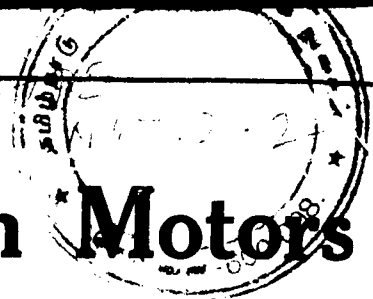


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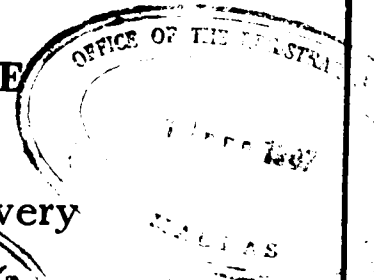
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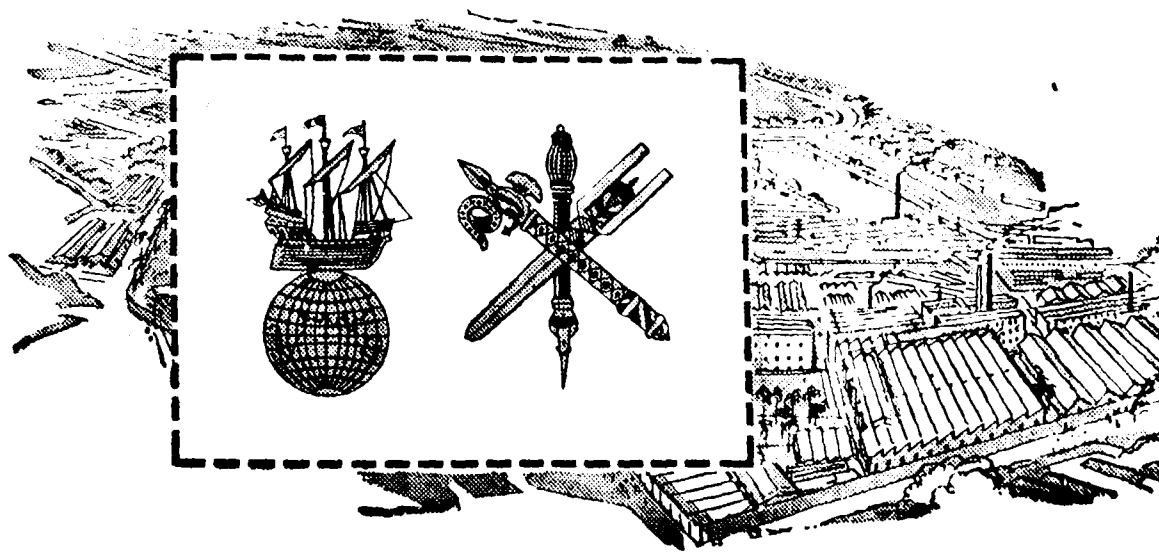
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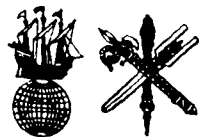


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To Subscribers : We would appeal to them to intimate to us the non-receipt of their copies **immediately** after the despatch of copies, or at any rate, **before the end of the calendar month** for prompt attention and effective action.

Manager,
"People's Health"
Madras 14.

PEOPLE'S HEALTH

A Pioneer in the Field of Public Health

Vol. II

NOVEMBER, 1947

No. 2

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VOL. II No. 2

NOVEMBER, 1947

ISSUED MONTHLY

EDITORIAL . . .

Cleaning the Services

Appeals have recently been made from very high quarters, the Press and the Public, to raise the *morale* of the administration in general. They have been backed by many considerations, the most important of which is undoubtedly the fact that the country has attained its political freedom and that therefore there can be no more cleavage in the interests or outlook of the Government, the services and the nation at large. We wish to emphasize this appeal in so far as it relates to the toning up of the health department of the State since the burdens which are cast upon this department are far more onerous than those pertaining to others.

EFFICIENCY IN THE OLD ORDER

In the old dispensation, when a handful of the British bureaucracy

administered the affairs of our country, there was a tacit convention that the public as opposed to the Government was a lawful prey of the services up to a point. While a very high standard of purity and efficiency was no doubt introduced and maintained in the complicated system of Government, civil and military, central and provincial, it cannot be said either that there was no corruption at all or that it was put down with pitiless rigour. On the other hand, there is enough evidence to show that the British Government did not scruple to take over some of the dubious aspects of Moghul rule between which and itself, there were certain family resemblances. Both the *imperiums* managed to keep going with the help of an intermediate class of agents or *dubashes* who acted as *liaison* between the essentially foreign government on top and dumb down-trodden millions at the base. In

proof of this, we can point to the continuance almost unabated, of a large variety of 'mamools' still in operation today. These 'mamools' are legalized loot.

As Sf has pungently put it :

"So, naturalists observe, a flea
Hath smaller fleas that on him
[prey ;
And these have smaller fleas to
[bite 'em,
And so proceed *ad infinitum*.

DISCREET CORRUPTION

Take for instance the question of travelling allowances. The higher the level of the scale of the officer, the more cynically does he exploit his position and gets all services, when on camp, rendered without paying a single pie from his pocket. The burden naturally falls upon the district officers who in their turn distribute it among their lesser subordinates. The extent to which this kind of imposition can be met also shrinks as we go down in the level of the officer concerned with the result that the poor camp clerk who waits on the touring officer either has to spend more from his pocket or collaborate with his opposite member in the district. We do not have at the moment the figures for the entire Province under the single item of travelling allowances. The rules in regard to

them lay down very clearly that they are not intended to be a source of profit but actually to cover the cost of touring. In practice, however, it may be safely asserted that there is not a single officer throughout the Presidency who has not at some stage or other made a false declaration and drawn a figure in excess of his actual expenses. Not infrequently the officer stays with the district official and takes his food with him, probably uses his car and yet he draws his daily allowance without compunction.

MORAL STANDARDS

We can understand that as the gap between income and expenditure is widening in the case of smaller paid officials, many of them have been forced to resort to dubious methods of bridging the difference. But we have no hesitation in saying that unless the officers concerned set an example in this matter and exemplify a devotion to truth in their own claims and returns, it is idle to expect any general rising in standards among the services.

HOW CORRUPTION FILTERS DOWN?

As regards the health department of the State, it is obvious that the lower ranks of service personnel suffer from disabilities arising from outmoded and inadequate scales of pay. Unfortunately, the problem of lower paid services is of gigantic proportions in

relation to the country as a whole. It is not surprising therefore that there has been no attempt at collating or harmonising the initial or final limits of salaries to the various departments of the Government. In many cases, the anomaly has now become very glaring of industrial workers, unskilled labourers, factory employees drawing a consolidated salary of nearly one hundred rupees a month, while the members of learned professions including teachers, health inspectors, bank-clerks have been most unmercifully ignored and still kept sweating in scales which might have corresponded to the reality fifteen years ago.

WAGES AND PRICE LEVEL

This is a fruitful source of discontent and can only be tackled by a courageous policy spread over a number of years. There are two possible ways of tackling this problem. The more common and popular method is to clamour for, or meekly concede to a general rise in the present scale of salaries. But it is notorious that in the unsettled conditions of general internal and international economy, a mere increase in salary without any attempt to stabilize the prices is to get oneself involved in a mounting spiral and find no rest until we exhaust the spiral and go off at a tangent, leading to a general economic crash. This is the simple reason why Governments as well as

economic experts have given high priority to stabilising price levels as a first step towards introducing an era of cheap prices and plenty. This in its turn would mean more production which calls upon the workers to give more work. This they are unwilling to do on account of their new found sense of solidarity and power.

PROVIDE HOUSING

The second method is likely to take a longer time to fulfil itself but it is the more enduring as well as statesman-like method. According to this method, the high costs of living under prevailing conditions can be mitigated by a flanking action as it were. There is no point in giving a house allowance of a few paltry rupees to clerks when there are no houses to get. A better method would be for the Government to take over the liability of providing accommodation for its service personnel on the basis of well-thought out housing schemes.

FREE EDUCATION TO CHILDREN.

Another liability of the poor clerk is the education of his children. With the prospects of education upto the secondary course becoming free and compulsory, it is possible to give relief to government employees by guaranteeing free education to their children even as we have already

pleaded for their being granted free medical treatment by virtue of their official nexus with the Government.

STATE INSURANCE

The third measure of reform would be to introduce a system of national insurance organized by the State itself to which a compulsory contribution may be made payable by every member of the service in the Government. This would be a measure of far-reaching economic stability and would provide a ready made fund from which Government can draw for a continuous programme of rehabilitation of the rural as well as urban parts. It is very important to remember that the burden of modern Governments is predominantly borne by the patient proletariat to which appeals are made in the most advanced political ideologies to-day. It is therefore impolitic for the State to give the impression that they are being ignored. A good instance of such forethought has been furnished in the British Government's sponsoring what has been hailed as the working man's charter and popularly known as the Beveridge Plan which was prepared in the war-years and presented to Parliament. It is an eloquent testimony to Britain's consciousness of its responsibility to the people who sacrificed themselves in such a superb fashion to make the victory certain.

IDENTITY OF OUTLOOK BETWEEN THE STATE AND THE CITIZEN

Unless some such long range plan is worked out, it is impossible to evoke in all its fulness and intensity the enthusiasm of the lowest paid services to the Government. Only then can they feel that the Government they serve is their own. We cannot expect to draw out of the people what you don't put into them as a preliminary. If we have to depend upon our people as the ultimate source of our strength and power, we must educate them into a new conception of the State, not by exhortations, but by tangible acts like the above which will convince them that it is the Government of the people, for the people, by the people. There is no civilized country today which does not have the benefit of some scheme or other of national insurance.

WHY NOT A BEVERIDGE PLAN FOR INDIA ?

We cannot do better than incorporate as soon as possible as many of its beneficial provisions as can be adapted to suit the conditions of our country. The *morale* of our services cannot be fully aroused by appeals in the moral plane. We must give them tangible proofs that we intend to improve their material lot as well.

ORGANIZE A MISSIONARY SERVICE

So far as the Health Department is concerned whatever may have been

the defects of it in the past, there is no doubt that we want an army of instructed technicians, even if their general qualifications are no more than of the S. S. L. C. standard. A sanitarian course, whether it is of one, two or three years, is a specialised course. Its importance to the maintenance of national health is too patent to need elaboration. That being so, we think it very necessary to stress the social aspect of their service and the missionary spirit that should animate it. If the conditions of a living wage are ensured for them as outlined above, the quantum of salaries and grades will naturally pale into insigni-

ficance. The risks they have to undergo are more real and more continuously with them throughout the year ; and in view of the fact that large numbers of them will be called upon to serve in the rural parts, the provision of free accommodation and free medical service for themselves can be achieved without any crushing liability to the Government. For the rest, and as a transitional measure, they might be shown special concessions in urban areas even as now we still maintain the Presidency allowance in contradistinction to the normal scales obtaining in the mofussil parts.



CIVIC DESIGN AND MASTER PLAN

by

M. B. CHABLANI

Chairman, City Improvement Trust,
Madras.



The author has outlined in this article the *broad principles* which should govern the preparation of a Master Plan. We have grave doubts whether a Master Plan which the author visualises would ever be prepared for the City of Madras which had grown to the present magnitude from clusters of villages. The so-called town extensions and land development here and there, have only helped to emphasize the haphazard development of the City. Much against the trend of modern thought, the limits of the City have been extended in recent times. It is evident that our Government and their technical experts have not bestowed that measure of thought and attention which the subject demands. The City Council seems to follow literally the Biblical injunction :

"Take therefore no thought for the morrow ; For the morrow shall take thought for the things of itself.

Sufficient unto the day is the evil thereof."

There appears to be much confusion of thought whether the city development and town planning are but one or whether the two should be considered as separate water-tight compartments. The City Council on the one hand, the official expert on town planning on the other, and the City Improvement Trust on the third, seem to be waging a war on the issue. Why create the City Improvement Trust and fetter its activities in the preparation of a Master Plan without which it is inconceivable to achieve results? The development of a few acres of land here and a small strip of open land there laid out on the obsolete checkerboard pattern cannot help the development of a City as an organic whole. It should be remembered in

the words of a well known writer " The intangible foundation of a city which is not a static but a dynamic, living organism, should be combined with the vision of its very best and knowing citizens in succeeding generations, guided into a reality by technicians trained for that purpose." In our country, we do not believe in having technicians trained for a specific purpose. We take it for granted that the 'G.O'. appointing a person to a post carries with it adequate technical knowledge on the appointee !

We appeal to the Ministry of Health to step in immediately and stem the tide of events which may have catastrophic consequences. —(Ed., P.H.)

LARGE cities, as we know them to-day, have grown to their present proportions since the industrial revolution. planning is one of the ancient arts practised by man.

Prior to the invention of the steam engine, civilisation was based upon Agriculture and cities at their best, represented the acme of commercial, craft, or cultural development of a region. Their growth was governed by the conditions of life and society in a country. During the disturbed centuries, cities invariably deteriorated into quagmires of squalor and degradation, generally reflecting the political conditions in the region. Since the industrial revolution, we have witnessed a phenomenal growth in the size of cities. India which is regarded as a conservative country, over-ridden by the rules of tradition, has not escaped the contagion and we have experienced an abnormal increase in the population of large cities during the last seven years. This increase in the city population of India has been accelerated by conditions created by the War, necessitating a quick expansion of industries in India.

Even to-day, a city is no more than a reflection of all these factors. It represents the sum total of beneficent or degenerating forces operating in a region, acting and reacting upon each other and producing a beautiful or an ugly manifestation of culture flowing from these conditions. In short, the city is but a mirror in which cultural attainments of the population are reflected in spite of the fact that city

This expansion has, in its turn, taken place around the existing large cities which have attracted rural population to itself by reason of the greater avenues of employment which the city affords and, latterly, by reason of the working of the rationing system, which is more satisfactory in cities than in rural areas. The consequence has been the doubling of the population in most of our large cities in India. For

instance, Madras which had a population of 7.75 lakhs in 1941 has a population of 12.5 lakhs now.

This quick growth has brought several civic problems to the forefront, the solution of which has been complicated by the almost complete absence of housing activity during the last seven years of scarcity.

While we, in India, have been affected in this manner, different trends have been in evidence in the countries of the West. European countries have experienced the destructive forces of the War. American cities, which had attained a measure of equilibrium in their growth, have become alive to the deterioration caused by their un-coordinated growth during the inter-war years leaving behind it a train of slums and blight. We, in India, were taken unawares and the deterioration has been both acute and rapid. So much so, that the over-crowding occasioned in our cities during the last seven years may be said to have put the clock back in the matter of public health by 25 years.

