossibility of such mastery and the increasing specialisation of the study and pursuit of sciences in modern times, it is still useful to try to make a fairly comprehensive list if only to assist us in properly understanding and appreciating our dire needs and the Divine resources at hand.

Air.—We are popularly said to be alive only so long as we breathe. In fact, according to popular and by

no means incorrect notions the stopping of breathing is the unmistakable sign of death. We cannot therefore do without the atmospheric air for our breathing. We cannot live for five minutes without breathing. It is wonderful to contemplate how in the scheme of creation this atmospheric air is necessary for all living beings and especially for man has been provided so as to envelope the earth for a distance of several miles from the surface. In this discourse, we propose only just to point out those sources and we must necessarily reserve for future discourses to deal with each of them with the requisite particularity.

Earth.—If we should contemplate only for a minute this wonderful and variegated globe called earth with dry and solid land and salt seas and rivers and hills, we shall be able to appreciate what all we owe to this earth. Even in the matter of keeping us men alive and healthy is itself well known that the food that we eat has to contain various kinds of substances for our maintenance. They are both vegetable and mineral products. In the case of non-vegetarian, there is also the animals and birds and fishes, etc., which are consumed. All these are provided ultimately only by the earth. No wonder that our ancients accorded to earth the dignity and importance of a *patient* and *gracious* Goddess. What is there that man needs not only by way of food or otherwise for his comfort and convenience which is not ultimately derived from the

earth. Thus, it will be seen that the earth is a second great element as it is called which man rightly or wrongly supposes to have been created for his special needs.

Fire.—This also is one of the *Pancha Boothas* or five elements which are so called in ancient Indian Books, as specially made part of the creation and specially provided for man's life and health. The discovery of fire and the various means of utilisation of it for the service and pleasure of man goes back to a time in antiquity, indeed to the beginning of the appearance of man on earth. The uses of fire are infinite. The process of cooking which all men who have entered the portals of civilisation have adopted uniformly, would not be possible without the help of fire. Fire is light at night. In very cold places even existence will be impossible without fire. Its uses are infinite. Its abuses also are infinite.

Water.—It would seem that a man can starve for many days together without any food, but it is to be noticed that even those who go on hunger strike cannot refrain from drinking water. We generally speak of hunger and thirst, but while the former is bearable the latter is not. But uses of water in the human body are many and varied. It is only by frequent supply of water that beginning from the process of digestion to the flow of blood in the body and even for the maintenance of normal temperature, water is indispensable for man. In all its three states, its normal condition as a flowing liquid, and its conditions as snow and ice and in its gaseous

conditions as mist and steam, this so called element called water purifies all living things on earth the value of which cannot be exaggerated. It is the waters that purify the world and purify man also.

The fifth element according to ancient Indian thought is what is called *Akasa*. It is often regarded as mere empty space. It is an incorrect view. It is the latest discovery of Western Scientists that there is no such thing as empty space but even what we call by that name is filled with ether, electrons or other shining particles. The word *Akasa* will be seen to be connected with the root 'KAS' which means to shine. It is now also established that what we call *Akasa* is every where filled with electric currents. The sun's rays also reach us only through the *Akasa*. Even the Western Scientists have not yet sufficiently discovered and formulated the influence on our body of electrical currents which are moving in space. In an old *Upanishad* it is clearly indicated that even like atmospheric air electrical energy which is there called by the beautiful and appropriate name of "*Vaid-yutha*" is absolutely necessary for human life and health. There can therefore, be no doubt that *Akasa* which is called the fifth element or *Bootha* is also instrumental in making contributions to the life and health of human beings.

Sun.—The sun is the greatest purifier and in fact the source of all vitality. The sun's rays also, therefore, in all forms and transformations are a great source of human health.

The Moon and the Stars.—It seems probable that as sun light is necessary for all kinds of life, even so periodical darkness may be equally indispensable for health, in itself, and not merely as being propitious to sleep. The light of the moon *albeit* reflected is regarded as influencing the growth and health of plants. Its effect on living beings and men does not appear to have been discerned or determined. It is no doubt believed by most Hindus that the Stars and Planets exert a great deal of direct influence not only on the fortunes of men but also on their health and happiness. It may well be doubted even though it cannot be denied that planetary positions are at any rate indications of what is to happen. Whatever it may be, he must be a bold man who takes it upon himself dogmatically to deny that the moon and even the stars have no influence whatever on human life.

Climate.—Climate is another indubitable source of health. No doubt it varies from one part of the earth to another, but climate is always such that its changes from season to season is calculated to be propitious to human health. Persons born in one climate may be expected to thrive best in that climate. Changes in the climate conditions of different places or parts of the earth and in different seasons are all calculated to be necessary for human health and happiness. We all know that if there were no summer, there can be no winter. The effects of different climates on different bodies at different times and in different

ages is a sphere of enquiry into which comparatively little has been done.

Pleasures.—Pleasures of life including the comforts and conveniences provided by the enjoyment of luxuries and participating in entertainment also contribute in no small degree to the health of persons.

Medicines.—The medicines pertaining to all systems of curative sciences are undoubtedly discoveries made through the ages for the purpose of being prepared and administered to man for curing him of particular diseases. Those discoveries undoubtedly represent the result of long experience and careful experimentations. I have heard it said that there is not a single plant or mineral which cannot be pressed into the services of man's health by proper treatment preparation and combination. Many of the rare medicines for the health and longevity of man have been kept hidden as inviolable secrets in our country that there can be no doubt that owing to unfortunate mentality many valuable recipes have been lost to humanity. Research therefore should be directed not only to the discovery and inventions of new remedies but also to the rediscovery of lost or forgotten prescriptions.

Surgical Operations.—The principle underlying the treatment of diseases by physicians is different to the operations performed by surgeons, major or minor. The underlying principle of surgery may be stated to be the removal of parts of the human body which have become diseased so as to prevent the diseased portion from further contaminating

or poisoning the organism and also to put back deranged organs and limbs back into the natural manner so as to enable them to regain the function with the help of the organism and its undoubted curative powers.

Mind.—The part which is played by the human mind in the cure of diseases has not yet come to be sufficiently appreciated. No doubt in recent decades, many doctors have not only realised the psychological helpfulness of the mind but also to coax the patient psychologically to co-operate with the doctor in effecting a cure. One may well wonder whether there is anything connected with the human body which cannot if not directly at any rate indirectly be achieved by the human will. The will to be well may some day come to be recognised as a more efficient agent in effecting cures than it is at present supposed to be.

Good Habits.—The formation of habits by man is perhaps one of the most wonderfully beneficent achievements of the human organism. If without forming habits, man had to think, deliberate, reason and weighing the *pros* and *cons* should be compelled to decide as to what he will do or what he will do next and how and when and so on life will become intolerable. The formation of good habits makes our organism a kind of perfect automatic machine even as bad habits are a perpetual source of bodily ailment. Good habits formed early and preserved are an invaluable aid to the maintenance of good health. Innumerable are the persons who having fallen into bad

habits find themselves unable to give up or overcome those habits, even though they are convinced that their continued indulgence in such habits is gradually ruining their constitution and health.

Conditions of life.—This cannot be ignored among the factors that contribute to human health. *The environment of man is always influencing him for good or for bad and the conditions and surroundings in which a man has to live his life are the most important factors that make for health and happiness.*

Work.—That every man should have some work to do every day is not recognised as it should be as a necessary condition for the maintenance of good health. Work is often times the greatest of tonics. Many men and women who are under no necessity to work for their livelihood are found in large numbers amongst the fashionable and rich members of society whose daily occupation would seem to be perpetually complaining of one ailment or another.

Recreations.—Exercise, of all parts of the body, in gymnastics, sports and games are generally recognised as indispensable for the maintenance of health. Entertainments and amusements and the pursuit of hobbies contribute to the daily recreation which is so necessary for the health of the mind.

Leisure.—The place and function of leisure in human life had not been properly understood. Mere cessation of work is not leisure, nor indeed being engaged in active pursuit of pleasures in places of sport

or entertainment. Nothing can be said to be real leisure in which there is not the characteristic sense of detachment and peace of mind. The expression *Santhi* in Sanskrit with regard to which the prayers of man are so insistent and recurrent really connotes that ideal leisure which alone at any rate in the hurry and breathless speed of modern civilisation is calculated to save him from being worn out.

The Divinity within.—Though last it is not the least of the sources of human health. If our conception of God is that of an Almighty, it must follow that the realisation of the divinity within each man by himself could and should be turned into the most effective means of not only curing oneself of diseases and ailments, but also of securing health and happiness. Prayers, vows and the like when they are not merely psychological are in their true nature the process by which man is more or less enabled to invoke the divinity within him to help to bring about the coveted condition.

Conclusion.—We have, in the course of this article, referred to a large number of things as sources of health. There may be and are indeed many other sources. It is not pretended that the enumeration is exhaustive. The attempt has been merely to indicate the various ways in which man is helped in this earthly life to maintain himself in health and consequent happiness. Every one of these heads which have been indicated would for an adequate understanding of their nature and application require in the sequel a more detailed exposition.

HISTORY OF PHYSICAL EDUCATION

BY

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FROM my experience as a school medical officer, I mark a steady deterioration in the health of the boys I examine. Causes there are many, that contribute to this hapless condition, but chief among them I consider, lack of proper nutrition and lack of proper physical training of the boys—though the lack of proper moral training requiring conservation of energy cannot be given the go-by.

In this article I shall confine my observation to items of physical education and shall try to give a history of Physical Education all over the world, touching briefly upon the history of physical education among Indian girls.

History of Physical Education

A sound mind in a sound body is no doubt a maxim current among all classes of people and no one now thinks of questioning its validity. But few there are who care for it or know how the history of physical education grew up.

From the very ancient times, the culture of the body was the *sin qua non* of the national life of the people, as might and not right had been the principle on which one tribe fought with another. There had not, however, been any attempt to undertake physical exercises except in so far as was necessary for military purposes.

Opinions differ as to where this science had its origin; but many ascribe to the Chinese, the credit of introducing scientific physical culture in the country under the name 'Kanfoo'.

It resembles more or less the system of deep breathing, sitting in different postures practised by the Hindu *Rishis* of old. This system gradually spread itself into Japan, Persia and other countries of Asia. Some, however, hold that the Egyptians had a special sort of physical exercise in vogue, which became current later on in India, Persia and China. The 'Kanfoo' system of physical exercise attracted

the notice of the Greeks and the Romans, and was later on introduced in all the countries of Europe.

A systematic culture of the body was, however, followed by the Greeks who opened many gymnasiums and centres of physical training, and to gain bodily strength they encouraged such games as racing, jumping, swimming, 'discus' throwing, spear throwing and so on. The name gymnasium had its origin in 'Gym'—the practice of taking exercise in a bare body within an enclosure surrounded by walls. Exercises on Parallel Bars, the Horizontal Bar or the Trapez were also introduced, as they helped in the development of a handsome physique. Acrobatic feats and ground plays had also been introduced by the Greeks. Even the Olympic games that are so famous now, had their origin in Greece.

After the Greeks, the Romans introduced gymnastics among the soldiers. Wooden horses were constructed to teach the horse soldiers the different tactics required during an actual fight. These wooden horses are the Long Horses or Pommel Horses of the present. This training gradually shifted to the sons of the soldiers who showed different physical feats to the public and formed themselves into parties called 'Circus Parties', and they had to move about from place to place. In this way, the public became interested in these activities and a tendency grew up among them to build up their bodies.

Even in the middle ages, in Europe, there had been tournaments among the knights for which they had to undergo a systematic train-

ing. These knights were recruited from the public as possessing a good and hardy physique and strength.

Gradually, however, as the world grew more and more materialistic and made a rush for money after the industrial revolution of the 18th century, this culture was left uncared for, and only the low class people tried to please the public by showing physical feats for what paltry sum they could thereby earn for their livelihood.

While thus the urge for physical culture was at a discount among the public, a band of well intentioned persons took up this subject and tried to set up a movement in its favour, as they were fully convinced of its utility. Among these persons the following few were the most important:—

Mr. J. B. Basedow, J. C. F. Guttmuth, J. F. Pestalozzi, E. J. Saltzman, Luduiq John, Adolf Spicess, Henrick Ling and Franz Nachtigall.

They tried to improve in their different ways the different systems of training the bodies. Their attempts resulted in the special form of Swedish drill, which is now in vogue throughout the whole world. The Scandinavian General, Sir Victor introduced this system of drill among the boy soldiers and it has been highly spoken of as an efficient system of military drill all over Europe and America.

(1) J. B. Basedow (1728-90): Had been a school teacher. He was much concerned at the breakdown of the health of the students and tried to devise means by which their

mental and physical development might go hand in hand. With this end in view, he wrote several articles suggesting the need of physical culture from the very boyhood of the young learners. He was the first writer in Europe on the physical education of the boys.

(2) J. C. F. Gutmuth (1751-1839): He was also a German school teacher. He was the first man to suggest that the mode of taking physical exercise should vary with the age of the persons taking it. He also spoke about the exercises best suited to the preservation of body heat and circulation of the blood. He established a 'Gymnasium' where many enthusiasts of physical culture of Sweden, Holland, Denmark and France had their lessons in physical culture.

(3) J. F. Pestalozzi (1746-1827): He was a Swedish teacher. He was a collaborator with Gutmuth and advocated free-hand exercise among the boys and girls of all ages.

(4) F. Ludwig John (1778-1852): He was also a German doctor. He improved upon the system of Dr. Gutmuth whose pupil he had been. His system is in vogue throughout Germany, and it is called "Turnen". All other systems in Europe are but modifications of the Turnen system.

(5) P. Henrick Ling (1776-1839): He was the first man to inaugurate a Swedish system of physical exercise, based on physiology and anatomy. The Association established by him is even now considered as the best centre of physical education. Dr. Ling also proved that there is a

close connection of dancing and music with the exercise of the body.

(6) Franz Nachtigall (1777-1847): It was at his instance that physical education was introduced in Denmark. He saw the great possibilities swimming had in the matter of developing the body.

