ments will retain their present organizations, if Commissioners or Councillors will have existing organizations diagrammed, functions listed in detail, and actual duties described. An honest photograph of the average city department will generally lead an efficient head to take one of the following steps :—

1. To group and centralise control over like general functions.

2. To put together detailed activities belonging together.

3. To place emphasis on important work now carried on as side issue.

4. To divide work now done by one employe among two or more (rarely).

5. To give one employe work now done by two or more (often).

6. To abolish unnecessary steps, work, and positions, old fashioned habits, private memorandum records, soft snaps, drudgery, free lance jabs, irresponsibility in subordinates roving commissions, permanent special assignments, laxity or redundance in supervision and conflicts in authority." (Efficiency in City Government p 13-14).

Literature Recommended.

For organization of citizens, Ward's book 'The Social Centre' in the National Municipal League series, by Appleton, will be found most useful. For organization of councillors, their self-education, Zeublin's 'American Municipal Progress' would be found specially helpful. For organization of paid executives 'Science of Management' by Church, published in the Industrial Management Library, would be found suggestive.

CHAPTER XIX. TRAINED PERSONNEL TEST.

WANTED TRAINED, SOCIALLY MINDED, UNITS.

It is not enough that the citizen voting-forces, the councillor thinking-forces, and the paid working-forces of a municipality be properly distributed and co-ordinated; for improvement in efficiency it is necessary that they should be 'properly trained, socially minded and skilfully directed, and permanently employed to devise, supervise and carry out efficient methods to execute the programme of service'. How far then is the personnel trained specially for its task, minded socially, directed skilfully, and employed permanently are very good tests of the extent of efficiency of a municipality.

GREATER & BETTER CITIZEN INTEREST.

If we were to apply these tests to the citizen voting forces of every municipality in the Bombay presidency, we shall know how still only the first step has been taken in this direction, namely that "directing that steps should be taken to enfranchise a considerably larger portion of the population of each municipal district by reducing the qualifying

tax." It is only the barest beginning that more citizens are thus enlisted to take interest in voting to elect municipal councillors. This does not however ensure their proper training or encouragement towards being socially minded, or skilfully directed or taking systematic and sustained interest in the welfare of their cities. Our efficiency in this direction is very low. It will therefore be profitable to consider how greater and better citizen interest may be enlisted in civic welfare, and how a larger life may be thus opened to a greater number of our fellow countrymen.

Social Centres and Welfare Weeks.

The best single agency for thus training, socialising, directing and sustaining citizen effort is the Social Centre idea to which we have referred. In the words of Ward, the pioneer of this great social invention, "The use of the school in every neighbourhood as the head quarters of the all inclusive district organization of the electorate, for such orderly deliberation as voting, furnishes the most convenient and practical means whereby the whole business of politics may be simplified and rationalised." Next to such weekly voters' meetings in every school house in every city, citizen training can be stimulated through having regular

arbor days, clean up-days, health weeks, baby and mother welfare weeks, education weeks, city welfare weeks etc. Much may be done by holding civic exhibitions in every city, gathering together locality facts and thus affording greater impetus towards citizens knowing their own city and community. A very good way of training future citizens, is to enlist student activity in public health programmes, and have junior and senior mosquito, fly and rat brigades, as we shall suggest later on. In such ways may our municipalities secure enlightened. socialised, and systematically working citizens, for civic welfare work.

Training the Councillors.

What may be done for training the councillors, and socialising them, and making them systematic and serious workers in the interests of their city? The first requisite is to deepen the conviction, that every sort of service must be based upon its appropriate science and that municipal service should be likewise based on municipal science. The more advanced municipal councillors should lay down suggestive study-courses and give lectures and demonstrations in scientific municipal endeavour. A better example in municipal leadership should thus be set, and the service

ideal emhasised, instead of personal prestige ideal which leads people to seek elections now. Our great need for training of councillors will be apparent from the fact, that still in many cities local leadership has not been developed for municipal management. The ideal is to have an elected non-official chairman in every municipality. The actual state of affairs shows that only 75% of the municipalities have reached this stage in our most advanced division the central division of the presidency. The northern division show 58% elected non-official chairmen, the southern division shows 56% of the municipalities having non-official elected chairmen, and the most backward division Sind, show only 34% of the municipalities having reached this stage. This clearly shows that enlightened municipal leadership is still lacking, and must be made up by greater and better training of councillors.

A Suggestive Syllabus.

What advanced countries do in this direction may be gathered from the following courses which the training school for municipal service offered at Cologne during the winter semester of 1912-13. We reproduce them from Prof. Hayes' Introduction to Sociology p 95. They are 1. Civics, 2. Law, 3. Administrative Law, 4. Local Ordinances,

5. Civil processes, 6. Political Economy, 7. Credit and Exchange, 8. Taxation, 9. Finance, 10. Statistics, 11. Inspection methods, 12. Labour legislation, 13. Labour unions and societies, 14. Social insurance, 15. Welfare work, 16. Social questions, 17. Fire Insurance, 18. Hygiene, 19. City Planning, 20. Schools, 21. Ecology and Topography, 52. Chemical industries, 23. Iron Machine industry, 24. Coal and mining, 25. Electro-technique, 26. Agricultural management, 27. Rhenish and Westphalian Economic Development, 28. Art and History of the Rhineland, 29. Paris and her Romance. If courses from local experts are arranged on some such subjects in the corporation hall, and study-circles organised among councillors, we have a scheme of adult education that will improve our cities a good deal. Local trained talent of all sorts should be utilised for advisory purposes. If each municipality encourages and houses a local health association, enlisting the volunteer efforts of all medical practitioners, an educational association enlisting the help of all local teachers, an economic association enlisting the help of merchants and manufacturers, and an esthetic association enlisting the help of artists, musicians, and a civic association for study and discussion of municipal civic welfare problems,

and finally a character development league for evoking the best moral effort among individuals and institutions, we shall have live municipalities and ample opportunities to discover and develop and utilise the best local talent for the welfare of the city, the city duly rewarding its best vounteer workers in this direction by annual certificates issued by the corporation

A Trained Working Force.