TOWN PLANNING—AS A SCIENCE AND AN ART

Development in Town Planning, both in the U.S.A. and Europe has led to the re-orientation of ideas in Town Planning. As a science, Town Planning may yet be said to be in its infancy while, as an art, it has not yet developed

into perfection, if it is to be viewed in the light of modern trends of concentration of population in mammoth cities, as we know them to-day. Nevertheless it cannot be denied that as a result of activity, during the inter-war years, the science and art of Town Planning have advanced considerably. While, formerly, Town Planning was regarded from the narrow angle of improving a city piecemeal, the present conception takes a much wider view and pre-supposes "a properly conceived plan setting forth the general location and extent of the physical development of the city for a considerable period of time". Such a plan implies inter-relationship which must exist between the different functional classes of public improvements—parks, sea-side and other structures, location of residential, business, industrial and other areas—and is based upon a study of the needs of the population over a considerable period of time in the past. A plan of this nature is called a Master Plan. And, it is upon the basis of such a Master Plan that the improvement of a city should be conceived and executed.

Thus, we see that modern trends in Civic Design tend to view the problem of a city as a whole and that this method of synthesis has been developed by a consideration of the cumulative deterioration caused by the *laissez-faire* policy

in the development of cities during the 19th century under the impetus of the capitalist economy of exploitation, which, in its turn, left city development to the tender mercies of private enterprise in the belief that the law of supply and demand would somehow bring about an equilibrated state of affairs in all spheres of civic activity. The result has been the disintegration of cities attended by urban blight and slums, which constitute the greatest social and economic problem, only next in importance to the havoc wrought by the War.

The *laissez-faire* policy has also been responsible for the destruction of civic consciousness and unity. It reacts unfavourably upon the city by engendering a lack of unity of purpose and interest in the dwellers of the city thus leaving the city to grow in a haphazard manner and gives rise to slums.

HOW ARE SLUMS CREATED?

I can think of several reasons which led to the creation of slums but it will suffice to enumerate the more cardinal causes which create slums. They are:

(a) Inappropriate land use; as for example, commercial or industrial area devoted to residential uses or vice versa. In Madras, we have the glaring example of George Town, where there is a jumbling of all sorts of uses.

(b) Marked discrepancy between the owner's ideas of the value of his property and its actual value for its appropriate use.

(c) People in higher and middle social and economic strata moving out to more open areas leaving only the poor and the economically weak in the area once occupied by them. There are several examples of this nature in Madras, where the working classes and the lower middle classes are in occupation of unsuitable accommodation by virtue of this change, the owner continuing to run the property for profit without effecting a change necessitated by the changed conditions. This has also led to the lack of repairs and maintenance, further depressing conditions from a sanitary standpoint.

(d) Dilapidation and decay due to age, neglect, or faulty construction, resulting in the occupation of the property by persons of lower income groups.

(e) Overcrowding of land by its more intense use by the owner by successive building operations in order to realise a higher income on his property quite often to meet the demand made on him by higher taxation.

(f) In some cases, the fear of what the neighbours might do with their property, prevents the owner

from carrying out desirable improvements.

(g) The liberal policy pursued by Local Authorities in providing greater facilities in outlying areas developed by them while neglecting the older urban areas.

From a survey of the causes of deterioration, it will be seen that while some areas have degenerated into slums and can be easily recognised, others, which are in an incipient stage, cannot be so readily recognised. Sane policy would, therefore, demand a survey of the city in various aspects in order to determine the general conditions of the city and varying civic condition of its components.

WHAT CONSIDERATIONS GOVERN THE PREPARATION OF A 'MASTER PLAN'?

In Madras, growth of population has been so rapid that we do not even know the condition of each division or ward of the city. We cannot even guess the type of population which lives there or the occupations which its inhabitants follow or the transport facilities which they need. It follows that any disjointed effort at improving the city without a careful appraisal of its population—and what is even more important, the needs of its population—is not likely to yield desirable results. We must also remember that transport

has undergone a great change and that the pattern of the road system in the city has remained intact inspite of a large increase in its population. At the same time, open land has been gradually encroached upon in those divisions where the population has pressed heavily. Any improvement of the city must, therefore, take into account the following considerations, which must form the basis of a comprehensive survey.

(1) The geographical and physical structure of the city and its surroundings.

(2) The manner in which land is utilised.

(3) Location of industry and of the industrial population in the city, the industry being examined by the type of manufacture, mobility, number of workers employed, location of the factory and the extent of atmospheric pollution caused by it.

(4) Economic survey of Trade and Labour.

(5) Transport facilities including the volume and flow of traffic.

(6) Survey of public utility services such as Water-supply, Electricity, Drainage, etc.

(7) Housing—Its location and conditions and the analysis of urban blight.

(8) Distribution of shops and analysis of retail trade according to the type of shop (Food, clothing, household goods, miscellaneous merchandise, etc.), areas within half a mile of shopping centres, numbers employed per shop, their annual turnover; economic type (i.e., Independent, co-operative, etc.) spheres of service, shopping habits of economic groups, incidence and trends of increments and decrements.

(9) Social and physical survey of cultural, religious, recreational and sociological services, both indoor and outdoor.

(10) Administration—Local Government areas, local taxation, land values, etc.

Without a comprehensive survey of this nature, any improvement would be in the nature of blind man's buff.

We suggest that a true understanding of all facets of the organism and culture of the city is most essential before its needs can be appreciated and catered to. For, a city is an organic co-relation of individual forms. Historically, its present growth is analogous to that of a tree from its seed. Above all, a city is a piece of art. Its design is conceived in the mind of man rather than with the help of a Tee square. From the point of view of society, the city may be regarded as a nucleated growth creating a huge

welding force and exercising a civilising influence over the surrounding tributary area which, under its influence, claims homogeneity and becomes a natural social unit. It follows that the boundary for a Master Plan must be fixed in relation to its natural social unit and not by any other artificial consideration such as political or administrative boundaries. It is only under these conditions that a city can be studied and designed in its proper civic dignity.

We have already referred to the inter-relation of industry and other components of the structure of a city and would stress the functional character of its components and their inter-relationship to the centre of a city. We suggest that the functions of these components and their inter-relationship with the city must be thoroughly analysed before harmonious and organic civic regeneration can be achieved.

NATIONAL FORCES AND URBAN GROWTH

We may now summarise the natural forces which are constantly at work in the process of urban growth as those centripetal forces which are born of the tendency on the part of the people to cluster in cities for their work and for the amenities which city life provides. These forces of concentration may be brought into being by cultural causes such as education. In contradistinction, we get centrifugal forces which

are born of the tendency of people and institutions to shift out from the existing urban area to open lands. In India, we have witnessed residential decentralisation rather than the decentralisation of industry, commerce or administration.

Civic Design, then, implies the balancing of these opposing forces so as to create a harmonious and beautiful city. We suggest that its accomplishment is neither practicable nor possible without conceiving a proper Master Plan which must be based upon the fundamentals of survey of the existing conditions and an analysis of the factors which have brought about these conditions so that the opposing forces may be canalised along well directed and conscious channels of growth in order to avoid recurrence of future decay. We can do

no better than close with a quotation from Lewis Mumford who says :—

"The City in its complete sense, then, is a geographic plexus, an economic organisation, an institutional process, a theatre of social action, and an aesthetic symbol of collective unity. On the one hand, it is a physical frame for the common place, domestic and economic activities; on the other, it is a consciously dramatic setting for the more significant actions, and the more sublimated urges of human culture. The city fosters art and is art; the city creates the theatre and is the theatre. It is in the city (the city as theatre) that man's more purposive activities are formulated and worked out, through conflicting and co-operating personalities, events, groups, into more significant culminations."

Man is lost in the vast extension of our metropolitan area as they are today. There is no relationship between their vastness and the human scale. This inhuman extension of cities and that of their ever-expanding suburbs have not been sufficiently debated in popular magazines to make the public react against them. Today to get out of the city to the open country we have to drive through a long distances on congested roads—at least it was so before the war. Walking in the city is restricted to very rare spots. To contact natural surroundings, open spaces, parks, etc., requires effort and displacement. *The natural frame of man has been destroyed in the big cities.* Elements hostile to human nature have replaced the natural ones that once constituted man's surroundings. We are obliged to walk on hard pavements, to breathe and see through polluted air, our eyes are constantly disturbed by rapidly changing lights. Our "corridor streets" canalize cold or hot air and noises of all kinds, etc. But besides having substituted the natural surroundings of man for hostile and artificial ones, *cities have fallen short of their main objective, that of fomenting and facilitating human contacts so as to raise the cultural level of their populations. To accomplish this social function cities should be organic structures.*

(The Human Scale in City Planning by Jose Luis Sert)

ANTI-CHOLERA INOCULATION

Its Efficacy
in the Prevention
and Control of Epidemics

by

Dr. R. ADISESHAN

Dr. C. G. PANDIT

and

Dr. K. V. VENKATRAMAN



Col. A. J. H. RUSSELL (now Sir Alexander) carried out a survey in 1925 and 1926 on limited statistical material on the comparative value of anti-cholera inoculation and oral administration of bili-vaccine in individual protection against cholera. It would appear that the surveys conducted by him were not based on sufficiently large and accurate statistical data. His surveys are not therefore comparable to the investigations conducted by the authors from whose report we are giving hereunder some portions extracted from the Indian Journal of Medical Research (July, 1947).

Some investigation has been done on cholera and Madras can rightly claim credit for some substantial work in that field. Despite the investigations conducted so far, the subject still seems to be shrouded in mystery. Cholera flares up as mysteriously as it recedes! First, our record of vital statistics is defective.



To draw inference from such defective statistics may prove misleading. In this instance, the statistical particulars gathered by the authors were reviewed independently by Dr. C. Chandra Sekar, Professor of Statistics, All India Institute of Hygiene and Public Health, Calcutta. From a perusal of his analysis of the statistics, it appears that the field data collected by the authors may be taken to be reasonably accurate. As regards efficacy of anti-cholera vaccine used at present in the Madras Presidency, it contains both the two known types of cholera vibrio. The strains used in the preparation of cholera-vaccine seem to determine the extent of protection which inoculation would afford. In this field, there is a wide scope for investigation. We are glad to note that the workers at the King Institute, Guindy, are actively engaged in studying the problem.

Locking up the stable doors after the horse is stolen, is an old adage. It is particularly applicable in the case of preventive measures adopted against epidemics, such as cholera and small-pox. We find reports in the Press that cholera epidemics had broken out in a particular place and that the Health Department had been vigorously taking up inoculations! What is more important is a drive for *anticipatory inoculations before the epidemic actually breaks out*. We believe that a correct appreciation of the trend of events and statistical particulars should help any top-ranking epidemiologist to give a fairly accurate forecast of the possibilities of the spread of an epidemic of cholera. In practice, however, we do not seem to get the benefit of such forecasts.

There has been some talk on the length of the period of immunity which inoculation against cholera affords. The present investigation shows definitely, according to the authors, that the immunity conferred by anti-cholera inoculation lasts for *a minimum period of six months and probably remains effective up to 12 months*.

Complications may occasionally arise from inoculations such as swelling in the region where inoculation has been done. The swellings so caused give pain and cause anxiety but subside in the course of 24 to 36 hours. We are assured that they are perfectly harmless and are, to a certain extent, inevitable. All the same, such reactions make inoculation unpopular and efforts should be made to obviate this defect without impairing the efficacy of the vaccine.

There is still a considerable field of work in the investigation of cholera. Government should not merely allot adequate funds for investigations but

also give freedom to the experts to choose suitable personnel for investigations of this kind. Research work cannot be determined either by the ballot box or by an executive fiat.

No one is infallible and much less our scientific investigators! What is hailed to-day as the safest and the best may be found to be not so safe and effective by later investigations. Science progresses; but the safest and the surest way to eradicate cholera from our midst is the provision of safe and abundant protected water-supply to our people. Our public health (medical) experts who believe in inoculations and segregation may say, "Doubtless it is so; but it is expensive and cannot be achieved and therefore let us follow the time-worn preventive methods"! So long as this mentality persists in the minds of our public health (medical) experts and so long as they prescribe these 'cheap' remedies, there is no salvation for the common man. It is the primary duty of the State to ensure the supply of safe and abundant drinking water to the people. This obligation should be kept prominently in mind by our statesmen in organizing public health services. (Ed., P. H.).

EXTRACTS FROM THE REPORT

For many years cholera vaccine has been extensively used in India and elsewhere as a personal prophylactic, especially when cholera epidemics are imminent or in progress..... Apart from the value of the vaccine as a personal prophylactic, other immunological problems, such as the duration of immunity conferred and the case fatality rate in inoculated subjects, and not been considered in previous studies on mass inoculation campaigns. For these reasons, the large number of inoculations done during the widespread and severe epidemic of cholera which, in 1942 and 1943, involved over two-thirds of the Madras Province, was considered to afford an exceptional opportunity to reassess the value of inoculation in the prevention and control of epidemics, and also to study the time factor in the development of immunity and the period for which it remains effective.....

The present report on the investigation refers to rural areas only. The objects of

the inquiry by the authors have been to determine:—

(a) Whether anti-cholera inoculation confers immunity against cholera, and if it does, the time taken for its development from the date of inoculation.....

(b) The duration of the immunity conferred by inoculation.....

(c) The influence, if any, of mass immunity on the occurrence of subsequent outbreaks.

* * * *

The greater proportion of the inoculations were done by Sanitary Inspectors trained in inoculation work; only a small proportion was performed by the staff of medical institutions or by private medical practitioners.

The vaccine was almost invariably administered in a single dose as this alone is feasible in mass inoculation campaigns during epidemics. In the case of adults, the dosage was 1 c.c. of

vaccine containing 8,000 million vibrios; proportionately smaller doses were given to children.

The data collected from the village records were transferred to posting cards for subsequent compilation..... In order to get a sufficiency of representative statistical material, cards were supplied to the District Health Officers of eleven districts, viz., South Arcot, Madura, Tanjore, Trichinopoly, Tinnevely, North Arcot, Chingleput, Bellary, Anantapur, Cuddapah and Kurnool.

The total number of villages and hamlets for which data have been compiled is 2,350. The population of these villages was approximately 3.3 millions of whom 1.18 millions were inoculated. About 55,000 cases and 30,000 deaths from cholera were recorded in these villages during the epidemic. *The data included in the study relate, however, only to the period after the commencement of inoculation.* A summary of the basic data is given below:

- | | |
|---|---------------|
| (a) (i) Total number of villages and hamlets included in the survey | 2,350 |
| (ii) Number of villages and hamlets which had two or more outbreaks in the epidemic | 627 |
| (b) (i) Total population of the 2,350 villages included in the survey | 3.30 millions |
| (ii) Number of inoculations in above | 1.18 " |

As varying periods are required for the development of a sufficiently high level of immunity after prophylactic inoculations, the period of six days prescribed in the International Quarantine Regulations was adopted as the period

necessary to confer protection in the case of anti-cholera vaccine. A person inoculated with anti-cholera vaccine was deemed to be 'protected' after the sixth day of inoculation.

Summary and Conclusions.