(7) Flolion Clias (1782-1855): He was a doctor of Switzerland. He first tried to introduce the new system of physical education in England and wrote many articles on the subject.

(8) Francis Amaros (1770-1848): He was born in Spain and came to France for higher education. He tried to introduce the system of Pestalozzy in France and also for its spread in Spain. He tried to combine free-hand and mechanical exercises together.

(9) Adolf Spicess: He was a German teacher. He was the first man to introduce physical exercise among school children. He proved scientifically that there should be certain modification in the system of physical exercise for the girls and averred that exercise would go to develop the physique of the girls.

(10) Archibold MacLaren: (1810-1884): He was an English physical culturist. He first spoke about the necessity of keeping a record of the different measurements of the limbs of the body to detect its gradual development as a result of the exercises.

This wave of physical culture reached America in 1824 and in 1840 schools for physical culture were established in Northampton, Harvard, and Boston, at the instance of

certain youths, Charles Beck, Charles Folen and Francis exiled from Germany to America.

The movement of physical education was, for sometime, restricted in Germany and Sweden, till towards the end of nineteenth century. Professor Mazarik, Milan Stephanie, and Dr. Benes began a movement in mid-Europe with the Czechoslovaks. The name of the movement is called *Sokol*.

Thus, this growing tendency to foster physical culture led to the re-introduction of the Olympic games. People from all over Europe and America joined this, and it was supported by all States of Europe. This need for physical exercise was further stressed after the last Great War and endeavours were made to find out a system of physical training even for the physically defectives and the maimed!

India herself has been touched by this movement and different schools for physical instruction under private enterprise have grown up. It is unfortunate to note that these ventures have not yet succeeded in enlisting the sympathy of the richer folk and they lack the monetary support that they otherwise could claim. India requires more and more schools under private and government control to absorb the youths of the soil so that a healthy race may develop in future, for on this alone depends the future well-being of the land.

For the people to grow up into a healthy race, healthy mothers are needed, and healthy motherhood presupposes health giving activities in the girls.

Their physical education, therefore, should not and cannot be neglected. This truth had been recognised by the Indians of the past and we find such heroic ladies like Rani Durga Bati of Central Provinces, Rani Tara Bai, Rani Ahalya Bai, Rani Bhani of Nator, Devi Choudharani of Rangpur and Rani Lakhi Bai leading and inspiring troops to the fight against trained soldiers of mighty adversaries.

Readers of the tales of 'Rajput chivalries' are aware of many physical exploits of Rajput girls who bravely fought in the battles and at last immolated themselves in the flames when victory, or all chances of escape from their foes, seemed remote or impossible. (Padmini) of Rajaput Mewar is a well known instance.

During the Muslim period the ladies bade farewell to all outside activities and locked themselves up within the four walls of their family compounds. As a result, they ceased to take part in all physical activities except so much as was needed for their house-hold work. Their state of affairs went on throughout the Muhammadan rule, and all sorts of activities by the ladies of respectable families, even their outings, were tabooed by the heads of the Hindu societies. But, with the advent of the English and the restoration of peace and order in the country, there grew up among the people a sense of security, and the introduction of education among women did not go without response. Missionaries, both American and English, introduced drills and other physical sports among the girls in

their schools; but it was not immediately possible to wake them up from their lethargy or traditional ideas. Even the show of physical feats in some circuses by a few athletic women did not get the commendation it deserved, as the latter did not belong to 'respectable families'.

So, slowly but steadily grew up a school of thought that advocated the introduction of physical activities among the girls.

This idea was taken up in Bengal first, and Srijukta Sarla Devi Choudharani inaugurated the Birastami celebration, wherein physical feats were shown by the boys as also a few girls who joined in it. The girls henceforth learnt how to use daggers, long sticks, and other weapons so that they might save themselves from ruffians or goondas. These girls were taught by the disciples of Pulindas. In this way, gradually, sports and games found their place in class-routine of girl schools and some ladies even joined sports like tennis.

Rajkumari Amrit Kaur even joined the open competition in Tennis. In this connection the names of Leila Row, Miss Dinshaw and Miss Dubas deserve mention.

Before 1924 the activities of the girls in sports were confined within the four walls of their respective institutions; but in this year Mr. N. Ahmad, organiser of the Bengal Athletic sports included the flat race for girls as an item. The Cue, thus offered, was next taken up by some gentlemen who later on organised sports for the girls in their 'Ananda Mela'. This led to the adoption of drills on a wide scale among the girls.

Some gymnasia were thus established for the girls in 1928, and the parade of girl volunteers in the Calcutta session of the National Congress in 1928 excited interest, and girls began to join in general athletic sports. In 1935, even college girls joined in the sports, and almost all the women colleges in India organised sports.

But, though the girls of India have made rapid strides in sport, still, in general physical exercise entailing a harmonious growth of the body and its strength, they lag far behind the girls of other countries. The main reason lies in a lack of proper lady trainers. The few organisations that train such teachers are run by missionaries and it requires funds to be members thereof. Only a few years back, some centres had been opened to train girls in 'Asan Vyayam' (Ground exercises). Many girls are being trained in these centres.

Besides these physical exercises, girls are even setting up records in swimming. Of these, the names of Bani Ghos, Lila Chatterjee, Sukhlata Pal, deserve mention. They took part in All India Swimming Competition.

Of the foreign games, Basket-ball, Valley-ball, and Tenny-quoit are in vogue among the girls. In all girl colleges and schools, these games are played. If the girls now keep alive this tendency of building up their bodies, we may expect healthy motherhood and healthy children, and then can we stand up before the world and say that the Indians are not behind any other nation in physical strength and hardihood,

DODGING THE TUBERCLE BACILLUS

PROTECTION FROM INFECTION
BEGINS WITH THE PATIENT—
MASKS AND SPRAYS OF DOUBTFUL
VALUE BUT ETERNAL VIGILANCE IN
HYGIENIC PROCEDURES PAYS OFF

BY

EZRA BRIDGE, M.D.

TUBERCLE bacilli don't come at you with flashing lights, shrieking horns or ringing bells; they lie around and wait for you in places where live careless tuberculous persons. They are sneaky devils and hard to keep in their proper place, which should be 10 feet under ground.

Tubercle bacilli have no wings, so flying is out; they lack pedal extremities, so they cannot amuse themselves by creeping, crawling or jumping from one place to another. They get around in the gentlest way imaginable. They ride for the most part in droplets of moisture or in a semi-dried state on moving currents of air such as blasts, breezes and sneezes. They tend to dry up and die; they live longest where it is dark and moist.

To travel in this manner the moving particles must be small. Most often they are part of a droplet too small to see. Sometimes they travel in larger droplets, but the smaller

the particles the greater the potential danger. To do damage they must reach the smallest part of the lung, the alveolus, that part where oxygen and carbon dioxide interchange.

DANGER TO ALL

The presence of tubercle bacilli in the air we breathe is a danger to all of us. Years ago, this danger was greater. That was when the percentage of infection was higher. Now we dream of an environment free from these human invaders.

HYGIENIC PROCEDURES

Among plainly indicated protective procedures are the use of paper-receptacles for sputum; the burning of sputum; the sterilization of sputum cup holders, dishes and utensils used by patients; careful washing of linen, blankets and furniture; damp dusting; vacuum sweeping; floor cleansing and waxing, and washing the hands whenever there has been an opportunity to become contaminated. Placards with the message "Wash Your

THE AUTHOR



Dr. Ezra Bridge is superintendent of Iola Sanatorium, Rochester, N. Y. He is past president of The American Trudeau Society and a former member of the National Tuberculosis Association's Committee on Medical Research. His article is a contribution from The American Trudeau Society's Committee on Medical Information, of which he is chairman.

Hands" in examining rooms, wash rooms, bathrooms and over every wash basin are a constant reminder of the problem.

PROTECTING OTHERS

The patient with tuberculosis must cover his mouth and nose when coughing and sneezing and must spit any sputum raised into proper receptacles. This is the one definite "must" and bears repeating over and over. It controls infection at the place of origin and is similar to the practice of surgeons in handling an infection; it tackles the infection at its source. If the patient practices proper control of cough and sputum, the need for other complicated and questionably safe techniques will diminish.

Everyone, whether in a hospital or not, should observe this pulmonary hygiene. Coughing and spitting is second nature to many people. To muffle each cough requires constant vigilance and watchfulness. For years people have been too careless in this matter. Children, adults, young middle-aged and elderly do not appreciate the infectiousness of the cough and sneeze. It is time they did. Teaching this habit to the patient is the responsibility of the staff, employees and trained patients.

The doctor must explain to each patient on admission the infectious nature of tuberculosis, emphasizing that it was caught from someone who was careless with his cough and sputum. He must show him how to cover his mouth and nose and how to use the sputum cup, so as to avoid infecting the air around.

When he examines the patient he must insist that the mouth and nose be covered. The nurse must continue this instruction at every opportunity.

REPEATED LESSONS

Now the struggle begins. Every time the patient breaks this technique the lesson must be repeated. If he persists in being careless, and therefore dangerous, his room mate must help. If the desired result is not obtained, the incorrigible must be placed in a single room under strict isolation technique and be kept there until he observes these simple rules.

Much can be done to keep everyone in the hospital conscious of the necessity of controlling cough and sputum. Talks referring to the subject over a loud speaking system can be made frequently. Placards in rooms, reminding of the danger, are a help.

But more can be done. The need to cover the mouth and nose when coughing and sneezing is universal. Respiratory infections are the misfortune of everyone. They can have dire consequences. The common cold is well named—common because people neglect to cover the cough and sneeze.

UNIVERSAL CAMPAIGN

An universal campaign against this infection of the environment is needed. It should be nation-wide and continuous. The message should be seen in newspapers, heard over radios, billboards should show it, periodicals portray it, car and bus cards carry it. The message need not be more than 10 to 15 words in length.

National advertising is interested in campaigns for USO, Community Chests, sale of savings bonds, small businesses and free enterprise. Think of the benefit from a campaign to stop the spray of infected mouth and nose droplets! Not only would the spread of the disease be slowed but the seasonal surge of

diseases like the common cold, influenza, measles, whooping cough and pneumonia would diminish. It would be possible to go to a movie without having a germ-laden spray hurled at one from behind and consequently having to suffer from the other fellow's respiratory infection.

(With acknowledgment to the National Tuberculosis Association, New York.)

Robert Louis Stevenson (1850-94), who died and was buried in Samoa far away from his native land, once said that it is not a hard thing to know what to write; the hard thing is to know what to leave out. Stevenson died of apoplexy but for many years he had been an invalid travelling all over the world in search of health. The chronic disease from which he suffered was tuberculosis. Had his remark been intended to apply specifically to this disease which restricted his activities and ruined his enjoyment of life, it would have been strictly appropriate.

At one time tuberculosis was first among the causes of death; although it is now in seventh place, in 1936 it caused the death of over 70,000 persons in the United States. It is therefore infinitely more important than for instance anterior poliomyelitis which in the same year was responsible for 780 deaths. Although much is known about its cause and prevention, far more than is known about poliomyelitis, it has certain phases about which we are still quite ignorant. Hence it would be impossible to guarantee its complete eradication within a given period of years, largely because tuberculosis is more than a purely medical problem. As will be shown, it is a social and economic problem as well.

In its long history tuberculosis has killed not only millions of human beings but also millions of domesticated animals, principally cattle. The form of tuberculosis which attacks domesticated cattle does not affect wild animals, living in the open, under natural conditions, but is readily transmissible to man. In addition, man is susceptible to his own particular form of tuberculosis which, under ordinary conditions, however, is not transmissible to cattle. Just as the bovine type spares wild animals, so too the human type of disease spares man living in the open under primitive conditions.

The animal fresh from the jungle is just as susceptible to primary infection with tubercle bacilli as the animal in the zoo, and the nomad and the farmer are no more resistant than the clerk. Strenuous living, however, stamps out tuberculosis by killing its victims. Under natural conditions, it is not resistance to infection that is increased, but opportunity for contact that is decreased. Furthermore, tubercle bacilli deposited in the open are also subjected to the lethal effects of the forces of nature, being quickly destroyed by sunlight and drying. Thus opportunities for indirect transmission of infection are also reduced. We may therefore conclude that tuberculosis did not afflict cattle until after they had become domesticated, nor man until he had become partly civilized, the two events being practically synchronous. This conclusion is supported by observations on the present incidence of tuberculosis among wild animals of all kinds and among tribes living under primitive conditions. Among these it is practically nonexistent.

(Extracts from "Bacillary & Rickettsial Infections", by William H. Holmes.)

HANDBOOK FOR CITY EMPLOYEES

INDIFFERENCE, inefficiency, lack of co-ordination, discontentment are some of the features which one observes among employees, particularly among the municipal employees. It is not infrequently that a 'superior officer' resents questions being put by a 'subordinate officer' to clear up doubts. This resentment on the part of the 'higher authority' bespeaks mostly of his ignorance of the subject under discussion!! The incompetent 'superior officer' taking advantage of his relative position in service, often retorts:

"This is a simple problem which *you* as the officer on the spot, should be able to solve without approaching *me*!"

If the subordinate persists in having his doubts cleared, the next confidential report on him would damn him for ever. An entry would be found in it, to wit, 'this subordinate officer is incompetent to handle *simple* local problems and has a knack of approaching *higher* authorities for directions at every turn.'

The 'superior officer', not only resents questions being asked by a subordinate but also fights shy of discussions on technical and other matters with anyone!

The following extract which we have taken from the *American City*, January 1946, will help our municipal administrators to think and act. There is no reason why we, in India, should not provide such handbooks relating to the working of *each one*

of our municipal activities. The example is worthy of emulation by the State Departments as well.

(Ed., P.H.)

An employee who knows exactly what his job, duties, rights and privileges are, is happier and more efficient than one who does not. The City Service Commission of Milwaukee, Wis., accepts this fact and has acted to help every city employee by collecting questions most often asked by new workers and presenting them, together with general information concerning the organization, in an excellent 24 page booklet entitled "Your Job with the City of Milwaukee". The authors point out that the pamphlet is not a book of rules, but is offered "in the hope that it will answer many questions on which you may desire information and that doing this may foster and encourage a spirit of enthusiasm and loyalty for the service of the City."

