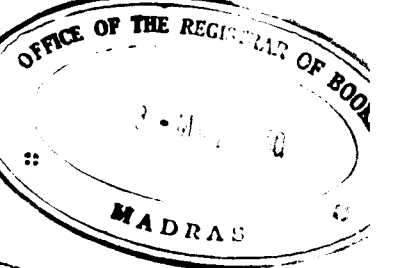


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PEOPLE'S HEALTH

EDITOR
A.V. RAMAN



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PEOPLE'S HEALTH

A Pioneer in the Field of Public Health

Vol. IV

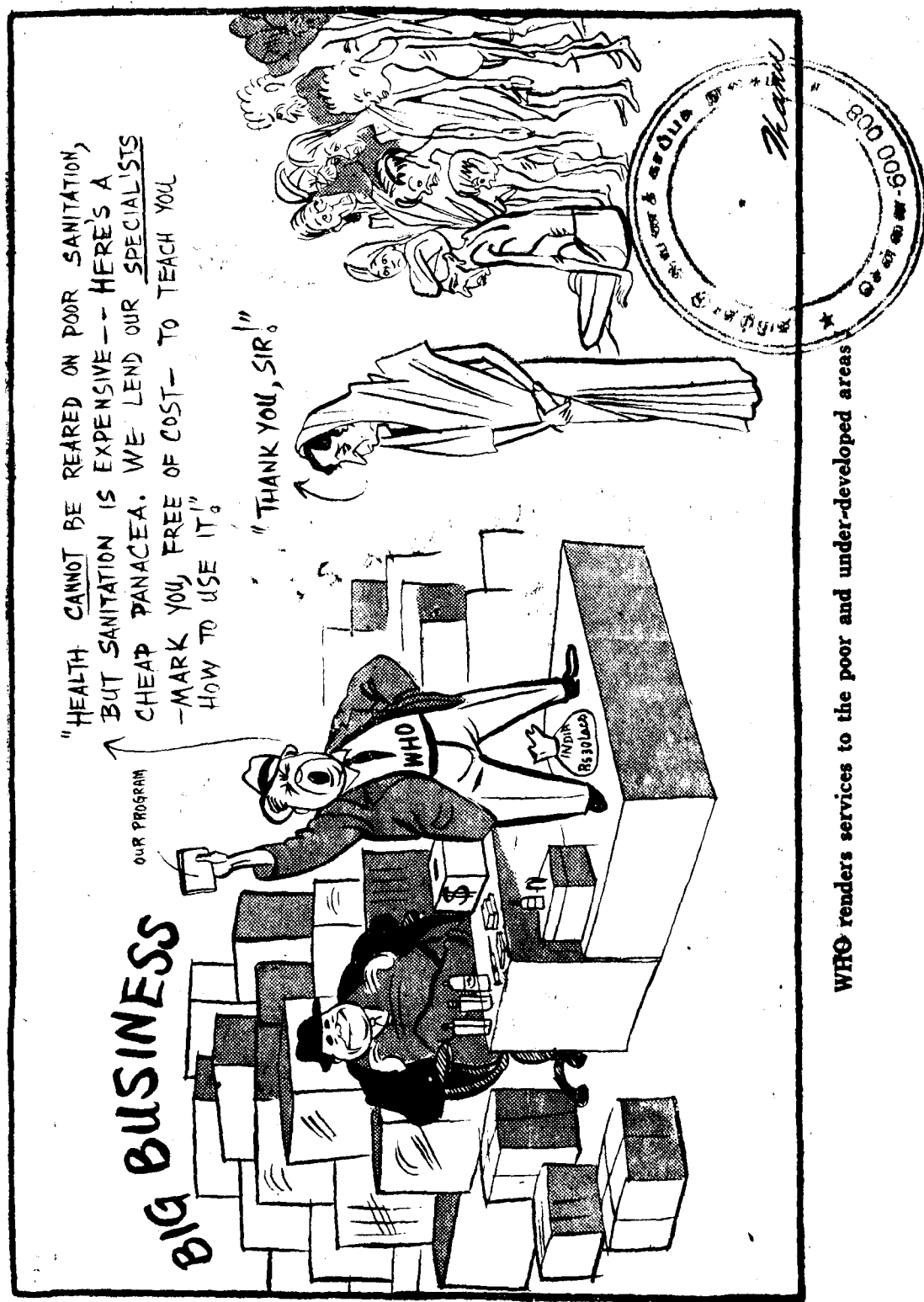
APRIL, 1950

No. 7

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VOL. IV No. 7

APRIL, 1950

ISSUED MONTHLY

EDITORIAL . . .

"Death by starvation is preferable to the maintenance of comfort and respectability by dependence on those who look down upon you and do not take you as one of those, but only render help as the one inferior."

—RAJAJI on 'Kural'.

WHO's Who?

The World Health Organization, known as WHO for brevity, is first and foremost "a single international medical organization". It is, therefore, safe to presume that its interests are rather primarily centred round the propagation of instruments of therapy. The medicine-men have vested interests in diseases and hence in medicine. When they talk of health, they really mean disease. The term *health* is consistently being exploited to serve the vested interests in diseases. Such people cannot be expected to cut the ground under their own feet. If the medical men talk occasionally, as they do, of the importance of environmental sanitation, it is just to render *lip-service* to satisfy the commonsense of the common man.

World Health Day

Recently, the proposal to celebrate the World Health Day was advertised by

foreign as well as indigenous propagandists. There was no enthusiasm among the masses to celebrate it. Naturally.

The aim of the celebration was to focus the attention of the people on their own *health services*. The people judge any activity of the health services by the results. 'Doctors, nurses and public health workers in India have no more vital responsibility than that of educating the people in healthier ways of living'. When the living conditions are disgracefully bad and as a result thereof the masses are exposed to diseases, how is it possible to educate them without improving their living conditions? It is obviously unwise to attempt to cure diseases without removing the root causes of ill-health. The WHO is more concerned in attempting to treat diseases rather than helping our country to improve the living conditions of the people.

Lip-service

We have before us the Bhore Committee's handsome acknowledgment of the importance of environmental sanitation. They say that the work of medical men, nurses, hospitals and the like cannot be expected to yield results, without improving environmental sanitation.

The WHO has recognized:

"No permanent advances in the general health programme can rest upon a sub-structure of poor sanitation. Any improvement in the disposal of excreta, in the protection of drinking water, in the destruction of the fly and the mosquito brings health and social advantage to man, woman and child."

To keep up the show, as it were, the WHO appointed a sub-committee to go into environmental sanitation. The report of the sub-committee is not, however, made available to the public; but no time is lost in publicising wonder remedies and wonderful medical inventions in the name of protecting, promoting and maintaining the health of the people. The Health Ministry of the Government of India, apparently, yielded reluctantly to the pressure which was brought to bear on it and appointed in June, 1948, what is known as the Environmental Hygiene Committee. It was declared to be an expert committee on environmental sanitation; but the Ministry took care to have as its chairman a medical man with non-medical occupations. It was apparently to keep under check the engineers who are interested in improving the environmental conditions in

which our people live. The Ministry of Health should be deemed to have been remarkably successful in keeping the engineering profession bound hand and foot. It may also be taken that the engineering profession had allowed itself to be used as a convenient door-mat. This is by the way.

However, the fact remains that the Ministry of Health is unable to escape the tyranny of their medical officers, who consider that medical men alone can deliver the goods in respect of the health of the people. If the medical officers were really interested in improving the living conditions of our people, we ask why is it that the report of the Environmental Hygiene Committee which was submitted sometime back has not as yet seen the light of day.

Is India benefited?

The other day the Minister of Health, Government of India, said on the floor of the House in reply to a question of a member of Parliament that WHO had spent so many thousands of dollars on this and on that and so on. Unfortunately, the figures furnished seemed to have so astounded our members of Parliament that they allowed the wonderment to steal a march over their judgment and further interrogation came to a standstill.

Non-official sources cannot easily get at facts. Subject to this limitation, so far as we are able to gather, the Government of India, as a member of the WHO, contributes about thirty

(Continued on page 271)

ORGANISATION OF HEALTH SERVICES IN INDUSTRY

8. PRE-EMPLOYMENT SELECTION OF EMPLOYEES

by

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(NOTE.—The views expressed in the article are personal and do not represent the views of the Government.)

Numerous queries have been addressed to the writer of this article by medical men in industry regarding standards of physical fitness for workers in certain types of industry. If it has not been possible to lay down standards for every type of tradesman in a certain industry, the principles involved in the evaluation of such problems were always indicated. While it is necessary to standardise the physical requirements of the innumerable professions, trades and occupations, the subject requires to be tackled scientifically and, as in other fields of scientific enquiry, it is essential to lay down the guiding principles only in this article, for elaboration of standards for all occupations in all industries is not required as medical service in most of these industries is non-existent. Also it is not desirable to lay down standards relating to "unskilled categories" which form a large bulk of the employees in each industry. Similarly where different branches of the same trade or profession have workers on occupations of a similar nature it is not required to indicate standards for each but they could be grouped under one medical standard. This method of grouping of similar or allied

occupations under particular sets of physical standard can enable the doctor to consider the case of a worker as fit for as many alternative occupations as the worker's physical standard would permit.

Generally speaking, it is possible to group together in the medical standards, occupations of a similar nature whether found in Engineering, Metallurgical or Foundry industry, e.g., take the work of a foundry moulder: the moulder may be designated:

- (a) according to metal cast in moulds as ferrous, non-ferrous, brass,
- (b) or, according to the medium used for making the mould as green sand, dry sand, loam, etc.
- (c) or, according to the article cast as roll, shell, cutlery.

This has also the advantage of reducing the number of set medical standards and facilitates for easy selection of employees with known standards from such sets. The work performed, the equipment and material handled, the working conditions, the physical requirements of each kind of moulder are practically the same

so that one set of medical standard is required to be evaluated which every moulder should satisfy in order to be declared fit for the job.

Reasons why pre-employment medical examination is necessary in industry

(1) An important cause which came recently under the observation of the writer, when engaged on enquiry about the "Health of the Industrial worker during 1939-45" is as follows:—

During the period 1-4-1940 to 30-6-1945 the Recruiting Medical Officers at various Army Recruiting Centres rejected about 21 per cent of people who presented themselves for recruitment, as unfit for army service. This figure is low largely in consequence of our being an agricultural race, but there is nothing for us to feel complacent about. For if such people (rejects from Army) were employed in factories (as majority of them were), where there is no system of pre-employment examination, they run the risk of further deterioration in their health when exposed to unhealthy working environment in factories. These rejects were as follows:—

CAUSE OF REJECTION	Number (Rounded off)
Eye affections	78,000
Diseases of Circulatory system ..	74,000
Malaria (enlarged spleen) ..	43,000
Veneral Diseases	34,000
Bones and joints	25,000
Skin diseases	24,000
Ear affections	17,000
Poor physique	17,000
Anaemia	11,000
Hernia	10,000
Teeth	10,000
Minor cases (Scheduled) ..	19,000
Other causes (Not scheduled) ..	34,000
Total	400,000

The gravity of the situation is apparent. A system of pre-employment examination can alone

help industry to recruit the right type of man for its various trades.

(2) Another important reason for the inclusion of pre-employment examinations as a part of industrial health policy is that such a programme provides industry with an opportunity for scientific study and control of disease problems in industry. The programme has many potentialities which serve the interest of the employers as well as employees and provides to the medical men knowledge which is very much desired by them.

(3) Such examination is the "keystone" of industrial health work. The object is to fit the job to the workman. The examination endeavours to discover those physical qualities of a worker which will enable him to carry out his work with the minimum of hazard to his health. It also detects those physical faults in him against which the works doctor has to find proper safeguards and protective measures and apply them in time for the improvement of his health.

(4) Above all the preventive aspect of such examinations is the most important consideration—discovery of disease or disease processes in their early stage.

(5) Such examination records are a valuable aid in deciding unjust compensation claims for injuries and illnesses.

(6) Only the fit worker can help to increase production. These examinations help to select fit workers for increased production.

Adaptation of a worker to a job

At the outset it is necessary to state clearly that for proper adaptation of a worker to a job, physical fitness alone will not do. Mental fitness, aptitudes and his psychological reactions should also be assessed. Thus the problem is not an exclusively medical problem. The industrial physician will do well to gain some practical knowledge of the detailed requirements of jobs for which he is required to examine and

recommend the worker, so that he understands the physical and other risks involved.

The medical aspect of the problem, however, requires consideration of two fundamental facts:—

(1) The physical requirements of each job according to particular strains and risks involved—*Job Evaluation*.

(2) Medical assessment of the worker—*Medical Categorisation*.

Every medical man in industry has to encounter these two facts. The medical problems in one industry do not differ very widely from those in the other except in certain details of processes due to certain hazards in one which are not to be found in the other, but the occupational selection of the employees is needed in all types of industries.

Job Evaluation

(To help the medical man in industry he is advised to consult "Employment Exchange Guide" to occupational classification issued by the Directorate General of Resettlement and Employment, Ministry of Labour, Government of India).

The job description given in the above book gives the occupations in various industries, in a generalised composite form. The descriptions, however, cannot be expected to coincide exactly with any specific job in a particular establishment as the guide is prepared for the use of public employment offices. These job descriptions have to be supplemented by local information in each factory concerning the specific jobs. This can be done by including the following factors in job-evaluation:

(1) *Job-title*.—A list of all the jobs found in the industry should be made out in consultation with heads of various departments in the factory, e.g., in Foundry work, the various jobs may be:

A. I. 7— Foreman/Forging Machine operator.

A. I. 10— Hand/hammerman.

A. I. 11— Furnaceman.

A. II. 1— Foundry/Foreman/Supervisor/Chargeman.

A. II. 4— Moulder.

A. II. 6— Cupolaman.

A. II. 12— Sand Blaster (metal).

A. II. 16— Sand machineman.

A. II. 19— Machineman (Die-casting), etc.

(2) *Job Summary*.—This is intended to give a brief concise sketch of the job as a whole. It does not show the details of the job.

(3) *Work performed*.—A detailed statement of the actual duties performed on the job. The combinations of duties found in each job are likely to vary in different factories. It is, therefore, desirable to have a composite picture rather than exact descriptions of each job.

(4) *Equipment—Material*. This should give a brief, general, non-technical description of the machines, tools, equipment and materials used by the worker on the job.

(5) *Working conditions*.—This should provide details of the usual working surroundings and hazards (physical, chemical, biological, psychological—as detailed in the article in October 1949 issue of this Journal) that are incidental to the particular occupation.

(6) *Specialized qualifications*.—Indication should be given regarding the physical qualifications necessary in the worker for satisfactory performance on the job, e.g., a sheet roller must have strength in arms, back and legs for lifting and carrying load in hands for manipulating the tongs.