There were 1,118 cases of cholera amongst 7,09,977 protected persons in the inoculated population and 34,336 cases of cholera in 2,119,568 uninoculated persons. The case incidence rates in these two groups of population were 1.57 and 16.20 respectively per 1,000 representing a ratio of 1 : 10.3.

In South Arcot district which contributed over 50 per cent of the statistical material in the present inquiry, there were 2,439 cases and 1,124 deaths in the inoculated group, and 14,015 cases and 8,956 in the uninoculated group. The case fatality rates in the two groups are 46.08 and 63.90 per cent respectively; the proportion being 1 : 1.39. There is no significant difference in the fatality rates among the cases occurring in the successive days after inoculations.

According to the International Sanitary Convention, anti-cholera inoculation confers effective immunity six days after the date of inoculation. Judged by the incidence of cholera in the inoculated persons in the present investigation, immunity first manifests itself on the fourth day after inoculation and reaches an effective level after the eighth day.

The immunity conferred by anti-cholera inoculations lasts for a minimum period of six months and probably remains effective upto 12 months.

Herd immunity seems to play an important part in preventing multiple outbreaks in a locality during an epidemic. If, during the first outbreak, 50 per cent or more of the population at risk is inoculated, the chances of subsequent outbreaks are greatly reduced.

GREEN MANURING OF PADDY

by

M. S. SIVARAMAN

Director of Agriculture, Madras



The Principal food crop of the Province is paddy and though it is cultivated in all the districts, the food supply falls short of our requirements. This is because the average yield is **LOW**, being about 1600 lbs. per acre as against 6000 to 7000 lbs. obtained in Japan, Spain and Italy. It is not difficult to improve the yield of paddy. For instance, in some of the Government Agricultural Research Stations where the yield was formerly about 1600—2000 lbs., the yield is now 3000 to 4000 lbs. per acre.

Food can be produced only from the soil and no amount of talking will help us to produce more food. If food supply is to be improved quickly, the soil has to be tackled by manuring. The question of manure supply is

therefore indissolubly bound up with the well-being and even the bare existence of our people.

The manures commonly applied to paddy fields are farm-yard manure, green leaves, oil cakes, bone-meal, fertilisers like sulphate or phosphate of ammonia, super phosphate, etc. But the supply of these is at present limited. The only type of manure which can be increased considerably and that too in a short period is **GREEN LEAVES**. Experiments in the Agricultural Research Stations and on ryots' fields in all districts have proved the universal efficacy of green leaves in improving the yield of paddy. The percentage increase in the yields varies from 25 to 45 per cent. A maximum response of 50 per cent. was noticed

with an application of 6000 to 8000 lbs. of leaves in the case of the Circars Districts and West Coast soils and 9 to 17 per cent. in the Cauvery delta and Coimbatore District. The average dose is about 4000 lbs. or 3 cart-loads of green leaves per acre. It will be seen that every 40 lbs. of green leaves will secure an increase of one Madras Measure of paddy. The more leaves we apply as manure, the more food we produce. The solution sounds so simple: yet the food shortage has been chronic!

There are two ways of growing green leaves for use as manure for paddy fields:

(a) The first is to raise a green manure crop like Pillipesara, Kolinji (Vempali), Daincha, Sunnhemp, *Sesbania speciosa*, etc., on the paddy field after the harvest of paddy and plough it in before transplantation.

Pillipesara thrives well on stiff soils; Kolinji on light soils; Sunnhemp on medium soils; Daincha and *Sesbania speciosa* on all types of soils. Daincha is also particularly suited to alkaline lands. The seeds of green manure plants are generally sown before harvest of paddy when there is some moisture in the field and the green manure crops thrive on the summer showers where there is no scope for irrigation.

Of the green manure plants, Kolinji has the great advantage of being self-

sown after it is once introduced in any area, i.e., when once the crop is established in a paddy field, the Kolinji seeds that scatter from the plant, germinate after the paddy is harvested and therefore there is no need to sow the seeds again in future years. Kolinji grows on wastelands and the seeds can be gathered by village children in their spare moments. It pays to collect the seeds as the price will be raised from Rs. 12 to Rs. 18-6-0 for a bag of 160 lbs. from 1st December 1947.

Pillipesara and sunnhemp are also greatly valued as cattle fodder. *Sesbania speciosa* will produce a lakh of lbs. of leaves per acre. It decomposes easily in the paddy field as the stem is pithy and its chief merit lies in the fact that it can thrive under the swampy conditions of the paddy field. When planted along the edges of a paddy field in July at the time of transplantation of paddy, each plant produces about quarter of a pound of seeds by December and a few dozen plants will produce the seeds required for sowing in an acre by December. The ryot will not therefore be put to the expense of purchasing the seeds every year.

The seeds of green manure plants are not now available in plenty and this will be the case until the wet land ryot learns to produce on his holding, his requirements of seeds even by

setting apart a part of his land for this purpose. In order to encourage the production of green manure seeds, the Madras Government have recently offered a subsidy of Rs. 6-8-0 on every 160 lbs. of seeds produced.

(b) The second method is to raise quick growing shrubs on the bunds of fields. This will suit all areas and in particular all places where there will not be sufficient interval between the harvest of one crop and the transplantation of another to raise a green manure crop on the field. A quick growing shrub like Glyricidea (*Eru-thazai* in Tamil and *Rotta Aakku* in Telugu), *Adathoda* (*Addasram* in Telugu), *Calotropis* (*Erukkan* in Tamil and *Jilledu* in Telugu), *Leucaena*, *Jatropha* (*Kottamanukku* in Tamil and *Nepalem* in Telugu), *Malaipoovarasu* (*Konda Ganna Ravi* in Telugu) may be raised in back-yards of houses, village sites, vacant places, sides of roads, along tank and channel bunds. The leaves of most of these are not browsed by cattle and even goats dislike them. The shrubs stand frequent lopping and no trouble is involved in maintaining them except the initial effort in planting a branch or a stump. Various kinds of trees also give abundant supply of leaves, like *Pungam* (*Kanuga*), *Odiyam* (*Gumpena*), *Vadanarayana*, etc. But for quick results, the quick growing shrubs may be preferred.

Glyricidea, *Leucaena*, etc., are particularly to be recommended as these can be raised from small cuttings and are very quick growing and the roots harbour certain types of bacteria which absorb atmospheric nitrogen for the benefit of the host plant. Glyricidea and *Leucaena* are therefore the poor man's fertiliser factories which go on yielding a more or less balanced manure in the shape of green leaves, in spite of repeated loppings. Each Glyricidea plant will give 40 lbs. of leaves in the first year and upto 300 lbs. a year after the third year. If glyricidea is raised on the paddy field bunds, the ryot will have his manure on the spot ready for use when he gets water for irrigation. If necessary, he may even slightly enlarge narrow bunds in places where the stump is planted. Even if 100 plants are planted on the bunds of an acre by enlarging 9 inch-bunds to 2 feet, the extra area encroached on the field will be less than 1/300th of an acre. It is not necessary to plant glyricidea on all the bunds, as some will be required for use as paths and for other purposes. *Leucaena* is a thin medium sized tree which has the great merit of possessing a hard wood which can be used for making agricultural implements, for fuel and for house construction. In the irrigated areas *Leucaena* will solve the ryots' fuel problem and help him to

conserve the cattle-dung for manuring the fields. These two shrubs can be raised on paddy field bunds without detriment to the crop.

It should be realised that unless more leaves are grown, more manure cannot be produced and more food will not be forth-coming. The initial effort is not difficult and the gain is enormous.

With abundant supply of organic manures to the fields, we can apply fertilisers without risk to the land. Then only can we hope to get the

phenomenal yields obtained in Japan, Spain and Italy. Madras should not lag behind these countries and *IT NEED NOT*, provided a Province-wide campaign is successfully conducted to plant more shrubs and trees. Trees and shrubs can be planted throughout the year under suitable conditions and it is never too late to start planting them. Remember that if every ryot plants even one useful plant a day and utilises the leaves for manuring paddy fields, there will be no food scarcity next year or thereafter.

The fundamental facts about green manuring are now fairly definitely established. When the green crop is ploughed in, it at once becomes a source of food supply for all the various organisms living in the soil: the bacteria, and through them the *protozoa*; the *actinomycetes*; *fungi*; *saprophytic algae*; *nematodes*; and the vast number of small invertebrates: worms, ants, etc., that are practically always present in the soil. The usual course of the decomposition is that these organisms in their search for free energy and nutrients, nitrogen, phosphorus, etc., convert the plant constituents into compounds of lower free energy content and they assimilate such of the nitrogen, phosphates and other mineral nutrients as they require, excreting or secreting unwanted material. The soil population is extremely varied, and the needs and possibilities of its members vary very widely; substances unutilisable or even excreted as harmful by one group of organisms may form the food stuffs of another. Some of the organisms bring about a second type of reaction, a fermentation, in which compounds are decomposed without being assimilated by the organism producing them, though commonly the products of this type of reaction are assimilated by other organisms. The final result is that the plant residues are ultimately converted into carbon-dioxide, nitrates and mineral matter.

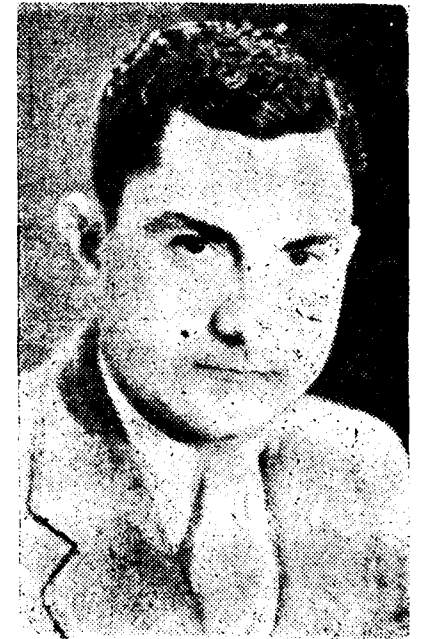
General Survey of the use of Green Manures
by
Sir E. JOHN RUSSEL.

SANITATION RINGS THE CASH REGISTER MORE OFTEN

by

George M. UHL, M.D.,

City Health Officer, Los Angeles, California



Any retail food establishment, from the humble one-man roadside hot-dog-and-pop vendor to the swankiest rotisserie, stays in business only as long as it is successful; and it is successful only as long as it has enough customers to give it a profit on its investment and operating expenses. The key to success in the retail food business, therefore, is the same as the key for success in any other business—satisfied customers.

Now, how does one get satisfied customers for any kind of business? By the usual methods, of course: by prompt and courteous service, and by reasonable prices for the type and quality of product sold. However, in the retail food business, there is an additional item—*food sanitation*—to consider.

In other words, sanitation is the plus item which each and every operator of a restaurant must take into consideration if he wants to stay in the food business, and prosper. Sanitation is also the extra item which makes a food business—and especially a retail food business—one of the most difficult to operate successfully.

The foregoing statement is true despite the occasional exceptions which can be found in every city and country of the nation. These exceptions, however, do not prove the rule. They merely indicate that, for one reason or another, the local health departments just haven't caught up with them. This in turn means that such operators are doing business on borrowed time—

from day to day and from hour to hour—before a permit suspension or a closing order, at the least, a court citation hits them.

What does a court citation or a permit suspension or a closing order mean in terms of the cash register? It means very often a considerable loss of trade. Sometimes this temporary loss of trade leads to a permanent loss of the business in question, as will be seen from examples to be cited later. At best the resulting bad publicity is difficult to overcome. "Give a dog a bad name and you might as well shoot him."

Since it is probable that no active member of the National Restaurant Association has ever become so careless as to clash with his Health Department over non-compliance with local sanitary regulations, it might prove useful to enlarge somewhat on the subject of how such things actually come about. Then it will be more quickly apparent how directly the ring of the cash register reflects the sanitary condition of a retail food establishment.

In this city, all food establishments operate under a recently amended food sanitation ordinance which is an adaptation of the U. S. Health Service Bulletin No. 280 entitled, "Recommended Ordinance and Code Regulating Eating and Drinking Establishments."

Violations of sanitary regulations which in the city of Los Angeles, for

example, would bring upon a food seller such drastic measures as a court citation, or worse, fall into two types:

- (1) those having to do with the physical plant and its equipment: and,
- (2) those having to do with the maintenance and operation of the physical plant and its equipment.

This is admittedly a large order. Therefore, to be certain that we make no error in our evaluation of a given sanitary or unsanitary situation, the Department keeps a permanent, continuous record of every food establishment under its jurisdiction. This record corresponds to the kind and type of violations just mentioned.

FOOD CARDS

It may be helpful to newcomers in the retail food business, and reminiscent to old-timers, if we discuss briefly the items which every district sanitarian must check on the food cards for his district. These cards, incidentally, are 5×8, salmon-colored index stock.

The sanitarian begins, naturally, with the name of the permittee and the address of the food establishment itself. He then notes the kind of food business it is—a cafe or a restaurant, whether alcoholic beverages are sold for consumption on the premises, or whether

it happens to be a cafeteria or sandwich stand or bakery or confectionary.

Next the district sanitarian notes the available toilet facilities, such as number of rooms and water closets, the number and type of urinals and lavatories, the existence or absence of toilet vestibules and vestibule lights, the adequacy of toilet ventilation, whether the toilet floors are made of concrete, tile or wood.

After recording what the toilet and wash room facilities consist of, the sanitarian turns to a description of the building or structure in which the particular food establishment is situated. Has it a closed or open front? Is its exterior rat-stopped and its interior rat-proofed? Are its walls plastered or wooden? Are the floors of concrete, wood or some other impervious material?

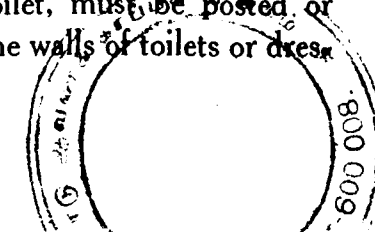
Also duly noted on the side of the food card which has to do with the physical plant is the type of dish and glass washing being done—manual or machine—and whether the sanitation method is chemical or by means of hot water or steam.

On the reverse side, this food card is divided vertically into columns on which is recorded, item by item, how the particular establishment is maintained and operated. There are sixteen such items, some of which may seem repetitious because they have already

been listed on the other side of the card. Actually, however, they are not repetitious. For example, the wall of a food establishment may be satisfactory as to plaster construction but quite unsatisfactory as to cleanliness and absence of holes and cracks in which insects can thrive.

The district sanitarian again begins at the top and marks an X in the OK or NOK column, according to his findings. Among other things, he checks the validity of the permit, the adequacy of the dishwashing, the methods of storing food inside and outside the refrigerator, the cleanliness of the food preparation equipment, the presence of vermin, and the proper disposal of garbage.