The booklet is divided into the following sections. A Word of Greeting: What is the City of Milwaukee?: Your Place in the Organization: Questions you may naturally ask (which include tenure, group insurance, transfers and promotions, vacations, etc.): Duties and Responsibilities; and the Conclusion. In greeting the employees the commission says, "Every worker has a right to know about his relationship to the city, about his duties and privileges as an employee, about what the city is doing, and about the 'why and wherefore' of his job." The new worker is especially cautioned always to ask his superior about questions which puzzle him and thus avoid the costly errors of guessing.

The organization of which the worker is a part is defined as a "municipal corporation" with much the same rights, powers, and responsibilities before the law as any corporation in the business world. The main difference is, of course, that the people of the city and not stockholders, customers or depositors, are the employers. Within the Corporation, the handbook points out, each worker is responsible first and foremost to his immediate superior and should take any questions or grievances

to him and not to a higher officer, since each office has its own functions, responsibilities and line of authority.

PRIVILEGES AND RESPONSIBILITIES

Queries most often addressed to the City Service Commission are presented in brief question and answer form and they cover a wide field. Among the privileges, are security of position, seniority rights, pension rights, pay adjustments, sick leave and vacation privileges, rights in case of lay-off due to lack of work or funds, right of appeal from disciplinary actions, relationship to employee organizations, and opportunities for promotion. The answers are brief but explain clearly the reasons for the policy concerned.

The privileges of the city employee carry with them certain responsibilities which are

discussed next. First it is pointed out that the worker must "regard the service of the city as a trust" and must not only do his work properly but co-operate in every way to make Milwaukee a finer city. In his relationships with the public, the city employee must respect the confidential aspects of the city's business and avoid answering questions on which he is not informed. Each position has responsibilities and obligations of its own which must be recognized, the handbook emphasizes.

In conclusion, the booklet points out that the material offered is not a set of specifications, but is rather a suggested course of co-operation. Each employee must bring to his job his own initiative, loyalty, and ideals which will make him a respected member of the organization.

THE INFLUENCE OF ENVIRONMENT.

YOUR SCHOOL A TRAINING GROUND FOR THE FUTURE

At first, your school merely extended your home experiences. Up to the time when you started to school your world consisted largely of your home; then suddenly it was enlarged to take in your school. In your new environment you needed to make adjustments to new individuals and to a new way of living. Gradually you learned to look to your teacher for guidance, and in a sense she took the place of your parents during the day. Once you became accustomed to the changed conditions and acquainted with your schoolmates, you found school a very delightful place.

From those early days in school down to the present time, you have acquired much knowledge and developed a variety of abilities and skills. Through such courses as English, history, civics, mathematics, science, and health you have learned much about yourself and the world around you. Through such courses as music, art, and literature you have come to appreciate the richness and beauty in life, and through vocational courses you may have acquired practical methods of using your hands.

In school, as at home, you have learned to associate agreeably with others to obey rules, and to make adjustments to those around you. From experience in clubs, athletics, and the like you have learned the value of teamwork or co-operative effort. Through health courses, the efforts of the school physician and nurse, and gymnasium work you have come to appreciate the importance of health and have learned practices which you should observe in order to keep physically fit. Thus, all in all, your school has been a training ground for rounding out your total self, both for the present and for years to come.

Extract from "Life and Health" by Wilson—Bracken—Almack.
Publishers: The Bobbs—Merrill Company: Indianapolis—New York.

PRINCIPLES GOVERNING SCHOOL LUNCHES

The Joint Committee affirms the following fundamental principles governing the school lunch:

First, that the school lunch, contributing as it does to the child's nutrition, is a fundamental factor in the general health of that individual and, therefore, necessarily becomes a part of the school health program and, therefore, of the educational program as a whole.

2. The school lunch inevitably contributes positively or negatively to the child's education and, therefore, constitutes a vital part of the child's educational experience.

3. Since many pupils, especially in rural areas served by consolidated schools, live too far from school to go home for lunch and many children of working parents eat lunch away from home, the school lunch occupies a place of great importance.

4. The school lunch should be planned primarily for its nutritional and educational significance and should not be used as means of making profit for the school or for a concessionaire. In some instances where children cannot pay the full cost of their lunch, arrangements must be made for feeding certain children free. In other instances, all children may have to be fed at a deficit which may have to be met from outside funds or by the utilization of available foods (surplus, or donations) for which no payment in cash needs to be made.

5. Because of its nutritional and educational implications, the school lunch should emphasize foods of fundamental nutritional importance. Candies and soft drinks are not in themselves objectionable unless emphasized at the expense of basic foods or unless they are exploited for profit.

6. The sanitation of the school lunch is important because of the immediate harm that

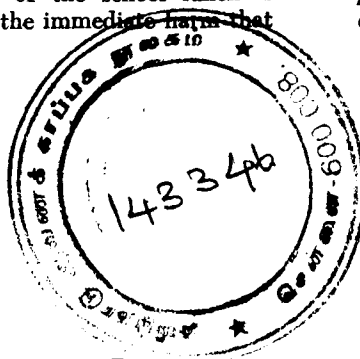
can result from contaminated, spoiled or infected food. Even when no demonstrable catastrophe occurs, the slovenly or unsanitary handling of food is an unfavourable educational experience for those who participate in the serving or consumption of food under unsatisfactory or other undesirable conditions. The sanitary requirements for school lunches have been set forth by the Joint Committee in another publication entitled "Sanitary Requirements for School Lunches."

7. In view of the educational significance of the school lunch, the Joint Committee believes that regardless of the source of funds, food supplies or other contributions, the administration of the school lunch program should be a function of the department of education, with sanitary supervision by the department of health. Financial aid from outside sources should be made available under conditions which do not interfere with local control of the projects to meet local needs.

8. Every advantage should be taken of technical assistance available, from state or federal sources if such technical assistance is not available locally. Continuous efforts are necessary to provide more trained persons for work in connection with school lunches.

9. The popular principle of a hot dish with the school lunch does not in itself assure a significant contribution to the child's nutrition unless the hot dish is composed of foods which tend to make a balanced diet when eaten in conjunction with the customary box or paid lunch, consisting of sandwiches and desert. In certain localities and at certain times of the year, a fruit or vegetable salad would be far more valuable than merely serving a hot dish.

(With acknowledgment to: Joint Committee on Health Problems in Education, representing National Education Association and American Medical Association).



CONTROL OF WATER SUPPLY MEANS THE CONQUEST OVER CHOLERA

BY

DR. M. A. BEG

District Medical Officer of Health
Gangapur
Jaipur State
Rajputana



I am relating here my personal observations and control of cholera in the eastern parts of Rajputana viz., the district of Sawai Madhopur in Jaipur State. This district is adjacent to the western districts of United Provinces and southern districts of the Punjab. Average rainfall in this district is over 30 inches and falls mostly in the months of July and August. Since January 1944, when the Public Health Department was separated from the Medical Department of Jaipur State, strict vigilance was exercised to control and eradicate cholera which was a scourge every year. This area was personally controlled by me continuously for four seasons.

A professor used to say, "We eat cholera, we drink cholera and we defecate cholera;" and this has proved cent per cent true in this area. The main source of water supply is from the wells and to some extent from the tanks. Indiscriminate defecation by the people, here, there and everywhere, is primarily responsible for the propagation of the epidemic. The rain washes down the matter contaminating the water supply source. The first line of defence is the protection of our water supply from such contamination. Consequently, the construction of modern sanitary latrines, should be an easy way of preventing contamination.

5

During the epidemics of 1944-45, the following measures were adopted vigorously and the result was that the cholera disappeared within the maximum incubation period.

- I. Isolation of cholera cases.
- II. Anti-cholera inoculations.
- III. Bedside and House Disinfections.
- IV. Daily administration of Tomb's mixture in prophylactic doses to the contacts for seven days, viz., the maximum incubation period till the immunity is developed. This also helps to counteract the developing cholera symptoms.

V. Sterilization of water supply:

These proved most successful in combating the epidemic. The inhabitants were neither allowed to lower their own vessels into the sources of water supply nor were they permitted to bathe and wash their clothes by their side. For this purpose guards were stationed near them. The wells were regularly sterilized with bleaching powder, so that during the epidemic the supply of safe and sterile water was assured. This resulted in the immediate disappearance of cholera.

During the years 1944 and 1945 cholera proved a great menace, and the experience

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of these years led to the conclusion that it was only the contaminated water supply which took a toll of numerous lives in this district. In the year 1946 before the beginning of cholera season, intensive preventive measures in the form of fortnightly disinfection of each well was done in the whole district. Not a single case of cholera occurred in the district. Similar vigorous measures are being adopted during 1947 and up till now, no case of cholera is reported from any part of the district.

Thus, the safest and best method of preventing epidemics is to ensure the safety of water-supply. All other methods of prevention are only of a temporary character. Disciplinary chlorination even during non-epidemic seasons has come to stay. It is a wise precaution. We have therefore to emphasize that our water-supplies should be

so developed, constructed and maintained as to avoid altogether its contamination till it reaches the consumers. I have not written new or original or wonderful ideas in this article. My purpose is to bring home to the minds of all that if people should be saved from the ravages of cholera, protected water supply is the only sure, safe and lasting method and that all other measures segregation, inoculation and the rest are but temporary palliatives.

This has proved beyond question, in my actual field experience, if proof for it, is required at all. It is lamentable that still people rest content with the so called 'preventive measures' instead of attacking the root of the problem. Control the drinking water supply to the people. Cholera is then conquered.

(Continued from page 634.)

The work and all around him suffer and the world's problems become more intricate and nasty.

Even with the modern knowledge of nutrition, of food values and of the digestive machinery most persons and especially parents continue to make the mistake of making the family meal a period of family agony.

Let us beware how we eat—physically and mentally.

If everybody made a practice of keeping unpleasant subjects away from the dining table, and of deriving a reasonable amount of joy out of eating, the world would have fewer problems to settle and the nutritionist's job would be more than half accomplished.

(From 'NUTRITION', June 1947).

Food is one of the very few solid joys of human life.—Lin Yutang.

SIGN OF CIVILISATION.

Let no cultivated reader despise these details (lavatories, sinks, sewers and manholes). There is no truer sign of civilisation and culture than good sanitation. It goes with refined senses and orderly habits. A good drain implies as much as a beautiful statue. And let it be remembered that the world did not reach the Minoan standard of cleanliness again until the great sanitary movement of the late nineteenth century.

J. C. Stobart, "The Glory that was Greece".

HISTORY OF SANITATION

BY

FRED B. WELCH, M.D.

Commissioner of Health, Janesville, Wisconsin

MODERN sanitary science is one of the triumphs of the human mind. No story is more fascinating than that of its beginning, its development and its achievements. Sanitation is as old as man, because it deals with man's environment. Sanitation is not a new science but is the heritage of thousands of years of actual experience and application.

SURPRISINGLY MODERN SANITATION SYSTEM OF ANCIENT TIMES

Ancient Babylonian excavations reveal drains and cesspools built over 6,000 years ago similar to those of the modern Arab who inhabits that country. Babylon and Nineveh had sewers to serve the entire city. Water was brought from distant points in open conduits.

In regard to the excavated City of Mohenjodara on the west bank of the Indus River, Arthur Keith writes, "this city of ancient Sind led the way; no city that can claim to be 5,000 years old so nearly approached our modern standard of sanitation as does Mohenjodara. We know how well laid were the bathroom floors, with latrines occupying recesses in the walls. We know the manner in which drains were laid beneath the house floors; they had vertical pipes which carried the effluent from the latrines and the overflow of rain water to a brick-laid drain. A water chute was cut in the outer walls of the houses, and a great conduit was laid along the street to carry away the sewage. The street drains have been laid bare and we can note the solidity of their workmanship and the even gradient of their fall. Last, we know how capacious were the main sewers, or drains, and the manner in which their roofs were arched with corbeled bricks."

Moses (1600 B.C.) wrote a code of sanitary laws which have been followed down through the ages. The ancient City of Jerusalem was sewered and possessed a water supply 800 years B.C. This city had two aqueducts, one from the pools of Solomon, and the other from the pools of Hezekiah outside the city walls. From time immemorial man has tried to obtain good water. In 2800 B.C. the Chinese were sinking wells 1,500 feet deep.

The most advanced sanitary engineering occurred on the Island of Crete, 2100 B.C. These homes of the mighty Sea Kings contains bathrooms and latrines that were connected to trunk sewers. The terra-cotta pipes were fitted perfectly one into another in a manner that few modern plumbers could duplicate.

HISTORY OF WORLD CHANGED BY EPIDEMICS

Hippocrates (460—370 B.C.), the father of medicine, wrote three books on hygiene and sanitation. In the civilizations that preceded the Grecian Empire, sanitation was more advanced than the science of medicine, which was interwoven with mystery, magic, and the powers of the gods. The Greeks separated medicine from religion and laid the foundation stones of modern medicine. According to many medical historians malaria played an important part in the downfall of the Grecian Empire. Hippocrates was the first man to describe this remittent fever and the first to observe and record that people who reside near swamps and drank water from them got fever and chills and an enlarged spleen.

In the warm summer of 450 B.C. the powerful Spartan Army was knocking at the gates of Athens. Athens was the intellectual

and artistic capital of the civilized world of that time. This city of marble temples overlooking the blue Aegean was swarming with refugees, insects and rodents. Suddenly a plague descended like a holocaust, on defenders and foe alike. This terrible epidemic stopped the war. There were no warriors to fight. The epidemic was perhaps Bubonic Plague, but there is a difference of opinion. It destroyed one-third of the people. This great civilization with all its beauty, culture and scientific attainment had made little provision for sanitation. Clean, well-paved streets, pure water and sewage disposal, the three important assets to public health, were entirely lacking.