This work of job evaluation should be done by a small committee consisting of the departmental manager, foreman, safety officer and the medical officer. The medical officer should, in order to be able to assess the physical requirements of each kind of workers, study the worker while he is engaged in his daily duties. Each

movement should be thoroughly watched to study the working of the skeletal and muscular system.

Each job is rated as in (I) above and given a category number. The letter of the alphabet refers to the group to which the industry belongs. The Guide referred to above, groups various industries under the following letters :

- A — Engineering, Electrical and Industrial Supervisory workers.
- B — Building and Road, Wood, Painting, Furnishing, Quarry, and Pottery workers.
- C — Railway, Road Transport and Airways workers.
- E — Metallurgical workers.
- F — Textile workers, and so on.

The Roman numerals refer to various trades in the group, e.g.—

- A. I — Smithy workers.
- A. II — Foundry workers.
- A. III — Machine shop workers.
- A. IV — Fitters, mechanics, etc.
- A. V — Tool makers, etc., and so on.

The Arabic numbers refer to the occupations in the trade, e.g.—

- A. II. 1 — Foundry foreman.
- A. II. 4 — Moulder (Foundry).
- A. II. 6 — Cupolaman (Foundry)

and so on.

Medical Assessment

A complete medical examination is made of the worker and is recorded on a categorisation form.

Coding

A simple code like that used by the Canadian Army P, U, L, E, M, S, is devised based on 6 or 7 letters of the alphabet and both job-evaluation and medical categorisation are based on these letters.

The writer has coined the word PERVINS—an adaptation from the Canadian Army Scheme consisting of seven letters and each letter is given a rating as P1 P2 P3 or E1 E2 E3 and so on.

The letters stand for the following requirements :—

- P — Physical efficiency.
- E — Locomotor efficiency.
- R — Respiratory system.
- V — Vision and eyes.
- I — Intelligence.
- N — Nose, throat and ear.
- S — Skin.

Physical Factors

Under each type of rating (1, 2, 3) should be worked out. This is easily done by—

stating the desired factors under each letter of the code as follows :—

Code No.	Requirement.	Factors.	Standard of Rating for category		
			1	2	3
P	Physical efficiency.	Age ..	19—35	18—40	Any age.
		Height/weight ratio ..	Normal	Disparity not more than 10%.	Disparity not more than 25%.
		Muscular development ..	Above average	Average	Below normal.
		Abdominal line ..	Straight	Slightly curved	Curved.
		Bones and Joints ..	Normal	Normal	Loss of digits (limitation of movement) compensated Valvulan disease.
		Cardio-Vascular system ..	Nil	Nil	Slight.
		Organic disease ..	Nil	Nil	For light work only.
		Fitness ..	For heavy work.	For ordinary work	

Code No.	Requirement.	Factors.	Standard of Rating for Category.		
			1	2	3
E	Locomotor efficiency.	Pain on walking or standing.	Nil ..	Nil ..	Slight complaint.
		Pes Planus ..	Nil ..	Arch restorable	Fore-front of foot abducted.
		Pes Cavus ..	Nil ..	Flexion of toes can be overcome.	Flexion of heels cannot be overcome.
		Hallux Valgus ..	Nil ..	Must have 45° dorsiflexion	Below 45° dorsiflexion.
		Loss of Toes ..	Nil ..	Minor degree	Loss of great toe.
		Talipes ..	Nil ..	No effect in function	Definite.
		Knee joint ..	Nil ..	Nil ..	Torn cartilage, lax ligaments.
		Varicose Veins ..	Nil ..	Slight, local	Trendelenburg test positive.
R	Respiratory system.	Chest expansion ..	Not less than 2½" Both sides equal.	Between 2½—1½"	Under 1½ in.
		Bronchial catarrh ..	Nil ..	Slight	Chronic Bronchitis.
		Emphysema ..	Nil ..	Nil ..	Yes.
		Asthma ..	Nil ..	Nil ..	Yes.
		Bronchiectasis ..	Nil ..	Nil ..	
		T.B. ..	Nil ..	Nil ..	
		Vital capacity ..	Normal	Upto 10% below normal	Upto 15% below normal Not to be accepted for work.
V	Vision and eyes.	Vision in both eyes ..	6/6 ..	Below 6/12	Below 6/36, or loss of one eye.
		In either eye ..			Yes.
		Spectacles ..	Nil ..	Nil ..	Not to be accepted for work.
		Inflammatory condition ..	Nil ..	Nil ..	
I	Intelligence ..	Standard ..	High ..	Normal	Below normal.
		Suitability for skilled work.	Present	Present	Fit for unskilled work.
		Psychiatric illness ..	Nil ..	No signs	Yes.
N	Nose, throat and ear.	Septum ..	Normal	Slight deflection	Difficulty in breathing.
		Sinusitis ..	Nil ..	Nil ..	Ulcerated Generalised.
		Tonsils ..	Normal	Enlarged	Septic.
		Otitis Media ..	Nil ..	Nil ..	Chronic discharge.
		Hearing ..	Good in each ear	Reduced	Deaf.
S	Skin	History of skin infection.	Nil ..	Nil ..	Has suffered.
		Evidence of skin disease	Nil ..	Nil ..	Present. Unemployable in works with skin hazard

Medical Categorisation

For the purpose of recording, a combined form as follows can be utilized :

Occupation Sheet Roller.
Job category.....E. 207 Fit/unfit.....

PART I

MEDICAL CATEGORISATION FORM

Name.....Work No.....

P	E	R	V	I	N	S
1	1	1	2	2	1	1

PART II

ROUTINE EXAMINATION FORM.

Height.....Weight.....Pulse.....

Chest expansion.... Vision R. Eye... L. Eye..

Code No.	Particulars.	1	2	3	Category and Remarks.
P	Muscular Development Abdominal line .. Bones and joints .. Cardio-Vascular system .. Organic Disease .. C. N. S. ..				
E	Pain on walking .. Pes Planus .. Pes Cavus .. Loss of toes .. Talipes .. Knee joints .. Varicose Veins ..				
R	Expansion .. Chest lesions .. Vital capacity ..				
V	Right .. Left .. Inflammatory condition ..				
I	Standard Suitability for skilled work.				
N	Septum .. Sinusitis .. Tonsils .. Otitis Media .. Hearing ..				
S	Previous infections .. Rash ..				
	Urine .. Albumin .. Sugar ..				

In the example given in Part I of the form a sheet-rolling job has been codified as requiring the following standard of physical fitness.

P	E	R	V	I	N	S
1	1	1	2	2	1	1

Explanation

(a) This job is heavy. The man must have strength in arms, back and legs for lifting and carrying loads in hands for manipulating tongs. He should be P₁.

(b) He has lot of walking to do and is on his feet most of the time; so he should be E₁.

(c) Large masses of molten metal make the work place hot and smoky and his respiratory risk is great. He should have a R₁ standard.

(d) He is in danger of burns and inflammations of the eye, eyestrain and impairment of vision from frequent exposure to radiation from molten metal and smoke, but the occupation does not involve a high grade vision, so he could be V₂.

(e) Similarly, a high grade intelligence is not required though the work is skilled. A man with I₂ could be accepted.

(f) As there are special hazards in respect of ear, nose and throat, N₁ should be necessary.

(g) As regards the skin he should be S₁ for skin hazards are many for him.

A man for a sheet rolling job with the following rating is definitely not suitable:

P	E	R	V	I	N	S
1	2	2	1	3	3	3

This method of assessment of physical standard has been found to work satisfactorily, and industrial physicians are adapting codes on these lines which are similar to usages in the army, for a variety of industry. Once a method has been evolved, it should be given a fair trial for at least some years and later on changes introduced as a result of periodic examinations.

Other Considerations

(a) When the employee is sent up for examination to the Medical Officer he should explain to him the purpose of the examination and obtain his cooperation.

(b) If defects are found, early treatment should be instituted to prevent their further spread or extension.

(c) The case should be followed up to watch the effects of treatment advised.

(d) The routine examination form has the common pathological findings printed or cyclo-styled so that they only need be ticked in the appropriate column with the necessary rating by the Medical Officer.

(e) After this form is filled up and conclusions drawn, part I of the form is filled to categorise the man in terms of his physical requirements.

(f) The code in Part I is read in conjunction with standard codes already prepared for various occupations in the trade. *This is done not to classify the health of the worker, but to*

find out the relation of his health to the task requirements of a special occupation for which he is a likely applicant.

(g) The worker is finally classified as fit/unfit for work. This recommendation may, however, state his fitness as conditional for reasons stated or as permanent or temporary.

(h) Working out of such standard codes for all occupations in industry and the medical categorisation record of a worker helps the doctor to decide easily the case of a worker who is going to be transferred from one job to the other.

If industry is desirous of cutting down sickness absenteeism rate and cost of medical service and the doctor wants to maintain a force of healthy workers, it is imperative that industry should join hands with the doctor in instituting pre-employment medical examination service in industry.

(Continued from page 264)

EDITORIAL . . .

lakhs of rupees annually in a lump sum. The WHO, in its turn, sends out its trained specialist teams to get the Indians trained in some specialist fields. The specialists so sent out are paid by the WHO; but their travelling allowances, daily allowances and halting facilities on a first class scale are borne by our Indian exchequer. The State is expected to pay salary, allowances and the like for a parallel Indian team to be placed under the guidance of these specialists of the WHO for training. We are also to incur other expenses in the work.

Another temptation is thrown in our way. The WHO pays for the equipment of these foreign teams and by arrangement, leaves the equipment here on the expiry of the work of the team. Observation would show that this temptation in reality, means nothing substantial. The apparatus and equipment brought here free of cost are but what one would provide in a camp;

the bulk of the tools and plant, chemicals and the like, all personnel down to the watchmen are paid for by our governments. Taking all these factors into account, it would be evident that the offer of the WHO to render service to the poor and under-developed areas like ours is only a Dead Sea apple. Our governments spend more under this arrangement than they would, if left to themselves, to achieve the same object. Again, WHO does not believe in specialists belonging to a country rendering service to their mother country. This arrangement would incidentally help to solve unemployment in foreign lands! An Indian specialist in malaria, for instance, does not work in India but in South Africa or elsewhere. According to this practice, a specialist from a country, where cholera is unknown, may come down to do service in a country like India which is subject to epidemic waves of cholera!

ROLE OF BCG IN THE CONTROL OF TUBERCULOSIS*

by

Dr. M. R. Guruswami Mudaliar,
B.A., M.D.

Consulting Physician.



It was very good of the Secretary of the Association to have asked me to speak a few words on this occasion and I thank him and the Association for giving me this opportunity of emphasising certain aspects of what I consider to be the legitimate work of this Association. When I agreed to speak, I had no idea that I was to be the principal speaker and that knowledge came to me only this morning at 11 a.m. when I got the annual report of the Association and the agenda of the meeting. Therefore I must make my position clear. I believe, that the position of the medical man has to be absolutely impersonal. He stands between the people on the one hand and the Government on the other, viz., between the electors and the elected. He has to advise Government as to what is best for the people. His actions must endorse an ancient poet's saying:

ಸಹಿಂ ಸದಾಸಾಧುನಾನ್ವಯಾರ್ಥಮು ಒಪ್ಪಾನ್ವಯಸ್ತುಂತ್ಯುಚಿತೇ ಸಹಿಂ ಪ್ರಭುಃ ||

A Plea for Introspection

I realise I am addressing an audience consisting mostly of medical men who have consider-

able experience of tuberculosis work. I propose therefore that we do some introspection and see whether we have kept up to a high standard of efficiency. This is necessary if we have to chalk out an effective programme to check the spread of tuberculosis.

Importance of Reliable Statistics

It is well known that in the field of statistics we are not much advanced. The records are not maintained on rigidly correct basis. The diagnosis is often faulty. The statistical data given to the public are indefinite and often incorrect. Such statistics are frequently worthless. It would lead to fallacious conclusions if one based one's inference on such figures.

An expert on the subject expressed the view that the mortality figures for the city show a tuberculosis death rate of 200 to 400 per hundred thousand, as far as he could ascertain. He admits that very little information is available from rural areas and that though the figures are lower in villages, still the mortality is considerable. It

is authoritatively asserted that it can safely be estimated that there are at least 500,000 deaths annually from tuberculosis in our country and that it may be taken that five times the number are suffering from active tuberculosis.

Such statistics publicised in the hope of focusing public attention on the magnitude of the problem of tuberculosis with a view to evolve adequate medical relief and institute required preventive measures. But may I point out that this exposes those who ought to safeguard the health of the people to the charge of either callousness or inefficiency. Hence I would suggest a certain amount of reserve and restraint in publicising unverified or unverifiable statistics.

The first statistical survey in this country appears to have been made by Arthur Lankester. His report was published in 1920. The investigation was undertaken under the auspices of the Indian Research Fund Association. It occupied a period of two years—July 1914 to June 1916. The Bhore Committee while referring to this report, states:

"In the absence of reliable statistics, the author had to base his opinion mainly on the evidence given by medical officers and administrations in different parts of the country."

Subsequently some sporadic attempts seem to have been made to collect figures, but to no effective purpose. Even now, there is no move to undertake a comprehensive and systematic survey.

I suggest that a survey of this nature can be and should be entrusted to the Director of Public Health. He could utilize the technical talent of his staff to the best advantage, instead of frittering it away in the discharge of duties which have no relationship to his technical training.

In all civilized countries, I may be permitted to point out, the public health department is intimately associated with work connected with

tuberculosis, leprosy, venereal disease and even diabetes. I strongly urge that this reform in administration is long overdue and it should be effected without further delay.

Without statistical particulars gathered scientifically, no effective and comprehensive programme can be formulated in anti-tuberculosis campaigns.

The Root Causes

One often hears that the low economic conditions of the people are responsible for the spread of the disease. It is a general truth. But too much must not be made of it. Nutrition undoubtedly plays an important role. I do not wish to under-rate its importance. But I would request those research workers, who have analysed a few of the raw foodstuffs and given their opinion, to be good enough to analyse the foodstuff as they are eaten and see whether their opinion as to the nutritional value of our food, changes and how far. Have they considered in this connection our traditional menu, our *Acharams*? Why the periodic fasts, why specified diet on the following day? Why the sprouted green gram and *Amla* (gooseberry) on the *Dwadasi* day? Why turmeric is prescribed apparently as a colouring matter in cooking vegetables? It is only now that researches have shown the importance of vitamins. Has enough consideration been given to the variety and the amount of vitamins contained in the poor man's diet in India? Personally, I know young men have got into the habit of looking down on the inexpensive greens of our fields, as if they have no value in our nutrition, while they are running after every imported and well advertised product from abroad. This is deplorable. We experts should not overlook the fact that the diet of any region is built up on the regional products and is evolved after centuries of experience and we must try and see whether they do or do not come up to the level of "balanced diet" as understood today.

* An address delivered at the Annual General Meeting of the Tuberculosis Association of Madras on the 6th April 1950

Let us pronounce our opinion after careful investigation and, if found defective, let us correct the prevailing diet habits by addition of such foodstuffs as are easily available or grown, which will not overtax the slender purse of the common man.