Coming next to the question of trained working force in every municipality, we have to see how far every municipal employe has been adequately trained for his particular job, and how far opportunities are provided in the shape of suitable magazines, and upto date literature to keep him conversant with the best in his line. A local municipal library, and a district circulating library on municipal topics will be found very stimulating in this connection. To keep the expert employes keyed up to their best efficiency, they may be induced to lecture on their special topics to the citizens. Thus lectures may be organised on drainage, water supply, public health, the school system of the city, the citizens' part in welfare work, the city lighting system, its comparative cost with the lighting efforts of other municipalities, the city

road system, its comparative cost, city conservancy, etc etc. Apart from such lectures, prize essays may be invited on such subjects, as well as many of those mentioned in the training for municipal service, and thus great effort released in the required direction of improved knowledge which alone can be the basis of improved service. Again efficiency suggestions should be regularly invited from all members of the municipal staff and suggestions that lead to paying improvements suitably rewarded. Promotion may be made to depend on passing of examination in certain municipal subjects, and such examination may be held by various colleges or the university. In such ways may better and greater training be secured in the paid employes and working force of municipalities. The greater prevalance of written standard practice instructions would thus be secured, so that every item of work may be done in the best, easiest, and quickest way. Such written standard practice instructions, may be exchanged between municipalities or co-operatively investigated and utilised. The working force will further have to be watched and encouraged for social mindedness, instead of selfish endeavour. Here the citizens' verdict ought to count, and the most socially minded be rewarded annually. Skilful direction

and continuity of employment are other factors which should form a part of the permanent work-policy of every municipality. The percentage of dismissals and fresh appointments to the total employed force would measure the efficiency in this direction. As the reports are silent on this point, each municipality will have to find out for itself, how far it has secured, continued, and improved service for itself. Such training, socializing, skilful direction and continuity of employment tests if carefully carried out would result in increasing municipal efficiency a good deal.

Literature Suggested

One book may be suggested in connection with the training for enlightened citizenship, as well as, the subjects for which municipalities should provide training. It is Pollock and Morgan's 'Modern Cities.' From that book the citizen will know advanced practice, and the councillor the subjects on which he should seek enlightment, and for which he should afford facilities for training.

CHAPTER XX. ACTIVE CITIZENSHIP TEST.

Enlist Citizen Enthusiasm.

For increasing efficiency we need not only a citizenship, that is organised and trained, but we need that such organised and trained citizens should actively participate in the welfare of their city. Hence the next test of the efficiency of a municipality is this active citizenship test. If we were to divide the population of a city by 5, we would get the potential number of adult male citizens, provided the city is quite normal and has families of five each. In most of the cities we have hardly four to a family and so the potential male citizens are greater than that number. We may similarly in a normal city have an equal number of women citizens. This vast citizen resource is hardly if ever utilised. The ratio of the number of voters to 2/5 of the citizens shows roughly the efficiency of selection of citizenship Out of these again the number influenced and trained to take enlightened and sustained interest in civic welfare, measures the active citizenship of a city. Measured by these tests we find that our municipalities are very backward in active citizenship. Citizen-

ship even with those who have the power to vote is a matter of one hour in three years, indeed almost a dead citizenship. When will cities learn to tap their vast citizen resources rightly, and throw out an opportunity to the greatest number, to render the best service they can in the service of the city? Very much indeed can be done in this direction, but very little is done

Invite Associated Opinion.

Thus opinions can and should be invited from all commercial associations in the city, on the city budget. If the city councillors do not move in this direction, the associations should set up this legitimate demand of seeing how the public funds are spent in the interests of the city. Or again why should not the city interest all the local medical practitioners in the administration of public health service? Why not invite them to lecture on hygiene and preventive methods at as *many places as possible in the city*? Similarly the engineering population should be interested to look into public works administration and suggest ways and means of improving it. The teachers and old and learned men of the community should be invited to take interest in the educational efforts of the municipality.

SUGGESTIONS FROM THOSE SERVED.

As Bruere has pointed out "even enlightened self-interest, when turned towards government may lead to improvement." Thus tax payers may help improved road pavement. Women voters may help proper location and distribution of markets. And so on for every service, the persons served may suggest methods of cheaper and better service. All this requires active citizenship.

GRAPHIC PUBLICITY OF ESSENTIAL FACTS.

But active citizenship in its turn depends on adequate publicity of essential city facts. If we want to a enlist citizenship, graphic publicity should be increased Thus in every city the death-rate in different wards and among different communities varies. If every month graphic posters of death-rates by wards and communities were exhibited, in the backward wards and among backward communities and at schools, it will set up emulation among the wards and communities to come up to the level of the best ward and the best community. Educational facts may be likewise published graphically in all public places to induce citizen inerest and citizen effort. Graphic budget exhibits will give the citizens an idea of where the taxpayers money goes. A great deal of interest in civic welfare can

thus be aroused. "City reports must be intended not for printing only but for reading, understanding, interpretation," and most of all for arousal of citizen activity.

Enlist Citizen Effort.

It is a mistake to suppose that municipal efficiency depends mainly on higher taxation in money, or that money tax is the only tax which a municipality should levy on its citizens. On the contrary the ideal should be to tax the least in money and most in enlightened attention available in the community. Enlightened citizen attention and citizen co-operation should, be attracted, invited and enlisted even by social pressure, and social approval for purposes of city welfare. It invests the citizen with a sense of dignity to be called upon to participate in the joint creation of a healthy, happy, beautiful city, to take part in city welfare work. Responsible and responsive participation in civic affairs is likely to add a new zest to many an otherwise humdrum life, and bring out the latent powers of many a citizen Instead of relying on outside help, this sort of active participation in city affairs thrown open to the greatest number of citizens, would very likely make them self-reliant. It should, therefore, be an aim to interest

as many citizens as possible in intelligent participation in the welfare work and social service programmes of the city. The money levy is also ultimately useful when converted into human energy. Why not tax available enlightened energy at convenient times, instead of increasing the rates, and thus educate the citizen for his work as well?