This, however, is still not all that our district sanitarians look for in filling out food cards in the field. They give, for example, considerable attention not only to the type of toilet facilities provided by the operator of a restaurant but, more important still, how those facilities are maintained. Our ordinance requires, for example, that restaurants provide soap, hot running water and sanitary towels for the employees of cafes, restaurants and other food establishments. Moreover, signs which remind food handlers to wash their hands after use of the toilet, must be posted or stenciled on the walls of toilets or dressing rooms.



All this obviously takes time. More time than those who never have made a thorough inspection of a food establishment may imagine that the job should require. We in the City Health Department are convinced that the time is well spent. Well spent from the standpoint of protection for the public and time well spent from the standpoint of the permittee or owner.

APPROVAL

The last statement is no mere conjecture. The operators of local food establishments, through their organization representatives agree with us that thorough painstaking inspections are good for their businesses. Their agreement is the more commendable, because at first they perhaps doubted the sincerity of the Health Department. Now they not only do not doubt us but they actually encourage us in our efforts.

The encouragement which the City Health Department has received and is receiving by and large from the local members of the National Restaurant Association as well as from others in the food industries has taken several forms. One of these is unusual enough to merit spreading on the record publicly. It is a fact that the operators of retail food establishments in the city of Los Angeles have individually and through their organization representatives, approved an increase in their

own health permit fees which in many instances was as much as ten times that they had been for longer than anyone cares to remember.

Such approval by permittees of an increase in their own permit fees is remarkable enough. But still more remarkable is this: the operators of food establishments in this city, or their representatives, approved this additional taxation with the understanding that the resulting revenue was to be used to employ additional sanitary inspectors. The employment of additional inspectors will of course mean more frequent inspections and even closer supervision of those very same establishments whose operators endorsed the larger fees. This can only mean that our sanitarians are sincerely welcome in their official visitations.

It boils down to this, does it not?—that we in public health and you in the food business are working for the same people. And not merely for the same people, but on the same job. Therefore, your problems and ours, with respect to food sanitation, are two sides of the same coin. When we, as health officials, succeed in solving a problem in sanitation for a food establishment, we earn our salaries plus a certain amount of satisfaction of a job well done. When you, as food sellers, solve that problem, your reward too, consists

of satisfaction of a job well done and at least a reasonable return on your labour and investment.

INSANITATION COSTLY

Now, no one ever doubts that a conscientious health official earns his pay, but there is still some doubt among some operators of food establishments that sanitation pays off at the cash register.

To remove such doubts among the few who may still hold them—and to confirm the vast majority in their belief in, and practice of, operating their food establishments in a sanitary manner—a few cases from our records may be cited as examples.

The first case is that of a food establishment no longer in business. It was forced out of business and into bankruptcy by suits for damages which totalled about one million dollars. The plaintiffs had been victims of typhoid fever. This outbreak of typhoid fever, as the investigations of Health Department epidemiologists showed, was caused by food prepared at that certain establishment.

Another case is that of a food seller with a serious rat problem. Unfortunately, this old-timer simply could not, or would not, realize that a rat problem can be serious. After many years in one kind of food business or another, he had come to accept rats as

just another unavoidable Act of God to be written off in red ink every year. As for the relationship between rats and public health—well, that was just another newfangled notion with which to badger honest, hard-working business men. Therefore, he ignored the oral and written warnings of the health department.

Eventually, our friend was telling his old-fashioned theories to a judge. The Court was unimpressed and fined him a substantial sum which was to act as a reminder that the city health code is not a joke book. The sadder but, as it turned out, not much wiser restaurant operator went back to his office and called up an exterminating service.

Not many months later, our friend again stood before a judge charged with operating a food establishment that was infested with rats. He, or rather his expensive lawyer, produced receipts from a pest control service to show that he had made an honest effort to comply with the law.

Thereupon the city attorney, prompted by the witness for the people sitting at his side, observed that while the defendant's effort to comply with the law may have been honest as far as it went, it had not gone nearly far enough. Paying a few dollars a month to an exterminator to spread a little rat poison could not possibly correct that particular infestation. His trouble was deeper

than that. He had been advised to make certain repairs which would keep the rats out of his establishment altogether, rather than try to poison them after they came in. Such repairs would admittedly have cost several hundred dollars.

To make a long story short, neither our friend nor his lawyer were able to convince the Court that his intentions were as good as they should have been. Since it was a second Court appearance after repeated warnings, the restaurant operator was sentenced to pay a fine of several hundred dollars and to spend 30 days in jail. However, the jail sentence was suspended with the proviso that if another health violation occurred within one year, the 30 days would have to be served without further ado.

That was still not the end of the story, so far as financial loss went. The restaurant operator finally did spend the necessary several hundred dollars for repairs, but the suspended jail sentence hanging over him preyed on his mind too much. He placed his business on the market. Since word of his encounters with the health department had spread among the trade, he had to accept a loss before any buyer would take the business off his hands.

FAULTY EQUIPMENT

Many similar examples could be cited from the department's record.

But perhaps just one more will suffice. This case was somewhat unusual because it was brought to the attention of the Director of our Sanitation Division by a member of the Board of Health. It was more in a spirit of regret than fault-finding, that the Board member casually mentioned how he had to stop patronizing what he thought was the best restaurant in town, because of the oppressive and unappetizing odors of stale grease which penetrated from the kitchen into the dining room. Others too, it later transpired, had stopped eating at that restaurant for the same reason.

Upon inquiry, the puzzled owner of the restaurant in question admitted that many of his other customers had also transferred their patronage elsewhere. Nor could he understand why this should have happened. He himself had become too habituated to the bad odors of his establishment to sense anything wrong.

Inspection revealed nothing seriously wrong from a sanitary standpoint except those bad-for-business odors. The trouble was found to lie in the exhaust fans which were supposed to ventilate the kitchen but which, because of faulty mechanical adjustment, just didn't suck out enough of the stale kitchen odors to do any good. It is quite possible that the health department's efforts saved that particular food seller's business.

You members and officials of the National Restaurant Association are, of course, aware of the part which sanitation plays in the success of every retail food establishment. Proof of this awareness is found in your association's arrangement with the National Sanitation Foundation for a co-operative study of restaurant equipment from the stand-point of efficiency as well as sanitary operation.

The officials and members of the National Restaurant Association, however, operate only a fraction of the more than 330,000 large and small retail food establishments in the United States. Nevertheless, your influence in the retail food industry far exceeds your numbers. What you, the leaders, do today, the entire food industry will do tomorrow.

EMPLOYEE DRESSING ROOMS

Before closing, perhaps one more suggestion may be in order. It has to do as much with sanitation as with employee-employer relations.

According to statistics of the Department of Commerce, the rate of turnover of employees in food establishments is unusually high even in normal years. We in public health believe, we know one of the reasons why. It is in itself perhaps a little thing but the sort of little thing that looms large by comparison in the eyes of restaurant

employees. We refer to the matter of clean, well-equipped, well-lighted and well-ventilated dressing rooms for employees. Unfortunately, very few even of the well-operated food establishments have employee dressing rooms which by any stretching of the name can be called adequate. Yet only a moment's consideration will easily show how an employee dressing room which is no more than a dark corner or shelf or cupboard between two sacks of potatoes and ten cases of pop, is not quite enough. Not being enough in more than one sense of the word, its effect on sanitation, labour turn-over and profits should at once be apparent.

SANITATION AN ASSET

Yes, public health workers are convinced that the cash register does ring more often in retail food establishments where sanitation is considered as much of an asset as an attractive window display and as much of an advertisement as a full page in the daily paper. Your health department can help you keep this asset from depreciating and this advertisement from losing its effectiveness. Help us and we will help you.

(We have reprinted the foregoing article as also the one which appeared on pp. 33-37 of No. 1., Vol. II by special permission from the Sanitarian—a journal of Sanitary Technology).

A POPULAR DISCOURSE ON THE ADVANCE OF THE SCIENCE OF BACTERIOLOGY

by

T. N. S. RAGHAVACHARI

Retired Public Health Bacteriologist



It has been a common occurrence in the experience of the world for a science to make but slow progress beyond a certain point until some discovery often made outside the realm of that particular science, has been *applied to its use*, with the result that a few years have seen marvellous developments unheard of till then. As an example, I may mention the application of steam to the field of Engineering. Equally, if not more important and productive of greater benefit to mankind, is the invention of the antiseptic system of surgery by Lord Lister following his acceptance of the discovery and teachings of Louis Pasteur, as to the bacteriological origin or putrefaction. In the case of surgery, the times were really very propitious for revolutionary changes. Lister's attention was forcibly and pointedly drawn and riveted in his student days to the terrible mortality in surgical cases, due not to inferior skill on the part of the surgeon, but to the secondary onset of foul discharges in wounds that might otherwise have healed *without* any untoward symptoms.

Surgery had been practised in all the older civilisations with ranging degrees of refinement and success. It had reached a remarkably high standard at a very early date in the period of Indo-Aryan progress, as revealed by several Hindu writings which contain minute instructions for different operations of considerable dexterity, together with description of more than one hundred and twelve instruments, many of which resembled those used in modern Twentieth Century Surgery. Bandaging, the use of splints—particularly the bamboo splint used in dislocations and fractures of the limbs and after treatment in the Hindu Code were on the same principles as in more recent times while diagnosis was made upon the recognition of the same symptoms and signs as to-day.

The Greeks, Egyptians and Romans had developed systems equally advanced, if not so highly specialised and dexterous as the Hindus. The Chinese were, however, much behind the other races. The Arabians contributed nothing new to the science of surgery but were satisfied to carry on with time honoured methods.

During mediaeval times surgery suffered a set back as it fell into the hands of the religious orders, and in the 16th century it began to regain some of the brilliance of the art as practised by the ancients. The 17th and 18th centuries saw considerable progress in the teaching of anatomy, physiology and also the elevation of surgery on to a more scientific basis. The early part of the 19th century revealed considerable improvements in mechanical technique and dexterity of performance. During the middle of this century, operations, which hitherto were done without any anæsthetic, and consequently were dreadfully painful, were rendered painless through the introduction of anæsthesia by Sir James Young Simpson and others. But the risks attending the operations themselves and subsequent healing processes were still there.

An operation in these days is a common place occurrence and the number of people who escape the surgeon's knife is yearly diminishing. Before the days of Lister, surgical treatment of disease was rarely possible and the patient who now lives healthily and happily through the latter half of his life, *minus* some portion of his anatomy would then have died of the disease which perhaps was just as well. For, had the offending tumour, or gland been removed or the limb amputated, the greater danger still remained to be faced viz., sepsis—or formation of pus and offensive discharges due to infections of the wound and the blood stream by microbes.

Fatalities due to sepsis were common enough following upon operations in private houses, but the results were far worse when the patient was treated in hospitals. This, to us of the 20th century, is a surprising fact for at the present day, the hospital and the nursing home, with modern accessories, operation theatres and other essential amenities that make for comfort and freedom from infection, are considered the safest places for operative treatment in preference to

the best of homes. Hospitalising in those days *increased the death rate and decreased the health rate*. Sir James Simpson the eminent surgeon of this time stated: "The man laid on an operating table in one of our surgical hospitals is exposed to more chances of death than the English soldier on the field of Waterloo". In 1874, another eminent surgeon Sir John Erichson suggested that hospitals should be periodically razed to the ground and new structure built on different sites, as otherwise it would not be possible to control or eradicate the mass infections of wounds that followed all operations. He was no doubt unaware at the time, like all other medical men and surgeons of the day, of the bacterial infections responsible for the pus formation, septic fevers and death. In 1847 when Lister was a student at the University College Hospital, the operation theatre was a small room with a wooden table, a small instruments cub-board and a small washing basin. The surgeon instead of taking off his coat to be appalled in steam sterilised overalls and cap, as is now the custom, used for his surgical work an old operating coat that lasted for many years *without* washing, which finally became so dirty and stained with blood and other discharges as to present an alarming appearance. The owner was however very proud of it; the worse it became, the more did it proclaim to onlookers the wide experience of the surgeon who wore it.

The ligatures and sutures used for stitching wounds at the present time are kept stored in a sterile (germ-free) fluid in sealed bottles till needed for use: Then, the surgeon carried the silk thread or whiplcord for tying up the arteries in the pocket of his waistcoat. As the operation proceeded, microbes were steadily introduced at each step, into the patient's body in many ways and by so many different agents—by the surgeon's hands, his instruments, his ligatures

and swabs, and last but not least, by his dirty overcoat—that when all was finished, the wound was even initially contaminated heavily with bacterial life. The sanitary arrangement in the hospital wards was primitive, with inadequate supplies of hot water and antiseptic lotions. The well intentioned ministrations of the nurses often helped in the spread of disease amongst other patients.

When the surgeon paid his visits to the wards, he often used the same probe for all the patients neither sterilising nor boiling it between cases, because he did not understand the danger of conveying the infection from one to another. Sterilised swabs of cotton wool are now used for cleaning wounds and are promptly discarded and burnt. Marine sponges were used in those days and cleaned with soap and water between every two patients. These highly porous sponges were loaded with disease-producing germs absorbed from the wounds of successive patients, which mere soap and water cannot kill or eliminate. Hospital wards were really the repositories and disseminating centres of infection. Neither the surgeons nor the hospitals were to blame for this state of affairs. The surgeons were ignorant of the manner in which infection was spread and they know nothing of the microscopic enemies of man which were the real agents of pus formation and sepsis in wounds. The idea for which the hygiene professors strove in those days was cleanliness; but this alone is insufficient for the surgeon. His ideal must be a loftier one and should not rest content with abatement and destruction of visible dirt, but should seek to avoid the enemies, only visible with the highest magnifications of the microscope. Asepsis not mere cleanliness, must be his aim. The difference between the above two can be compared to the difference between *Holiness* and *Respectability*. Lister's researches since his graduation had

convinced him of the truth about the sepsis that followed operations. He believed that putrefaction or decomposition of the natural discharges that followed an incision into the flesh was the essence of pus formation. Early in 1865 Lister was discussing his problems with Dr. Anderson, Professor of Chemistry in Glasgow, who advised him to read the writings of Pasteur.

Louis Pasteur was a famous French Chemist. He was requested by a manufacturer of beet-root alcohol to help him in his problems and Pasteur set to work on fermentation. He soon found that the souring of milk was caused by microscopic forms of life—which we now know are the lactic acid bacteria giving us nice curds. He introduced these rod shaped germs into another liquid and they began to multiply and produce fermentation in their new surroundings also.

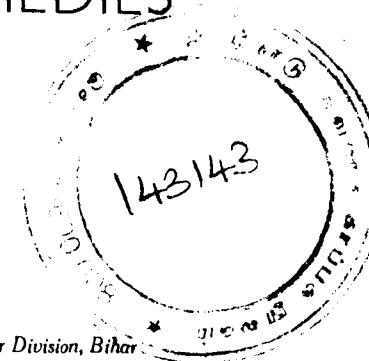
He next turned his attention to the atmosphere and soon proved that by drawing air through a cotton wool plug in a glass tube, there was deposited in the interstices of the wool a large number of bacteria which could be readily cultivated in suitable fluids. By a series of carefully controlled experiments, he showed that bacterial life present in the dust of the atmosphere was the cause of fermentation and that putrefaction is a form of fermentation caused by the growth of microbes in animal and vegetable substances; also that these animal and vegetable substances can be kept free from contamination by microbes even in the presence of oxygen. Lister was charmed—who will not be—by the simplicity and conclusiveness of these experiments and repeated them himself. He soon evolved means to counteract and prevent the activities of the microbes reaching wounds. That was "to apply some chemical substance in such a way that not only would microbes already present be destroyed but the germ-killing substance will act as a barrier between the wound and outside infection." This was the beginning of the science of Bacteriology.