Importance of Dwelling

Another contributory cause for the spread of tuberculosis is overcrowding in ill-ventilated houses. We have to find suitable and adequate houses. It does not mean houses constructed on western model or ideals. Houses should suit our climate and above all our family life and habits. Here in Madras Presidency, we are blessed with a climate which knows no extremes. We require no prefabricated houses, which may not suit our climatic conditions, nor our traditional habits of living. Those in authority talk of two-roomed houses; but I would like them to visualise the condition of a family of five or six persons living in two-roomed houses. I would rather prefer our conventional courtyard houses evolved by our forefathers after long experience and observation. They provide free access to sun and air, the two great destroyers of tubercle bacilli. Cleanliness of the courtyard house is ensured as a routine of our ordered traditional living. In this type of houses, however large a family, there is no feeling of overcrowding, no dearth of light and air. We should remember that a clean, airy, sunny house would eliminate the causative factor of tuberculosis and an ill-ventilated, dark house, is the best nursery for the disease.

Hence this Association must impress on all concerned, not excluding the powers that be, the necessity to give the highest priority to provide houses of the proper type in our fight against tuberculosis.

We may quote the wise advice given a short time ago by our Prime Minister, Pandit Jawaharlal Nehru, who pointed out that when money is

found to wage war against other nations, money should be found to wage war against dirt and disease. He also advocated the use of local materials and local talent. Steps must be taken to implement the lead given by Independent India's Prime Minister.

If we get correct statistical particulars to gauge the extent of the advance, our enemy the tubercle, has made in this country, and if we go whole-heartedly to solve the housing and food problems, we may be sure it is only a matter of time before tuberculosis disappears from our midst. We would be then attacking the root causes in solving our housing problem. Meanwhile, some sort of skirmishing and harassing the enemy is being attempted by the curative treatment with medicine and surgery and the attempt at artificial immunisation by BCG vaccine.

Many a creed and many a fashion has taken root among people when it was sponsored and backed up by those in power at the time. You may recollect the history of the rise and fall of various 'isms' all the world over. A parallel can be drawn in the fortunes of BCG campaign. It is but human that common man should adopt what he considers his superior and rulers are partial to. It is at this juncture that we medical experts, who, as I said in the beginning, stand between the governing body and the governed, masses should rise above the order of human failings and tender sound advice after deep deliberation. Let one of us pause and consider devoutly whether we have considered the problem of BCG vaccine in all its aspects and whether we are truly convinced of the correctness of the advice we give. To help you in such musings and to refresh your memories about the latest progress that has been made in the investigation of this problem, I shall very briefly place before you some of the latest pronouncements.

First, may I draw your serious attention to the article published by Dr. Carroll E. Palmer,

Medical Director, Field Studies Branch Division, of Tuberculosis, U.S. Public Health Service, in the Public Health Extracts, dated 7th October, 1949? He says:

"First, it must be admitted in clear and unequivocal terms that strict scientific proof of the effectiveness of BCG vaccination in the control of human tuberculosis is not available. This is true despite the fact that millions of persons have been given BCG vaccine during the past twenty years and despite the very suggestive evidence of a few small scale studies. It may still be true twenty years from now, unless an energetic and careful evaluation of the effects of BCG programme are undertaken."

I also wish to invite your attention to a statement presented by Dr. E. P. K. Fenger to the American Trudeau Society. It has been published in the *American Journal of Public Health*, October, 1949. The following are his major remarks:

"The degree of protection recorded following vaccination is by no means complete, nor is the duration of induced relative immunity permanent or predictable. The need for further basic research on the problem of artificial immunisation against tuberculosis is recognised and is to be emphasised."

"The society believes that since BCG vaccine affords only incomplete rather than absolute protection, the most effective methods of controlling tuberculosis in the general populace are:

(a) Further improvement of living conditions and the general health;

(b) Reduction of tuberculosis infection which can be accomplished by modern public health methods and unremitting search among presumably healthy individuals for patients with infectious tuberculosis;

(c) Prompt and adequate medical and surgical treatment of patient with active diseases;

(d) Segregation and custodial care of those not amenable to accepted forms of therapy;

(e) Adequate rehabilitation."

In the face of these authoritative views, it would be idle to contend that BCG vaccination had transcended the experimental stage. That being so, it would be extremely unwise to adopt this measure on a mass scale. This was exactly what a colleague of mine in the profession and

myself stated at the very early stage of this campaign.

Madras Health Ministry Congratulated

I may perhaps be allowed to convey my heartiest congratulations to the Ministry of Health, Madras, for having resisted the pressure of the Ministry of Health, Government of India, for extending the BCG Units. They have wisely decided to watch the results before extending the campaign. I wish other State Ministries of Health will follow suit.

Coming to the main theme I was trying to develop, it was most unfortunate that even so eminent an authority as Dr. Carroll E. Palmer performed a *volte face*, while he was touring this country on behalf of the WHO. In an interview to the PTI, Dr. Palmer is reported to have said that after his visits to various cities in India, including Calcutta, Madras and Patiala, he had come to the conclusion that it was *sheer commonsense* to have mass immunisation, for it would take years before India could successfully adopt other measures. I have already referred to the so-called other measures and asked what other recognised measures have been put in practice in this country. I wait for an answer. I deeply regret that so eminent an authority as Dr. Palmer should have commended BCG vaccination on a mass scale in this country just a month or so after producing his masterly contribution to the literature on the subject.

The Tuberculosis Association is proud of the work it has done and has been praised highly by Dr. J. B. McDougall, M.D., as I see from the abstract in the Annual Report that I received this morning. But let me warn my colleagues here that as scientists we must not be carried away by praise or censure.

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The Latest Contribution

Dr. Frederick Heaf, M.A., M.D., F.R.C.P., and Dr. David Davies, Professor of Tuberculosis, Welsh National School of Medicine, Adviser in Tuberculosis, Ministry of Health, presented a paper at a sessional meeting of the Royal Sanitary Institute, held in London on 14th December, 1949. The caption of the paper was 'Tuberculosis Infection and the Use of BCG.' I would strongly commend a perusal of this paper by all those interested in the subject. After the paper was read, a discussion followed. Many authorities took part in it. I shall not tire you by quoting long extracts from the paper. But I wish to draw attention to the extremely fair manner in which the case has been presented for and against without passion or prejudice. There was no agitation, but cogitation. Both the paper and the discussion maintained a high level on a scientific plane. The learned authors state :

"We are still unable to understand the mechanism by which the body defends itself against a tubercle bacillus. It is a combination of the ability to prevent the multiplication of the bacillus and power to destroy it within the body. This power appears to be enhanced when a limited invasion of the tissues by the bacillus is overcome and the lesion produced heals. It is therefore possible that healing of the lesion caused by the primary infection and subsequent re-infections, insufficient to cause progressive lesions, raise the power of the body to resist the harmful effects of the bacillus. There is evidence which supports this theory which leads to the belief that, provided a person can overcome the primary infection, the resistance of the body to tuberculosis infections is higher after, than before the primary infection. It is not easy to prove this theory, as it is difficult to obtain non-infected individuals and expose them to the same dose of virulent organism as a comparable group of persons who have recovered from their primary infection, but the work of Kallmann and Reissner on twins is of considerable significance. From it, there is evidence, although not complete, that the chance of developing tuberculosis when persons are submitted to the same dose and live in the same environment, depends on heredity and inherent resistance."

The specialists in this part of the world seem to think that segregation after BCG vaccination is not required. On the other hand, the learned authors referred to above state that it is true that the disease has been known to develop after vaccination; but in every case, it has been due to infection by virulent organisms either just before or just after vaccination.

We again do not seem to think that adequate investigation should be conducted with facilities for follow-up before administering BCG to the people. Tuberculin testing is of course said to be followed. The learned authors further state :

"There are usually three strengths of tuberculin available, and if a person does not react to the strongest concentration of tuberculin it may be said with a few exceptions, that the person is free from tuberculous infection and suitable for BCG vaccination. The ideal routine to be followed is to make two tuberculin tests, starting with the low dilution and passing to the strongest, then to wait six weeks and test again with the strongest tuberculin. This is to ensure that the individual has not been infected with virulent tubercle bacilli just before vaccination. If all these tests are negative, the person is vaccinated and protected from virulent infection for six or eight weeks. By this time a reaction to tuberculin should be obtained if the vaccination has been successful. If no reaction to tuberculin is obtained then revaccination is advocated."

Some Unknown Factors Concerning BCG

I wish to invite the attention of those who swear by the efficacy of BCG and to those who have been proclaiming that BCG has transcended the experimental stage, to the significant views expressed by the authors of the paper I have already referred to :

"It is indeed remarkable that after 25 years' use we know so little about BCG vaccine. At a recent conference in Copenhagen, at which were gathered together distinguished authorities from a number of countries in which the vaccine had been used for many years, it was agreed that, having regard to the work that had been done in Europe, there was no evidence that

the vaccine was harmful or that it had caused, in any case, the development of active tuberculosis. There appeared to be no doubt that inoculation with BCG conferred a certain degree of immunity on the vaccinated against tuberculosis, but it was thought that research was still needed to determine the degree and duration of this immunity, also the optimum dosage. Much discussion took place on the need for protecting persons from infection with virulent tubercle bacilli before and after vaccination. The need for this protection before vaccination is solely to preserve the good name of the vaccine for the development of active disease in an individual shortly after vaccination will, quite wrongly, but nevertheless most certainly, be attributed to the injection. In the immediate post-vaccination period we are not sure that superinfection with virulent tubercle bacilli in those vaccinated would be without danger, as it is possible that, during the days immediately following vaccination, the individual may have an increased susceptibility to tuberculosis. When sensitivity to tuberculin has developed, the susceptible phase will have passed and an acquired resistance to the disease will have developed. It is desirable that this period of protection or segregation from any known source of tuberculous infection extends over a period of six weeks after vaccination and this is one of the greatest administrative problems connected with the use of BCG. It will be a happy day if it can be proved to be unnecessary."

The presentation of the case of BCG vaccination could not have been done better; but the point to be recognised is segregation for a period of at least six weeks after vaccination, which is considered necessary. It is this aspect of the question, that has been ignored here, ignored conveniently. I may perhaps reveal that I am personally aware of the instance where an S.O.S. was sent to me by the father of a school girl who was subjected to BCG vaccination. (The lecturer handed over the original letter to Dr. K. Vasudeva Rao after reading it to the audience.) For every known case, there must be many unknown cases where complications might have set in. Our administrative system in this behalf is so defective that adequate arrangements for follow-up, which are considered so essential, have not been made. This is sad.

Anticipated Results from the Use of BCG

The same authors state :

"Let it be said that BCG will not eradicate tuberculosis. However much it is used, it will still be necessary to rely on general public health measures to prevent the spread of the infection and sanatoria and hospitals will still be needed to treat those who develop the disease."

It has almost become a burden of the song to say that 'other recognised public health measures' should also be undertaken. So far as this country is concerned, I ask what 'other recognised public health measures' have been adopted in practice to eradicate the disease. The reason often repeated for introducing in this country BCG vaccination is that to provide healthy homes for our people would cost something like 500 crores of rupees and that therefore something cheap should be adopted. We medical men know from experience what these cheap remedies do in practice.

Humility is the Key-note of Progress

Let us approach the subject in all humility bearing in mind that there is still a great deal to be discovered on the pathogenesis of tuberculosis and much research lies ahead to prevent waste of money on unprofitable anti-tuberculosis schemes. As Dr. Young put it in the *Lancet* dated 3rd December, 1949, "there may still come a time when there will be a rise in the morbidity and mortality rates for the older age groups as a late, but nevertheless direct, result of imperfect vaccination in early life." Dr. Charles L. Sutherland (Ministry of National Insurance) put it *per contra* : "Granted that BCG was valuable in infancy in protecting against primary tuberculosis and that its worth had been proved in adolescents, such as medical students and nurses, who were liable to special exposure, they were still not entitled to say that BCG had broken the 'chain of infection' of tuberculosis."

The immunity produced by BCG was neither absolute nor permanent. The link that had to be broken was formed by the infective case, which was, he assumed, usually Mantoux positive through a natural infection which it had not been possible to overcome but merely to seal off temporarily. The infective case would break down ultimately and thus infect the case originally Mantoux negative whose protection by BCG had disappeared by lapse of time. Not only might the protection given by BCG disappear in time but Wilson and others claimed that by analogy with animals the resistance might become less than that previous to the BCG vaccination." He cautioned very wisely: "Finally, it was curious how little they knew about tuberculosis. If they knew more of the life history of the tubercle bacillus, they might find a solution to some of their problems. For example, they had heard of a streptomycin-resistant tubercle bacillus." Dr. Sutherland asked very pertinently under what circumstances could the 'sealed off' tubercle bacillus become resistant to and overcome the antibodies produced by its growth in the body and whether there was a change in the bacillus or whether it was all due to reduced resistance on the part of the patient.

It might be felt that I have dealt with the subject at some length, perhaps disproportionately. I did so deliberately in the larger public interests. I did so in the interest of the medical profession itself. If I have succeeded in making my hearers introspect for a moment and approach the subject with a scientific mind

without bias or prejudice, I shall feel that I have discharged my duty.

Before I conclude, one should question the wisdom of cinematograph shows being utilised for advertising BCG vaccination. In no democratic country will such propaganda be tolerated when there is sharp difference of opinion on the efficacy of BCG vaccination. Such propaganda by utilising the silver screen would bring discredit on those responsible for it.

I wish to add just a word more before I conclude. What is the good of carrying on propaganda to put down tuberculous in our midst when many doors are left open without control? I refer to our cinema houses, music halls and other such places of entertainment where a healthy person is given excellent opportunities to get heavy doses of infection. Something ought to be done to design and control these places to ensure health and safety. We do not know how many people get the infection not only of tuberculosis but also other diseases in coffee houses, eating houses and the like. I ask why not control these. Definite suggestions have been put forward already in the Press. I shall not dilate on them here but what I wish to stress is, that the Ministry should take immediate action to control these places.

I thank you heartily for the opportunity you have given me to express my views on the problem of national importance. I plead with all emphasis that we should wage war against disease on different fronts and that the most effective front is by improving the living conditions of our people.

The only method of controlling tuberculosis in childhood is to prevent infection. Today children are infected very largely from adults with positive sputum. It is by the control of the infective adult that, ultimately, we must seek to protect the child.—F. J. W. MILER, M.D., in the *Lancet*, August 13, 1949.