MODERN SWIMMING POOLS DEVELOPED 2,000 YEARS AGO

Bathing developed to a fine art in Rome. Unlike the Greeks who spurned warm water, the Romans used hot water in their *thermae* and anointed the body with perfumed oils. Public baths were constructed on a lavish scale. The Diocletian had facilities for 3,200 persons at one time. The Caracalla, said to have occupied one square mile, could accommodate twice as many. The ruins of Pompeii, which was destroyed in 79 A.D., contained magnificent baths, a complete system of water-flushed latrines, and sewers. A great aqueduct supplied the city with water.

The Roman system of sewage disposal differed from that of the Cretan of 2,000 years earlier. The Roman system used running water from the city supply to flush the latrines and fill the baths, while the Cretans used rain water.

THE ROMANS WERE GOOD SANITARIANS

In no other civilization prior to that of the Roman Empire did environmental sanitation reach such a degree of effectiveness. They maintained sanitary supervision of public baths, houses of prostitution, and wine bibbling establishments. Their inspectors carefully checked the foods sold for human consumption, and supervised the destruction of food that was spoiled. They directed the abatement of nuisances, such as the disposal of dead animals and other putrescent matter. Their magnificent amphitheatres were kept

clean by slave labor under the direction of inspectors.

MALARIA'S SCOURGE DESCRIBED 400 YEARS B.C.

No disease has been a greater curse to mankind down through the ages than malaria. The comic poet and dramatist, Aristophanes (444 B.C.? — 380 B.C.?) correctly evaluates the importance of the malady when he writes: "Shivers and fevers which by night strangled your fathers." As far back as 1638 A.D., natives of Peru (South America) used Cinchona bark steeped for their fevers. Cinchona was introduced in Europe in the year 1640. What a blessing quinine has been to the human race!

Malaria (fever and ague of the early settlers) was widespread in the North-west Territory of 1787. The mosquito that caused the disease (*Anopheles Quadrimaculatus*) was observed and classified by Thomas Say, pioneer naturalist of New Harmony, Indiana, who was a member of Long's expedition that explored this territory—1823-24. It added a hardship to early Wisconsin settlers in the late thirties and early forties. It has practically disappeared from this state (Wisconsin). Why? We have the same climate; the *quadrimaculatus* is still with us; there is still plenty of stagnant water in spite of agricultural drainage, and little or no effort in mosquito abatement. Universal house screening has been a factor. Probably the most important factor has been the rapid development of our dairy industry. Hackett refers to this factor as "deviation" to domestic animals. Precipitin tests made on the blood found in the stomach of these quads show that they are thirteen times more apt to feed on cattle than on man. The rapidly developing dairy industry of our southern states is accomplishing the same results.

The war of the South Pacific is being waged against the insect vectors of disease as well as the Japs. In the midst of Jap infested jungles intrepid sanitary squads make their way, spraying everything with a solution of DDT (*Dichloro-Diphenyl-Trichlorethane*). Tons of it is being dusted by airplane, making the steaming Pacific jungles a more healthful place for our fighting boys.

"BLACK DEATH," A BIG JOB FOR THE PIED PIPER

Creeping out of Asia in the year 1346, "Black Death" crossed to Constantinople, and the Mediterranean ports (1347) and then rapidly spread over the European World. Petrarch writes, "The empty houses, the abandoned towns, the squalid country, the fields crowded with the dead, the vast and dreadful solitude over the whole world." Half of the people died. Ships without crews drifted about the Mediterranean and the North Sea. London's great plague of 1655 was ended by a holocaust of fire which destroyed thousands of vermin-infested homes. This marked the end of the plague in Europe. No other catastrophe in this world so influenced the destiny of man as did the Black Death.

The disappearance of the plague from the continent of Europe constitutes one of the mysteries of epidemiology. It was not due to an increase in the immunity to this disease because these same Europeans had a very high case rate while in India. There were just as many rats and fleas in Europe after the plague disappeared as before. The first rat to migrate to Europe was the black rat. This black rat probably arrived in Europe about 1100 A.D. They rapidly spread all over Europe, England and Ireland. The legendary story of the Rattenfanger Von Hamelin (Pied Piper of Hamelin), who piped the children into the Koppenberg, because the town refused his pay for piping the rats into Wiser, occurred in the year 1284 A.D. Whether this rat played a part in the destructive epidemics of typhus fever that accompanied the wars of the Middle Ages is uncertain. That it was a causative factor of the "Black Death" there can be no question.

Just as the dynasties of North Europe were displaced by the barbarians of the East, so the established position of the black rat was destroyed by the fierce, short-nosed, short-tailed, larger Asiatic rat, which in 1727 swam the River Volga by the thousands and rapidly spread all over Europe and the New World. Being the most ferocious, it has replaced the black rat wherever it has gone, and wherever it has gone it has disseminated plague, typhus fever, infectious jaundice, trichina, rat bite fever, and many other diseases.

EPIDEMIOLOGISTS LINK INSANITA- TION AND DISEASE BEFORE BACTERIAL THEORY IS ACCEPTED

Sanitary consciousness began to make itself manifest about the middle of the 18th century. Edwin Chadwick (1800-1890), a lawyer, became interested in sanitary affairs by serving as secretary of the Poor Law Commission in England. He became impressed with the fact that poverty and disease were related, and physicians were employed to investigate the connection between the two. Dr. Thomas Southwood Smith gave a report of these findings in the year 1838, and in 1842 Chadwick published a report on the sanitary conditions of the laboring classes. This report had a profound influence on the Public Health Act—(August 31, 1848).

In the year 1854, an epidemic of Asiatic cholera occurred in England. This epidemic is important because it marks the first epidemiological study of disease. The route of spread of the infection in the City of London was noted by Dr. John Snow who had been appointed a member of the cholera investigating board. His recorded studies showed that all of the fatal cases occurred in the neighbourhood of the Broad Street Well, and that most of these cases had drunk its water.

Max Joseph Von Pettenkofer is one of the outstanding men in the field of environmental sanitation. He came to the City of Munich, Germany, at a time when typhoid fever was epidemic. At that time the city was honey-combed with poorly constructed privy vaults which polluted the water of the shallow wells from which the inhabitants obtained their supply of drinking water. Pettenkofer induced the city to build a system of sewers and also to obtain a safe water supply. The result was a marked reduction in the typhoid morbidity rate.

In the year 1858 the River Thames developed an obnoxious stench. A smell so offensive that steamboat men on the river suffered from headaches and nausea and the atmosphere of parliament could be rendered tolerable only by suspending sheets soaked in chloride of lime before each open window. The stench lasted for two years and was caused by the discharge into the river of the untreated sewage of several millions of people. The idea that filth caused disease dominated the

scientific mind of the time. Putrid odors from decaying animal and vegetable matter was believed to cause dysentery, diarrhoea, typhoid, cholera and many other contagious diseases. The foul odors were expected to cause a marked increase in these diseases, but to the surprise of the "experts" there was a marked decrease in the prevalence of these diseases. This event is important because it exploded the false idea that filth caused disease.

Science was rapidly changing man's surroundings, making life safer and easier. Sanitary homes with improved ventilation and heating, soap and hot water, improved washing equipment, bath tubs, and steam laundries increased personal hygiene, and banished the flea and louse from man's environment. The rats, the fleas, and the lice had been the companions of man down through the ages. They played their part in the history man was making. Their elimination constituted the greatest triumph of man's struggle against his environment. Great strides were made in municipal sanitation. Life was being made safer and easier.

ACCEPTANCE OF BACTERIAL CAUSE OF INFECTION RE-EMPHASIZES ROLE OF SANITARIAN

We now come to the golden age of preventive medicine (1880-1910). The age in which the bacterial cause of infection was established. The science of bacteriology and parasitology completely changed man's concept of environmental sanitation. The practical application of this knowledge in the sanitary fields of water purification and sewage disposal has made modern urban civilization possible.

From time beyond the record of man, milk from domestic animals has been used for human consumption. Its value as a food for man has been recognized from the earliest period of history all the way down to the present time. The cow, goat, sheep, ass, horse, buffalo and deer were robbed by man of the pabulum nature intended for their progeny. The cow has always been the principal source of this wholesome food. The advancement of civilization down through the ages can be accurately gauged by the development of the dairy industry of those countries. Milk has had much to do with the destiny of man.

Farm sanitation has always trailed behind that of municipal sanitation. The city dweller is vitally concerned with rural sanitation because his principal food comes from the dairy farm. The multiplicity of operations necessary in the production and distribution of milk, and the fact that milk is a perfect media for pathogenic germs increases the chance of milk-born infections. To protect against such milk-born infections the process of pasteurization of milk has developed and been introduced into most communities. Proper pasteurization means safe milk, but cannot assure clean milk. Common decency demands that we have milk free from barnyard contamination.

Rapid means of transportation has brought the city and farm closer together. Each is dependent on the other. Therefore, the environmental sanitation on the farm is an economic necessity. Unjust legislation against one will be retroactive on the other.

AIR SANITATION—THE NEXT BIG STRIDE IN SANITATION HISTORY?

Environmental sanitation of the past has been chiefly concerned with soil and water contamination. This work has controlled those diseases that were chiefly due to soil and water contamination. (Typhoid, cholera, dysentery, etc.) During the last 25 years sanitarians have been concerned with air pollution. This specter of infected air as the cause of disease has pursued the human race from the time of Hippocrates. Our forefathers lit bonfires, smoked cigars, and sniffed at camphor, to prevent plague, yellow fever and cholera. Joseph Lister (1827-1912) used a carbolic acid spray to prevent wound infection. Until a few years ago, fumigation with formalin was used to disinfect buildings after communicable diseases. In the year 1910, Charles V. Chapin, in a masterly argument, tried to dispose of this ancient notion of air-born infection. He stated that there is no scientific proof that any of the so-called communicable diseases are caused by air-born infection. Recent experiments, using a new technique (ultracentrifugation of air and suitable culture media) have reopened the question. When a person with lobar pneumonia or diphtheria coughs, the heavy particles expelled by the cough fall to the ground by the force of gravity, but the very

small ones (less than 0.1 milli-meter) float in the air. By this new technique, pneumococcus and diphtheria germs have been cultured one-half hour after they were expelled in the air. Highly susceptible animals have been infected with tuberculosis by these "Droplet Nuclei" from air beyond the range of the Flugge droplets (1898 Flugge demonstrated infectious droplets thrown off from the mouth of patients with pulmonary tuberculosis). Much experimental work is now in progress on the so-called air-born infections, by cutting communications from person to person, by vaporized chemicals and ultra violet radiation. Vaporized propylene glycol seems to have viricidal effect upon the common cold and influenza virus. Carefully controlled experimental studies on the use of the invisible non-irritating, odorless and inexpensive vapor of triethylene glycol in the dormitories of U.S. Army Camps shows a marked reduction in the morbidity rate for all upper respiratory infections. There was a marked reduction in the total bacterial air contamination, and the hemolytic streptococci were practically eliminated from the air of these dormitories. The men mingled freely during the day. Virus as well as bacterial infection were controlled.

Ultra violet radiation is being used as a curtain to prevent cross infection in contagious disease hospitals. Ultra violet light irradiation is being applied in nurseries, operating rooms, school rooms to prevent infection. It has proved its value in the preservation of foods under refrigeration. When the proper wave length is used, bacteria die almost instantaneously, and viruses are progressively weakened when exposed to it. It holds great promise as a rapid means for the sterilization of eating utensils, instruments, and the air of ventilating system. There is danger of over-optimism. Much work remains to be done before a true evaluation can be made and its proper place in environmental sanitation established.

NO RESTING ON LAURELS— SANITARIANS HAVE A BIG JOB AHEAD

The statement is often made by sanitary engineers, that we have eradicated the diseases caused by faulty sanitation, such as cholera,

typhoid, dysentery, typhus, plague, etc. These diseases have not been eradicated, they have simply been held in check by the application of the principles of sanitary engineering.

The health and welfare of all large urban communities are entirely dependent upon the proper operation of their water and sewage disposal systems. Let these operations be disrupted or destroyed by such catastrophes as earthquakes, floods, tornadoes, or the destruction of war, and these diseases appear in epidemic form. Eternal vigilance is necessary in the control of the diseases due to faulty sanitation. Infected lice, fleas, ticks and mosquitoes linger in the poverty-stricken districts of all civilized communities, ready to play their part in the spread of disease when the sanitary defenses against them are "let down." Certain global sections act as great reservoirs from which these diseases flow. They have stalked man down through the centuries and they still lurk in the shadows, no matter how secure and well regulated civilized life may become.

The position of Public health today, as in the past, is progressive rather than stationary. New pages are being written into its history every day. We are just on threshold of a great scientific age. Let us hope that by this travel through the "Dark Ages" of the past can better appreciate and evaluate present-day sanitary practice.

William Thompson Sedgwick was the father of American Sanitation. He was the first epidemiologist to put into application the principles of preventive medicine made available by the immortal Pasteur and his contemporaries. It is proper that we end this narration with a quotation from this brilliant man.

"With the single exception of the change effected by the acceptance of the theory of organic evolution, there has probably been no modification of human opinion within the nineteenth century, more wonderful or more profoundly affecting the general conduct of human life, than that of our attitude toward the nature, the causation, and the prevention of disease."

(With special permission, reprinted from "The Sanitarian",—A journal of Sanitary Technology, Sep.-Oct., 1945).

EAT IN PEACE

Have you ever noticed your mental condition when you eat your meal? If not, do so next time and the introspection will be revealing. More often than not, you will be eating in a hurry; thinking of your problems, trying to save time and probably remonstrating with your wife or your servant or your children on their extravagance, misbehaviour or the school report.

ANCIENT WISDOM

Our ancestors, only a generation ago, were wiser. They laid as great importance upon eating as upon a religious ritual. Perhaps over-emphasised, yet they certainly ate their meals in peace and unhurriedly. Even now for many Indians, Hindus, Moslems, and others, meal-time is an important period of the day's programme, when nothing must disturb the peaceful atmosphere of the kitchen or the dining room. Cleanliness of the hands and the mouth as the first pre-requisite, with a comfortable setting on the clean floor or the table were conducive to an equable temper.