The Elberfeld System.

A very good instance of active citizen participation is the famous Elberfeld system of charity administration. The system, as briefly described by Blackmar and Gillin in their 'Outline of Sociology' p 466, is as follows. "The city is divided into 564 section. Within the confines of each section are included about three hundred people, but with not more than four paupers in any one section. Over each of these sections is placed an almoner, as he is called. The almoner is the official with whom each needy person comes into first-hand contact. To him the needy of that section make application for help. He then enquires carefully into all the circumstances of the case. If convinced that the family needs relief he gives it himself. He must, however, keep in close touch with the family by a visit once in two weeks. He gives relief according to a mini-

mum standard set by law. Any income the family may have is deducted from this minimum, so as to make sure it is not getting more than enough to supply the bare necessities of life. He not only supplies relief but is also supposed to keep a general oversight, over his district, and act as advisor to any whose circumstances may indicate the possibility of falling into dependence He helps secure employment for the unemployed, medical help for the sick, and offers advice to the improvident and dissipated, or in case of the incorrigible, reports them for prosecution. He loans sewing machines and tools belonging to the municipality to those who may thus be kept out of want. These almoners are appointed for three years and service is compulsory, on pain of loss of franchise for three to six years and increase of taxation. The best citizens are thus secured for the work. The office is considered such an honour that it is frequently sought by the best citizens, being considered the first step on the ladder to political office in the municipality. Fourteen of these sections are organised into a district, over which is an overseer whose business it is to preside at the fortnightly meetings of the almoners, where the reports of all these almoners are considered, and a minute book prepared for the central

committee of nine, which is over the whole system of the city. This committee meets fortnightly also, but on the night following the meeting of the district meetings. Indoor relief is also controlled by this committee, the overseers and almoners having no connection with that. In many places both men and women serve as almoners. These almoners are chosen from all classes of the population and not from the upper class alone In every city where this system is in operation, a large army of men and women of atleast average intelligence are interested in the problem of poverty, not after dillettante fashion, but by first-hand acquaintance. Efficient service is secured because it is personal and intimate. With no more than four cases to look after it is possible to show neighbourliness. The system where introduced leads to decrease of pauperism. Similar efforts for the promotion of health and diffusion of education would lead to active citizenship, which would be comprehensive and co-operative.

Social Centres and Social Settlements.

Among other measures for the promotion of active citizenship, we have already referred to the social centre idea, the weekly meeting of voters in every primary school. The social settlement idea

is another wonderful social invention which if popularised would open opportunities for constructive and active citizenship through sharing ones best with ones neighbours and increasing friendship with them. It is a constructive movement of the highest kind. As helpful literature on active citizenship we may therefore suggest besides Ward's Social Centre, that excellent book 'The Settlement Horizon', by Woods and Kennedy, issued by the Russell Sage Foundation, New York.

PART III.

Twelve Specific or Functional Tests.

CHAPTER HEADINGS.

PART III.

TWELVE SPECIFIC OR FUNCTIONAL TESTS.

Questions for Councillors ana Citizens.

1. *The Health Test.*—How far does the city discharge the functions of promotion of health, prevention of disease, and postponement of death? Is the death-rate the lowest for the region? Is it increasing or decreasing?

2. *The Education Test.*—What is the percentage of population reached by appropriate education? What is the percentage in school? What is the quality, and what is the cost per pupil, in different grades of education?

3. *Public Safety Test.*—How far does the Municipality promote public safety through adequate fire prevention, adequate policing lighting and traffic control?

4. *Public Morality Test.*—How far is public morality guarded? How far are drunkenness, debauchery, gambling, and rowdyism checked? Have the slums been improved, or reduced?

5. *Maternity and Infant Welfare Test.*—Has anything been done towards Child and Women Welfare, in housing plans, in milk supply, in teaching mother-craft, and in playground provision in every neighbourhood?

6. *Public Charities Test.*—Is there a register of all public charities? How far is the city advanced in charity administration? Is charity discriminate, preventive, and well-organised?

7. *The City Planning Test.*—Has the city been planned? Is its lay-out being systematically improved,

with a view to present and future residential, industrial, and recreational requirements, etc.

8. *Efficient Budget Test.*—Is there sufficient reporting and publicity of essential facts? Is there efficient accounting, and full and free discussion of the budget? Is the distribution of appropriations for different functions fair, and economically utilised?

9. *Public Works Test.*—Are there standard specifications and schedules for public works and stores purchased? Is there a standard testing laboratory? Is the cost per mile of road-making, of different widths and specifications, being noted, and gradually reduced? Has the same procedure been adopted for other important items of public work, *e. g.*, street lighting, street watering, street cleaning, etc.?

10. *Public Utilities Test* —Are the public utilities, like power, light, tram and telephone acquired and economically managed by the Municipality?

11. *Public Ownership Test.*—How far does the Municipality own the buildings required for its various institutions? How far does it own land required for its further development? Has land speculation been eliminated, and is economical housing provided by Municipal efforts?

12. *Parks and Playground Tests.*—What is the percentage of residential area reserved for open squares, parks and playgrounds in each ward? Is there an open space within five minutes' walk of every home? Is the tree census taken? Is the plantation of trees being steadily increased, through institution of "Arbor Day," etc.?

CHAPTER XXI. TWELVE SPECIFIC TESTS.