HEALTH AND ENVIRONMENT

by

Our Study Circle

Cholera.—Cholera is now much less prevalent than formerly, but frequently occasions severe epidemics and still remains a constant cause of mortality. Epidemics have in several recent cases been traced to pilgrims returning from places of religious pilgrimage, at which there had been no recognised outbreak of the disease. In 1912, Major Greig was deputed to make a special investigation of the whole subject. That investigation, which still continues, has added to knowledge regarding the propagation of cholera and has established the fact that not only cholera convalescents, but also healthy persons who have been in contact with cholera cases, can act as "carriers" of the disease. It has also been shown that the germs of the disease can be recovered from a patient's dejecta kept under natural conditions for a variable but frequently considerable period, and that flies may play an important part in the dissemination of infection. These observations, while in no way opposed to previous knowledge that cholera is a water-borne disease, accentuate the importance of careful and thorough conservancy.

Small-pox.—Small-pox is not a tropical disease, but it used to be so rife in India as to be associated among Hindus with its own special goddess. It now occupies a small place in the mortality returns. This result is due to the spread of vaccination during the latter half of the last century.

Vaccination.—Formerly, nearly all vaccination was effected by human lymph, but within recent years arm-to-arm vaccination has been steadily replaced by the use of pure glycerinated or lanolinated calf lymph. The change has been doubly beneficial; it does away with the necessity of breaking the vesicle in the child's arm, a

simple operation but one which exposes the wound to contamination by extraneous germs; and it ensures that the vaccination is effected with a pure and fully potent lymph with consequent increase of protection. The change has been especially welcomed by educated Indians. Madras, Bombay, Bengal, Burma, the United Provinces, the Punjab, the Central Provinces and Assam have each now their own calf lymph depots, and the opening of another for the province of Bihar and Orissa is under consideration. Grants of Rs. 2,00,000 (£13,333), were given from imperial revenues last year to improve the depots in the United Provinces, the Punjab and Burma, and to establish the new depot in the Central Provinces.

Tuberculosis.—The prevalence of tuberculosis throughout India especially in the large cities is undoubted. In some of the latter, the mortality exceeds that of certain crowded European cities. The difficulties of coping with the disease in India are immense and demand the fullest co-operation between Government and private agency. One or more officers will be detailed to investigate the causes underlying the disease, to organise the diffusion of information, and to advise regarding measures for the prevention of infection; the services of Dr. Lankester have already been secured by the Indian Research Fund Association for this purpose. Recent research appears to show that tuberculosis in India is chiefly human and not bovine in origin. Indian cattle so far as is known are practically free from the disease, and Indians do not as a rule drink unboiled milk. The source of the disease is in the homes of the people, and the relief of congested areas and the provision of sufficient light and air in human

tenements are preventive measures of great value. The Government of India invite attention to the recommendation of the Lucknow Sanitary Conference that circumspection should be exercised before instituting at considerable cost further large sanatoria. They consider that inexpensive buildings suitable as model dwellings for the people may prove of great educative value and they desire to encourage tuberculosis hospitals and dispensaries. They also take this opportunity of communicating the warning of the Lucknow Conference against the indiscriminate use of tuberculin by unqualified medical practitioners.

Infant Mortality.—No summary of public health is complete without a reference to infant mortality. In 1911, of 4,752,152 male children and 4,457,551 females born in India, 1,016,823 males and 873,677 females died. In other words, about one-fifth of the children born died within the first year of their life. It is difficult to arrive at the actual causes of this high rate of mortality. The figures at the disposal of Government are often of doubtful accuracy, and the comparison of figures from different localities is frequently fallacious. On a broad view of the subject the causes of infant mortality may thus be summarised: (1) malaria operating both directly on the infant and indirectly through the mother; (2) diseases due to insanitary surroundings and exposure to infection especially through the medium of flies; (3) diseases due to ignorance on the part of the mother with regard to the feeding and care of the infant; (4) accidents of child birth and diseases attendant thereon. For (3) and (4) the custom of early marriage and the primitive and insanitary methods of midwifery are largely responsible. The latter lead directly to the death of the infant from tetanus and other diseases, and indirectly increase the infant mortality by depriving children of their natural nourishment either through the death of the mother or the failure of her milk as the result of

sepsis. Deficiency in the supply of cow's milk has not been proved to be a predominant cause of infant mortality in India; but the question of improving both the quality and the quantity of the milk-supply without increasing its cost is engaging earnest attention.

It is hoped that the instruction of mothers and midwives will engage the attention of all medical women practising in India and especially interest the women's medical service which has recently been established. In some of the large cities in India, notably Calcutta, Bombay and Madras, nurse health visitors have been appointed by municipalities to visit the people in their homes and assist and instruct mothers in the elementary principles of hygiene. In Bombay, an interesting experiment has been started by Dr. Turner in the form of lectures to the midwives. Another is likely to be made under the auspices of the Indian Research Fund Association in Delhi, where it is proposed to detail two trained nurses for work as health visitors.

Vital Statistics.—The course of sanitary reform is much impeded by the want of complete and accurate vital statistics. Without them it is difficult to gauge the effects of sanitary measures or to convince people of their efficacy. The difficulties in the way of improving the reporting and recording agency especially in rural areas are great; but systematic checking and supervision of returns should yield good results. Dispensary returns and voluntary notification by private medical practitioners are useful as checks but are only partial in their scope. A comprehensive scheme for the improvement of general reporting is required. The Government of India invite the attention of local Governments to the importance of the subject.

The Government of India recognise that differences in local conditions preclude the issue of any general instructions but they

commend the following propositions for consideration:—

(a) The reporting of vital occurrences should not be left exclusively to the municipal staff; reporting by the head of the household also should be insisted on. The two reports would then be available to check one another.

(b) The actual registration should be done not as an extra duty but by special registrars who should, if possible, possess a medical qualification. In the case of deaths, inquiries regarding the symptoms of the deceased could then be made from the person reporting and some check on the diagnosis of the cause of death could be obtained. Many people are attended during their last illness by unqualified persons or die without medical attendance.

(c) The registrar should be required to verify at least 10 per cent. of the reported birth and deaths and this verification should, as far as possible, include all particulars such as cause, date, age, sex, place, etc.

(d) The health officer should be in charge of the vital statistics in the town and should be responsible for supervising and checking the work.

(e) Experiments might be made in obtaining accurate registration in typical areas by means of a special staff which would also be employed in healing the sick.

Sanitary Surveys.—Concurrently with attention to the registration of vital statistics the Government of India commend to local Governments the importance of sanitary surveys on broad lines. Something has been done in this direction and valuable reports have been drawn up, giving the real health conditions of towns and particular localities and indicating the existence of any special sickness or mortality and the definite causes underlying them. The Government of India desire that systematic working

plans should be drawn up where this has not already been done with a view to mapping out the sanitary conditions of all the more important towns and localities in which sickness or mortality is above normal. This will occupy years of steady preparation; but as deputy sanitary commissioners are relieved of much of the routine work which at present they have to perform they should be able to carry this undertaking to a successful issue. The preparation of drainage surveys in towns in advance of needs obviates waste in the long run. In the absence of such surveys, work is often commenced in a haphazard way without due consideration of a scheme as a whole.

Urban Sanitation.—Urban sanitation has, as already observed, received much attention of late years. It falls generally under four heads, viz., conservancy, water-supply, drainage and town-planning with improvement of housing and the relief of congested areas. In the forefront of these stands conservancy.

Conservancy.—The importance of efficient scavenging with speedy and complete removal of all night-soil and rubbish from the vicinity of habitations and its satisfactory disposal can scarcely be exaggerated. Yet probably no department of public health work is more neglected in many Indian towns. The strict rules of the caste system have for centuries relegated everything connected with this work to the outcast, and the people, as a rule, evince little if any interest in the conservancy even of their own houses. To this neglect must be attributed the plague of flies which at certain seasons is experienced in every Indian town. Apart from the discomfort which they cause, flies are known to be the disseminators of many diseases, including cholera, enteric fever, tuberculosis, dysentery and diarrhoea and are largely responsible for the heavy mortality amongst infants. The all-India sanitary conferences at Madras and Lucknow drew prominent attention to the danger to health

caused by the presence of these noxious insects and the results of the recent "anti-fly" campaign at Delhi suggest that a large reduction in the number of flies is by no means an impossible task.

Whether incineration or shallow trenching or either of these methods of conservancy combined with water carriage is the best in any particular case will depend very largely on local conditions and customs. With the extension of drainage and sewerage systems, water carriage of all night-soil, with ultimate disposal on sewage farms, should give the best result. In the majority of towns, however, it will be long before this is generally practicable and the choice rests between incineration and trenching. Of the two methods, incineration is safer and on this account, if conditions permit, is preferable. Trenching is often thought to be more economical; but the profits obtainable from the trenching or pitting of night-soil and sale of the poudrette disappear, or are largely reduced, when the expense of carriage and supervision is taken into account. The material consideration in all cases is that the removal and disposal should be prompt. As education spreads and the number of health officers and sanitary inspectors increases, improved results may be anticipated.

Water-supply.—Few subjects have received more attention of late than the provision of a piped supply of filtered water in towns. Complete figures are not available but sums amounting to at least Rs. 3,51,58,297 (£2,343,886) have been spent during the last 20 years on completed schemes. Projects costing Rs. 1,40,03,433 (£933,562) are under construction and projects costing Rs. 1,14,44,750 (£762,983) have been prepared and sanctioned. These figures are exclusive of the expenditure in the presidency towns and Rangoon.

The demand for piped and filtered water-supply grows, and is likely to grow more rapidly in future. While recognising the need for

treating the question with due regard to local conditions, the Government of India offer the following general observations:—

(a) When piped water-supplies were first introduced, in the face of opposition, it was necessary that the charges should be made as low as possible. That stage has now been passed, and there appears no good reason why water-supplies should not be conducted on a business footing and the water charged for like any other commodity. An interesting discussion on the financing of water-supplies was introduced by the Hon'ble Mr. Curtis at the Madras Sanitary Conference.

(b) On the whole, the provision of piped filtered water in towns has not been followed by that reduction in water-borne disease which might have been expected. This is probably due in most cases to the large number of wells, both public and private, which still remain in use. The closure of many of these wells is much to be desired, but the owners are unlikely to consent to this so long as the piped supply is intermittent and is drawn off hot or unpleasantly warm during the summer. In any case the substitution of a constant for an intermittent supply will shortly have to be considered as pipes get older and insuction declares itself. The warmth of the water is more difficult to deal with, but much might be done by burying pipes deeper in the ground and carrying house pipes inside instead of outside houses.

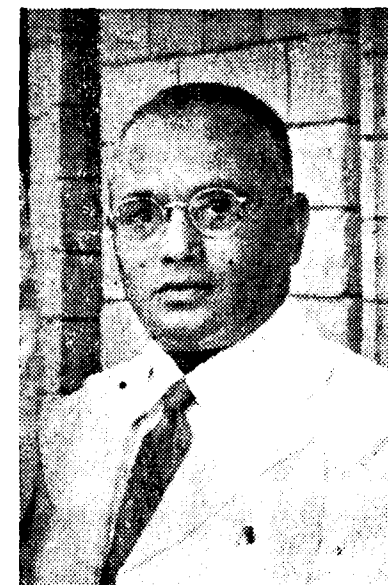
(c) Excessive wastage is common and causes not only an unnecessary burden on the municipality but frequently also a defective supply in the higher portions of the distribution. The employment of a regular waste-detection staff has in most cases been found to make for economy and efficiency.

(To be continued)

PREVENTIVE MEASURES

by

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Director of Public Health, Madras.



'Prevention is better than cure', is an ancient proverb and a time-honoured slogan. Yet, this gives out only a half-truth. Preventive measures in respect of health should be total and thorough. It must prevent men from becoming diseased. It must prevent diseased men from dying. It must prevent recovered men from being deformed or disabled. In fact, preventive measures should aim at preventing any circumstance which will interfere with normal and active healthy life. Every cure effected is therefore a prevention.

2. There are about two thousand illnesses which man may suffer from. Roughly speaking, for about a fourth of them, we do not know the cause. Where we do not know the cause, it is hard to start any preventive measure. For, the other three-fourths, we know the cause and we also know that the cause which produces the illness comes from outside the human body. A small proportion of them are non-living causes such as chemicals, poisons, harmful instruments and so on. By far the greater proportion of them is due to live agents or in common terms 'germs.'

3. A harmful substance coming from outside can be more easily recognised if it is well known

and large. Where illnesses are caused by known poisons or sharp instruments, man can easily recognise their presence and avoid them. The germs causing diseases are very very minute things. They cannot at all be seen by the naked eye. Their presence remains undetected. The people therefore cannot easily avoid them.

4. To prevent diseases caused by germs—which constitute two-thirds of the illnesses of men—one must know where the germs are present, how they get into the body and how they can be destroyed.

In broad terms, the measures adopted for the prevention of these diseases are the following:

(a) The germs are present in the sick persons; therefore they should be kept away from the healthy. This is called 'isolation'. A hospital is the best place to keep the sick away from the healthy.

(b) The germ which is found in the bodies of the sick comes out through discharges. So sputum, motions, urine, should be treated with disinfectants to kill the germ.

(c) Luckily for us, science has discovered and is rapidly discovering new remedies. Some of these remedies have a peculiar effect. Once put into the body, they permeate the system and

exert a selective action. Without injuring the body, they destroy the germs found in the body. A recent example of this which you might all know is penicillin. An older example is quinine. Treating the sick people with such specifics is the third preventive measure.

(d) In many diseases one attack renders the person insusceptible to further attacks. We all know that when a man gets smallpox and recovers he will not get it again. Science has developed methods by which healthy persons can be made to have a mild dose of the germ itself or its byproduct. By this, the person is trained to produce in his body resistance to the disease without first suffering from the disease. This is called vaccination or inoculation. Most of you must have known the preventive inoculations done in our country against smallpox, cholera, typhoid and plague.

(e) The organisms which leave the body through discharges must be carried into another healthy person to spread the disease. The healthy person may get the germs into him through one of the three routes. He might take it by his mouth along with his food or drink. He might breathe it in along with the air. Or, he might get it through his skin along minute abrasions, or by a biting insect. In large communities, the transit of the germ from the sick to the healthy takes place through common channels. A public water supply or a common food supply may get contaminated by germs in the excreta of the sick. Whoever partakes of this contaminated food or water may fall ill. Examples of this mode of spread are cholera, typhoid and dysentery. The air in a house may be contaminated by the germs thrown out by coughing sick people. Healthy persons who breathe the air may themselves get the disease. This kind of spread occurs, for example, in smallpox, pneumonia and tuberculosis. Germs which are present on the surface of the body may spread from the sick

to the healthy by ordinary personal contact. This occurs in venereal diseases and leprosy. Where germs are present only in the blood and do not ordinarily come out of the body with discharges, they have to be taken from the sick to the healthy by an insect. Such transfer occurs in malaria, plague, elephantiasis, etc. One important preventive measure, therefore, is protection of or destruction of germs in such common channels of transmission. Protection of water-supply, protection of food supply and destruction of insects constitute large scale community preventive measures.