THE HOUSEWIFE'S PART

It is not for nothing that the housewife personally presided over the service of the meal and the practice of herself eating the last had its practical significance—so that she should be free to dispense the meal cleanly and attractively. Invariably the operation of eating was preceded by an invocation of divine grace and many persons accompanied this with first setting a small portion of the food from their plate apart for the hungry poor, thereby also ensuring that no leavings were left on the plate. All these acts assisted in creating a proper meal-time mental equilibrium that helped in the proper mastication and digestion of food.

THE MODERN RUSH-THROUGH MEAL

Unfortunately the modern stress and strain of life have put a stop to such desirable practices and eating is no longer like a quasi-religious ritual or a pleasant operation but only a business to be got through within the minimum time. We should not, of course, live to eat, nor should we eat to live; but it is desirable that we should eat properly to live properly to a healthy long age.

MEAL-TIME MADNESS

There is no doubt that a serene atmosphere at the dinner table is essential to digestion. If eating is not done in peace, it were better not to eat at all, for then it does more harm than good. But in our curious way of life in cities, meal-time is about the only period when a father sees his children and he makes it his one opportunity for complaining, remonstrating and preaching.

Right from the start junior is reasonably certain that somewhere between rice curry and the sweet dish he will hear reproachful comment on his lack of studies or his latest exploit. His teachers' reports, his roaming about, his excapades, his extravagances loom large and both the parent and the youngster feel obsessed.

THE "INNER" TUMULT

If you put a fluoroscope on the youngster, you would find his intestines tied in a double bow-line and his stomach flooded with muriatic acid. His sister, with an appetite of adolescent vigour, nibbles listlessly at her food, waiting in apprehension for daddy to deliver a few remarks on the way girls behave these days. Even mother, who has been toughened by years of submission to meal-time lectures on her mistakes of omission and commission secrete a dangerous excess of adrenaline, and mentally prepares her defence against strictures on her management of the servants or the family budget.

The adrenals of the family members gush fluid, their stomachs get flushed with gastric juices. Peristalsis goes into reverse and for all the pleasure of eating "pilaos" and "paranthas", they might just as well be served with so many stones!

FATHER'S LECTURE PROVES A BOOMERANG

And the father is no exception. The poor man also suffers from his ill-timed sermons. His dinner doesn't "set well", and sometimes he has a heart-burning sensation or a pain which makes him think it may be an ulcer or some intestinal disease. His wind is up and he thinks his heart is affected. He goes back to work dissatisfied and unappeased.

(Continued in page 627.)

THE HEALTH OF THE STATE IS THE STATE OF YOUR HEALTH

BY

PURTEJ SINGH, M.S.
(HARVARD)



SEPTIC TANK—DISPOSAL FIELD

IN the previous articles a rational approach to the design and function of a septic tank has been presented to the readers. The points I have tried to make are—

(1) A septic tank is primarily a settling tank.

(2) That the settled sludge is digested in the septic tank, is not a feature in favour of the septic tank.

(3) For an efficient settling tank, all sewage must enter at one end of the tank, flow with a slow uniform horizontal velocity, and have an outlet for the supernatant liquid at the opposite end. Baffles are therefore highly undesirable.

(4) There is an accumulation of about 20 gallons of sludge in the tank per user per year. This shows the necessity for periodical cleaning of a septic tank.

(5) A septic tank does not effect complete treatment of sewage. It only removes the settleable solids. The non-settleable and dissolved

organic solids are still there. Since removal of bacterial load is generally in proportion to the removal of suspended solids, the effluent from a septic tank has still a very heavy load of bacteria. Any talk about septic tank effluent being drinkable is therefore incorrect.

I have repeated the above observations mainly due to the fact that our popular notions about a septic tank are mostly erroneous. For a scientific development of any subject a rational outlook is all important.

A disposal field is designed for sub-surface disposal of septic tank effluent. It is a combination of aerobic treatment, with infiltration of the liquid into the soil. To obtain aerobic conditions the effluent must be discharged as near the ground surface as possible, usually a depth not exceeding 18" below ground. Infiltration would depend on the capacity of the soil to transmit water, and upon its dryness and other factors. Thus soil percolation tests are necessary in deciding required length of disposal field.

The following specifications for designing a disposal field are recommended.

1. 4" diameter glazed earthenware pipe will be suitable for the field laterals. The pipes should be laid with $\frac{1}{2}$ " open joints constructed with sufficient mortar at the bottom of the joint to assure an even flow line.

2. The disposal trench to be filled up with broken stone or brick bats $1\frac{1}{2}$ " to 2" in size upto 12" below ground. The top 12" to be filled with earth and humped up, so as to prevent access to rain water.

3. The disposal field should be designed for proper distribution of the effluent throughout the field. Otherwise there may be overloading of single lines with resultant bleeding of effluent to the ground surface.

4. The grades of the field lateral lines may vary from 2" to 4" per 100 feet, but should never exceed 6" per 100'.

5. Total depth of the lateral trenches should average not more than 36".

6. Disposal fields should be at least 100' from any water supply well, 25' from any stream, and 10' from dwellings or property lines.

7. For determining the required length of disposal trench, percolation test as outlined below should be performed.

(a) Excavate a hole 1 foot square and to the depth of the proposed disposal trenches. This depth in most instance will be 24" and should not exceed 36".

(b) Fill the hole with water to a depth of at least 6" and allow the water to seep away.

(c) Observe the time in minutes required for the water to seep away completely. This divided by the total number of inches of water placed in the hole gives the average time required for the water to drop 1 inch.

The above test should be performed under the worst conditions of soil saturation by rain.

With this information, the required length of the disposal lines may be determined in accordance with the following table. The table has been adapted from practice in the U.S.A., for our quantities of sewage flow per capita daily.

Time in minutes required for water to fall 1 inch.	Length in feet of disposal field per user. Trench 18" wide by 24" to 36" deep.		
	Residences.	Camps.	Day school.
2 or less	9	5	3
3	10	6	4
4	12	6	4
5	13	8	5
10	17	10	7
15	20	12	8
30	30	18	12
60	40	24	16

Pioneers in Public Health

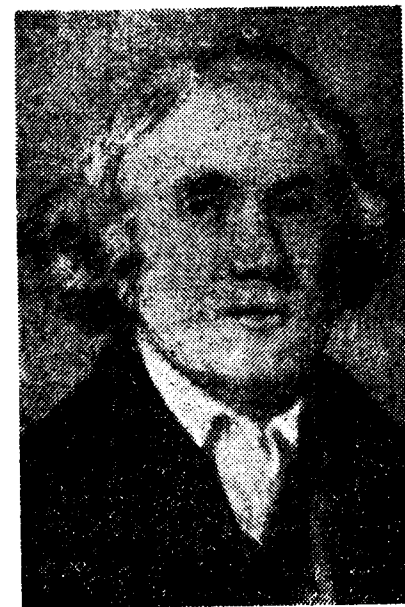
TO OUR YOUNG FRIENDS

BY

MOHAN

COMRADES!

May all be healthy and happy!



I HAD kept the name of this month's hero a secret from you. You will now know who he is. If you want I will give the reason for not disclosing his name last month. It is this: You are all enthusiastic youngsters who take the trouble to search for information about him and pass it on; but I know you have your quarterly examinations and if you were to be hunting for information on Hunter, your parents will really want to hunt me out. So by this time, I hope, you would have all finished your examinations and are ready to read about Hunter now.

* * * *

The 13th February 1728 ushered John Hunter into this world. His

arrival you may take it, was not very welcome to his parents, for he was their tenth child! Hunter was born in the parish of East Kilbride in Lanarkshire and was scarcely 13 years' old, when his father died. Both his parents were descended from well-to-do families. From the outset, Hunter was no book-worm but on the contrary, was even a poor student. He showed greater interest in country sports and amusements rather than in his study. He was soon removed from school and placed as apprentice to his brother-in-law Mr. Buchanan who was a cabinet-maker. But unfortunately Buchanan went bankrupt and Hunter was sent to London to his brother. William Hunter was already a well-

established doctor and a medical teacher. John attended the lectures on surgery and medicine at the Chelsea Military Hospital during the years 1749-50. He himself began teaching in 1754. Two years later, he was appointed as a house-surgeon in St. George's Hospital.

* * * *

Hunter now served as a house-surgeon in an expedition to Belle Isle. He was also a Military Surgeon during the war with Portugal. He got wounded in the course of the war and returned to England in 1763. He was drawing the Army half-pay. He took a house in Golden Square and started on his career as a London Surgeon. The income he derived from this could just suffice for his needs. He therefore also undertook private tuition on anatomy and surgery. But his leisure was employed in the study of comparative anatomy and in the procurement of animals and other things which helped him in his study. By the way, if you don't know, comparative anatomy means the study of the structure of the various animals.

* * * *

After obtaining his 'M.C.S.' in 1768, Hunter's income increased and he shifted to Jermyn Street and in July, 1771, married Anne Robert Home. Mrs. Hunter was a very handsome, accomplished woman and supplemented her husband's income by writing poems. It was during this period that Hunter came into contact with his favourite and, later famous, pupil Dr. Edward Jenner.

Hunter was very fond of animals and pets and possessed vast collections of all sorts of creatures. Indeed, his enthusiasm was so great that when he found the finance he built a museum at an expense of over three thousand pounds for his anatomical collections which by themselves were valued at ten thousand pounds. This new building consisted of a large hall 52' by 28' and was lighted from the top, with a gallery all round. In buying subjects for his museum, Hunter attached little value to money. In 1783, he paid for a 7'-7" giant's carcass five hundred pounds and most of his income, large as it was, during his later years, was expended towards improving his museum. On his death, a proposal that the Government should buy his museum was submitted to the Prime Minister Pitt. But the war-obsessed Premier replied—"What! Buy preparations? I have not enough to buy gun powder!" However, later, this vast collection was bought by the Government for fifteen thousand pounds voted by Parliament; later in 1813 his collection was removed to a new museum which is now one of the most important Natural Science Museums in the world. Some of Hunter's chief works, which I am not discussing in detail for want of space, are the measures for relief of distorted and contracted joints. Hunter thought of this only after he himself was attacked by a fit of cramps. Hunter was also tabulated his detailed researches on the action of gastric juice in a paper called 'the Philosophical Transactions'. He also investigated into the function

of the stomach in hibernating animals.

Hunter was of medium height; but was strongly built, high shouldered and short-necked. Hunter's daily programme is interesting and what is given by the Encyclopaedia Britannica is as follows: 'He rose at about 6 o'clock, dissected till 9, received patients between 9-30 and 12, saw the out-patients till 4 and spent the rest of the day in research'. He rarely slept at night and was practically all the time in his study. "When I am dead", he would say, "you will not soon meet with an other John Hunter". He would write cart-loads and was characterised by his love for work and his kindness. He would render services to the poor free of cost; but yet, his income was always above thousand pounds per annum from 1763 and sometimes even touched six thousand pounds. This also showed the number of rich sick people in England! He was extremely modest and would attribute many of

his own discoveries to his brother. He never drank. He was fond of animals, averse to operations, thoughtful and sympathising and a trustworthy, if not an elegant surgeon.

* * * *

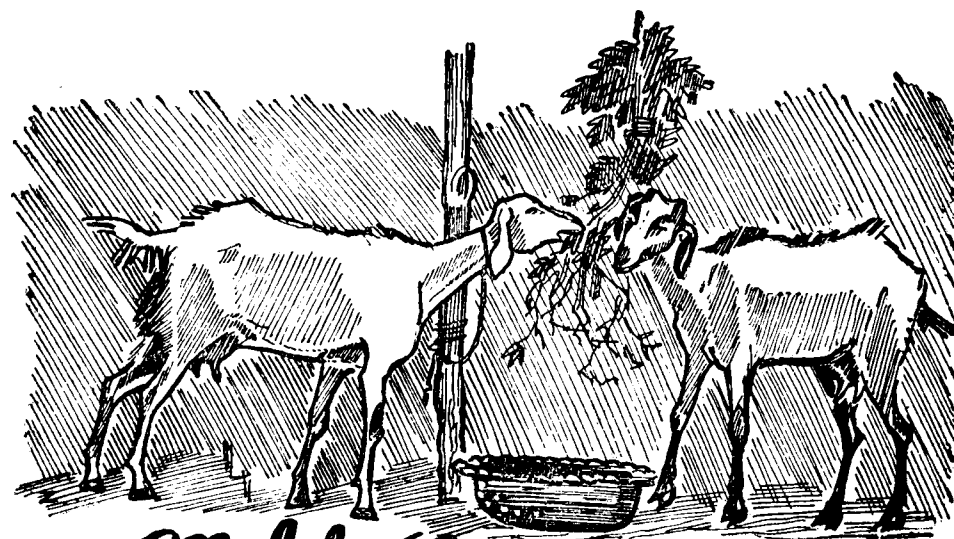
But as in the case of most others, Hunter suffered from physical infirmity. Besides that cramp, he also suffered from heart-disease and his ability to cure others could not cure him. His heart-disease would be aggravated by mental warmth and, though conscious of this fact, Hunter attended a meeting in which he knew a dispute would occur on the subject which interested him. He told a friend, "If any dispute occurs, it will be fatal to me". A dispute really did occur and Hunter, upset by the excitement, staggered out of the room and fell dead. This sad incident happened in October, 1793 when this pioneer was 64.

Your loving comrade,
BROTHER MOHAN.

SCHOOLMASTER

The modern schoolmaster is expected to know a little of everything, because his pupil is required not to be entirely ignorant of anything. He must be superficially, if I may say so, omniscient. He is to know something of pneumatics; of chemistry; of whatever is curious or proper to excite the attention of the youthful mind; an insight into mechanics is desirable, with a touch of statistics; the quality of soils, etc.; botany; the constitution of his country; *cum multis aliis*. You may get a notion of some part of his expected duties by consulting the famous tractate on education addressed to Mr. Hartlib.

—LAMB.



Milch Goats ~

BY 'Z'

IN many districts in North India, and in Kandhesh and along the southern West Coast, people make use of goat milk every day. They have established breeds of milch goats in those parts, and they know the value of the goat as a source of milk. But over the best part of the Madras Presidency the goat is little understood; it is coarsely-bred, uncared for, and only the provider of inferior mutton.