VISION- ITS DEFECT AND REMEDIES

by

Dr. N. N. GUPTA

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So goes the story that a man on hearing of his neighbour's death by snake-bite enquired whether his eyes were intact and whether his eyes had been spared by the animal, as one's eyes are invaluable assets that nothing can replace. The story further goes on to say that the man even expressed his gratification to learn that by a lucky hit the snake had missed the eyes and bit the man on the tip of the nose.

However funny and absurd the above story may seem on the score that the very life of the man was extinct, it tells us at least what difficulties we are put to, if, by chance, we lose our vision or even if our vision be impaired.

It is not my object here to contend whether cases of defective visions are more numerous now than in the past and it is not my point to go into any details of the causes leading to these; but my experiences as a medical inspector of the health of the boys indicate that their number is alarmingly on the increase.

If this state is allowed to continue without any check and if no efforts are made to keep it

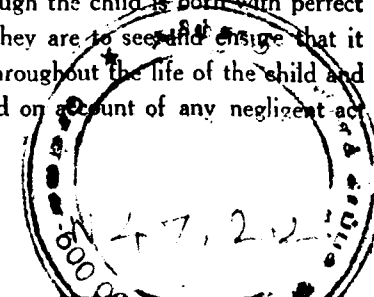
down, the very life of the young scholars will be miserable and they will thank none but their guardians and teachers for their hard lot. This remark may seem exaggerated and may evoke criticism but certain it is that the defective vision of the scholars stands in the way of their getting preferment and high salaried jobs and even in independent vocations or professions, they may find themselves at a disadvantage, not to speak of their being compelled to give up their studies and thus ruin their careers.

To guard against this, a vigilant look is to be kept at the boy from his very birth by his parents or guardians. It is even the birth right of the children to possess a good eyesight and their parents are responsible for any congenital defect in it.

PARENTS' RESPONSIBILITY

The responsibility of the parents does not cease even though the child is born with perfect eyesight, but they are to see and ensure that it is preserved throughout the life of the child and is not impaired on account of any negligent act on their part.

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So, the child should be carefully observed even after his very birth specially when he begins his scholastic career and is allowed to go to school.

Soon after birth, the child cannot fix his vision on any particular object but it wanders hither and thither. After six months of life, the child tries to fix his vision on attractive objects. If, after this age, the child fails to fix his vision on some object or puckers his eyes when looking at the light, he certainly must have defective vision and he should be placed under the treatment of some eye specialist.

Normally, the two eyes work together and the two retinas together convey the impression seen, to the brain. Generally, this fusion of images in the two eyes takes place by the end of the first month of life, but it may develop late or may even never develop. If, however, the eyes fail to work together, it will be a squint. Pain, irritation caused by teething, injuries, or shock, also measles and whooping cough are exciting agencies in probably more than one half of the children causing disturbance in the equilibrium of the convergence centre, and thus resulting in squint. The ailment had been found in most cases before the child came to school and the time had then frequently passed for a complete cure of the condition. Care should therefore be taken that the child may be guarded against causes that may help in developing a squint. It had been found that an infant about seven months old with good vision in each eye had developed squint and, in the absence of proper treatment, had become blind.

When squint sets in, it can be easily detected at dusk, for, due to the movement of the limbs during the day-time the muscles of the body as well as of the eyes get fatigued. An observant guardian should immediately take the child to an eye specialist, and if his case be not treated within six years of his age, the defect cannot be remedied.

The next stage begins when the child goes to school. This is a very critical time for eyesight, because all works at school viz., reading, writing etc., require constant straining of the eye. The eye has thus to drudge like a hard-worked servant.

At this time, the boy is in charge of his school teachers and under their watchful eye, but unfortunately in India the teacher only teaches and tries to stuff his brain with tasteful or distasteful things but does not care to see whether he takes these things or whether they are too much for his brain or even his eyes. Even when the boy shows signs of inattention due to his defect in his eye-sight or due to his inability to see properly what the teacher wants to convey by his black board work, he is reported against or punished, but no attempt is made to ascertain the real cause of the inattentiveness of the scholar. This apathy affects the development of the intellect of the boy and no amount of excuse can absolve the teacher or guardian of the boy from his due share of blame; for, an observant teacher or guardian, taking real interest in the welfare of the boy, can easily detect the defects in his eyes and adopt measures to remedy or remove them. This state of thing does not obtain in Europe or America. There, each scholar has to appear before an eye specialist and after his examination, he is, if necessary, admitted to a special class wherein he has not to strain his eyes and is saved from various movements of the eyeballs.

The guardian's duty is therefore to watch the boy very carefully. But how to detect these defects?

It has been the common experience of the guardians who have to deal with young children that they sometimes complain of headache, their eyes are some times red, tears come out of their eyes even without any cause of sorrow or excessive delight, the eyelids become heavy and the eyeballs seem tired and overworked even

without any great strain on them. There are also cases when the scholar takes his book or written exercise very near his eyes while reading. These symptoms are sure signs to indicate that the scholar's eye-sight should be tested by some specialist and steps should be taken for necessary remedies.

Next comes in the question of testing the eye-sight. It is not always that the scholar need be taken to an eye-specialist for this. There are certain very simple tests that even the guardians may themselves conduct.

The first test would be to ask the child to look at a clock and to read it from a long distance, say, about fifty feet, standing on the floor by covering one eye with the folding palm of the hand and to compare his reading with that by a man with normal vision. The next test would be to ask him to thread a needle from a distance of one foot.

If the child passes these tests, he may be said to have normal vision, otherwise he should be taken to an eye-specialist and attempts should be made to find out the causes that led to his defect. This defect in the eye may be mainly of three classes:—

Myopia or short-sightedness, hyper-metropia or long-sightedness and astigmatism.

Myopia is a common defect among older children. A person affected by this cannot see distant objects clearly and distinctly, though a low degree of myopia may not be a very serious disadvantage.

In hypermetropia, on the other hand, the person cannot see objects near at hand very distinctly.

Astigmatism is, however, that state in which the refraction of the several meridians of the same eye is different.

Myopia may be due to certain diseases like measles, whooping cough, bronchitis, coughing,

lifting of heavy weights in stooping position causing sudden pressure on the eyeballs. Straining of the eyes over books at close quarters or over very small prints may also cause this defect and as a result there are more cases of myopia among school children given more to study than outdoor exercise in town, than among children in the midst of nature in villages. It has, in fact, been noted that children with myopia are usually fond of study and reading and avoid out-door sports. They lean forward to study and as a result get round-shoulders. Thus round-shoulders from leaning forward is a symptom to indicate myopia. The myopic patient even finds it difficult to recognise his friends at a distance or the numbers of the houses as he walks along, though he can read the finest print at close quarters. This disease may be an effect of hereditary predisposition and is found more numerous in higher grades of society than in lower. Among the illiterate working classes and those whose ancestors have been of this class, specially the German peasants and the coloured race, myopia is practically unknown. The Indians, however, show an exception to this rule according to Dr. Jones of the Institution at Hampden, Virginia (Journal of American Medical Association, August 15, 1908).

A comparative study of the white and the coloured children has shown an increasing presence of myopia in the former group, the proportion of badly seeing whites being 1 to 6 whereas the proportion among the black being only 1 to 15.

Now, as this defect is the most common among school children, it should engage the particular attention of the teachers and guardians and steps should be taken to ensure conditions that would tend to minimise the chances of the child's falling a prey to this defect.

The first condition would be to prevent the increase of myopia. The patient should be

directed never to read in a train or a carriage, where every movement requires a change in the accommodation of the eye; he should not look at near objects for too long together. In reading, writing, or working, he must keep 14 inches away from the book or paper, use books printed in good bold type, and not write too small; while the desk and seat could be conveniently arranged so as to avoid stooping. He should work as little as possible by artificial light; it is best to use a reading lamp, so placed that it throws the light down upon the work, leaving the remainder of the room in comparative darkness, so that when the eyes become tired, they may be refreshed by turning them from the light. When reading or writing, the patient should sit with his back to the window so that the light may fall on the book or paper over his left shoulder, the shadow of his pen being thus thrown to the right, enabling him to see plainly the letters he is forming.

The myopic patient should be particularly watched in the class room or the cinema house.

The class room should be well lighted and the furniture or other things in it should not be such as to produce glares. The black board should not be shiningly painted and it should be placed in such a position that the boy may see the writing distinctly and without any strain on his eyes. Desks and seats must also be so arranged that they do not encourage stooping of the boy. The teacher should not obstruct the light while in the class room. Strong sunrays should be protected by blinds or curtains, but the class room should not be dark and should have sufficient mild light. The black boards should be painted black at intervals, at least twice a year so that the white writings with the crayons may be distinct. Books with very small types should not be allowed in the class room and the text-book committee should take particular care to ensure that the text books are

written with bold types to suit different ages of the children. There should be sufficient space between the lines, for too little space may cause fatigue during reading, as it involves difficulty in passing from the end of one line to the beginning of another. The sentences in the text books for very juvenile readers should not be very long, as too long a line tends to cause fatigue; very short lines again require too frequent changes of directions in the movement of the eye. The lines should thus be of moderate length. Red or strong coloured inks should be avoided for printing and black is the best colour that can be recommended. Books for children of very tender ages should be replete with pictures and paintings, as they would be of pleasurable reading and give relief to the eye, involving less strain on the eye muscles; other conditions in the class room should be so adjusted that a congenial atmosphere is created for the eye and very little strain is needed to be made in the eye muscles.

The school building should be so situated that there may be sufficient air and specially light and the light falls from the left. The desks and benches should be so placed that the above mentioned conditions may be ensured. There should be no obstruction to the light coming in this way and there must be sky-lights to let in sufficient air and light, if the doors, windows and their blinds are at all needed to be closed due to foul weather. Sometimes it so happens that during the sultry weather with a cloudy sky, there is obscure light in the room. On such occasions, artificial bright but soothing lights or bright lights encased in shades, preferably faint blue to ensure soothing effect, should be used or class works should be so adjusted that less written or reading work is done.

Highly polished furniture that cause glare should not be used, as the reflected light may injure the eyes. The boys must not be allowed to sit facing open doors or windows and at home

they should not be allowed to read at night with the lamp placed just in front. The writings on the blackboard should be sufficiently bold and the boards must not be placed too far from the boys but should be at a distance of twenty feet at least. In class rooms where the boys sit farther than 20 ft., the room should have 60 % more light than is otherwise ordinarily provided.

The students should not be allowed to stoop while reading or writing. Their desks should be so elevated that they may do their work without the least discomfort or inconvenience only by bending their heads a little while keeping their bodies erect. The desks and benches should therefore vary according to the heights of the boys and must be so constructed that they may be lowered or raised according as the occasion demands. Boys should not be allowed to read while lying down or reclining on the bed or in different other ways to suit their whims; they should not also be allowed to work on empty stomach.

They should not read while travelling in a railway train, a moving carriage or any vehicle on speed, as the jerks or movement to the limbs cause the reading material to shift its place however slightly and the eye has to be constantly changed to fix itself on these moving positions.

Reading of books with very small types or newspapers even while travelling in a carriage, coach or cart puts great strain on the eye-muscles. Reading while travelling by boat also may have similar effects.

Visits to cinema houses also may cause injuries if certain conditions are not guarded against. The young, the old, boys and girls are apt to strain the mechanism of optical accommodation when seated too near (less than 20 ft.) the screen. Excessive glare, flickering, excessive rate of motion due to the use of worn films and prolonged duration of performance produce harmful effects;

otherwise visits to cinemas to see educative films do no harm.

All these things require that the guardians, the teachers and no less than the educational authorities, should unite together to remove the defects obtained in the present conditions of teaching and combine to ensure conditions more favourable to the healthy growth of the individual morally, mentally, and physically.

It would be more than useless to throw all the blame on the teachers or the institutions, keeping oneself aloof from the field. United efforts should be made to see that the institutions possess all the furniture needed in the way they are required; and if necessary, finances should be procured for the purpose. The school buildings, site, accommodation and everything should be so improved that the scholars may read under suitable conditions. All institutions should receive similar favour or aid, as they are not yet too many, to condemn their existence or to stop their expansion, if one takes into account the very low percentage of literate persons in this country.

But the thing that should engage the first and foremost attention of the authorities, is the syllabus. At present, the syllabus requiring studies of different subjects which are daily growing in number is too heavy for the young scholar. It is of such a nature that the boy becomes 'Jack of all trade but master of none' and instruction is sometimes imparted so perfunctorily, fitting him somehow to pass certain stereotyped tests, that he invariably finds him fit to do nothing with very little knowledge about everything when he comes to the end of his matriculation course. Rather would he find himself even void of his energies with shattered health, and dim eye-sight. The strain on the eye is in proportion to the subjects one has to read and also in proportion to the opportunities he finds to refresh

his eyes and mind by outdoor work. Scholars closetted within the four walls of the class-room are more liable to fall easier victims to eye diseases or defects than scholars taught in the open air in the lap of nature as in Santiniketan.

Hours of instruction should therefore be curtailed and minimum hour limits should not be imposed for the teaching of different school subjects. All modes of instructions should be modified to suit different grades of intelligence. Hours of study of different subjects should be so adjusted as to suit the different scholars in the different classes of the institution. Rigid fixing of hours or periods and their insistence in the institutions take away much of the zeal for work and study by the student becomes more a drudgery or unpleasant task than a thing of pleasure. So, wide scope should be given to the institution to frame its course of studies and to distribute its periods of study and outdoor activities, only imposing that much of restriction that is needed to bring up the scholars to a particular standard of school-leaving tests.

What is applicable to boys is applicable to girls and they should not be allowed to indulge too much in pursuits that put too much strain on the eyes. Needle work by the girls requires very good eyesight and their constant application to it may injure their sights. So the hours of such work should be so adjusted as to leave sufficient scope to refresh their vision after needle work strain.

Pursuits like watch repairing or microscope work requiring too much strain on the eyes of boys should also be so followed that there may be sufficient refreshment and nourishment to the eye-muscles after these works.

Nourishments to the eye-muscles can only be possible again by taking nourishing food. The food problem thus naturally comes in. The diet of the scholar should be such that he gets

more vitamin, protein, fat, starch and other materials that go to form healthy bones and muscles and that help in the elimination of the injurious things in the human system.