Besides the six general tests of a comprehensive survey, and an adequate service programme based on ascertained needs, efficient method for each item of service, and a smooth working organization, trained, skilful, socially minded, permanently employed personnel, and active enlightened citizenship, there are about a dozen or more specific tests by which any municipality may measure its efficiency. We shall now proceed to enunciate them, and consider how they may be used to improve municipal efficiency.

PUBLIC HEALTH TEST.

In the noble words of Ruskin "There is no wealth but life—life including all its powers of love, of joy, of admiration." Conservation of human life is the prime work of all human groups. Man seeks the help of his fellow man to extend his life and enrich it. So a city or municipality, that does not promote the utmost of the best life of its citizens is so far inefficient. With Mayo-Smith the great statistician we may take it as a great truth, that "the comparative death-rate is

an index of the relative civilisation of countries" and may we add of the relative efficiency of cities. So the first functional test, and the greatest test of municipal efficiency is the health test. How far does the city satisfactorily discharge the functions of promotion of health, prevention of disease, and postponement of death? That is the prime test.

PUBLIC EDUCATION TEST.

And if the first test be health of body, the maintenance of greatest percentage of long-lived, "ful-breathed, bright-eyed, happy-hearted human creatures" the second best test of municipal efficiency is how far it aids in the formation of the intelligence and the correct exercise of the affections of the citizens. This may be called the education test of the municipality. How far does the municipality improve the intelligence of citizens through reaching all with appropriate education, retaining them till the completion of different stages, primary, secondary and higher, improving the quality and minimising the cost of education? What is the percentage reached? What percentage retained? What is the quality? And what the cost per pupil in different grades of education? Such questions reveal the comparative efficiency of a municipality.

Public Safety Test.

What is the third specific test of municipality? It is what may be called the safety test. The questions that will reveal the condition of a municipality in this connection, may be framed somewhat as follows. How far does the municipality promote public safety, through effective fire prevention and fire-fighting appliances, through adequate policing and traffic arrangements? The number of accidents, thefts, fires, etc. and total loss of life and property caused thereby from year to year measures the efficiency in this direction.

Public Morality Test.

Parallel to the public safety test is the standard of public morality test. How far is rowdyism and drunkenness checked? How far has the problem of prostitution been solved? How far has the numerical disparity between the sexes been kept down by adequate housing arrangement for labourers attracted from the country? Adequate cheap and commodious housing has a deep effect on not only public health but public morality. Common privies and common bath-rooms are not conducive to decency or correct behaviour. The housing policy and bye-laws have thus to do with the promotion of a certain standard of morality in

the city. Housing inefficiency and the absence of employers' responsibility for housing their employees is responsible for the excess of males over females in most of the cities and the consequent increase of social evil.

Child and Women Welfare Test.

This leads us to another test of municipal efficiency, child and women welfare test. Is the child adequately considered in the housing-plans passed? Are the requirements of recreation and play considered for children in all localities? Are there any pure milk depôts? Is there systematic instruction in infant welfare? Is maternity welfare work done to any extent? What is the infant mortality and mortality through maternity?

Charity Organisation test.

Along with child and mother welfare, we may consider how far the city has advanced in charity administration. Charity may be so misadministered as to keep up poverty instead of curing it. The best charity is that which keeps the recipient out of the need for further charity. The gift without the giver is bare, and much of our indiscriminate charity only increases the evil which it seeks to remedy. An enquiry into

municipal and private charitable institutions would reveal how far charity is discriminate and organised. With Ford we may say. "If human sympathy prompts us to feed the hungry, why should it not give the larger desire to make hunger in our midst impossible. It is easy to give. It is hard to make giving unnecessary. Charity organisation is necessary, so as to make every unit more productive and self-reliant and self-respecting. Charity should put the recipient on his feet, and not render him a cripple throughout his life. We need training schools for defectives and sub-division of productive operations, so that the operations that can be performed by the blind and the lame and the maimed, may be made over to them, thus rendering them self-reliant and respectable and independent of further obligation."

City Planning Test.

Leaving now these tests which more or less concern directly the life of citizens, let us enquire into further functions that indirectly promote citizen welfare. Foremost among these is the city planning test. Has the city been planned or has it grown haphazard? If the latter, is its lay-out being systematically improved with a view to present and future requirements? Has the

city co-ordinated each part with reference to the rest, and adequately provided for quiet and cheap residential areas. with properly distributed health and educational facilities? Such questions reveal the presence or absence of conscious and controlled design and development of the living entity the city.

Park and Play-ground Test.

Then there is the park and play-ground test. What percentage of the residential area is reserved for open squares, parks, and play-grounds? Is there an open space within five minutes' walk of every home? What is the total acreage used for such purpose? What percentage of the total area? Is it being reduced or increased? Is the tree census taken? Is there anything like an arbour day? It may almost be said with truth that he who opens a play-ground closes a drinking saloon. Parks and play-grounds are a great need for health and education. This, therefore, is a good test of municipal efficiency.

Public Works Efficiency Test.

Next to that, a specific functional test is the efficiency of the public works division, including road efficiency, standard specifications for public works, standard testing laboratory, a department

perhaps the least developed, but one which needs most to be developed and can be developed co-operatively by sister municipalities and one which could effect much saving.

Public Utility Test.

Next to that, the efficiency of a municipality may be guaged by the fact whether public utility services like power and light supply, and tram etc., are in the hands of the municipality or in the hands of private corporations. Public utilities should be in the hands of the municipality so that the advantage of expansion may not be monopolised by a few capitalists, but may go to reduce the unit-cost per service rendered. German municipalities have gone the furthest in this direction. "How far are the public utilities acquired and economically administered by the municipality?" is a test question in this direction.

Public Ownership Test.

Not only public utilities, but cheap areas for housing developments are also acquired by some German municipalities. In this way land-speculation is eliminated and economical housing facilities provided for dwellers in the city. The rental goes to lessen the burden of taxation. "How far

is public-ownership of housing etc. encouraged?" will thus also be one of the tests.