To-day, when good milk is such a rare commodity, even people here might be persuaded to go in for the goat. Two or three milch goats will ensure an all-the-year-round supply of excellent milk, at less cost and better than a cow, and what is more a goat can be kept in quarters that will not accommodate a cow. I should like to make it clear, now and here, that I am writing only of the family milch goat and its

advantages—it is a different job to run a goat dairy, for the ownership of a herd of goats, breeding, and the rearing of kids involve problems beyond the resources of most householders.

It is not easy to write in a detached and impersonal way about goat-keeping, a pastime spiced with strong feelings, smells, and tragedy on occasion, but that is goat-keeping on the grand scale. It is a simple matter to look after a couple of goats and milk them, and I shall write of it as objectively as I can.

Firstly, with regard to goat milk, it has many virtues, and certain drawbacks also. Milk from a clean, well-bred doe has no goaty flavour: such milk is quite as pleasant to drink as the milk of the cow or buffalo. But it must be used soon after it is drawn; goat milk will not keep for hours without acquiring a hint about its origin. It is also true

that it is useful only as milk. I suppose one can obtain butter from goat milk ultimately if one is sufficiently determined, but the effort is not worth the result. Curds can be easily got from goat milk, but such curds have a somewhat pronounced flavour, and a soft, soapy feel. The virtues of goat milk are that when fresh it is just as nice to drink as any milk, while being more digestible, and that it only requires to be strained and brought to the boil to be fit for use, the goat being singularly free from tuberculosis.

Next, regarding the goat, it is quite essential to buy a doe from an established strain of milch goats: the amount of milk you will get, and its quality too, will depend much on your choice of goat, and a mutton goat will never do. There are several indigenous breeds of milch goats, the Jumna Pari, the Surti and the Kandheshi being reliable milkers, but these are hard to get in the Madras Presidency. The American Arcot Mission Farm, at Katpadi, might be able to sell you a good goat—incidentally, you can get an excellent booklet on the management and care of goats from them. Most breeds of milch goats are substantially built, though not without a certain refinement, but the dinky, white Surti doe is as finely made as an antelope. If you cannot buy a pure-bred doe, get a half-bred one: pedigree is worth the cost every time. If no pedigreed goat is available, the next best thing is a doe whose yield of milk is known. The best way to avoid subsequent disappointment, in such a case, is to milk the goat yourself early in the

morning and measure the yield, before buying it. Another method is to halve the yield as stated by the owner—a crude and unscientific way, I grant you, but one that gives you a near approximation to the truth. A goat that gives a Madras measure of milk, or a little less, per day (two milkings), is well worth the purchase.

It is cheaper, no doubt, to buy a good doe kid, but then this involves waiting for 18 months or longer while it grows up and kids, and by that time you would have spent so much on its upkeep that it wouldn't work out much cheaper than buying a grown doe after all.

All that you want to house a goat or two is a bit of backyard, say, about 80 square feet of land. The most economical shed to put up is one of the lean-to type, sloping down from a wall of the house. The flooring must be well raised to allow of quick, easy drainage, and there must be sufficient cover from sun and rain but free ventilation as well. Plenty of air eliminates smells. The floor must be swept twice a day, and the shed kept scrupulously clean. A goat will take no harm by living in such surroundings all its life, but it is good to allow it a bit of open air and exercise, space permitting.

A thorough rub-down everyday will keep the goat clean and fit. Soap and water may be used when necessary, but choose a sunny day for bathing your doe, and dry it well afterwards. The coat must be kept quite free from ticks, lice, and such parasites; look between the

hooves and along the spine and ears for these.

What you feed your goat will largely depend on what you can get, but remember that the goat is a versatile animal and will eat a variety of things, unlike the cow. However, some amount of leafy food must be given each day. Leafy twigs from shrubs and trees, weeds from the garden, and cut grass can all be fed. These should be given fresh and clean—no goat will touch anything bruised, soiled or decayed. Only just as much as the doe will eat clear should be fed at a time—otherwise it will trample and waste more food than it actually eats. 'Little and often' is the golden rule for feeding goats, and at fixed, unaltered intervals. A good way to feed foliage is to tie up a fair-sized bunch of leafy twigs to the cross-bar of the shed, above the goat's head. Change in foliage-food is much appreciated, and all goats love the leaves of the jack, the banyan, the peepul, the fig, and the tamarind when these are available. Vegetable parings and other scrap from the kitchen are also relished.

Besides green fodder, grain in some form or other should be fed morning and evening, while milking. Soaked horse-gram, Kambu and Cholam all add to the quantity and quality of the milk. Cottonseed, crushed and boiled, can also be given. Soaked oil-cake (groundnut-cake is specially recommended), rice bran, the husks of various

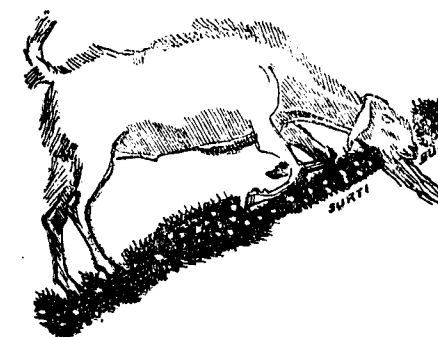
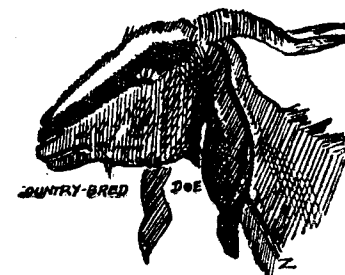
pulses, dried leguminous plants, hay, and Acacia pods can all be given to your doe with advantage—in addition to grain and leafy matter. The amount that a goat will eat depends upon its size. You must give it plenty of clean water to drink. Many goats can be induced to drink copiously if the water is given warm, almost hot.

The goat should be milked morning and evening, at the same time, each day. All the milk should be drawn at each milking. Cleanliness and regularity pay for themselves in goat-keeping: they ensure thick, sweet milk.

A goat will be in profit for about eight months. Thereafter, the grain and costlier feed can be largely replaced with foliage, till it is in milk again. If there is a well-kept herd nearby, the doe can be farmed out.

The period of gestation is about 5 months with goats. A pure-bred doe kid is worth keeping, and for this purpose should be put to a foster-mother. A doe kid is still growing when nine months old, and should not be allowed near a buck till it is an year old.

Kids are delightfully playful things, and their bold, confiding ways will captivate you. Children love them, and they make ideal pets. However, kids should be sold or disposed of some other way as early as possible. Otherwise there will be no milk for you.



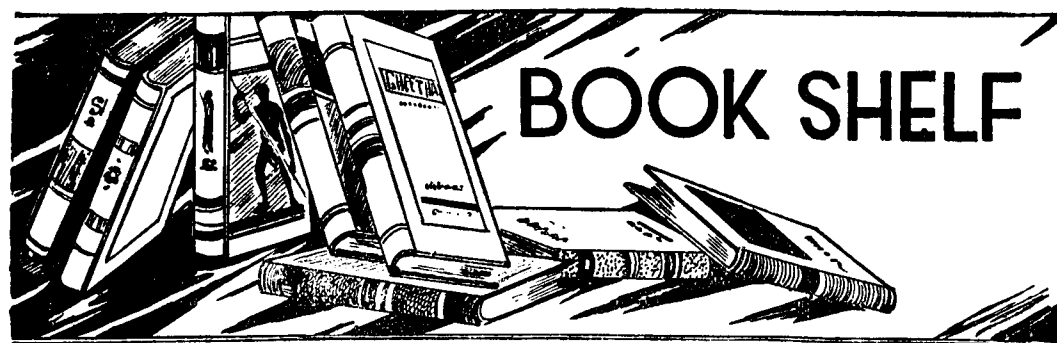
VALUE OF GOAT'S MILK.

Some interesting investigations were reported by Dr. Bell in a paper read before the Section on Pediatrics, New York Academy of Medicine, in January, 1906. Goat's milk was fed to a number of infants under the care of Dr. Bell, and in many cases with good results. The average percentage of fat in the goat's milk used was 4.8 per cent and of proteids 3.8 per cent. In closing his paper Dr. Bell states:

In view of these physical and clinical differences in the various milk fats, not only as regards different animals but individual breeds, or possibly members of the same breed, and the experiments on animals with fat-laden foods relative to digestive secretions, it seems reasonable and promising to make extensive clinical observations, so that we may be governed by practical as well as theoretical knowledge in this most important branch of our daily work. It seems probable that a great deal of mystery heretofore existing in the adaptation of milk to infant feeding, not only as regards fat, but proteid indigestion, will be largely cleared up by a more intimate knowledge of the chemistry of the fat constituents employed. In this connection we might pertinently ask if we are using the best and most economical source of milk supply. While not possible of confirmation, I believe good milch goats (the Nubian, for instance) will give a larger milk ratio per expense of food and keeping than the cow. She is more docile, less excitable, not subject to tuberculosis or other disease in this climate. Being a browser rather than a grazer, she will thrive when cows would not, and above all, she is cleanly. Her excrement is solid and her tail short, consequently she is not covered with manure as is the cow. It is safe to assert that production of cow's milk free from manure bacteria is commercially impossible. Not so with the goat; she can be easily washed (tubbed if necessary) and aphoned for milking. I believe an assured non-contaminated goat's milk supply not only commercially possible but profitable.

Conclusions.—First, the digestion of fat retards the flow and diminishes the amount of gastric juice, at the same lowering its digestive power. Second, the ingestion of fluid oil increases the flow of pancreatic juice and probably the activity of its fat-splitting enzyme steapsin. Third, in case the fat is not fluid at body temperature, it may still further retard and prevent the flow of gastric juice according to the first hypothesis mentioned by Dr. Labassaoff, viz., coating over the gastric mucous membrane, thereby mechanically interfering with secretion, or in the case of coagulable food, such as caseinogen, by covering the curds with a layer of insoluble fat, thereby preventing the action of gastric juice upon them, though secreted in sufficient amount and power, and also by preventing the action of the trypsin upon them, though brought in contact with an increased supply of pancreatic juice, assuming that the action of the steapsin on the fats will be partially nil, or at least, much impeded by the insolubility of their fat-covering permitting the curds to pass undigested. Fourth, if goat's milk fat, relative to that of cow's milk more closely approximates human milk fat, and if the proteid and sugar constituents are not more incompatible than in cow's milk, and if there exist no serious commercial obstacles, goat's milk merits an extensive and thorough clinical trial in infant feeding.

(Extracts from *Foods and their Adulteration*—by Harvey W. Wiley—Publishers—J. & A. Churchill, London.).



"Books are Weapons in the War of Ideas."

"Some Books are to be Tasted, others to be Swallowed and some few to be Chewed and Digested." . . . and some to be Eschewed!

THE ANATOMY OF THE VILLAGE

Author.—Thomas Sharp.

Publishers.—Penguin Books, Harmondsworth, Middlesex.

Size—8½" × 7"

Pages.—72.

Edition.—1946.

Price.—2s. 6d.

The author needs no introduction to those who are interested in Town Planning. In his 'Town Planning' published in Penguin Books in 1940, the author has won the admiration of all, the laity and the professionals alike. In that book, he has covered a wide range of relevant topics and criticised perhaps, rather carpingly, certain principles of design which were in vogue then. Town Planning, according to the author, is an attempt to formulate the principles which should guide us in creating a civilized *physical* background for human life. It is in that broad conception that he has dealt with the subject in his 'Town Planning'. Even those who differ from him, say, for instance, on the location of playgrounds for children with reference to their habitations, cannot but appreciate the powerful style of presentation of the subject in a form which would appeal to commonsense.

In the prefatory note in the book under review, the author has given an extract from the well known Scott Committee report on

land utilization in rural areas. The committee say "We have suggested that the farm worker and his family have far more chance of a happy social life and better opportunities of developing as self-reliant and responsible members of society if they live in a village." They further state, "Every new village and every extension to an old village, as well as every new town, should be considered and planned as a unit and not as a collection of separate buildings. We consider that there is a great need for the clear application of planning principles to village building. Village planning is by no means an easy art: It is full of subtleties concerning scale and character."

The author has attempted to give consideration of some of the principles which should govern physical designs in the building of new villages and in extending or rebuilding old ones. The book is divided into two parts:—(1) Past and Present and (2) Future. The first part is divided into two chapters and the second into three chapters. The social requirements in villages would be of special interest to our readers. In this chapter, the author has dealt with the types of village, factors in location and siting and factors governing the size, types of village building and open spaces.

The Bhoré Committee say: "We have taken the country side as the focal point of our main recommendations, for it is the tiller

of the soil on whom the economic structure of the country eventually rests. It is his patient toil that year in, year out, gives the nation its food, such as it is, and the country's main manufacturing industries their raw material. It is from his meagre earnings that the larger provinces drew nearly a third of their total revenues before the war. It is on the produce of his husbandry that the country's balance of foreign trade largely depends. When pestilence and famine sweep through the land it is he who pays the heaviest toll, while it is only the outermost fringe of such public services and amenities as the country enjoys that occasionally comes within the orbit of his daily life."

Everyone of any consequence in Indian public life talks about improving the lot of our dumb millions. But little tangible results are in evidence.

Although the English tradition of village life may be dissimilar to that of Indian village in some respects, still, there are certain common factors to rural life all the world over. Any one who is charged with the responsibility of reviving our village life would find a lot of food for thought by a perusal of the book under review.

Our 'expert' Town planners who are supposed to have an intimate knowledge of Indian villages, would do well to emulate this well-known author and analyse the anatomy of our village putting forward definite principles for practical application. In fact, the State should cast a duty on these 'experts' to produce a book of this kind.

"Town Planning Expert."

LET'S TALK ABOUT CHILDREN

Author.—Elizabeth Bradford.

Publishers.—Prentice Hall, New York.

Size—7½" × 4¾"

Pages.—167.

Edition.—1947.

Price.—\$ 2.50.