Rich, tasty, and delicious dishes prepared from adulterated food-products should be avoided. Plain but nutritious food, pure milk and fresh fruits, fishes, meat and vegetables should be taken. If the body gets sufficient food to recoup the wastage due to brain-work or muscle-strain, the limbs are left unimpaired and the man can live to a ripe old age with the full use of his eyes. This is why we hear of our fathers and forefathers being blessed with perfect eye-sight. Further, they had not to tax their eyes then so much as we have to do at present. There are now more reading materials, and learning is now being more diffused and at every step we find so many things to read that our eyes get less time to refresh themselves than before. Study has of late become extensive and not intensive. The time imposed by our *Sastras* of old for different courses of studies had been of such length that one could not complete more than one subject in the whole course of his life; but, nowadays, the boy has to read more subjects than he can well-manage. The result is appalling. He knows no subject well and he has no deep knowledge in anything. The age is such that his big talks based on shallow knowledge now arrest more people and men are few who can understand the speaker, if he talks learnedly on a subject.

To ensure that these things do no longer exist, the guardians, teachers and authorities concerned should, as the custodians of the welfare of the boys and as makers of the future nations, see that the evils in the modern system of education be eradicated and conditions ensured to bring about a healthy state of affairs wherein healthy youths with the possession of good eye-sight should find more relish in life and living.

If they succeed, the future generation should bless them and this would certainly be a sufficient reward for their efforts.

Thus, to conclude, it is the duty of the guardians to watch minutely the boy in his studies and to detect whether he is suffering from defective eye-sight. He must free himself from the traditional prejudice that little children should not wear spectacles and that the eyes might improve even if spectacles be not used.

The teacher should see that the boys with spectacles sit in the front rows and use their spectacles always.

Particular care should be taken of the general health of boys suffering from defective eye-sight and their eyes should always be protected from the glaring rays of the hot sun that is responsible for so many cases of cataracts in India, much more in number than in Europe or America.

Conditions in the class room and at home should be such as may call for less strain on the eyes.

The A.R.P. measures, however, required obscuring and dimming of lights at night and this had caused certain inconveniences to the scholars. Under such conditions all study works should be finished in daylight. The school hours had therefore to be curtailed for the present to enable the boys to prepare their lessons during the day leaving just sufficient margin for outdoor activities. Otherwise, reading in rooms obscurely lighted with a light dimly burning will injure the eyes and affect the vision.

These would be sufficient for a Campaign to protect the vision of boys and the General who bring this campaign to a successful close would earn the blessings of the boys and they would certainly deserve the Victoria Cross better than those who fight in the front ranks and shed the blood of the enemies.

The strain of correction where vision is faulty leads to eye fatigue, which causes brain fatigue and diminished perception; furthermore, brain fatigue leads to general constitutional results.

The causes of eyestrain are: Too continuous eyework, and a bad time-table; fine and indistinct work, and work brought too near the eyes; bad or faulty lighting of room; bad posture in reading and writing. Pre-disposing causes are badly ventilated and overheated rooms, debility and poor nutrition of scholar.

The printing, etc., of school books is of great importance. "DOUBLE PICA" should be selected for infants, and "pica leaded" for older school children.

The *Symptoms of Defective Vision* are: Head-ache, generally frontal; worse at night and relieved by sleep; a sense of fulness in head; redness of eye-balls and eye-lids; watering of eyes; blinking; partial closing of eyes when looking at distant objects; frequent rubbing of eyes; heat and pain in eyes; dizziness, and sometimes nausea or even vomiting; squint; irritability, neuralgia, and impaired general health; books held close to the eyes; confusion of letters-especially 'h' and b, e and c; inattention and apparent stupidity.

(Hygiene and Public Health—Parkes and Kenwood).

YOUR ADMINISTRATION REPORTS

MAKE IT COLOURFUL AND KEEP IT SIMPLE

In our Editorial (pages 171-172, Vol. 1 No. 4, January 1947), we drew attention to the ridiculous stereotype Administration Reports of our Government Departments. We made certain suggestions to make the Administration Reports serve a useful purpose of educating the people on the activities of the several departments of the State. We also suggested that these reports should be well and attractively printed and offered for sale to the public at cost price. We give hereunder a reprint of an article which appeared in the "American City", December 1946.

A perusal of the article should set our administrators athinking. A reform in the contents, form and other details of our Administration Reports is urgently called for. We hope our Popular Ministries would take action in the matter and bring about a reform in the Administration Reports of the several departments. We are particularly interested in the Administration Reports of Medical Curative, Medical Preventive and Public Health Engineering Departments. We earnestly hope that the Ministries of Health in the country would bring about a reform which might be emulated by other departments of the State.

—(Ed. P. H.)

RECENT SURVEYS have shown that the average citizen, bombarded as he is by streamlined pamphlets, slick magazines, and colorful advertising literature is showing increased resistance toward reading the barrage of publications which come to him. This is a fact of utmost importance to the municipal official struggling over the preparation of his annual report.

It means, in effect, that he is competing for his citizen-reader's time against an increasing array of professional talent, expert at the art of catching and holding the public's attention. He must make an extra effort to make the report readable, attractive and interesting. He must use meaningful pictures, graphs and charts wherever possible. He must give extra emphasis

all the way through to interpreting municipal activities in picturesque, "punchy" style if the report is to continue to build effective citizen interest in the work of City Hall rather than be thrown into the wastebasket.

THE REPORT STEP BY STEP

The preparation of a good annual report must often begin well in advance of its final release. One man in the administration, preferably someone familiar with modern publicity and reporting techniques, should be assigned the responsibility for getting out the report—it should not be entrusted to any official who happens to be available at the moment for extra work. If one man is given this responsibility, he will be on the look-out throughout the year for photographs,

material and ideas. This will also make for promptness in getting out the report.

It is important to have an attention-getting, appealing cover, printed in positive bold colours. The additional expense of creating an imaginative cover will be but a small insurance payment against losing the reader's attention or never catching it. One possibility is to work with the school system's art department in holding a competition for the best cover design and for inside illustrations. This will stimulate greater citizen and student interest in the report.

CONTENTS

When considering the contents, it is wise to look up State statutes pertaining to municipal reports and see what they require. Otherwise, the reports should be adapted to meet local tastes and should strive toward individuality.

The responsibility of the report writer is to give the public a picture of one year's record of work. In doing this he has an excellent opportunity to gain public support for next year on the basis of this year's record. Moreover, it is an opportunity to talk with the citizens about the work of the city administration as a whole to appraise its accomplishments objectively and study the reasons for its failures.

The contents should not be just "eyewash" or "whitewash" material of everything that has or has not been done by the administration. Honest objective statement will be much more appreciated and will aid the community in understanding and helping to overcome the administration's problems.

The report should have, if possible, an underlying theme—perhaps one major project activity to which many of the departments have contributed during the year. The citizen should be made to feel that the community is alive and growing—that it is rendering an increasing range of services to him or bettering the adminis-

tration of traditional functions. He should feel that he is a stockholder in a going concern, and that his participation is needed and desired.

FACTS AND FIGURES

An important general principle is to simplify and digest facts and figures and to interpret and explain freely. Only such facts should be included as are significant parts of the picture. Costs, services, and programs should be compared—from last year to this year to next year. A spotlight technique of marginal notes or headings near tables of figures is often most helpful in calling attention to their significance for the citizen.

It should be remembered that the larger numbers are, the harder they are to grasp, and they should be made meaningful by being broken down—say to amount per citizen or amount per day. No number, standing alone, can hope to match the significance of two numbers compared, especially when the standard of comparison is familiar to the reader.

No hard and fast rules can be made for the contents and main sections of the report. The writer should be willing to experiment—imagination in handling the material is always welcome. Generally, though, municipal reports will naturally fall into six parts—although these can be rearranged and put into whatever order desired. The major divisions will probably be as follows:

- A. Introduction
- B. Legislation and General Administration.
- C. Municipal Services.
- D. The "Staff" and "Auxiliary" Services.
- E. The City's Finances.
- F. Planning Municipal Services.

INTRODUCTION

In the introduction, the following items might be included:

Directory of city officials.

Title page.

Foreword or letter of transmittal by municipal officer or manager.

General information and data regarding the town, e.g., population, area, historical data, etc.

Calendar listing due dates for taxes, dates of elections, regularly scheduled meetings of boards and commissions, etc.

Organization chart.

Table of contents.

A review of the year, including "high, lights" or outstanding accomplishments some comments on the city's financial situation and objectives and problems to be faced in the future.

The citizen's part in government, in which it should be shown how city services affect the individual in his everyday life.

In the section on municipal services, department activities and functions should be summarized and comparisons made with previous years. It should be emphasized that the citizen is usually more concerned with *what* the department does than he is with *how* it does it. This section might be divided into groupings of municipal functions rather than departments.

If the report is to have consistent treatment, the department reports should all ultimately be rewritten by one writer. This is in the interest of presenting an organized and integrated picture of municipal affairs.

The section on "staff" and "auxiliary" services should include brief descriptions of the

activities of the city clerk, the municipal attorney, the personnel, and purchasing policies.

FORMAT

Traditionally, annual municipal reports are printed. However, if budgets are limited, such processes as litho-printing, photo-offset or variations of these processes should be investigated. Mimeographed reports also can be greatly enhanced by a little care in makeup and can be effectively illustrated with cartoons and diagrams.

Size:—6"—9" is considered convenient for reading and filing. Smaller reports are kept for a longer time and are more useful to the average citizen than bulky or unwieldy ones.

Length:—Fifty or sixty pages should be the maximum length. The writer's efforts should be directed at interpreting and simplifying explanations of municipal activities rather than including voluminous, undigested statistics and factual material. The longer the report becomes, the fewer the people who will read it. The factor of length adds much to publishing expense. Plenty of illustrations should be used even if wordage is reduced.

Distribution:—It is a general rule that sufficient copies should be prepared to supply each legally qualified voter with one and have some left for limited distribution elsewhere. An alternative is to send a copy to every home in the city. If this cannot be done, steps should be taken to determine the demand for reports—perhaps by sending applications to each home and developing a mailing list. Reserve copies should be kept to fill requests during the year and to send to various State agencies concerned with municipal

affairs and to other interested organizations and institutions.

Mailing is too expensive for many towns. Police, fire or public works department employees are often used to distribute the report. Local Boy Scout Troops or school groups interested in civic affairs are another possibility. Each new family moving into the community should get a copy.

Publicity:—After the report is released, local news-papers, radio stations, and libraries should be encouraged to publicize it; copies should be sent to schools for use in classrooms; it should be sent to chamber of commerce groups, women's clubs and other organizations in the city; and it should certainly be issued to all municipal employees.

Re-action:—A questionnaire, or postcard should be included with each report asking for comments about the report and inviting suggestions for the improvement of the administration.

GENERAL TIPS ON MAKEUP

1. Before getting too far along on the report or planning its format and appearance, it is best to consult your printer and get his advice on layout problems—what can or cannot be done within budget limitations.

2. Body type should be of moderate size. Ten or eleven point will be appropriate for most printed reports. Smaller type must be set in shorter lines.

3. Avoid excessively wide margins, but—be sure that white space surrounds all print masses. The entire type page should occupy approximately two-thirds of the paper page.

4. Give attention to your headings—see that they are short, meaningful, well arranged, uniform and stand out on the page in contrast to the body type. (The city of Rochester prints

the headings on a coloured background at the top and bottom of each page.)

5. Watch the spacing between lines of type. It should not be excessive, for that makes for high printing costs; however, it should be sufficient to make for legibility and attractiveness.

6. Select your paper carefully. Ask to compare samples and prices. Half-tone cuts for illustrations require certain better types of paper.

7. Use thought in makeup. A report to be effective must be read. A report to be read must be attractive. A report to be attractive must be printed in easily read type, must be well arranged, and should be illustrated with charts and pictures.

THE AMERICAN CITY is indebted to the following sources in the preparation of this article:

Specifications for the Annual Municipal Report.—By Clarence E. Ridley and Herbert A. Simon. The International City Manager's Association 1313 E. 60 St., Chicago 1939, 59 pp., \$1.50.

Annual Reports—How to Plan and Write them.—By Beatrice K. Tolleris. National Publicity Council 130-E. 22 St. New York N.Y. 1946, 39 pp., \$.100.

Annual Municipal Reports—Suggestions and Requirements.—Special Bulletin No. 16 Maine Municipal Association Hallowell Me. 1946 Mimco., 9. pp.

Making Municipal Reports Readable pan New.—Jersey Taxpayers Association, Broad Street Bank Building, Trenton N.J., 1937, 28 pp.

For helpful ideas on municipal reports and methods of graphic presentation, see the articles in THE AMERICAN CITY by Phillips Bradley headed "Local Government is News" and "The Human Side of City Hall" appearing monthly from January 1941 to May 1945.

("THE AMERICAN CITY", December 1946).

Pioneers in Public Health

TO OUR YOUNG FRIENDS

by
A COMRADE



Fred Grant Banting, a Canadian scientist who died only six years ago and who has contributed to the scientific world a great discovery, namely, 'Insulin'. I would have never been able to write on him but for my securing a marvellous book called 'Living Biographies of great Scientists' written by Henry Thomas and Dana Lee Thomas and published by Blue Ribbon Books, New York. My thanks are due to Comrade Bhushan of Madras, for having kindly lent me the book and also to my friend who secured it for me. I am trying to get copies of

COMRADES!

May all be healthy and happy!

You might remember that sometime back, comrade Narayanlal from Karachi wanted me to write on a pioneer in public health who lived during this century. A few days ago, I received another letter from Comrade D'Cruz of Bombay, asking me whether there is no American who has contributed something to this field of public health and if so when I would write about him. I am now going to kill two birds at one stroke! I shall write now on

this book and the others in the series. Any one of you interested in purchasing copies, may write to me before 15th December, 1947, when I shall place my order.

* * *

FRED BANTING was born in Canada in 1891. After finishing his elementary school education, Banting took to the study of medicine. He had barely completed his course when he rushed to the Military to enlist himself. But ordered back to his studies, he completed his medical education. But in 1916, he joined again as a military doctor. In the course of the war that was going on, Banting received a dangerous wound in his arm. The medical opinion was unfavourable. Banting would have to get his arm amputated and live as a cripple, or die; but he preferred to take his chances rather than live without his hand. He returned home and nursed himself till he was completely cured and fit to return to service. After a short spell as a resident surgeon in Toronto, he set up private practice in Ontario. His first month of practice proved disappointing. He got only one patient during that period! This is not an uncommon experience with young medical practitioners. He gave up private practice and entered the Western Ontario Medical School as a part-time lecturer. It was as a lecturer

that Banting first came to think of diabetes. He studied rather than taught the subject. Around him he saw many of his friends wasting away from that fell disease. Banting had found that in the case of persons who had died of diabetes, the spots of 'islands' in their pancreas were shrivelled, whereas in the case of those who died from other causes, the 'spots' were in tact. He went to the office of his superior, one Professor Macleod, and requested him to supply ten dogs and an assistant with which he would like to experiment on the disease. This was not the first time when Professor Macleod had been confronted with similar requests by numerous other enthusiastic young scientists. They had all returned later confessing failure of their experiments and the deaths of the dogs. But Banting's determination seemed to have had a reaction on the professor and he consented to comply with his request.