Budget and Publicity Test.

Finally efficient reporting and efficient publicity of essential facts, so as to keep the citizens in vital touch with the city government, is one of the tests of an efficient municipality. This finds its culmination in efficient acounting, full and free discussion of the budget and a fair appropriation and allocation of resources for the different purposes according to their urgency. The budget test is thus a very good test to see whether most is being got out of the funds spent, and whether the funds are being spent on necessary purposes. What percentage of total expenditure is being spent on health and education and recreation? What is the percentage of expenses on other items, and how do these percentages compare with past years and with other municipalities that may be considered as more advanced in those directions?

Such are some of the specific functional tests of municipal efficiency. By applying these one can discover where a particular municipality stands with reference to the services it has undertaken to discharge. These tests will be found

great eye-openers. It is comparision with the past and the performance of other municipalities that is a great revealer of weak spots and a spur to greater excellence. Will the Municipalities make use of this comparative and co-operative method ?

Literature Suggested.

Two books will be found of great value to those who want to know fully about these specific tests. "Municipal Functions" by H. G. James, in that eminently useful series known as the National Municipal League Series, published by Appleton, the whole of which should form a part of District Municipalities' Circulating Library, and secondly the best single book on the highest water mark of municipal achievement, a book which ought to be read by every municipal councillor, even if no other is read, viz. "American Municipal Progress" by Charles Zueblin, in the Social Science Text Books Series, published by Macmillan & Co.

CHAPTER XXII. THE PUBLIC HEALTH TEST.

THE TEST STATED.

Now we enter upon the specific tests of municipal efficiency and let us see where the cities of the Presidency stand when judged by these tests. The prime test in this connection is the Public Health Test. We have briefly enunciated it as follows :—*How far does the city satisfactorily discharge the function of promotion of health, prevention of disease and physical disability, and the postponement of death?* Stated more fully, the objects of public health are the same as those of Preventive Medicine, as laid down by Sir George Newman, Chief Medical Officer of the Ministry of Health, in his excellent paper "An outline of the practice of preventive medicine" on p 5. They are as follows :—

(1) To develop and fortify the physique of the individual, and thus to increase the capacity and powers of resistance of the individual and the community.

(2) To prevent or remove the causes and conditions of disease or of its propagation.

(3) To postpone the event of death and thus prolong the span of man's life."

THE DEATH-RATE TEST

In a way the postponement of death, as revealed by the higher or lower prevailing death-rate in a city, is the crucial test, as it sums up the results of endeavours to prevent disease, and promote health Judged by the death-rate test the municipalities of the Bombay Presidency, show a deplorable inefficiency. From the fifty-eighth annual report of the Director of Public Health, the latest available, pages 31 and 37 it will be seen that the death-rate for towns is 34·84 per thousand, while the death-rate for the rural portions of the same districts is 23·89, i e nearly 11 per thousand higher. The town population of the Presidency is 3,728,396 and this gives us an avoidable waste of precious human life to the tune of 41000 annually. While the cities of civilised nations have progressed so far during the last forty years as to bring the urban death-rates to several points below rural death-rates (See Comparative Death-Rate Graph) our cities are still in that state of civic negligence in which the the cities attract the most forward spirits from the country side and manage to destroy them faster by 41000

annually. Will the citizens wake up and repair this great wrong to their own country-men?

The Ten Worst Towns.

Judging by the figures of 1921, the ten most sinful towns in this respect in the order of their sinfulness are 1. Pandharpur with the appalling death-rate of 54·74, 2. Chopda, 51·62, 3. Poona City, 47·61, 4. Parola, 46·36, 5 Bombay, 46·25, 6. Barsi, 44·94, 7. Sholapur, 44·37, 8. Ahmedabad, 40·10, 9. Dakore, 38·92, 10. Trimbak, 37·68. Judging by the mean death-rate for the last five years the ten worst towns in descending order are 1. Sholapur, 89·32, 2. Malegaon, 73·12, 3. Deolali Cant, 68·19, 4. Dhandhuka, 61·79, 5. Poona, 61·49, 6. Ahmedabad, 60·38, 7. Barsi, 59·59, 8. Karra, 59·42, 9. Ranibenur, 59·10, 10. Nadiad, 57.81. Judged by both tests the following stand convicted of the grossest neglect Sholapur, Poona, Ahmedabad, Barsi. Will the Doctors, Engineers, Public workers, and educated men of these and other cities organize these cities for better health, and thus repair their sinfulness at least, with regard to this dreadful human holocaust?

The Ten Best Towns.

Let us compare these with the actually

attainable best even in our presidency. The best towns from the point of view of health during the year 1921 in their respective order of merit were 1. Nepani, 6·25, 2. Karad, 8·35, 3. Deolali Cant. 9·97, 4. Hyderabad Cant., 10·37, 5. Tando Adam, 10·87, 6. Karwar, 11.96, 7. Nawalgund, 12·84, 8. Bulsar, 14·37, 9. Ahmedabad Cant., 14·39, 10. Nawabshah, 14·44. Judging by the five years mean death-rate the following ten stand out as the best ten towns 1. Chiplun, 7, 2. Karwar, 17·01 3. Hyderabad Cant , 19·72, 4. Poona Cant., 20·13, 5. Belgaum Cant., 21·44, 6. Uran 22·11, 7. Bandra, 22·27, 8. Halla, 23·34, 9. Bulsar, 25·55, 10. Igatpuri, 26·08, By both tests Hyderabad Cant., Karwar, and Bulsar stand as the best. While some of these figures may not be reliable on account of defective registration, those pertaining to cantonements are probably highly reliable, and Poona Cant., Bandra and Bulsar show what is attainable in towns of over twenty-thousand even. Let the backward towns try to come up to the level of these best attainable standards.

Some Current Misconceptions.