Messrs. PRENTICE-HALL deserve to be congratulated on their publication of the book under review. They published a few years back another wonderful book by name "How to raise a healthy baby". I had the

privilege of reviewing it for *People's Health*—vide pages 217-18 of No. 4, Volume I. In the concluding paragraph of the review, I suggested that it would be an excellent idea if the Editor could obtain special permission of the publishers to extract some of the questions and answers in *Peoples's Health*. I made the suggestion with a view to rousing an interest in the readers to know more and more on the subject. I also suggested that some enterprising firm of Indian publishers should secure permission of the publishers and bring out vernacular editions of this very valuable book.

Many enquiries were received as to where the book could be had. We in this part of the globe, have no information on the point. Hence, the book has not reached the reading public to the extent to which it should be. The publishers would do well to announce the names of their selling agents in this country.

"Let's talk about children" is the outcome of the *personal experience* of the author. There are of course, many books on the subject written by people who know nothing about children, by those who have had too many of them and by experts and faddists. This book is unique in that it is based upon *personal experience* and is presented in a charming conversational style which, far from wearying the readers, is bound to rouse an abiding interest in them. Many mothers are baffled with the problem of bringing up children at every stage of their growth. Each stage has its own peculiarities. Young mothers, in particular, feel at times helpless. The perusal of "How to raise a healthy baby" and "Let's talk about children" would help them to solve many a problem which may confront them, not infrequently.

The book under review has 31 chapters. Each chapter by itself gives complete satisfaction to an anxious mother, who really thinks of, nay, worries over the problems of her child. It is indeed difficult to say, as to which chapter is more important than the other. I feel that all of them are equally important.

How mothers, keenly loving and anxious, spoil their children, not in the least knowing the harm they are doing them! They

should learn to bring up their children on proper lines. Secondly, many common mistakes are committed by mothers in their ignorance. For instance, frightening them during feeding time, just to save time and worry for themselves, they cause thereby great harm to them. Freedom from fear is one of the fundamental rights of human beings. Many a child born free from fear develops into cowards. It is because in their early days, fear is instilled in them. Tossing the child up in the air for instance, will make him laugh not from joy but from hysterical fear of falling. How few understand this psychology?

Men with ideas succeed in this world. Self-expression and originality should be created in the very early stages of the child's life. Imagination and ingenuity are born with them. When the children play with things, they break them out of curiosity to know more and more about them. The author has given a lot of tips to enable us to develop self-expression in our children.

There are many more practical hints which the author has given and which should be

studied by every mother, in general. Not only should every one of them read this book but pass it on to other mothers in the interest of our rising generation. They should even go to the extent of discussing the contents of the book and exchanging notes of their own experiences.

My firm opinion is that the two books referred to above should be in the hands of every mother educated in English. Indeed, the official propagandist on maternity and child-welfare would be greatly benefited by reading these books. They would then be in a position to know how propaganda should effectively be done and how well young mothers could be educated on the subject.

I urge that this book also deserves to be translated in to the vernaculars of the country. Mothers of the rising generation should be put in the way of making heroes of our children worthy of an independent India.

Had I the funds at my disposal, I would not hesitate to present each young mother whom I know, with a copy of each of these two wonderful books.

"Housewife."

SOME MISCONCEPTIONS ABOUT THE USE OF ALCOHOL.

A very large number of people still seem to think that alcohol is very useful in getting rid of fatigue. It does not. What it does is to dispel the realisation of fatigue. Actually the fatigue is there, and the sense of freedom from it is a false sense and the sense of well-being is a fictitious one.

It may be realised therefore that drunken persons at a certain stage can be induced to exert themselves to efforts which they would not have attempted in their normal senses. Such undue exertions in a habitual drunkard saps his vitality and greatly shortens life.

The only help which alcohol has given to some intelligent men is to dispel the sense of inferiority complex when they are otherwise sound. For instance, persons who have to appear for interviews with their "Big Bosses" are often "Bucked up" by a little good drink. This is likely to happen only occasionally in a life time but here again there is the great danger of a "Habit". Moreover, as the effects of alcohol are different in different persons it does not always "Buck up" to the desired limits.

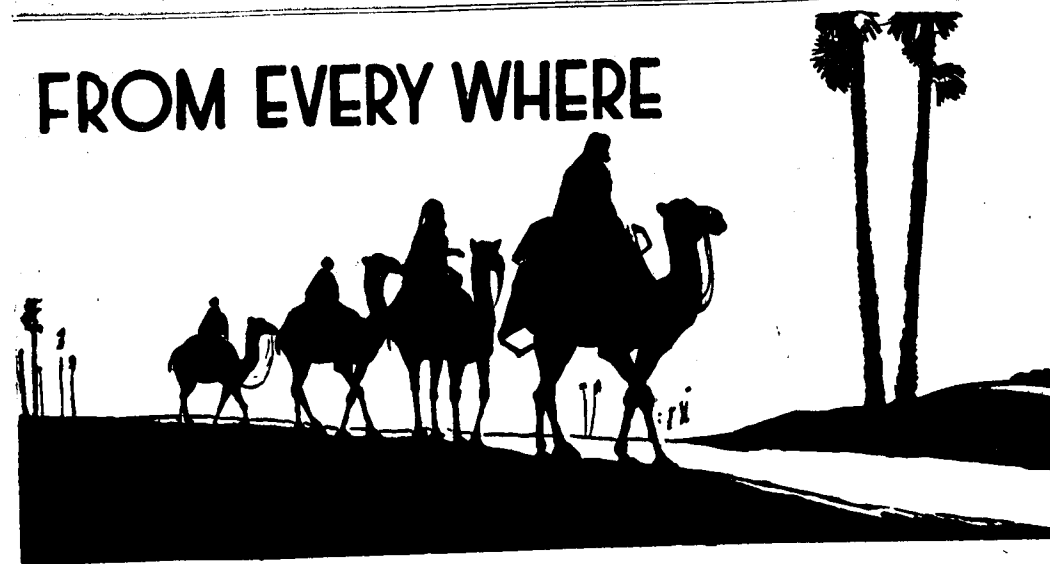
Another well grounded idea among the intelligensia is that they can always draw the line at where they should stop, and that while they may take a drink, they never get "Drunk". That this is poor consolation or a miserably lame excuse can be judged from the fact that such excuses are exchanged usually only within drinking parties. NO ONE CAN DRAW THE LINE ONCE HE STARTS DRINKING.

Alcohol depresses the reasoning and discriminative powers of the brain, removes the check on 'self restraint', tends to the dirty habit of drinking, impairs efficiency, and promotes ill-health, poverty and crime.

ALCOHOL IS WHOLLY UNNECESSARY TO INDIA EXCEPT AS A DRUG.

(By A. D. H. O.)

FROM EVERY WHERE



WHAT DO THEY SAY ABOUT IT?

Readers can contribute to this section. They are requested to send extracts of current literature which, in their view, would interest the people. —(Ed. P.H.)

DAY SCHOOLS

vs. BOARDING SCHOOLS

I have been struck, in all the above cases and in more besides, by a feature common to interesting and original men. They have been mainly formed by personal effort and the initiative of their own talent; they have not the trade-mark of a school, college, clique or claue. When he was Minister of Education, Sir Charles Trevelyan told me, over dinner in the House of Commons, that he preferred to send his own children to a good day school—on principle. I asked upon what principle, and the Minister, who had the courage of his opinions (for he was not only in the Cabinet, but in his part of the world is member of a Family, one of whom is the famous historian Macaulay), replied that having a public tax-aided system of education, the citizen should use it; that using it would improve it, and modify any objectionable class sentiment; that the education given was any-way excellent—as good as anything in public schools, to intelligent children; and that it combined home life with school life—an asset which boarding schools destroyed.

Children so bred are sure to show decision of character. Britain is most tragically handicapped today by *snobisme*—the English vice, as the continent calls it—which spends on fancy schools with their gross impositions and side-lines, what should be spent on an extra two or three children in most middle-class homes. Those vulgar other Powers, who at least breed, have the conviction that we are cutting off child life at the source, and that we want to continue without anyone to continue for us!

And I really don't know the answer. Do you?

By W. J. BLYTON

Extract from "*Landfalls and Windfalls*".

RAT AND MAN

A COMPARATIVE STUDY

Some of the more obvious qualities in which rats resemble men—ferocity, omnivorousness, and adaptability to all climates—have been mentioned above. We have also alluded to the irresponsible fecundity with which both species breed at all seasons of the year with a heedlessness of consequences which subjects them to wholesale disaster on the inevitable, occasional failure of the food supply. In this

regard, it is only fair to state—in justice to man—that as far as we can tell, the rat does this of its own free and stupid gluttony, while man has tradition, piety, and the duty of furnishing cannon fodder to contend with, in addition to his lower instincts. But these are, after all, phenomena of human biology, and man cannot be absolved of responsibility for his stupidities because they are the results of wrong-headedness rather than the consequences of pure instinct—certainly not if they result in identical disasters.

Neither rat nor man has achieved social, commercial, or economic stability. This has been, either perfectly or to some extent, achieved by ants and bees, by some birds, and by some of the fishes in the sea. Man and the rat are merely, so far, the most successful animals of prey. They are utterly destructive of other forms of life. Neither of them is of the slightest earthly use to any other species of living things. Bacteria nourish plants; plants nourish man and beast. Insects in their well-organised societies are destructive of one form of living creature, but helpful to another. Most other animals are content to lead peaceful and adjusted lives, rejoicing in vigour, grateful for this gift of living, and doing the minimum of injury to obtain the things they require. Man and the rat are utterly destructive. All that nature offers is taken for their own purposes plant or beast.

Gradually these two have spread across the earth, keeping pace with each other and unable to destroy each other, though continually hostile. They have wandered from East to West, driven by their physical needs, and—unlike any other species of living things—have made war upon their own kind. The gradual, relentless, progressive extermination of the black rat by the brown has no parallel in nature so close as that of the similar extermination of one race of man by another. Did the Danes conquer England; or the Normans the Saxon-Danes; or the Normans the Sicilian-Mohamedans; or the Moors the Latin-Iberians; or the Franks the Moors; or the Spanish the Aztecs and the Incas; or the Europeans in general the simple aborigines of the world by qualities other than those by which *Mus documanus* has driven out *Mus rattus*? In both species, the battle has been pitilessly to the strong. And the strong have

been pitiless. The physically weak have been driven before the strong—annihilated, or constrained to the slavery of doing without the bounties which were provided for all equally. Isolated colonies of black rats survive, as weaken nations survive until the stronger ones desire the little they still possess.

The rat has an excuse. As far as we know, it does not appear to have developed a soul, or that intangible quality of justice, mercy, and reason that psychic evolution has bestowed upon man. We must not expect too much.

(Extract from "Rats, Lice and History" by Zinsser).

HUMAN MILK STUDIES

IMPLICATION OF BREAST FEEDING AND THEIR INVESTIGATION

The feeding and care of the nation's infants is an essential factor in determining the physical fitness of a people, and during the formative period—gestation, infancy and childhood—food must be sufficient in amount and must contain the materials necessary for growth and repair of tissues. A healthy mother, who is adequately nourished, has an excellent chance of producing a strong and healthy infant, and if breast-feeding is carried out the infant has a better chance to live, and is likely to have fewer illnesses.

The quality and quantity of breast milk is influenced by the amount and kind of food consumed by the mother, by environmental conditions such as exercise and rest, the structure of the mammary gland and the emotional make-up of the mother. Although it has been shown in large series of women that in 87 per cent there was an adequate supply of milk on the 5th day post partum, and that 65 to 74 per cent were able to carry out full breast-feeding, hospital reports from the same areas indicate that the incidence of breast-feeding varied from 5.6 to 69 per cent. Responsibility for failure to breast-feed must be shared by the mothers and the doctors and nurses who care for them; the chief reasons are lack of interest, other time-consuming duties and the wide-spread belief that bottle-feeding is superior to breast-feeding.

A campaign of re-education is timely and this paper forms an introduction to a comprehensive study of lactation, and the composition

of human and bovine milk, with this end in view. To obtain valid data in an investigation such as this, co-operation of selected women is essential. The regime must be consistent and subject to control, diets must be comparable and provision must be made to sample the full 24 hours production of milk, without disadvantage to mother and child.

The task of obtaining the data required the joint efforts of the numerous persons and organizations responsible for the care of the mother during pregnancy and lactation, the collection of samples and the research laboratory work. A brief account is given of the method of supervision and collection of samples from 84 women in the Detroit area who were successfully breast-feeding their babies. From 70 of these women, who were eating diets of their own choice, 189 four to eighty hourly samples were taken during the 15th to the 362nd days post partum. The remaining 14 women were on known-planned diets and from them 24 hours collections of milk were made, 85 during the first ten days and 90 during the subsequent period of lactation up to the tenth month. Investigations included basal metabolism tests, roentgen studies of long bones, urological and hematological examinations in both mothers and infants. Details of these examinations are elaborated in subsequent papers of this series.

H. M. DAVIS.

(From *Bulletin of Hygiene* Vol. 21, No. 5).

THE HEALTH OF OLD LONDON.

The Book of Common Prayer, as revised in 1662, sheds much light upon history. The suffrage in the Litany, which deals with death and disease, is worth special attention.

'From lightening and tempest; from plague, pestilence and famine; from battle and murder; and from sudden (unprepared for) death. Good Lord deliver us.'

The frequent reference in Bills of Mortality to 'blasted and planet struck,' explains the order of the words; and the memory of the Black Death of 1348, during which at least 100,000 perished, is still in evidence.

Before the Great Plague of 1665, and the Fire which followed, we may select 1661 as

a fair average; especially as our version of the Litany published in 1662, was then drafted.

The population of London was then about half a million, and the death rate 39.5 per 1,000. Two hundred and ten years later, in 1871 it was 22.3, and by 1881 it had fallen to 12.3 per 1,000.

The Bill of Mortality for London in 1661 enumerates sixty-one causes of death. It will probably satisfy the reader to mention those causes which were the most frequent, and those which were rare.

'Ague with fever,' 3,490. 'Consumption with "tissick,"' 3,788. 'Old-age,' 1,302. 'Smallpox and "Flox,"' 1,246. 'Convulsion,' 1,198. 'Infant death,' 1,400. 'Gripes in the Guts,' 1,061. 'Teeth and Worms,' 1,191.