5. Let us first see what preventive measures western countries have organized. Their first attention was directed to the prevention of disease caused by germs. In this, they started with the last measure first. Because, if a common channel of spread is denied, then the largest number of fresh cases of illness are prevented. So they paid first attention to what is commonly called environmental sanitation. They made perfect arrangements to dispose of human excreta. This prevented the pollution of soil and water by disease germs caused by sick people. Not content with this, they made elaborate arrangements to provide safe-drinking water to every one. Then they diverted their attention to improving their housing conditions. The one improvement that they were keen about was to prevent overcrowding and spread of infection through air from the sick to the healthy in small rooms. In the course of about half-a-century, these arrangements were perfected in all their towns and villages. The result was that common bowel diseases caused by germs such as cholera, typhoid and dysentery completely disappeared from their land. Improvement in housing although progressed very much, has not been brought to an ideal perfection. Their climatic conditions necessitated crowding indoors during night. Diseases spread through the air like pneumonia or tuberculosis were greatly

prevented but not completely eliminated in those countries. Wherever insects were present and where insect-borne diseases were spreading, specific steps were taken on a large scale to prevent the breeding of those insects or to destroy them wholesale. Insect-borne diseases have also been completely eliminated from those countries.

Having achieved this, they then carried prevention further. They instituted measures to reduce incidence of those diseases caused by external inanimate agents. They made their factories and industries sanitariously safe. They took steps to prevent accidents. They took measures to control poisonous substances.

6. The next stage carried prevention still further. They instituted measures to take care of the people at certain stages of their lives as a routine measure. They made arrangements to enable every person to be periodically examined, get defects corrected and secure advice and assistance to lead a healthy and virile life. Maternal and child health, the health of the school children and the health of the industrial worker were safeguarded in this way. They did not stop with this. They carried this to the next logical step and have organised similar measures in respect of old persons; this they call 'geriatrics'.

7. Simultaneously attention was devoted to those diseases which arise from unknown causes. All attendant circumstances in which those illnesses occur in individuals were studied. Wherever possible, those circumstances were altered or controlled. This is what is now termed 'Social Medicine.' In developing preventive measures on these lines to an almost perfect stage, they did not hesitate to implement anything which they considered essential. It became the responsibility of the State to safeguard the environment, to treat all sick people, to examine all healthy persons from foetal stage to the grave and to remedy any other attendant circumstance which

has a possible bearing on illness. Thus they made it a total prevention which alone is real prevention. They prevented illnesses; they prevented deaths; they prevented disability; they prevented suffering and, in fact, they prevented anything which will interfere with a normal healthy life. It is because of this total prevention that people in those countries live long. Their expectation of life is over sixty years. They are more active and their countries are more prosperous.

8. What have we done in our State? From the beginning of this century, we slowly developed facilities for treatment of illnesses. At the end of the first quarter, the preventive organisation was on separate footing. A fairly adequate complement of staff was provided for this purpose in urban and rural areas. Facilities were given to the staff to implement preventive measures as far as possible. Places where sick people can be isolated were gradually provided in many places. Wherever diseases can be prevented by rendering the healthy people artificially resistant, we have compulsorily done it or persuaded people to take that protection at our hands. Vaccination against smallpox has been made compulsory and is being carried door to door throughout the State. Inoculation against cholera is offered to the public in advance of an epidemic and is enforced during an epidemic. Inoculation against plague is done in every infected locality. Inoculation against typhoid is offered free to whosoever wants.

9. One of the earliest preventive measures taken on hand by the Health Department was the provision of amenities for disposal of human excreta. Self-disposing units suitable for rural areas were devised after considerable trials. They are now becoming popular and are slowly being adopted by more and more people in rural areas. Protected water-supply and drainage schemes for urban areas have been implemented in many places and are going to be implemented

in others. Government have recently put them on a strict priority basis and have taken up a few of the urgent items for implementation in the next five years. The rural areas where the bulk of our population live received special attention from 1938. Government then constituted a rural water-supply fund to which periodical contributions were made. From this fund is spent every year as much as can be spent and protected water-supply for rural areas is being provided gradually. Our medical institutions which are comparatively more advanced provide necessary treatment to prevent deaths and to minimise disability from disease. Thus we have done already what other countries did about half-a-century ago to prevent the spread of germ diseases. Our environmental improvement is still far from perfection; but we are heading to it at a steady pace. Our health organization, though the best in India, needs expansion. Our treatment facilities, though expanded more rapidly than the sister service, are still to be carried to the interior.

10. We have also started on the second stage of prevention. We have a fairly well set up maternal and child health service. Some years ago, a school health service was attempted. But it was given up due to some difficulties. Very soon, perhaps, it might be re-started. As our industries slowly expand, an industrial health service will naturally come into being. We have not yet thought of geriatrics. Social Medicine is also a new concept to us.

11. What have we achieved? Compared with the growth of population, our smallpox incidence must be deemed less. Epidemics may occur now and again; but the incidence proportionate to population is getting less. A greater portion of our State is kept free for fairly long periods from visitations of cholera. Wherever environ-

ment has been improved, other bowel diseases like typhoid and dysentery become less. Of late, our concerted measures have proved most effective against insect-borne diseases. In very many of the malarious tracts in our State, we have completely stopped the spread of malaria after a work of two years. In the winter of 1949, for the first time, there has not been any plague anywhere in the State. These two diseases are controlled effectively.

12. What part has the citizen to play in this? Preventive measures in civilised countries are the responsibility of the State. Great Britain, in the last Labour Government, at great cost, instituted national health service. The citizen however does not rest content simply because the State is expected to look after him. What the citizen should do is simple. Firstly, realise that he can escape disease. Even if he falls ill, he can escape death. On recovery, he can also escape disablement. Realising this, let him demand the facility for it. Secondly, the facilities so far provided by the State are meant for him. They are provided out of the taxes he pays. It is therefore up to him to make full use of them and to make the correct use. Wherever latrine is provided, let him not defile the street. Where there is a hospital, let him not ignore treatment or go to a quack. Thirdly, and this is more important than the rest, whenever he falls ill and seeks medical relief, let him put one question to the doctor, namely, "how did I get this illness; how can I escape it hereafter and how can my family escape it"? Let him demand an answer and the doctor will gladly give it; having got the answer, let him follow it. If the citizen on his part cooperates in these three directions, he can derive more benefit from what little the State does than otherwise.

Courtesy—AIR, Madras.

ACCIDENT PREVENTION IN FACTORIES

HOW BRITAIN SAFEGUARDS WORKERS' HEALTH

by

S. Gordon Coller

In the continuous process of mechanising and modernising production methods in industry, new risks to the safety and health of workers are constantly arising. The production drive which is now in full swing in Britain has, therefore, brought fresh problems to the Factory Department of the Ministry of Labour in London, which is using all the latest weapons of scientific research to fight these new dangers. Some of the results of this battle have just been described in the annual report of the Chief Inspector of Factories for 1948.

Though there was a slight increase in the number of fatal accidents as compared with 1947, the report records a steady decrease, year by year, in the total number of notifiable accidents in British factories since 1944, when the figure was 266,766. Taking this figure as 100, the number of accidents in 1945 was reduced to 85 per cent., in 1946 to 78 per cent., in 1947 to 70 per cent., and in 1948—the year covered in the report—to 69 per cent. (the total number of accidents was 182,838).

This result does not, however, allow for changes in the number of persons employed, a more accurate measure of the progress being the accident rate, that is the number of notifiable accidents per 1,000 employees. This figure fell in the same period from 40 to 28, a reduction of 30 per cent.

Frequency Rate

Even more accurate is the Frequency Rate, which gives the number of accidents causing loss of time beyond one day or shift for every 100,000 man-hours worked. In Britain, this figure in 1948 was only 2.19 for a sample of 1,158 factories

employing nearly one-fifth of all workers in British industry, compared with 2.27 in the previous year for a slightly smaller sample. For 28 factories in which records have been kept regularly since 1944, the rate has fallen every year without exception from 2.52 in the first year to 1.88 in 1948.

The conquest of industrial diseases is also progressing apace, as is seen clearly when a comparison is made with the figures for the beginning of this century. Cases of lead poisoning, for instance, which totalled 1,058 in 1900 (with 38 deaths) were down to 49 (with two deaths) in 1948. The year under review was also only the second since 1899 when no fatal case of anthrax was reported, the 32 cases known in 1948 having been successfully treated with penicillin and a British-made serum distributed to Public Health Laboratories throughout the country.

Turning to the new problems introduced by the production drive, the report states that "radiological hazards in industry form a subject of rapidly growing importance." It instances the use of radio-active materials to disperse static electricity in the printing and textile trades.

One large printing firm, which had had trouble for years in printing cellophane wrappings because static electricity caused the wrappers to "balloon" as they went through the machine, had fixed flat bars across the machines faced with thin gold or platinum foils containing a radium salt in solid solution. The alpha, beta and gamma rays from the salt dissipate the static charges, while the care taken to direct the radiations away from the workers has made the dangers very small.

Radio-Active Dust

The microscopic examination of dust has been widely used to fight this insidious enemy of workers' health. A serious case of disease in the shredding department of a factory handling begasse led to photo-micrographs of dust samples and a new hydraulic vortex method of opening and breaking up the bales under water. In an atomic energy factory, the fine dust which was entering the plant from outside and becoming radioactive as a result was examined in the same way, and the air filtration system was consequently re-designed.

The report quotes many instances where the introduction of mechanical handling and new equipment has brought not only more efficient output but also fewer dangers to the safety of workers. In the rubber industry, the use of conveyors which feed material automatically from one machine to the next has cut out dangerous hand-feeding. In the vulcanising of rubber tyres for motor-cars, where formerly the moulds had to be manipulated by dangerous lifting tackle, the worker now handles only the tyres or tubes, feeds the work to the machines, and presses a button.

In a paper mill, where the paper has to be fed into high-speed cylinder rollers, a chute with air jets has kept the operator away from this danger point. Accidents due to the collapse of foundation trenches for buildings have been tackled by a machine which makes deep trenches unnecessary, since it bores holes in which concrete piles are cast to support a footing beam for the wall.

Towards Higher Output

New equipment for blast furnaces in the iron and steel industry has kept the temperature in totally enclosed cast houses down to five degrees above the outside temperature. Dust in card-rooms at cotton mills has been halved by oiling the cotton with a new substance, higher output and easier spinning being other results of the new process.

The report also describes developments in joint consultation, and the increasing provision for the welfare of workers, including a rise in the number of factories providing hot meal canteens from 13,235 to 14,717 during 1948. Cheerful colour schemes in factories have helped towards higher output.

TO OUR READERS

We request our readers to pardon us for omitting in this issue, the usual features, 'Do you know?' 'Wit And Wisdom' and 'What do They Say about it?' We had to do so unavoidably; we had to insert in this issue all the standing matter, composed and corrected, as we have decided to change the type from the next issue. To avoid the possible strain to the eyes of our readers, we are changing both the face and the size of the type.

A new feature for the benefit of Young India will commence from the June issue of *People's Health*.

—Ed., P.H.

THE INSTITUTE OF PUBLIC CLEANSING AS A RESEARCH AND INFORMATION CENTRE*

by

A. E. Higginson, *A.M.Inst.P.C., F.R.S.A., Cleansing Superintendent, Dagenham.*

Questionnaires and the Need for Information

FROM time to time questionnaires are circulated between local authorities asking for information in connection with the whole or certain aspects of the public cleansing services. In the absence of the Ministry of Health's costing returns much valuable information formerly published annually is not available and authorities in order to adopt a particular scheme or make comparisons of costs analyses depend upon data furnished by other councils. It is of paramount importance that as much information as possible is provided to assist in formulating schemes or in seeking solution of local problems.

Whilst the Ministry's costing returns did provide valuable information there are many aspects of public cleansing which are not covered by these statistics and which would prove of great value to those seeking information. For example, in the costing returns much detail is given on cost per ton and cost per 1,000 population, also methods of collection, but vital factors such as number of loaders per team, average number of bins per man hour, relay or single vehicle districts and type of vehicles are not given.

It would be anticipating too much to expect such information to be incorporated in the annual costing returns, but attention might be focussed in an endeavour to set up an establishment which could readily provide the information.

It is evident from the questionnaires received that information and statistics are often urgently required, but delays are encountered by the

need to circularise many authorities in order to arrive at precise facts concerning a particular service and to summarise the replies obtained.

It appears most appropriate that an establishment is needed to provide readily statistics and information on all aspects of the public cleansing services. With a central statistical bureau in operation any authority seeking information could be given tabulated data based upon a national survey with minimum delay.

The Need for Research

In a service which costs the public over £20,000,000 annually every effort must be directed in seeing that it is efficiently organised. With the transfer of so many functions to central government departments it is of great importance that those services remaining locally should be unequalled examples of municipal enterprise and competence. The need must be to raise standards to the highest possible levels, with wider integration of authorities and less parochialism in outlook. It has been emphasised by appropriate government departments that improvements or developments in any service should emanate from local authorities themselves. Therefore, in one of the most costly services administered, all relevant information should be secured so that progressive development is an essential feature. With the enormous expansion during the twentieth century in education, industrial technique, transportation, etc., social and economic change has been affected.

There have been movements of population, improved designs in housing, better methods

* Paper submitted to a meeting of the London Centre of the Institute of Public Cleansing held at Lewisham on 27th Jan. 1950.

of heating, introduction of novel features in domestic waste removal, rapid evolution of transport, substitution of waterbound macadamised roads for improved road design and surfacing and mechanical devices in loading and discharging of refuse. These are but a few of the changes which have affected the public cleansing services during the present century, and even now newer and perhaps more complex changes demand attention for adequate recognition.

Concern has already been expressed that present population trends indicate that the nation will in the future have fewer younger people and more elderly folk. Does this mean that manpower will be less in the cleansing services of the future when the public will demand higher standards of efficiency? If so, are plans prepared to maintain the services by different methods, or is there insufficient data available to formulate new schemes of mechanisation to reduce manpower? Can mechanical aids be provided that will allow the work to be accomplished by more elderly workmen? Problems arising such as these should be tackled vigorously so that solution is resolved before difficulties influence adversely the public cleansing services.

We can learn much from the characteristic of refuse composition analyses which show changes in social and economic life, but how many authorities study the constituents of their own refuse which they collect and dispose of in many ways? Yet collective analysis may throw up trends which might have a great bearing upon future refuse disposal.

Is sufficient information available on the employment of the individual refuse grinder as a means of disposal, which appears to be used increasingly in the U.S.A.? In order to consider its adoption it is necessary to have installation costs, efficiency, effect upon sewers and sewerage works and any additional expendi-

ture incurred above the normal service. Have effective improvements in designs, cost and maintenance of the Garchey system been enough to strengthen its case for further application as a means of refuse removal from dwellings of high density?

These items are introduced because it appears that detailed information on various aspects of public cleansing not only in this country but from international sources is lacking or not readily available.