Before I proceed to make specific recommendations for the improvement of municipal efficiency in public health, let me dispose of

certain current misconceptions with regard to the operative factors controlling death-rates in cities. That cities in all parts of the civilised world have been able to reduce their death-rates during the last forty years, proves conclusively that the higher death-rates in our cities are not as is popularly supposed due to divine dispensation, but to our social ignorance and mismanagement, and greatly due to civic disorganization and neglect. That intelligent human intervention, can reduce infant mortality, and maternity mortality, can prevent many of the epidemics, and reduce death-rate and thus postpone death to seventy years or more, now admits of no doubt.

Another current misconception is that death-rate depends on the size of the city. Death-rate does not depend on the size of the city. Thus Pandharpur with the highest death-rate has a population of only 25,210, or again Barsi with a mean five years' death-rate of 59 has a population of 22,074 while Bandra with a five years' mean death-rate of 22.27 has a population of 28,738 and Poona Cant.shows a death-rate of only 20.13 though it has a population of 25,498. Again London the world metropolis with a population several times these small cities has yet a death-rate of only 14 per thousand.

Again it is popularly supposed that death-rate depends on nationality or race. It does not. Cities inhabited by people of the same race differ greatly in death-rates. Thus in Sindh, Sukkur and Shikarpur, have such different death-rates, though they are both in the same district and ethnically the same. Rural and urban areas have the same nationalities and yet such different death-rates.

Elaborate statistical studies carried on by Pollock and Morgan justify in their opinion the above conclusions as well as the following, namely that thirdly death-rates do not depend on the age of the city. In several towns the death-rates have declined as the towns have grown older.

"Fourthly the death-rate depends only slightly on climatic conditions. In primitive communities heat and cold, rainfall and other features of the climate such as winds and storms produce decided effects on the health of a people, but civilisation has neutralised their effect to a large extent." Thus Italy a hot country could yet reduce its death-rates, while St. Petersburg a colder one had still high death-rates. There are no doubt seasonal variations in every city, but we are talking of the com-

parative annual death-rates of different cities, where these seasonal variations do not count so much.

REAL CAUSES OF HIGH DEATH-RATE.

"5 The death-rate does depend on water supply and drainage arrangements of a city. Cholera and typhoid are disseminated throngh impure water. By introducing a filtered water-supply Albany, New York reduced its typhoid deaths from 84 annually to 21. Hamburg and Naples had a similar experience."

"6. The death-rate depends on housing conditions." There is overwheming evidence from all parts of the world that overcrowding leads to debility, to increased sickness rates, and higher death-rates. (See Newman's Outlines of the practice of Preventive Medicine, p. 63 and Pollock and Morgan's, Modern Cities, p. 64) The Bombay Municipality report for 1920-21 shows that in one roomed tenements the infant mortality, was 63.11% while among two-roomed dwellers it was only 30.40. When Berlin made its housing conditions survey in 1885, it found that the death-rate among one-room dwellers was over seven times as great as among two-roomed dwellers, twenty-three times as great as in three-roomed dwellers, and

thirty-three times as great as in four and more roomed dwellers."

"7. The death-rate depends on the protection afforded to the citizens against fire, disease, and crime."

"8. The death-rate depends on the economic conditions of the people." The city must therefore favour the development of industries, and by foresight locate them so as to save transport and nuisance as far as possible.

"9. The death-rate depends on the habits of the people." Drink, debauchery and gambling increase the death-rate. The liquor shop and brothel, the race course, the stock exchange, and speculation hasten many a man to an early grave. There should, therefore, be citizen effort to discourage these, by finding out other channels for adding zest to life, giving vent to the adventurous spirit of man. In athelics, art, and politics we have such outlets for civilised man.

Prevention of Disease.

Taking now our second item viz prevention of of disease we find that we have made very little headway indeed. Several of the items of a com-

plete policy are altogether absent. Prevention of non-infectious disease, such as heart diseases, rickets, dental diseases, indigestion, has not yet been included in the programme. Industrial hygiene has just attracted a bare attention. A complete policy of prevention would include these, as has been so ably shown by Sir George Newman.

Promotion of Health.

For increasing our health efficiency, our municipalities have not only to steadily endeavour to postpone death and prolong life, not only to do all that can be done in the way of preventing diseases that can be prevented, but advance further and lay down and carry out policies for positive promotion of health. Among the items which aim at fortifying the physique, the foremost will be an awakened interest in Eugenics. Through Eugenics we can help the coming generation with a fair start in the race of life. The rousing of the Eugenic conscience is necessary for controlling ante-natal infection through alcoholism, syphilis, feeble-mindedness, tuberculosis etc. Public opinion has to be roused against marriages with alcoholics, syphiletics, freeble-minded persons, and tubercular persons. The Hindu Shastras have put such types under a social ban. There are some eugenic

PROMOTE HEALTH THROUGH

1. EUGENICS to control ante-nantal infection through alcoholism, syphilis, feeble-midedness tuberculosis, and lead-poisoning.

2. MATERNITY AND INFANT WELFARE WORK. Pure milk supply. Little mothers' classes, etc.

3. ATTENTION TO THE SCHOOL CHILD. Physical education. Play grounds.

4. PUBLIC EDUCATION IN HYGIENE. Mothercraft, open air education etc.

POSTPONE

Causes of High

NOT.

1. Size.

London the world metropolis, has a death-rate (14) much lower than many smaller cities, and its death-rate has decreased as its population has increased. In Sind, Sukkur has a death-rate (18) much lower than many a smaller town.

2. Race.

Cities inhabited by people of the same race differ greatly in death-rates. Thus Sukkur and Shikarpur though in the same district and ethnically the same have such different death-rates.

3. Age of City.

Death-rates may decline as a town grows older.