The lowest numbers were: 'Bedrid,' 3. 'Bleeding,' 5. 'Burning,' 4. 'Fright,' 2. 'Gout,' 11. 'Fallen-jaw,' 2. 'Lethargy,' 2. 'Leprosy,' 1. 'Lunacy,' 11. 'Murder,' 52. 'Planet' (blasted), 3. 'Poisoned,' 2. 'Spleen,' (rage), 5, and 'Swine-pox,' 11.

Some of these figures may cause surprise, while others certainly indicate local conditions. The proportion of deaths from ague reveal damp and bad drainage. Those from consumption show want of ventilation and bad domestic hygiene.

In connection with the latter some quotations may well be made from a letter of 1518, written by Erasmus to the Cardinal at York:—

'The English never think whether their doors and windows face north, south, east, or west. Their rooms are so constructed that no through draught can pass.

'The floors are generally formed of clay covered with rushes, and these nurse a collection of spittle, vomit, excrements of humans and dogs, spilt beer, and fish bones. This exhales a vapour not beneficial to the human constitution. Rushes should be abolished, and bed rooms built open to the sky on two or three sides. Glass windows should be made to open completely, and all at once.'

In 1665, the third year after the publication of the Prayer Book, came the Plague, followed

by the Great Fire. Upon the heels of pestilence trod a burning, which destroyed two-thirds of the shops and houses, and more than 100 churches.

Plague and fire turned men's thoughts to drainage and water. London had grown up on a slight eminence intersected by the Wall Brook, and flanked on the west by the river Fleet. After passing what is now King's Cross the banks of the latter stream became so steep that local residents called it the Hollow Bourne, shortened to Holebourne and still surviving in Holborn. In 1670 an attempt was made to clear the stream of rubbish as a water supply, and use its opening into the Thames as a harbour. Both projects failed and the Fleet was wholly built over in 1787.

West again flowed an important stream, the Tyburn. It surrounded Thorney Island, upon which Westminster Abbey was built.

Further west again was the West-bourne, rising in Hampstead. Part of its course may still be traced into and from the Serpentine. It joined the Thames at what is now Chelsea Bridge.

These streams, together with the many wells, whose names still survive, Camberwell, Holywell, Stockwell, Clerkenwell, and others, all over London, provided the only water supply until 1236. In that year a leaden pipe was laid down to bring water from the Tyburn to Paddington.

The first conduit, in West Cheap, was built in 1285, and soon followed by others near Bond Street and Bloomsbury. Credit is due to Peter Moris, a Dutchman, who pumped water from below London Bridge into the City. His family held this right until 1701.

In 1605 Sir Hugh Myddleton obtained authority to bring water from Ware in Hertfordshire, through the New River to Clerkenwell. His reservoir was opened in 1613.

The care of the sick and injured remained an almost unsolved problem until the days of Dickens and his Sairy Gamp. Before 1720 London had only two hospitals, St. Bartholomew's, founded in 1123, and St. Thomas's in 1213. Not until the eighteenth century did we have Guy's, the London, the Middlesex, St. George's and the Westminster.

Thus, and so far, has the prayer of the Litany been answered. But we hope for more as re-planning proceeds and new houses are built. We believe that London has been saved to be the most healthy, as well as the greatest, of capital cities.

F. KEELING SCOTT.

(From *'THE NINETEENTH CENTURY AND AFTER'*—Vol. CXXXIX).

THE UNFIT HOUSE

BLEASE, J. E.

The author refers to current visions of the towns of the future, and asks how far into the future we must proceed before these visions can become realities. He proceeds to show that what are generally accepted as "priority demands" will swallow up the total output of new building for some years to come. This leaves the pressing problem of the existing unfit house untouched, and the point is made that in order to benefit all sections of the community "the 'sub-standard' house should be up-graded in the housing drive," and that this process should be given equal priority with the erection of new houses.

The house principally referred to are the familiar "two up and two down" and "three up and three down" types, erected in rows fronting directly upon public footpaths and having small outbuildings in yards abutting upon narrow passages as the near: such as were built in thousands in Britain especially in the North, during the mid-Victorian era. These houses must of necessity continue to exist, but they should not be allowed to remain as they are; it is inequitable that people should be compelled to continue to occupy such houses while "priority" tenants take over new first-class houses or flats.

The types of works normally necessary to extend the "life" of these houses, and the difficulties, practical and financial, of carrying out such works, are dealt with and a typical cost of works valuation is given, based upon the experience of the author, which shows that the cost of reconditioning is approximately 79 per cent of the estimated value of the house. It is unlikely that such expenditure could be regarded as "reasonable under Section 9 of the Housing Act, 1936".

In order to meet the difficulties outlined, suggestions are made: (1) amendment of the provisions of the Housing Act, 1936, section 9, relating to repair "at reasonable expense"; (2) issue by the Ministry of Health of Regulations relating to certain domestic allocation of public funds to subsidize the improvement of sub-standard houses which it is politic to retain in use during the present period of reconstruction.

HENRY H. CLAY

(From *Bulletin of Hygiene*, Vol. 21., No. 5.)

NATIONALISATION

There seems to be no general understanding of what is meant by the 'nationalisation' of natural resources or of this or that public service, and the term is so loosely used that a number of different significations can in fact be read into it. Implicit in all is the idea of ownership vesting in the State, but here agreement ceases.

In the full meaning of the word, the term 'nationalisation' could be employed to express State ownership combined with direct operation by the State. An example of this is the Post Office, where the equipment is wholly owned by the State and the service is directly administered by the Central Government through a Ministry.

At one remove from this concept is the exploitation of a natural resource, or operation of a service, by an executive body, the members of which are directly appointed by the Government. While answerable to a Minister—and thus to Parliament—for its general policy, such an administrative body will enjoy a considerable degree of independence, and not being designed to operate like a Government department, is presumed to be able to function with the enterprise and efficiency of a first-class private undertaking, while at the same time giving full consideration to the welfare of the workers and to the advantage of the community generally. State operation of this kind is exemplified by the Dutch State Mines' Administration, which—in parenthesis—has exploited the Dutch coal mines with no little success.

In this country the operation by the State since 1942 through the Ministry of Fuel and

Power of the coal mines has been in direct. The coal resources of the country were already nationalised, as a result of the coal Act, 1938, by the State's purchase of all coal royalties for the global sum of £.66,000,000, but the colliery companies have continued to operate as before except for war-time control of prices and Ministerial Powers to assume technical direction of an undertaking where when this is deemed to be necessary.

Electricity supply since the passing of the Electricity (Supply) Act, 1926 the Electricity Supply Act 1919, which created the Electricity Commission gave this no executive powers—whereby the Central Electricity Board was established, has been brought under national operation, but cannot be said to have been completely nationalised. The Central Electricity Board, which began operations in 1927, is neither a limited company nor a Government department, but is a new type of public board, which is now generally known as a Public Corporation* (* A Public Corporation is defined as a Government agency for the administration of a public service). The difference between the Electricity Commission (the original body) and the Central Electricity Board is that the former is an administrative and judicial body while the latter is an executive and operating body. The Board is not directly responsible to Parliament, but is subject to a certain measure of supervision by the Minister of Transport, and is limited in certain other ways. It can make arrangements with supply undertakers, fix tariffs (subject to approval and confirmation by the Electricity Commission), and recruits and controls its own administrative organisation. The "selected" (generating stations supplying electricity to the grid) are the property of the individual supply undertakers, which operate them according to the instructions of the Board. In short, electricity supply in Britain is a nationally operated but not nationally owned service, though the result of the national operation is to produce something like the effect of national ownership. Other examples of the Public Corporation are the London Passenger Transport Board and the United Kingdom Commercial Corporation.

Railways, one of the public services which it has been most often proposed to nationalise, have come under direct State regulation and

control during the war, the companies being at the same time guaranteed a certain pre-arranged standard of revenue. This is presumably a war measure, with not much more than a hint of State operation, the Government through the Ministry of War Transport, controlling the number of service operated and the acting mainly as co-ordinator of the different transport systems.

Municipal services—water, gas, electricity, etc. are in a sense, already nationalised, that is, on a local scale and democratic basis. They are owned by a statutory authority responsible to the Minister of Health and directly operated by local government servants. But alongside them is a large number of privately owned enterprises. It is in this sphere that controversy at the present time finds its most congenial opportunity.

Speaking at the annual conference of the Rural District Councils' Association in London on December 6, the Minister of Health said:

"Let me begin by knocking out a few bogies. The first is nationalisation. I can assure you that the Government do not propose, and have never proposed, any weakening of local government by transferring to the State its more important or more interesting functions. We may, it is true, from time to time think it desirable to submit to Parliament proposals for nationalising this or that individual item of work, but I can state emphatically—I hope, as a matter of fact, that you are none of you in any doubt about this—that the Government have no proposals to make by which the position of local authorities, as bodies specially, elected for the administration of local public services, would be weakened." The import of this statement by Mr. Willink is surely that there is no incompatibility between democratic principles and nationalisation *per se*.

In a letter printed in this issue, the Chairman of the State Rivers and Water Supply Commission of Victoria explains how nationalisation of the water supply in that state operates. There appears to be nothing undemocratic in the way the Commission carries out its statutory duties, and the results of nationalisation in that part of

Australia since its inception in 1886, would seem to have been particularly happy.

We thus arrive at the following conclusions:—

(1) Nationalisation is not necessarily incompatible with democratic principles.

(2) For certain services, such as the Post Office, it may be imperative in the form of State ownership and direct State operation.

(3) For other services: State ownership of the natural resources on which they depend, control of operations by the central government and decentralised administration by local or special government bodies may be best. Water supply might prove to be one of these.

(4) For some public services—whether State-owned or not—operation by a Public Corporation would avoid the top-heaviness and lack of initiative associated with a bureaucratic administration dictated by the Central Government.

(5) Direct operation by the State of some multiple services, for example, the railways could be very undemocratic.

(6) Perhaps there is room for several different forms of "nationalisation" for certain public services whilst preserving the greatest possible degree of private enterprise in industry generally.

J. H. FENNEL.

(From "Water and Water Engineering").

BOREHOLE LATRINES.

Public latrines of this type which were constructed in 1935-36 from the Government of India grant were not as popular as was expected owing to the want of proper conservancy. Hence, it is considered desirable to confine the use of this type to places where scavenger attendants are available and to individual houses where the house-owner himself should take an interest in maintaining the squatting plate clean.

(Appendix to Madras G. O. No. 2286, dated 19th June 1939).

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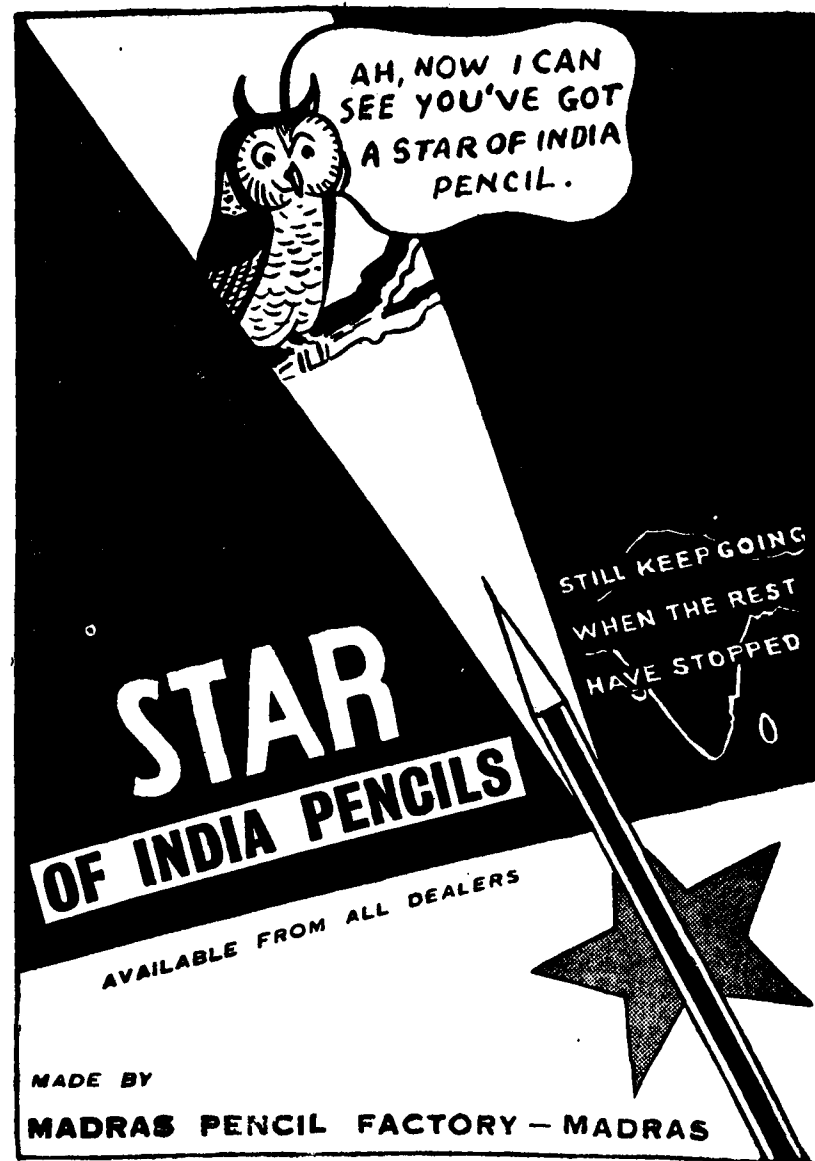
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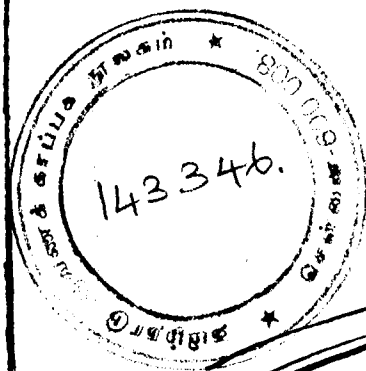
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