A detailed study of a particular service from several sources may throw up peculiarities which upon sustained investigation may lead to important developments or discoveries. If the public cleansing service is to function as an example of municipal enterprise then it appears that the need for research is necessary in order to collect, tabulate and analyse all information relevant to the service so that its trends may be accurately presented, and thus give pointers to those who formulate policy and guide those who take executive action.

Lines of Investigation

If we agree with Bowley that "statistics generalise and repair the defects of individual experience," and that in the modern state statistics and information largely go together, then one of the first functions for investigation must be the presentation of accurate facts relating to the public cleansing service. The preparation of documents requesting information must be carefully designed so that definitions are fully explanatory and the collection of data is accurately presented. All information thus gathered would be assembled, classified and tabulated, and from this statistical survey the trends or pointers for future planning would be established.

From the insistent demands made during recent years by the general public and by various societies for the abatement of atmospheric

pollution, further studies on how the public cleansing services may contribute to the reduction or elimination of this nuisance should be conducted.

With the development of municipal bin ownership schemes the introduction of dustless loading can be made complementary in the refuse-collection service. The present high cost of such vehicles has limited their use in this country. But if atmospheric pollution is to be ousted then these vehicles must be used. Even the pleasant modern designed vehicles in general use to-day contribute to dust dissemination as the shutters or covers remain open whilst refuse is being deposited, so that the wind is able to disturb the refuse and agitate the dust into the atmosphere.

If the general trend of municipal bin ownership and dustless loading is to be accepted then opportunity affords itself on standardisation of vehicles. The high cost of municipal vehicles arises from the lack of standardisation. Whilst the peculiarities of some districts may warrant specialist treatment in vehicle design the task of emptying bins is almost the same in all districts, yet numerous types are in operation. Standardisation in industry leads to economy in production with resultant decrease in costs. Careful technical examination is necessary both by vehicle manufacturers and users to produce progressive standardisation without introducing rigidity which would prevent new developments.

It would be propitious to examine critically at this stage whether a major change in vehicle propulsion for short haul transport was possible whilst research on vehicle design was being engendered.

Throughout the world the proved and possible reserves of oil according to the Petroleum Information Bureau are sufficient to last over a hundred years. New resources are discovered from time to time but oil is a wasting asset and world reserves eventually will fall. Further the enormous increase of oil con-

sumption in the United Kingdom may cause economic difficulty in importation. This may lead to the increased use of home produced "fuel" in the form of electricity, especially when the many new hydro-electric schemes reach full production.

The operation of 13,000 electric vehicles in 1948 using current at off-peak periods produced a revenue of £250,000 to the B.E.A. and the petrol saved was approximately 12,000,000 gallons, representing a cut in dollar imports of 1,700,000 dollars.

To safeguard the interests of national economy electric traction for short haul transport may be requested from certain users such as the G.P.O. and British Railways. Whilst it is not anticipated that such requests would be made to local authorities, every encouragement would be given to progressive technical development in the use of motive power which aimed at conserving oil supplies.

Electric traction cannot compete with petrol or oil engined vehicles where unlimited range is required, but in congested areas involving short hauls it possesses many desirable features. It is silent in operation, simple to drive and maintain, its fuel cost is low and home produces, does not pollute the atmosphere, and has a high availability. Its disadvantages are the weight and cost of batteries, a limited range and the effect of load carried upon that range.

Recent developments have produced an alkali battery, one-sixth the weight of any existing alkali battery and one-third the weight of a comparable capacity lead acid type. Such improvements are necessary to extend the use of electric traction for municipal purposes, and if progressive research on the weight of battery-payload factor can be resolved then a major change in short haul transport can be anticipated.

Lines of research should be initiated into the whole operation of refuse collection from municipally owned standard bins to vehicle design and

motive power, so that by collaboration with industrial development organisations production of efficient equipment can be assured at lower cost.

Even a central purchasing organisation for spares and equipment can be envisaged as a commercial possibility with a reduction in expenditure when standardisation has become established.

Controlled Tipping

Turning from refuse collection, there is abundant evidence that sufficient information has not been disseminated among authorities on the merits of controlled tipping. When councils have attempted new schemes of land reclamation, wild outbursts of protests by councillors and public against "disordered dumping of rubbish" have been recorded. Yet throughout the country public cleansing officers have made notable contributions in reclaiming derelict land, bringing into useful cultivation or providing amenities in the form of playing fields or gardens. If the amount of land brought under cultivation, type of crops grown, acreage of playing fields constructed after controlled tipping has been completed, with a cost per ton for its disposal and the enhanced land values obtained, these statistics from a national survey supported by pictorial records of works in progress, would readily silence the critics and a more appreciative valuation placed upon an important service. It might also lead to a linking up of authorities under a group scheme which would be of immense value in fostering greater integration between councils, allow for more mechanisation and secure a marked reduction in costs.

During recent years effective methods of mechanisation on controlled tips have altered accepted practices. There is now available sufficient data from various sources to prepare statistics on mechanical aids in controlled tipping, and all information should be secured to

discover types of machines most suited to this work with appropriate costing.

From a wide survey of methods used in controlled tipping it should then be possible to establish a code of practice based upon modern conditions. The publication of a well-prepared code of practice is of considerable benefit when drawn up by a responsible body, and would be welcomed by authorities engaged in or contemplating this form of disposal.

Street Cleansing

It would be an advantage to have a tabulated summary of costs relating to street cleansing per mile by manual methods either by beat or gang system, also the cost per mile by mechanical sweeper-collector. With increased costs of manual labour and the necessity to improve standards of street cleansing, research is necessary in this important service. Dry manual sweeping is not a sanitary operation and the more efficient working of mechanical sweeper-collectors with washing and sprinkling equipment is appreciated.

Recent isolated comparative costs have given machine sweepings a bias in favour of cheaper operation. The parking of vehicles in towns and increased road transport has made street sweeping a more difficult task to accomplish satisfactorily. In many towns night or early morning street cleansing has been introduced, and the advantages or disadvantages of this system need summarising so that guidance may be given to those who contemplate a change in operation due to present difficulties of traffic movement.

There has been little change in the manufacture of brooms and brushes used in street cleansing for many years. Experiments need to be undertaken with the newer materials available to see if improved sweeping is possible without adversely affecting costs. The application of nylon as the tufting material for industrial brushes, replacing vegetable fibres formally used,

has given economic and satisfactory results. The rapid wear of vegetable fibres and the soft wood brush stock has been a problem difficult to resolve. Repeated trials of nylon under working conditions may succeed in introducing a new material, and a plastic substitute for the brush stock is within the bounds of possibility. At present initial cost favours soft wood for brush stocks, but for more expensive hard woods plastics are serious competitors.

Manual street sweeping operations could be revolutionised psychologically by the effect of using brightly coloured brooms.

Public Conveniences

The standard and provision of public conveniences needs thorough investigation as little improvement has been made for many years. The siting of conveniences especially in the metropolis adds to the congestion of traffic and imperils the lives of users by often being placed on islands at the intersection of busy thoroughfares. This can be a great strain on elderly folk who, perhaps after difficulty through lack of direction signs, discover the position of the convenience to be situated in the centre of a busy road junction.

The humiliation which many women suffer by queueing at these conveniences, winding up the steps and tortuously around the islands, through lack of accommodation below is a denigration to the service.

But the problem is not peculiar to London alone, as in many places where week-end travellers, excursionists, shoppers, etc., congregate similar conditions are noted. The situation is sometimes aggravated by bent coins fouling the locks or the mechanism is faulty, and the difficulty, where turnstiles are employed in getting through with children and shopping baskets, adds to female exasperation in male administration.

There is now a widespread campaign for cleaner food and cleaner methods in handling

and distribution. This means the provision of water, soap or soap solutions, and many authorities have provided free hand washing facilities at public conveniences.

In order to stimulate better standards of hygiene, rapid overhaul of many existing public conveniences are overdue. Enquiry should be conducted to see if it is possible to hold an open architectural competition for designs of public conveniences, so that authorities can construct aesthetic edifices for utilitarian purposes. Cost must regulate construction, but pleasant features in design need not be expensive.

It is regretted that few authorities have installed incinerators in female conveniences for the hygienic disposal of soiled sanitary towels. The handling of these by male collectors and subsequent transference to refuse vehicles, even if stored in sanitary bins, is repugnant and they should be disposed of at the conveniences.

This service offers a wide field for improvement, and any technical development producing better standards of hygiene will influence psychologically the campaign towards cleaner food and hands.

The Human Aspect

A national survey of sickness and accident statistics for public cleansing employees would be warmly welcomed by many authorities anxious to check local schemes, as it might appear that increased facilities in benefits have tended to increase the percentage ratio of absentees. Absence from work through sickness and accidents constitutes a heavy charge on some authorities and in general raises an important issue.

In 1948 a notable change occurred reducing the total number of hours from 47 to 44 in the working week. Some councils, yielding to pressure made a five-day week operative, but of necessity increased the length of certain working days to establish a 44-hour week. Is the increased ratio of sickness related to the

lengthened working day, or are other factors to be studied? Research is necessary into this important industrial aspect to establish any trends which applied study might discover.

Welfare facilities and protective clothing are adjuncts to vocational fitness, and studies of working conditions, where these items have been provided, may show that expenditure has resulted in economic advantage and better relationships between management and employees.

Complaints are sometimes received that men are "loitering" in teashops, and that valuable time and money are being wasted. Experience has shown that in any industry during long working spells rests are taken whether authorised or not. Even martial discipline cannot dissipate fatigue or eliminate its influence. Industrial psychologists emphasise that rest pauses are most beneficial in monotonous repetitive work. In mechanical processes a pause in an operation is regarded as wasteful, but with a human being it may be serving a very useful recuperative purpose. Official rest pauses have a far greater recuperative effect than those taken by workers surreptitiously. It is, therefore, important to study rest pauses during the working day to see when they should be introduced and for how long. Experiments by authorities based on a detailed study of a work curve, showing the variations in efficiency by workers can be conducted, and rest pauses determined accordingly. If the benefits of rest pauses can be readily seen, charges of "loitering" will not be made.

Scientific study of the human factor in public cleansing should be conducted to ensure that the energies of men are used gainfully and any unnecessary mental and physical strain removed.

Conducting the Bureau

After deliberating at some length on the various lines of investigation which should be undertaken in order to bring appreciable improvements to the cleansing services, the ques-

tion of who shall conduct the research and information bureau is anticipated.

During the past fifty years much thought and study has been given by individual members of the Institute of Public Cleansing to promote higher standards in the service. Conferences have been sponsored for the display of equipment and vehicles together with the presentation of technical papers on various aspects of the services in order to increase efficiency in organisation and administration. The human element, so prominent in the cleansing service, has been carefully considered. It is, therefore, desirable that the experience, resources and energies of the Institute of Public Cleansing should be directed to this task. As an example of applied study by individual members in introducing a protective clothing schedule for municipal employees, the Report on Protective Clothing published by the Institute is a commendable effort. The careful assessment of human needs to continue working in all weathers with adequate protection against the elements is the result of sustained effort and investigation. The report is ready to guide those who propose introducing protective clothing schedules thereby saving considerable time investigating varying schemes.

To-day there is greater intensification in resolving planning and operation studies as expenditure is rising rapidly and true perspectives must be obtained. Research studies of individual processes covering different techniques in specified services, if published in clear concise terms, would be widely appreciated by authorities anxious to assess the efficiency measurement of their own services.

To function successfully the information bureau would need the support of all authorities so that surveys may embrace the whole of the country, thereby showing national trends.

To meet the increased expenditure falling upon the Institute's secretariat, the design and form of the Research and Information

Centre's activities should be circularised to all councils with a proposed fee to cover working expenses. For this subscription the publication of all studies, cost tables and statistical information would be regularly despatched. Abstracts of important developments in public cleansing practice abroad could be incorporated with the published material. Also contribution to the World Health Organisation on public cleansing in Britain could be made and so extend the knowledge of any advancement in this field to interested countries throughout the world.

Conclusion

Criticism on the functioning of such a bureau is expected as past experience has shown the difficulties encountered in obtaining local authorities to complete questionnaires or supply certain information. But with greater budgetary being exercised by central government departments more detailed explanation on costing and administration will be demanded.

It is significant that the metropolitan boroughs are initiating an "organisation and methods" department whose function will be to advise on ways of achieving "maximum efficiency with minimum manpower."

With the increased demand for grants-in-aid, more rigid control can be anticipated, and, bearing in mind these factors, any creative

attempt at reducing expenditure or improvement in services will be more sympathetically considered.

If local authorities are to retain the remaining services they now administer they must look for any new or improved methods of working to achieve that end. Research can bring out new or novel methods of working in organisation of services, but progress can only be achieved where information is readily given, enabling studies to be carefully assessed.

The continuance of certain services being vested in local authorities is dependent mainly upon the degree of competence shown in administration.

Failure to accept opportunities which aim at their progressive development may cause further incursions to be made by central government departments.

The proposed functions of a Research and Information Bureau is an attempt to secure maximum efficiency by expert application of scientific methods to organisation, to achieve economy in cost and labour.

Can local authorities afford to dismiss this offer of applied study and progressive planning for one of their most costly services?

I have posed the question, and the subsequent discussions will inform me of its import.

(Courtesy—Public Cleansing and Salvage)

This article should make our public cleansing authorities sit up and think. In our country, where putting square men in round holes is the rule rather than the exception, the vast field of research which lies ahead of the department, may not be evident. It is high time that public cleansing is taken away from the control of medical officers of health. They should be left to their legitimate activities befitting their training.

—Ed., P. H.

LAW-ABIDING

by

Pat Vian

The real or imaginary incident narrated by the writer should be taken as indicative of the public reaction to the administration of our hospitals, generally. Our administrators would do well to keep their ears to the wall and to try to learn what the public think or feel about the services rendered in our medical institutions.

The *Mail*, Madras, has rendered a valuable public service by bringing to public notice how each of our medical institutions in the city functions. In the same spirit of helping our ministry to put matters right, we drew attention to the conditions prevailing in the Triplicane Women and Children's Hospital. Our popular ministry should welcome such comments, if they mean to secure public cooperation in our administration.

—Ed., P.H.

I am one amenable to Law and Order. Soft says my wife. But don't be biassed or misled by her. I am by no means soft. If you accosted me on the highway and demanded even ten annas, I would, I am sure, resolutely refuse to yield to your coercion. But if an income-tax officer sends me a grubby sand-coloured scrap of paper, and demands ten rupees I pay up, without a murmur.

I suppose you would place me in the category diametrically opposite to a revolutionary. While he is filled with contumacious reactions against what is decreed by Law and Order, seething with revolt and striving to burst asunder all that tends to restrain his own wayward inclinations, I am, on the contrary, overwhelmed by an aura of humility and submission to whatever is imposed on me *ex cathedra*.