4. Climate.

In primitive communities heat and cold rainfall and other features of the climate affect the death-rate ; but civilization neutralises their influence to a large extent. Seasonal variations remain, but the annual death-rate may still be reduced through citizen and municipal effort.

DEATH.

Death-Rate are:

BUT.

5. Water Supply and Drainage.

Cholera and typhoid are disseminated through impure water. By introducing a filtered water supply Albany, New York reduced its typhoid death-rate from 84 annually to 21. Hamburg and Naples had a similar experience.

6. Housing.

Housing conditions affect death-rate much. Overcrowding leads to debility, increased sickness and higher death-rates. Bombay shows that infant mortality in one-roomed tenants is 63·11 % while in two-roomed dwellers it is only 30·40. Berlin in 1885 found that death-rate in one-roomed dwellers was seven times as great as in two-roomed and twenty three times of three-roomed.

7. Disease and Crime.

Protection against fire, disease, and crime affects the death-rate.

8. Poverty and Vice.

Poverty affects death-rate, through malnutrition, bad housing, and insufficient clothing.

Vice or bad habits such as drink, debauchery and gambling, whether on the race-course or exchange or speculation, shorten life of many a citizen.

PREVENT DISEASE BY

1. MINDING ITS FOUR FACTORS. Soil, Seed, Surroundings, Treatment.

2. ORGANIZATIONS. Public Health service, School medical, Health insurance.

3. SUPPLY of Pure Water, Pure Food, Pure Milk.

4. PREVENTION OF INFECTIOUS DISEASES through mosquito, fly, and rat destruction.

5. PREVENTION OF NON-INFECTIOUS DISEASES. *e. g.* Heart diseases, Dental diseases, Indigestion

6. INDUSTRIAL HYGIENE.

provisions in the Hindu marriage ceremonies. The Garbhadan sacrament revived by the Aryâsamâjists is a eugenic sacrament. In the words of Galton, we must try to disseminate a knowledge of the laws of heredity, we must enquire into the reproductive rates in different classes of population, we must assiduously collect facts about the conditions of thriving families, influence right marriages by social approval and disapproval, and persist in setting forth the national importance of eugenics.

To fortify the physique of the individual, we must further look to maternity and infant welfare work. In this connection it is interesting to note that we have the Lady Chelmsford All India League for Maternity and Child Welfare, which issues a quarterly magazine which ought to be widely circulated by municipalities.

To promote health we must look to the nutrition and cleanliness of the school children. There should be regular dental clinics. Dr Osler rightly says that dental decay leads to greater physical degeneration than even alcoholism. And so a tooth-brush drill conducted in schools and attention to the teeth of children and elders is a health-promotion work of very good kind. Then we must have more of physical education work, and public

teaching of hygiene, in which we must enlist volunteer effort of the medical profession. Mothercraft should be taught in all girls schools. Open air education should be promoted. Excursions to gardens, and scouting both for boys and girls is a right step in this direction. These and similar methods should be adopted by the municipalities for promoting health.

Study and Practice Prevention.

What then are the proposals for increasing municipal efficiency so far as health is concerned? In the forefront of my suggestions I would place the request that each of the big municipalities should buy and keep in active circulation a dozen copies of the excellent memorandum addressed to ministry of health, by Sir George Newman, entitled "An Outline of the Practice of Preventive Medicine." obtainable from H M. Stationary Office, Imperial Kingsway, London, W. C. 2. It is an inspiring and cheap brochure which should be read by every municipal councillor interested in his city's health, and will prove an unfailing source of constant inspiration. The publication costs only six pence and is worth its weight in gold Another book for understanding modern public health procedure is Dr. Hill's.

A report to be very carefully read by all citizens interested in Public Health is the Director of Public Health's annual report, several copies of which should be kept in active circulation. The details as to present conditions of municipal health staff employed by different municipalities will be found on p. 32—33 of the report for 1921. All municipalities can at least follow the excellent example of Kaira and Bulsar who rely for advice in sanitary matters, on the elected medical officers among their councillors. In fact municipalities should elect as many experts in medicine, engineering, and science as they can, and they will be run all the better.

Graphic Publicity of Death-Rates.

A second suggestion I would like to make is that graphic publicity be given to death-rates, and disease-rates. Boards should be placed at different registration offices, noting down the daily figures. That the rates be analysed every month and graphed by communities and quarters to lessen their death-rates. That these be exhibited in the form of the posters in the different quarters, and discussed at ward meetings, and in different schools. They should be so brought to the attention of the people that action may be evoked.

Comparative Death-Rates.

Having found by comparative death-rates, the position of the different communities, and the different wards, we should try to have a comparative idea of the death-rates of the whole city as compared with its past five years' average, and with the death-rates in cities in the same region, or cities of the same size. We have next to see what percentage of the budget is spent by different municipalities on health, and see that atleast 30% of the entire municipal expenditure goes to the conservation of human life. We have to see that it is spent in the best way for the purpose.

Increase the Health Budget.

Beyond increasing the financial budget for Health, we should draw upon the energy budget of citizens for promotion of public health. We should enlist as much volunteer effort as can be enlisted in this cause in each ward, to satisfy the requirements of each ward. Student effort should be enlisted as hereafter suggested.

Educate in Health Matters.

Public lectures on principles and practice of Hygiene should be held in each ward, and the

ward doctors invited to help in that direction. They may preferably be held in different primary schools and be accompanied by lantern shows. There should be a small health library in each ward. Every collection of books on health and physical culture existing in the neighbourhood, should be listed and fully utilised. A separate room may also be provided in each school where any voter may weigh and measure himself, and record at a slight cost the essential facts about himself for future reference. In fact everything should be done to introduce the physical culture cult.

Coordinate Health Agencies.