* * *

Banting and his assistant Charles Best were housed in a dingy dungeon in Toronto. Banting gave up his practice and settled down to research, not unconscious of the fact that his new enterprise did not carry with it any prospect of money, at any rate not ready money! Banting's idea was to remove the pancreas of the dogs, allow them to contract diabetes and later inject the extract taken from the healthy

pancreas. He had tried his experiments on many dogs and ninety-one dogs perished in his attempt; but, when he was experimenting on the ninety-second dog which lay dying of diabetes, a miracle happened. The dog's blood sugar *decreased* gradually and soon the dog was on his feet wagging his tail. Unfortunately, the dog died twenty days later of excessive sugar. The reason was quite easy to find. Banting was unable to secure enough of 'Isletin'—(the name he had given to the extract from pancreas)—to keep the animal alive. Fred did not give up. He remembered that large amounts of this extract could be had of unborn calves and slaughtered cattle. This experiment was successful. With the aid of the extracts taken from the pancreas of these animals, Banting was able to keep diabetic dogs alive for indefinite periods. Banting was naturally jubilant.

* * *

But this was not all. He was at a loss to know whether his experiment which was so successful with dogs would likewise be successful in the case of men. And experimenting on human beings is not as easy as on dogs. But he got an opportunity soon. His old friend, one Joe Gilchrist, came to him one day. Alas, it seemed old Joe was in his last moments. With the patient's permission, Banting ex-

perimented his new treatment on him.

He injected large quantities of glucose to see if he could absorb it and later leaving instructions with his assistant Charles Best, Fred Banting retired to his village farm, expecting the worst news to come. A few days later, Banting received a phone call. It was Joe and not Best calling at the other end! From the voice, it was clear that Joe was excited. Banting's experiment was a success! The extracts injected into him had given renewed vigour and kept him alive and kicking!

* * *

When Professor Macleod heard of this unexpected success of Banting's experiment, he rushed to take charge of the experiments himself, at this stage. He first of all changed the name 'Isletin' which Banting had given to the extract into 'Insulin'. He next instituted a hospital for diabetic patients and in the due course, the hospital was full; each patient slowly improved by Insulin treatment. A remedy for diabetes was found! *Insulin* saved such famous persons as King George V, H. G. Wells and Dr. Minot! Banting also received the Nobel Prize for Medicine in 1922. The prize was awarded jointly to Banting and Professor Macleod; but of his share Banting immediately

transferred half to his assistant Charles Best. It shows that Banting as a true scientist was not after grabbing wealth. To emphasise this point, I should mention that Banting did not patent his invention as many others would have done and secure a large royalty. He threw open his recipe to the world in the interest of the suffering humanity. Did he not then richly deserve the Noble Prize? The citizens of Toronto built the Banting Institute in 1930 and King George V made him a "K.C.O.B.E.," in 1934. Fred Banting was made a Fellow of the Royal Society. He continued on his experiments till 1939 when the Second World War broke out. He went to the recruiting office to enlist himself. He asked the officer in charge, "I am too old to fight, sir, but I would like to join up with your medical unit with the lowest ranking you can give me". They gave him the rank of a Captain and he protested violently. "I would much prefer to be a Private", he said; they raised him to the rank of a Major and he protested still more violently. Finally, they threatened to raise him to the rank of a Colonel when Banting had to succumb and to agree

to serve as Major! He thus exhibited another great quality of true scientist. That is humility! In February, 1941, when he was forty-nine, he took off in a bomber for London. On its way, the wing of the plane hit an old tree. One of the wheels crashed through the frozen ice of a lake. The plane was embedded in snow. The pilot though he was injured, tried his best to secure medical aid to save the valuable life of Dr. Banting but it was in vain in that forest of ice. Dr. Banting was silenced for ever. But tens of thousands of diabetics today are living without succumbing to the disease, and are thinking of the great scientist—our hero of this month. Diabetes is no longer a fell disease. *Insulin* is no cure for it, though. But the disease can always be kept under control. *Insulin*, we are told, has many other uses in the practice of medicine. It improves the intake and absorption of rich food in tubercular patients. It even restores the demented to normal!

Your loving comrade,
MOHAN.

READERS' FORUM

This section is open to readers for their frank, free and fearless expression of views on all aspects of People's health.

Typewritten letters facilitate work.

Rationing of paper restricts space. Brevity is the soul of wit. Please remember that "People's Health" is above communal, party or personal politics. (Ed., P.H.)

AN IRRATIONAL RATIONING SYSTEM

Dr. S. V. Anantakrishnan Writes :

I think the following table taken from a lecture by Sir J. C. Drummond before the Royal Institute of Chemistry, in London, will serve to bring out the stupidity of our rationing system which prescribes half-ration to children below the age of 12.

Category.	Age Group.	Calories per day required.
Child	.. 1—3	1,200
"	.. 4—6	1,600
"	.. 7—9	2,000
"	.. 10—12	2,500
Girls	.. 13—15	2,800
Boys	.. 13—15	3,200
"	.. 15—20	3,800

Category	Calories per day required.
Sedentary Woman	.. 2,100
Pregnant Woman	.. 2,500
Nursing Woman	.. 3,000
Sedentary Man	.. 2,500
Woman, moderate work	.. 2,500
Woman, very hard work	.. 3,000
Man, moderate work	.. 3,000
Man, very heavy work	.. 4,500

I am afraid it will not be possible to find a parallel for an incompetent system of rationing

without a proper nutrition survey of the country and where there is a total disregard for the quality of foodstuff doled out through the ration shops.

TAMBARAM,

Dated, 3rd October, 1947.

BURMA BEANS

A Student of Chemistry Writes ;

Indeed, it is several months since the Government of Madras have frozen the stock of Burma Beans in this Province. The Government did so when it was definitely established to their satisfaction that cases of deaths and clear symptoms of poison had occurred after consuming this species of grains. It was established, I hope beyond any shadow of doubt, that these grains did contain hydrogen-cyanide in quantities which were toxic on the consumers. Every one interested in the health and welfare of the people would unhesitatingly appreciate the prompt and speedy action taken by the Minister of Health, Madras. There were, of course, scare-mongers also who would make the public believe that the action taken by the Government was not as prompt as it could have been. Be that as it may, I am not concerned with it here. But the question is what action has been taken by the authorities to destroy the poisonous beans

ACTIVITIES OF THE INDIAN INSTITUTE OF SCIENCE, BANGALORE

Sometime back, a note appeared in the Press that the Bio-Chemistry Section of the Indian Institute of Science had evolved a practical, cheap and quick method of treating the beans so as to enable the whole stock of the prohibited beans being rendered safe for consumption. As a student of Chemistry, I was interested to know more about it. I went personally to every knowledgeable quarters from whom I could obtain some definite information about it. All my efforts were in vain. I felt then that it was not in the interest of science that scientists should rush to the Press with half-baked or ill-digested ideas. I believe no genuine scientific workers have ever rushed to the Press in the hope of securing some gratuitous notoriety or advertisement! As a student of the subject, I deplore that such propaganda would create an opinion in the public that we scientists are more interested in advertisement than solving the problem set before us. I am constrained to write to you at this length, as I feel strongly that the entire stock of Burma Beans should have been effectively destroyed once for all so that no grain of it would be available for sale, in any form.

THE INNOCENT PUBLIC

The ingenuity of the stock holders might devise several methods of transforming the Burma Beans into powder or some such thing, and put the stuff in a modified form for sale. This is highly objectionable. It is bound to jeopardise public safety. My idea in writing this to you is to see that no further time is lost in destroying the entire quantity held in stock in this Province.

A PRECEDENT

I cannot help calling back to my mind a letter which a lady wrote to President Roosevelt, who

lost a child by the administration of the much advertised "Elixir Sulfanilamide". I hope space in "People's Health" would allow the reproduction of the letter which I give hereunder :—

TULSA, OKLA., Nov. 8, 1937.

President ROOSEVELT :

Dear Sir, Two months ago I was happy and working taking care of my two little girls, Joan age-6 and Jean age-9. Our byword through the depression was that we had good health and each other. Joan thought her mother was right in everything, and it would have made your heart feel good last November to have seen her jumping and shouting, as we listened to your re-election over the radio.

Tonight, Mr. Roosevelt, that little voice is stilled. The first time I ever had occasion to call in a doctor for her and she was given the Elixir of Sulfanilamide. Tonight our little home is bleak and full of despair. All that is left to us is the caring for of that little grave. Even the memory of her is mixed with sorrow for we can see her little body tossing to and fro and hear that little voice screaming with pain and it seems as though it would drive me insane. During her 9 days of illness, as we sat by her bed, only once did those little eyes lose their dull and unknowing look. Jean and I begged her to look and know us. A smile broke over her face and she laughed aloud with us and as quickly it vanished, never to smile and know us again.

Tonight, President Roosevelt, as you enjoy your little grandchildren of whom we read about, it is my plea that you will take steps to prevent such sales of drugs that will take little lives and leave such suffering behind and such a bleak outlook on the future as I have tonight.

Surely we can have laws governing doctors also who will give such a medicine, not knowing to what extent its danger, and then lying and

stealing the prescription that wrote supposedly from a reliable drug store. I don't believe such a doctor has taken his oath in all sincerity. Our lives are not safe entrusted in the hands of such a doctor, for that was my experience to my sorrow.

In my confidence in you, I am writing you and hope that you can realize a little of what I am suffering and that you will take steps to prevent such in the future, for, I realize also there are other homes where hearts are broken such as mine.

It is easy for people to say "Try to think that she died that others might live." It is easier to say when it doesn't strike in your own home.

Enclosed is a picture of the baby I grieve for day and night. Thanking you and

Sincerely,

(MRS.) MAISE NIDIFFER.

The letter has come out of the heart of the bereaved mother. It apparently touched the heart of President Roosevelt also; for, the letter is printed in a State paper which deals with the investigation of the poisonous nature of the chemical complained of.

The sequel may be told briefly. The Government agency was set in motion. Every ounce of the stuff distributed throughout the length and breadth of the State was searched for and seized and destroyed. A new enactment was passed through the Congress. It was approved by the President. Under the law so enacted, no new drug could be placed in the market till its contents were analysed by Government Agency and the drug declared safe for consumption.

In a free country, the highest person of the land does not ignore a complaint of this kind which may come even from the humblest in the land. Here, in our country, which is now considered an independent land, it is difficult to approach the Prime Minister of a Province by letter or by person without passing through several hurdles. Even then, the chances of getting his ears are remote. That is not the way in which democracy should be nourished and fostered. The highest authority should be approachable by all to present public grievances. This is, however, by the way.

Coming to the point, in the same manner in which the unsold stock of the offending cherrical had been destroyed, without much ado, so also the beans, which admittedly contain poison in it should be destroyed. If and when our scientists have found methods of *practical* elimination of the poison, then it is time to permit the import of these beans into this country.

WHY IMPORT THE POISON?

Are we to stop import of Burma beans into this country? Yes, we should do so without delay. I understand on high authority that the Minister of Health, Madras, in collaboration with the Minister of Food, has applied to the Government of India to issue orders prohibiting the import of these grains into this country. What happened to the appeal? No one knows. The Government of India are preoccupied with the problem of rehabilitation of the evacuees from the West Punjab. All the same, they should find time to attend to this equally important subject which has dire consequences on the people of Indian Dominion.

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.)

FOOD UTENSIL SANITATION

Amer. Public Health Assoc., Year Book.

This article is not a final report but a summary of the progress of investigations on food-utensil sanitation which are being conducted under the sponsorship of the Sub-Committee of the Committee on Foods (except milk) of the American Public Health Association. Investigations included a study of bacteriological methods for the examination of eating utensils, ultra-violet light sterilization equipment, hot water sterilizers, mechanical dish-washing equipment, detergents and cleaning compounds, and a field survey to determine conditions under which dishes and food equipment were washed and sterilized under commercial conditions.

A new procedure, known as the "Contact Plate" method, is proposed for the enumeration

of organisms on flat surfaces. "This procedure involves the use of agar in a tin cover which fits in a standard Petriplate and, subsequent to contact of the agar with the surface to be examined, can be reliable and should be given serious consideration as a standard technic. Ultra-violet light was found to be efficient in destroying a large percentage of organisms from surfaces, provided no film or debris was present; however, various types of equipment appeared to present some mechanical difficulties. The Committee did not reach a final decision with respect to ultraviolet light, hot water sterilizers, optimum temperatures and pressures in mechanical dish-washers, types of mechanical dish-washers or efficiency standards for detergents.

The Committee recommends, on the basis of present information, that no standards for food-utensil sanitation be established until more

information is available as to the accuracy of procedures.

JOHN D. FAULKNER
(From *P.H. Engg. Abts. Vol. XXI*).

THE WAY TO CLEAN STAINLESS STEEL

G. C. Kiefer. *Food Indust.*, 12: 6; 48-49, 1940; *J. of Dairy Science*, 24, A-156 (May 1941). J. C. M.

"This is an article dealing with the proper methods of cleaning the 18 per cent chromium and 8 per cent nickel stainless steel. In removing heavy accumulations of foreign matter the use of harsh abrasives or scraping tools should be avoided. Stainless steel is not a plating. Frequent cleaning is more beneficial than harmful. For general cleaning any stainless polishing paste or powder put out by a reputable manufacturer is all right. Sometimes the use of vinegar or dilute acetic in the place of water increases the effectiveness of these cleaning compounds. Sterilizing compounds should never be allowed to remain longer than six hours in continuous contact with stainless steel and a thorough washing with water should follow every exposure. In cases where construction permits, solutions of nitric, sulphuric or hydrochloric acid can be used for removing scale or other deposits from the walls of condenser or heat exchanger tubing or brine coils. The most desirable acid solution for stainless steel is 10 to 20 per cent nitric acid but this cannot be used if ordinary steel, brass nickel or other material soluble in this acid is present. A thorough washing with water should follow any acid cleaning, particularly with hydrochloric acid. Removal of scale or other deposits by mechanical means should be carefully carried out. It is much safer to use small tools, manually operated, that can be conveniently handled."

—C. S.
P. H. Engg. Abts., Vol. XXI.

SANITATION IN PUBLIC EATING ESTABLISHMENTS

Jack G. Baker. *The Sanitarian*, 3, 10-12 & 17 (June 1940.)

Sanitation in public eating establishments means the regulation of sanitation beginning with the construction or installation of establishments for the sale or distribution of articles of food and drink to the public. However, the belief or acceptance by the public that the physical conditions of an eating place are satisfactory, and the public health is protected, gives a false sense of security. The actual preparation, handling, and servicing of the food products are a far greater contributing factor to disease out-breaks than any other.