I confess that this characteristic, though mainly conducive to harmony, has its drawbacks. And realising this, I usually refrain from placing

myself in any environment which tends to exude too much of the aura of dictatorial dominance. To put it more simply, I avoid police stations and courts of justice; and I have fortunately had no experience of prison life.

But when I was about to set out to see my doctor, regarding a suspicion of wax in my ears, I fell into a trap laid by my wife's brother's friend's cousin.

"Why not go to the G.H.?" he said. "My son Raja is a 'first year'. He'll take you".

My wife beamed. A very good idea, she thought.

So I went to the G.H. Raja took me, but I paid his bus fare and mine.

As we slipped in through the gates guarded by two peons in uniform, I had my first mis-giving. "But Raja the 'first-year' is with you", I told myself firmly. We headed for the out-patients' department.

Raja motioned me to a stone seat, and after murmuring something that sounded like 'So long' or 'See you later' or some similar inanity, he vanished.

Then I knew I was in a quandary. Nurses and ward boys, and 'first years', and 'other years', and house surgeons, and senior surgeons, and physicians, and even maybe the Surgeon General himself! This was no place for one who was ultra amenable to Law and Order.

I had barely ejaculated my despair when a much be-starched lady, with her head encased in a muslin kerchief, ordered me to sit on the stone seat opposite. I obeyed. But barely had I relaxed, when a sweet young thing, wearing less starch in her apron and a jaunty frilly cap, compelled me to go back to the original seat. This time I did not relax, for I saw, in the corner of my eye yet another representative of the nursing profession, approaching me. She wore neither the tucked-in kerchief nor the frilly cap, but an immaculately white veil fell from her head to her shoulders. I did not wait for her spoken injunctions, but betook myself off the seat, at the mere indication of her forefinger.

I decided to stand, and this I did for forty odd moments, before I was taken before the medical officer in charge.

"Where is your card?" he asked.

Then I found myself following a peon or ward-boy or whatever he was to an office near the entry gate. Here I saw a young man, deep in conversation with a pal, while before him was a queue of sick people—a queue that had two ends to it.

So I stood at one of the two ends, but it was the wrong end, because the young man interrupted his confidential chat to yowl at me. I meekly went to the other end and waited.

It was a miserable half hour. I was sandwiched between a patient with sores and another with wheezes and sneezes. When I received my card, I went back to the Medical Officer and got from him yet another form to be given

to someone, who was seated in the adjoining room, at a table that was submerged by forms and slips.

Too weary to protest I submitted to Fate, and waited leaning against a pillar, till the self-same peon or ward-boy or whatever he was, beckoned to me with scant ceremony to follow him.

I followed him submissively. On and on we went—turning right, and left, and right again. We met a bevy of damsels with frilly caps. Smiles and dimples and "He said . . . I said . . . He said . . . " were punctuated with many giggles. Envyng their gaiety, I went on and on, till I found myself at what must have been the hinterland of the hospital grounds. Then we came to a halt.

X-Ray Department. My blood chilled. Why was my ear being X-rayed? Now X-rays and the surgeon's knife are in my mind synonymous. But too bedumbed to escape. I looked blankly at the two young men at the entrance. They also looked at me and at my form, and motioned me to the only vacant seat in the verandah.

I sat unable even to think. I blamed my wife and her brother's friend's cousin, and I blamed myself most of all.

At intervals I heard names being read out, and one by one the patients, answering to the call, broke off. At last my name was called.

"Room B 1," they said to the attendant, "Cancer of the bowel." I had taken four steps, after the attendant, when comprehension of what was said dawned on me. I had been sent with the wrong slip.

As the attendant entered Room B 1, I ran down the corridor. To the left, and again to the left, and yet again left, till I was at the entrance; and before the two young men could gasp, I was racing for dear life to the hospital gates.

It was only when I reached home, I wondered if the cancer-suspect had had some wax removed from his ears!

—Courtesy—Shankar's Weekly.

THE DIFFICULTIES OF PUBLIC HEALTH PAST, PRESENT, AND FUTURE

by

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Medical Officer of Health, West Riding of Yorkshire.

An Englishman prides in blundering through. He never defines his Government; but keeps it efficient. He professes social democracy but clings to his KING. At great cost he gives free medical service to his people—and calls it "National Health Service". The article reprinted below from the *Lancet* reveals the Britisher's capacity for camouflage! How efficient they are in rendering service to their people without fuss or show!

—Ed., P.H.

Public health is an abstract idea; it has not the glamour or drama of disease. The newspapers can fill a column with an account of the saving of life by an eminent surgeon or physician called as a last hope by distraught parents to the bedside of their child, or with a description of some novel operation on the heart or brain. In contrast, there is little news value in the activities of public health; what is there to say about an epidemic of typhoid fever that never occurred? Public health is a commercial proposition, yet it is only rarely possible to demonstrate a cash return, or even to suggest the existence of one; we cannot often point to empty fever hospitals, once filled with children suffering from diphtheria, whose annual costs of maintenance and staffing can be computed.

The idea that society as a corporate whole is just as much in need of doctoring as any of its individual components has been slow to grow. Frank, in Bavaria, writing about 1780, recommended that a benevolent dictator should take a wide range of action on the health front; but

though he wrote at great length during a long life, examining in minute detail the application of his doctrine of "police medicine" to every aspect of life, it is doubtful whether anyone in England read his works. We in England preferred to attack the problems as they arose or as we began to understand them, and to leave to other peoples the enforcement of entirely theoretical ideas before they had been understood and accepted. The Englishman's mind moves empirically; it does not like to take, on theory alone, more than a small and hesitant step, and even this it prefers to leave to some voluntary body. A long time has been needed to prove in practice the economic, spiritual, and moral values of schemes to safeguard the public health.

This piecemeal approach to the health of society has had a profound influence on the course of events in public health. From the time in 1796 when Dr. Percival so fired the minds of his fellow inhabitants of the city of Manchester about the conditions in the cotton mills that they agreed to the establishment of a Voluntary Board of

Health, right through the Industrial Revolution as it darkened and worsened, action to achieve a healthy community was always taken on a narrow front. The powers to deal with an established evil have been given by Parliament to whatever body, central or local, seemed best fitted at the moment to wield them. There never has been a unified approach to the health of the community in any way comparable to our approach to the health of the individual. Whereas most people have long agreed that it is best to have one doctor who can see you as an entire unit and can understand your problems in relation to your whole life, the community has had to have its organs studied and treated separately.

Thus medical officers of health, first appointed in 1847 to Liverpool, in 1848 to London, and in 1872 to the whole country, have never been given the whole field of work to tackle. As creatures of statute they have done what Parliament authorised them to do, and no more. Under the terms of the Sanitary Officers (Outside London) Regulations, 1935, the medical officer of health of a county has been given a function wide enough to capture the imagination of the most zealous ("he shall inform himself as far as practicable respecting all matters affecting or likely to affect the public health in the country"); but this does not enable him, or his authority, to play any real part in the services which are outside his statutory orbit. Some of public health, like the poor-law and factory health work, remained in the hands of central government departments for a hundred years; industrial medicine is still quite divorced from the rest of public health. Furthermore, owing to the growth of local government, public health as carried out by local authorities has been segmented; in counties—i.e., the whole of England outside the cities—it has been divided quite unnaturally between county districts and the county council, creating difficulties which schemes of "divisional administration" have helped to overcome.

The vast possibilities of public health were so little understood that Parliament failed at first to insist that medical men who took up such work must be whole-time. Contrary to the wishes of the Royal Commission on Local Government (1868), 70% of the medical officers of health appointed after 1872 were part-time in general practice, and of the 700 holding office today approximately 150 still remain so. Despite this faulty beginning, much of our success in England has resulted from the early development of a specialist qualification in public health. Soon after its creation in 1858 the General Medical Council was required to provide a special qualification in sanitary science, and in 1871 and 1875 Dublin and Cambridge offered diplomas—the first of all the specialist qualifications—for medical graduates seeking to take up such work. To hold such a diploma became obligatory for all except the small county districts after 1888. In this way the medical officer of health was trained "to become the voice of the community in which he was to be a leader and to urge at all times and in all possible ways that man should no longer be crippled by malnutrition, by slum dwellings, by lack of medical care, by social insecurity, and by disorders of personality." One of his most effective means of spreading these ideas has always been the duty imposed upon him, in 1870, to write an annual report of his work.

In recent years the development of public health has been affected by what may be called "the obsolescence of local government." When in 1939 Newman exulted in the greatness and success of local government, which after a century had gathered into its fold the poor-law administration and the duty of administering municipal hospitals, he failed to give due emphasis to the growing dissatisfaction with this form of government. The war seemed to bring this dissatisfaction to a head, and when peace came again

it was evident that most people had lost confidence in the structure and saw little chance of executing the radical boundary alterations needed to establish units of administration capable of handling modern services. When the National Health Service was first suggested many said that the reorganisation of local government should be undertaken forthwith, so as to build the new service on new economic units. The Minister of Health said that this would be too long a process—a decision to some extent borne out by the subsequent inquiries of the Boundary Commission—and new machinery has been created, by passing local government. Public health, being tied to local government, has had to suffer the nation's diminishing belief in local government.

To add to all these difficulties, and possibly transcending them, has been the continued opposition of the medical profession. In our teaching hospitals medical teaching has concentrated on the individual amidst all the paraphernalia of treating sickness; the student has gone from the bedside to the microscope or to the postmortem room, but seldom out into the community itself. For a hundred years the medical officer of health has had to meet opposition and misunderstanding which has had its roots in teaching during the years of walking the wards, and he has himself been denied the new weapons and new disciplines which the universities and medical schools might have produced if their interest had been in the direction of public health. General practitioners have always resented the "interference" of local authorities in the free exercise of their work; the duty of making returns and notifications has been irksome and the services for school health and maternity and child welfare seem to have come between them and their patients. The local authorities were almost the first contact which the general practitioner had with the "State" and he didn't like it.

Development in Isolation from Curative Medicine

Sanitation and bad physical environment as causes of ill health were the first of the evil influences to be recognised and to become the basis of action by the State. The reason for this is to be found, not in any profound knowledge of medicine, but rather in our ignorance of it; for, since the days of the Greeks, putrefying stench, or miasmas, have been regarded as the cause of plagues and pestilences. When in 1848 Simon was appointed to be the first medical officer of health of the City of London, bacteria had not yet been accepted as the cause of disease; yet he had little difficulty in convincing people of the iniquities of what he called "the pestilential heapings of human beings." If stench were the cause of ill health, then there was reason enough in any London slum to assail the nostrils of anyone who cared to take a stroll among them; "what perambulations have I taken today in company with Dr. Southwood Smith," wrote Lord Shaftesbury in his diary for 1842; "what scenes of filth, discomfort and disease."

Thus public health began with its emphasis on environment in the sense of sanitation and infectious disease. These were the pressing problems of a hundred years ago. Duncan records that in the cholera epidemic in Liverpool in the early 1850s the dead were too numerous to bury. It is one of the very strange happenings of public health that the discovery of germs as the cause of infection did little to upset the fifty year's work which preceded that knowledge.

It was some time before public health began to widen the meaning of environment to include the personal habits of the individual and to add to its methods the detection of early disease. To understand that filthy slums can engender disease (even when the basis of the understanding is wrong) is not hard; but who could

immediately grasp the advantages of house-to-house visitation to teach mothers how to care for babies? It took a long time to win general support for the work of a nurse as a health visitor; three-quarters of a century or more was to pass before the nation took the first positive step from a belief in the responsibility of the environment as a cause of ill health (something that only the State could remedy) towards an understanding of the equal responsibility of the individual which depended on a way of life within his own control. It has taken still longer to begin other work along similar lines, such as the preventive health work in relation to mental deficiency, lunacy, and venereal disease. It may yet be another hundred years before the possibilities of public health through individual teaching by skilled personnel have been fully exploited.

The 20th century has hitherto been devoted mainly to the development of personal health services to supplement the environmental health services of the 19th century. This second period of public health has resulted in services with which everyone is familiar—the maternity and child-welfare service, the tuberculosis service, the venereal-diseases service, and the school health service. At the root of all these services there are the ideas of detecting disease early enough to make treatment a preventive measure and of influencing susceptible individuals by bringing them into contact with the personnel of preventive medicine. No service could illustrate this better than the school health service, where teacher, doctor, and nurse can singly and jointly bring their influences to bear on parent and child.

One of the great advances of this second period of public health has been the development of health education, coupled with a greater understanding of the social aspects of disease. Fifty years ago we laid stress on the importance of pure water-supplies; today we consider the unclean cook as dangerous as unclean water.

The kitchen worker who infects food from fingers soiled with faeces, or from the nose, can be as much of a menace as the shallow well or the contaminated river water-supply. So also we taught fifty years ago, and still quite rightly teach today, that bad housing spreads tuberculosis; back-to-back houses can be shown to have high incidences and death-rates from tuberculosis because of their poor ventilation and high concentration of tuberculosis germs when the household includes an open case of phthisis. But now we think it equally important to emphasise the personal responsibility of the individual sufferer; for we know that with scrupulous personal hygiene even an open case need not transmit his infection. In Papworth, where families live with the infected father and mother, the infection of children has been shown to be less than in the normal community.

The modern approach to health increasingly stresses personal responsibility, and to this end health education should include a knowledge of germs and how they are spread, of physiology and how to apply it, and of biology in its importance to the welfare of man.

Formation of Links with Curative Medicine

We may recognise, therefore, two periods of public health—the first almost wholly environmental, the second environmental and personal. There is also a third. During its first two periods, public health developed in almost complete isolation from curative medicine. The third is the period when the weapons of curative medicine have been called more and more into the service of preventive medicine; when the children's specialist, perhaps a little reluctantly, has left his children's beds to devote some of his time to the problems of the school health and child-welfare services; when the orthopaedic surgeons have wanted to go further back to see whether their special knowledge and skill could

not be of help in preventing deformities; when the consultant obstetrician has considered how to make his beds for maternal abnormalities redundant. All hospital specialists have much to give to preventive medicine, and there has been a movement in this direction. This is the time of special diagnostic clinics—the clinic where the cases of handicapped children can be reviewed by the children's specialist, so that parents and education authorities can be advised on the fullest knowledge available; the clinic for child guidance, with the psychiatrist and educational psychologist working together; the clinics for orthodontics, for difficult problems of expectant mothers, and for various disorders. Such special diagnostic clinics have been valuable in combating venereal disease and tuberculosis. As we seek to tackle the degenerative diseases they will be invaluable for the early detection of cancer, arteriosclerosis, and diabetes.

As part of this same effort to harness curative medicine to preventive medicine, arrangements have been made for doctors (and other personnel working in the preventive field) to spend part of their time in hospitals; and, equally important, the patient leaving hospital is being handed over to the care of the health authority for after-care when this is needed. The time when the hospital regarded itself as something apart from the life of the community is passing: it would be a matter of surprise today if a weakly baby were to be discharged without inquiry as to unsatisfactory home conditions; yet only a few years ago it would have been thought unusual to make any such inquiry, and many a baby has gone from the loving care of maternity home or hospital to die in a hovel. With the passage of the Education Act of 1944 hospitals began to supply school authorities with information about children admitted. This made possible a new service of care and aftercare and enabled school health records to be complete in essential particulars.