Very few health departments have paid particular attention to the instruction and education of the food handler. If all efforts were concentrated on the cleanliness of establishments, methods of preparation of foods, handling and care of the prepared and unprepared foods, prior to service or sale to the consumer, proper sanitization by some one of 3 approved methods of all utensils used, together with an educational campaign which would cause the public to demand these things, there would result a great decrease in the incidence of certain types of disease, although the annual report may not show so many fancy plumbing units, etc., installed.

M. K. HAVENS

From P. H. Engg. Abts., Vol. XXI.

DOVER'S DEFINITION OF GARBAGE AND REFUSE

There seems to be more than one way to beat the problem of heavy garbage and refuse collection. One simple commendable system is to built incinerator capacity great enough to take care of the load. Another is to simply redefine garbage and refuse making it more exclusive.

Here are the definitions that Dover Delaware, uses:

Garbage and combustible refuse shall mean all solid and semi-solid kitchen refuse subject to decay or putrefaction and all market waste of animal and vegetable matter which was intended to be used as food. It shall also include animal offal, carcasses of dead animals, waste animal matter from butcher stores and all combustible substances from public and private establishments and residences. For the purposes of this ordinance, sawdust, scrap lumber, paper, cardboard and cardboard cartons, and other combustible refuse shall be considered as garbage.

Rubbish shall include all wastes not subject to decay or putrefaction from all public and private establishments and residences. It shall include ashes, brush, tree and garden clippings, dirt sweepings, tin cans, glass articles and all other combustible substances. Due to the large amount of water content, substances like watermelon, cantaloupe, tomato skins, corn husks, peach peelings, bean hulls, etc., cannot be burnt at the incineration and must be disposed of at the city dump as rubbish.

This probably constitutes the first time that a municipality has classified sawdust, scrap paper, lumber and cardboard as garbage and at the same time has defined watermelon, cantaloupe, tomato skins, corn husks, peach peelings and similar items as incombustible rubbish.

(*The American City, March, 1946.*)

RURAL SANITATION

DRY PRIVIES AND DOMESTIC SEWAGE DISPOSAL PLANS IN NORTH AMERICA

G. M. Fair and Karl Imhoff. *Gesundheits-Ingenieur*, 64, 79-81 (1941).

KIND AND AMOUNT OF SEWAGE

Sewage originating in living quarters mainly consists of feces, urine dishwater and washwater.

Where no pipes are present, feces and urine go into the dry privies and soapy and fatty water run into the ground or into seepage pits. As soon as running water is present, pipes become necessary. The entire sewage is differentiated from city sewage by the fact that it is less diluted, that the material is fresher, contains larger particles and flows more irregularly, and that on washdays warm fatty and soapy water predominates.

DRY PRIVY

In the installation of a dry privy, agricultural and hygienic points must be considered. In North America the privy pit predominates because it is inexpensive and hygienically safe. Feces are collected and decomposed, and urine trickles into the ground. It may become necessary to line privies usually to protect a nearby well. Then room must be made for collecting urine. Several chambers are installed, which are emptied at certain intervals or their use discontinued when they are filled. In chemical closets sewage is deodorized and disinfected. Can-privies must be serviced regularly, and the cans should be emptied.

Grease Traps.—In cases where sewage is left to trickle into the ground, fat must be removed from fatty kitchen water by means of grease traps.

Seepage Pits.—In loose ground, pools are built in such a manner as to permit the liquid to trickle through and the solids to be retained. Previous purification of sewage is of advantage and will make the seepage pit more efficient for a larger period of time. If several seepage pits are built they should be placed at least 6 meters apart.

Septic Tanks.—These are either 1 or 2 story containers. They should be able to hold an entire day's intake to supply enough area for sludge and permit them to stand the decided

change of water flowing in. Rainwater must be kept away to prevent sludge from being spilled into the seepage pit and to clog it.

Subsurface Irrigation.—This process is an excellent purification process in loose ground. To a certain degree the effluent will be used agriculturally. Seepage pipes are placed 1.5 to 5 meters apart depending upon the permeability and the size of the area. The pipes are rarely longer than 25 meters.

Absorption power of the ground.—A hole is dug into the ground. It is filled with water and the time of absorption is noticed. If the absorption of 1 centimeter takes longer than 24 minutes, the ground is unfit for use.

Earth Filters.—These are constructed in the same manner as is customary in city plants. They may be covered, if desired.

Trickling Filters.—If there are no objections to the installation of pumps and machinery and if sufficient head is present, trickling filters may be used successfully. The waste load must be less than in city plants.—*Winslow Whitney Smith.*

From P. H. Engg. Abts., Vol. XXII.

CHLORINATION OF MAINS AND THE DEFECTS OF YARN AS A JOINTING MATERIAL

*Taylor, E. W. & Whiskin, L. C.
Surrey. — Jan. 1946.*

This article is made up of extracts from a paper presented at the winter meeting of the Institute of Water Engineers. The original paper has 6 tables, 12 figures and 20 references.

Chlorination of new mains was not carried out to any great extent before the Second World War, in spite of the memoranda of the Ministry of Health, in which a recommendation was made that such chlorination should be done. Bombing

risks, however, have focussed more attention on chlorination as a safeguard to consumers.

For large mains of 12" diameter and over, the emergency method of introducing a slurry of bleaching powder and then forcing this "wedge" of heavily chlorinated water backwards and forwards, gave satisfactory results. This method was, however, not effective for small mains, and experiments were conducted to determine the reasons for this failure. It was thought that the following contributed:—

1. The distribution of chlorine is more uneven in a small than in a large main. The layout of small mains is often more complicated than that of large mains, and the disinfection of contaminated branch connections is ineffective.
2. The possibility of infection of the yarn used in making joints.
3. Inadequacy of precautions taken to prevent foreign matter entering the pipes during the laying of mains.
4. Human error.

The experiments described lead to the following conclusions:—

1. The ends of pipes should be covered by the manufacturer and the covering should not be removed until the pipes are about to be laid.
2. The spraying of pipes, as soon as they are laid, with a chlorine solution has some value.
3. A simple "injector" for continuous dosing can be easily made and is reasonably cheap. It gives highly satisfactory results.
4. Yarn used for joints is often heavily infected. It should be sterilized by autoclaving in steam at 25 lb. pressure for 45 minutes.

Possible substitutes for yarn are:—

- (i) Compressed paper,

(ii) Rubber.

(iii) Plastics.

M. E. DELAFIELD

From Bulletin of Hygiene, Vol. 21, No. 5.

CEMENT PIPE LINING MAKES HIGH CARRYING CAPACITIES PERMANENT

There are two advantages in using cast iron pipe with a cement lining in your water system. First, you get a pipe that has an improved carrying capacity to start with and which maintains this carrying capacity as it gets older. Next, by use of this type of pipe lining, you can eliminate many taste, odour and red-water difficulties.

The financial advantage of cementlined cast iron pipe is real and measurable. Twenty-five year service records of this type of pipe carrying tuberculating water demonstrate that the pipe has a high continued flow co-efficient. Comparative tests with hot coal tar dip pipe 36" in diameter showed that the latter had a Williams and Hazen co-efficient of 136 in comparison with 145 for cement-lined pipe of similar diameter laid at Corpus Christi, Texas.

Carrying these comparisons further, tests showed that a 20 inch tar-coated line in service for 29 years had a Williams and Hazen coefficient of 130 when new which dropped very close to 100. Using this as a basis for calculations for a 36 inch pipeline carrying 8.29 mgd. and measuring 74,400 feet in length, the cement lining would make possible a 48,300 saving during a 30 year period of service.

Assuming that demand on this line would increase from 8.29 to 16 mgd. as could easily be the case and by capitalizing the savings at 4 per cent, a total saving in pumping costs of \$ 210,875. The actual cost of the lining at the present market price would be in the neighbourhood of \$ 40,000.

Under certain conditions the higher carrying capacity of the cement-lined pipe makes it possible to use a smaller diameter than would normally be required if tar-dipped pipe were used. Cement-lined pipe for the distribution systems also presents advantages that should be realized. The added carrying capacity makes possible better pressures at the distribution points, and greater amounts of water for fire protection. The cost of cement lining which insures carrying capacity for the life of the pipe is much less than the cost of replacement, even though that replacement might be delayed for as much as 45 years.

"The long physical life of cast iron pipe, means nothing if its carrying capacity becomes impaired. The logical way to prevent this impairment is by the use of cement linings."

(Paper presented before the North Carolina Section Meeting of A.W.W.A. in Charlotte N.C.)

(We would suggest that the water intended to be conveyed should be just chemically analysed to make sure that it is not calcium thirsty.

Ed.—P.H.)

MAKES ROACHES RUN, *Sci. News letter,* 43, 357 (June 5, 1943.)

Experiments carried out with the adult German roach showed that insecticides containing pyrethrum first produce a muscular excitation. They also showed that roaches treated with pyrethrum run in a crouched position dragging the abdomen. This is important in the extermination since pyrethrum is a contact poison. The work was carried out by Dr. John M. Hutzel of Ohio State and reported in the *Journal of Economic Entomology*.—E. J. COLE.

From P. H. Engg. Abst Vol. XXIV. No. 1

These pests are frequently found in dwellings in bakeries, restaurants, and other warm places where food is prepared. In the city of Madras, where the conservancy type of latrines exist, they are found in them.

They feed upon any kind of material.

Their presence in large numbers in food establishment in particular must be treated as a sanitary defect, not merely because of the damage which their foul smelling excreta does to food but also because of the infectious material which they may transmit on other bodies from the drains, latrines etc. to food.

The roach population can be kept down by cleanliness and by protection of all foods in jars or containers. Cracks in buildings and other out of the way hiding places should be eliminated.

The various methods of ridding of the pest, chemical methods, is the work of the Public Health Engineer.

—(Ed. P. H.)

USE OF GHEE RESIDUE

A considerable amount of ghee residue—the sediment left after removing the clean butterfat during preparation of ghee—is now being wasted and thrown away. It has been found that it can be used to feed cows and buffaloes and other articles of their diet. One pound of ghee residue is roughly equ

seed in its feeding value. Ghee residue can be fed as one of the ingredients of the concentrate to the extent of 4 lbs. without any ill effect in the yield of milk or general condition of the animals. One pound of ghee residue can take the place of 1 lb. of rice, $\frac{1}{2}$ lb. of gram and 1 lb. of concentrate feeding mixture (in the ratio rice bran 4, gram 2, gram husk 1 $\frac{1}{2}$ and groundnut cake 2 $\frac{1}{2}$).

SPEAKERS' DIGEST
of the Government of India.
(Vol. 1., No. 21).

HEALTH INFORMATION

Newsholme have warned us against the extravagances and exaggerations of popular health propaganda. His views concerning the most fertile fields of health education are.

*1. Health teaching to those actually engaged in caring for the sick, whether physicians or nurses, and students for such future work.

2. Health teaching to those who, at infant welfare centres or elsewhere, deliberately attend in search of such teaching.

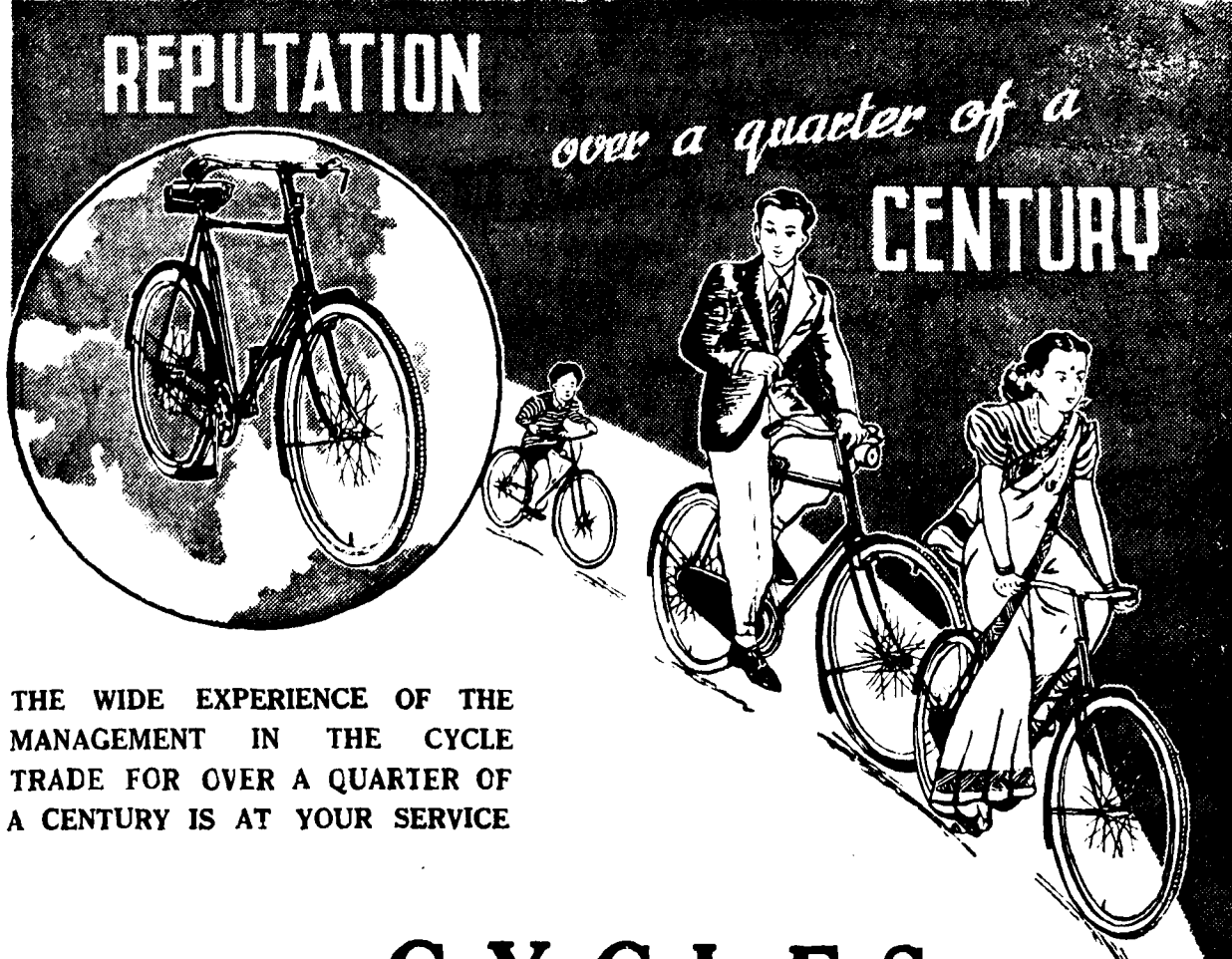
3. Health teaching to the members of official health organisations and of voluntary agencies who organize public health measures and the care of the sick.

4. Health teaching as a systematic part of school life.

* Medicine and the State by Sir Arthur Newsholme.

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