Increasing Complexity of Public Health Problems

Public health slowly commits suicide; for, as it is successful, it progressively removes the reason for its own being. But although society today is vastly different from what it was when public health began, there is as yet no lack of work; all that has so far happened has resulted only in a widening horizon and a shifting emphasis.

Public health has changed society: it has changed its age constitution; it has abolished, speaking very broadly, infectious disease; and it has removed the more obvious causes of ill health and death. This has had a profound effect on the practice of public health itself, which is now increasingly concerned with the degenerative diseases of middle life and late years, and with the care of the aged. In England at least, the main battles against the pandemic infections, such as smallpox, plague, and cholera, have been won; and despite the dogged resistance of their rearguard, chiefly the virus infections of poliomyelitis and influenza, infections of all sorts are now fighting a losing war against an improving environment, increasing education, and the weapons of the laboratory. Even in the past fifty years tuberculosis has fallen from the position of chief killer with a death-rate of 190 per 100,000 to that of fourth on the list with a death-rate of 55 per 100,000; pneumonia, which in 1900 had a death-rate of 137, now takes a toll of 54; diphtheria and scarlet fever have virtually ceased as killing diseases.

But what is left of ill health and disease is generally more obscure and less easy to remedy. As an example, when Booth wrote in 1900 of the poor of London, and Rowntree of the conditions of York, these two sociologists talked about a "submerged tenth" of the population. In fifty years this submerged tenth has disappeared and left a mere 80,000 "problem families." But whereas the main bulk of the submerged tenth

was biologically complete, and only awaiting, so to speak, the inspiration and assistance of social services to raise themselves from despond to decent modes of life, the same cannot be said of problem families, who, being biologically incomplete, cannot raise themselves unaided. Public health for the problem families will be much more difficult than reducing the infant mortality from 150 to 38.

It is because the residual problems of public health become more difficult that it becomes increasingly important to secure that all types of medical specialist shall give time and thought to preventive problems.

Benefits from the Act

What then has been the effect on public health of the National Health Service Act, 1946, the greatest medical statute since the Act of 1858 which created the General Medical Council and State registration of doctors? Its third part enumerates the duties of a preventive character placed on the local health authorities. They must, it says, provide a comprehensive ambulance service, carry out vaccination and immunisation, and build health centres. They must also provide health visitors and home nurses who, with home helps, should again enable the general practitioner to undertake the care of many patients whom he now sends to hospital and who would be better nursed at home. It will take many years to build health centres if the cost of the first London centre (£186,000) is any guide; but when they do come about they may develop into centres of preventive medicine where adequate records and routine health checks become routine procedure; they are intended to combine the work of general practitioners with that of local-authority health clinics and at some time in the future they will become the focus of medicine. One omnibus section of the Act makes the authority responsible for preventing illness and for care and aftercare—all these services are capable of great extension.

The removal of many responsibilities directly related to curative medicine is a substantial advantage to public health: the relief from executive charge of hospitals will give the medical officer of health more time to tackle the many aspects of public health which need closer attention. The tracing of tuberculosis contacts is an obvious example, for few can feel satisfied that our knowledge of the epidemiology of the disease has so far been put to the best advantages. In an ageing community the medical officer of health must play an increasingly important part in the welfare of the aged, surveying his area by means of his health visitors, home nurses, and sanitary inspectors, and seeking to remedy the appalling state into which many old people fall. The allied problem of home care of the chronic sick will also need his attention if we are to avoid big increases in hospital beds. With the conquest of infectious disease the emphasis of public health must inevitably shift towards the higher age-groups where the degenerative diseases, diabetes, cancer, arteriosclerosis, call for the same measure of interest as medical officers of health have in the past given to the acute infections of childhood and early adult life. This does not mean that the traditional fields of work in public health are no longer capable of occupying his time; in some at least—e.g., in the more intensive attack on infant mortality—the opportunities are expanding, as our knowledge grows. Much can be done to prevent the infections of early life, prematurity, and no doubt many rarer infant disorders. And there are new opportunities for working with general practitioners for the care and aftercare of the patient at home.

Part III of the Act can, in fact, be regarded as a minor charter in public health. Had it been passed into law without the rest of the Act the world of public health might have acclaimed it without reservation. Nevertheless some unfortunate disadvantages arise from the new administrative structure,

Focus on Hospitals

By its creation of separate authorities to handle treatment, largely under State control, the Act has placed a new emphasis on curative medicine. The work of hospitals and specialists has been put under the jurisdiction of 14 large regional hospital boards; and in the hands of these boards is now the virtual control of the development of medicine. The boards are non-elected, and of the members selected by the Minister about a third are doctors, almost all of whom come from the world of curative medicine. The boards are not charged with any duties to prevent disease, and they are certainly not constituted to show any natural interest in public health. A physician who tends the sick thinks in terms of the individual; public health thinks in terms of the community. This would have no great significance were it possible to separate curative and preventive medicine. But the separation is impossible.

In the latest phase of public health there has been an increasing use of the facilities of curative medicine—notably by the employment of hospital specialists within the preventive field, by the establishment of special diagnostic clinics, and by the use of institutions in support of preventive services. Preventive medicine had begun to harness curative medicine to serve its own great ideal. This may still be possible, but there is no denying that it has become vastly more difficult. In all his plans for health, from those designed for the care of premature babies delivered at home to those which may seek to reduce the degenerative diseases of the aged, the health officer is now dependent on another authority to provide either special beds, or special case finding clinics, or special medical personnel to visit in the home.

Here, therefore, lies the difficulty for public health; to do its best work for the community it must have an equal right to certain of the assets of the regional hospital boards; it must have a

voice in the use to which many institutions and specialists are put; and it no longer has such a voice.

Furthermore, public health was centring thought upon a healthy community of happy families; in this picture the hospital was regarded as a necessary evil to be done away with as soon as possible, and as a bad psychological influence, especially for children. All institutions were regarded as no more than part of the machinery with which to support the community life: maternity homes for those who cannot have a baby where a baby should be born—at home; sanatoria to take those men and women whose condition makes them a source of danger to the community. As an example, school health was centered on the school; eye-testing, dentistry, and diagnosis were presented to the children not as hospital events but as part of the normal process of keeping healthy and to be related to the teaching of positive health and hygiene in the schools. Today health services are being increasingly focussed again on treatment and on the hospital. The school dental service is already giving ground before the onslaught of adult caries; the school ophthalmic service becomes a concern of the hospital; there is imminent danger that once again diagnosis may become associated, with the outpatient department, and that paediatricians, obstetricians, psychiatrists and the whole world of specialist medicine may once again be absorbed into the hospital wards.

Regional Boards of Health?

It is certain that an emphasis on health and on the community, and the full application of medical knowledge to the ills of society, will be harder to achieve within an administrative framework which has established large, powerful, State-supported boards to manage hospitals and specialists, and which leaves the management of health to the now relatively small authorities of local government deprived of many of their

weapons. The regionalisation of curative medicine has swung the balance of power so violently towards curative medicine that many believe a similar regionalisation of public health to be the only means of solving the new problems with which it is faced.

Such a step would have serious implications. Local government, with its many gradations of size and variations in autonomy, has ministered well to the Englishman's aptitude for experiment, his desire for trial and error, and his empirical mind, particularly in the public-health field. Few can doubt that preventive medicine in England has reached its present high state of development mainly because authorities guided by medical men with a specialist training in preventive medicine—thinking and planning for the needs of society—have been financed by a local rate and have therefore been able to take the initiative. Today it is more than ever necessary that the specialist in community health shall be given a free hand to develop his art.

Another obstacle which will have to be overcome, if public health is separated from local government as we now know it, arises from its close relation with other social services, such as housing and sanitation. No doubt these difficulties could be met by supplying the necessary public-health advice to local authorities under a scheme of divisional administration. Even greater difficulty would be encountered in the school health service, which is an integral part of the education service; but even this difficulty could be overcome. The school health service must remain part of the school system, and it would be necessary to resist strongly any suggestion that some inspection, somewhere else and in some other manner, could be substituted for it. This would be attended by grave disadvantages; the gospel of *School and Life*¹ is—I believe irrefutable—school teacher, school nurse, school

doctor, school child, and parent in conclave, if necessary, together. Accordingly the work must be done on school premises, in school time, and by school doctors who give their time without other commitments. Special schools for delicate, deaf, blind, and other handicapped children should remain with the education committee. With this principle securely held, the school health service could be retained as an integral part of public health, from which it has so much to gain, and could be regionalised with the rest of public health.

Some will say that the remaining health functions should be transferred to the regional boards. But the outlook of the clinician, who occupies more than a third of the seats on the boards, is centred upon the individual, even when he is imbued with the new spirit of social medicine. The outlook of the medical officer of health centres upon society. If then local government in health, after a glorious reign, is now to be deposed, let not the throne be occupied by those who know not. Let there be a complete recasting of the administrative framework. If this is to be centred on regional areas, let there be new authorities, locally elected and with the inestimable advantage of a local rate, and let them have a medical officer of health with equal power to speak his mind in official reports and in public writing and with duties and responsibilities in no way subordinated to curative medicine.

Such an arrangement would have to meet the criticism that there would be two separate authorities dealing with medical matters in each region. It is impossible to deny the force of the argument that the health services demand a unified administration if they are to be an economic proposition, and it is a fair inference that such unification is now possible only at regional level. Nevertheless, there are powerful reasons why the present regional boards are not suitable organs

1. Report to the Minister of Education by the Central Advisory Council for Education (England), H. M. Stationery Office, 1947.

for such a unified control. Chief among these is the fact that regional boards are chiefly concerned with the cure of sickness, in hospital; if, with their present constitution, they were to absorb the preventive services, it is likely that public health would suffer.

Tomorrow

The only type of hospital which has so far been made almost wholly redundant—the first I hope of many—is the fever hospital, the creation of the medical officer of health. As we work we continually remove the causes for our own employment and that of the auxiliaries of our own creation. But to argue that the medical officer of health is no longer needed is blind complacency. It presumes that society could not retrogress, as it does that society is now so perfect that it cannot advance. This is nonsense. There are plagues enough still with us. What of the degenerative diseases—cancer, arteriosclerosis, diabetes—which take an increasing toll? Old age has still to be made a healthy, happy, and useful period of life. What of the hospitals themselves and the crowded outpatient departments? What of the infants who still die uselessly to the shame of a modern society? What of the problem families and the homeless children,

and the smoke and slums which still mock our efforts to create a healthy community of healthy families?

Some time the day will dawn when society no longer needs the medical officer of health, but until that day comes it behoves this country to fight for his preservation as a free agent. To give him his proper place in the new order of things he must be accorded specialist status, and his training must be of the same order as that of the trainee specialists under the Spens report: five years to be spent following graduation, included a year's diploma in social medicine, equipped with the new disciplines indicated by Crew and others, and expanded to cover the whole of man's ills as outlined by Ryle; a year to be spent in some special study related to social medicine, as in a department of physiology or an institute of nutritional research; a year to be spent in an executive department of public health; and a year in study abroad.

I trust that the ideal of "public health" will be preserved and not lost in a glorification of curative medicine. With its help England might yet progress to a society as far removed from that of today as ours is different from the time when Southwood Smith and Lord Shaftesbury walked together in the slums of Bethnal Green.

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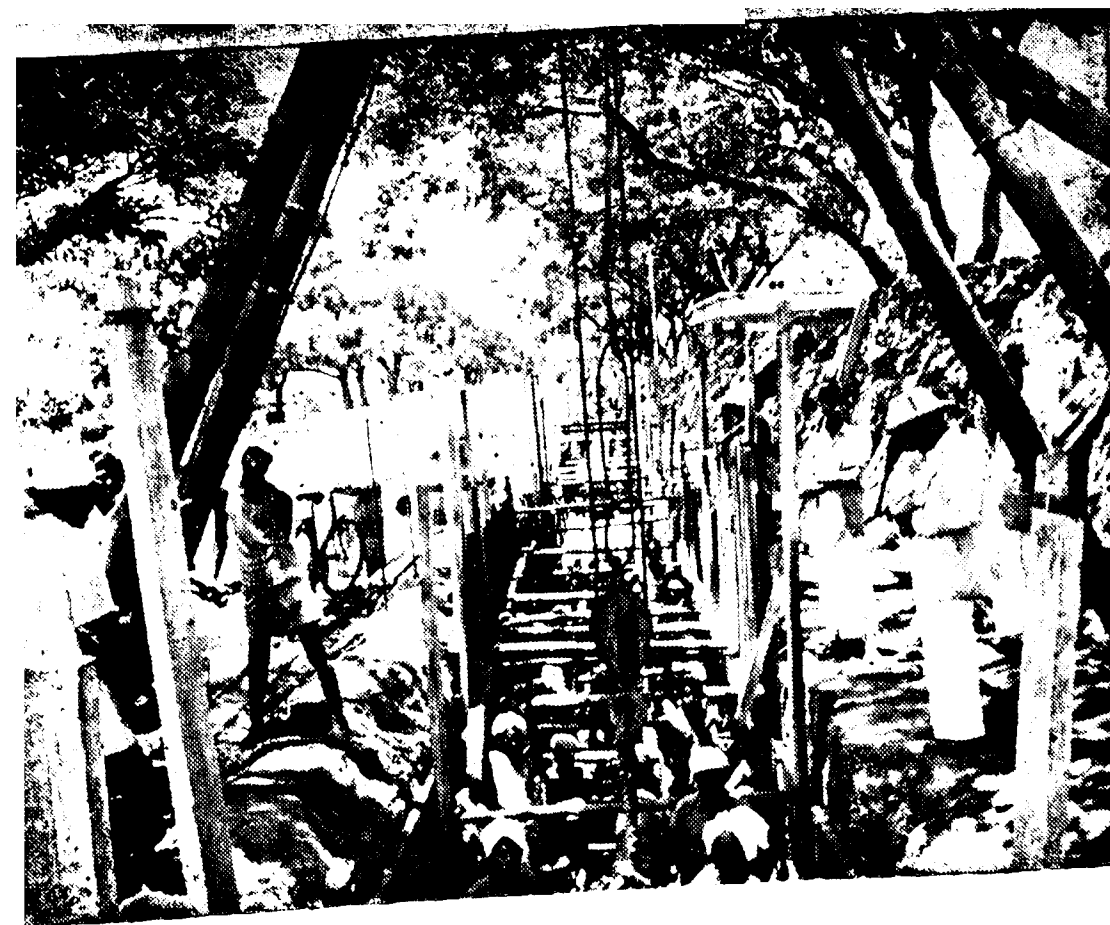
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