The public health department of the municipality should coordinate all preventive, curative, cultural, and community effort in each and every ward, so as to give the benefit of the best to all. Citizen effort should be aroused to the utmost through publicity, press and platform, and each ward should be encouraged to take all correct steps towards the reduction of death-rate, and disease-rate, and prevention of avoidable disability. Each and every city may thus try to bring down its death-rate to the level of the best in its region and thus reach the reasonably attainable minimum of 13 per thousand.

Train Citizens in Health Work.

Karachi was declared as plague infected. And Karachi looked to its Health Department for plague prevention. It also looked to private exodus, to migration into health camps by those who could afford. It relied on rat destruction, disinfection, protective inoculation and improved sanitation Poor cat, the natural enemy of the rat, found no honourable mention in municipal record, nor encouragement in plague service. Still the programme was fairly comprehensive, but it did not build the backbone of the people, it did not train citizens to fight plague producing conditions in every home, in every neighbourhood. Its call on citizen cooperation was feeble, its enlistment of citizen enthusiasm left much to be desired. It is the citizen who must be roused to do his bit. The success of the health department must be measured by the extent of citizen cooperation it secures, the extent to which it educates each individual citizen, and evokes his enthusiasm.

The Example of Indore.

How is that to be done? Indore did it by public pageant and procession. (See 'Town Planning in Indore,' Geddes) A huge effigy of the demon of plague, riding a magnified rat, with

a flea quite conspicuous settled upon the rat, the whole accompanied by the procession of workers in the health department, perambulating through the city on a camel cart, with halts and speeches and distribution of leaflets at every junction and final burning of the effigy of the plague demon, would grip the imagination, and focus the thought of citizens, as nothing else will. It will be a pageant of driving out the plague, instead of fleeing from it by those who can afford, and leaving the rest to their fate

Students' Effort in Hyderabad.

If the adult citizen is torpid though I don't admit he is, may we not catch him when he is young, in the plastic period of his schooling, and interest him in rat destruction, and at appropriate seasons in fly campaign and mosquito campaign as well? Hyderabad did it, why may not other cities? Thus we read in the report of the Hyderabad Municipality for 1918-19 that the school pupils were interested in rat campaign, and caught 10,400 rats out of the total of 36,000. In the next year the children's contribution was 6,267 rats. The school children were given a reward of one pice per rat. Why not also a reward for pet cats?

Student Mosquito Brigades.

In the mosquito campaign, too, it would be quite interesting and instructive to enlist student enthusiasm, if not adult enthusiasm, in the matter of inspection and report to begin with, and by and by in oiling, ditching, draining, and destroying the breeding places. The mosquito brigade may exhibit its work at different schools, and call for mosquito brigade volunteers, who may be supplied with the necessary tackle, and go on supervised rounds twice a week under one of their teachers, tracking the breeding places, and oiling them where necessary. Thus may the future citizens be trained and interested in public health work, and every neighbourhood rendered mosquito free, and kept regularly inspected. The best health department is that which trains the citizens to help themselves under its expert guidance. Greenwich, Connecticut, in the United States reduced its malaria from 600 cases in 1912 to only 30 cases in 1914. Philadelphia began its mosquito campaign, by an extensive propaganda specially in schools. In 1913 twenty illustrated lectures in the life history of the mosquito were given in churches, schools, libraries and lodge rooms. The public schools teachers were persuaded to talk to the children on the subject. One hundred thou-

sand pamphlets were distributed among school children, and a hundred thousand more among householders. Then followed the treatment of pools, and breeding places. Seventy five acres of malaria breeding places were thus rendered malaria free. Public Health departments in Sind, and public health workers have here a chance of saving many deaths and doctors' bills by citizens' efforts.

CLEVELAND'S JUNIOR SANITARY POLICE.

America has discovered that flies are more dangerous to civilised man than all the wild beasts in the world. *Junior Sanitary Police* made up of school boys and school girls, has made many a city flyless. The board of health, Cleveland, inaugurated a compaign, organising the children of the sixth, seventh and eighth grade of the public schools The schools were used as distributing centres for literature. The campaign was initiated by a gifted lady Dr. Jean Dawson. 'She organised the boys into Junior Sanitary Police, and the girls into Sanitary Aides. The boys inspect backyards and inform house holders of the conditions of their garbage cans and other fly-breeding places. The girls working in pairs, have inspected stores and counted the number of flies visible in three minutes.

The great acheivement of Cleveland is in arousing the entire population to the significance of the early fly. A fly in hand in the breeding season is worth two thousand in the kitchen. The campaign of education starts with lectures on the life history of the fly, from its breeding place in manure and filth to its fatal climax' The official fly catcher instructs in the use of the fly trap. Breeding places are disinfected. Fly traps are distributed, and thus the fly scourge and typhoid eliminated. It is a pity that typhoid cases are not separately shown in the municipal reports of Karachi. Karachi ought to set an example in fly destruction as well. Will it allow Hyderabad to have the lead in this too? Let these movements be India-wide in scope, but local in expression.

Graphic Reporting.

A graphic monthly report of city's health, exhibited in a prominent place in every school, market and public place will train the future citizens to take interest in health and life, the real wealth of a people. Such report to get inside the mind of the citizens should be brief, prompt, explicit, graphic. One foolscap poster a month will do. It is quite possible for a high school pupil to learn that 'the efficiency of the health

department may be guaged by some such facts as the following:—

1. Death-rate, 2. Increase or decrease in epidemics, 3 Infant mortality rate, 4 Bacteria count of milk—maximum, average. 5 Number of school children treated for defects, 6 Number of nuisances abated, etc. etc.,

All compared with previous periods."

With our students lies our future. The future citizen must be interested in the city's work and welfare. He can be trained to prevent disease and postpone death. Will the health departments tap this great source?

CHAPTER XXIII. PUBLIC EDUCATION TEST.

INCREASE EDUCATIONAL FACILITIES.

Among the opportunities which confront an efficient city government, the next to that of the promotion of the health of the citizens, and saving of avoidable waste of life, is the really great opportunity and resposibility for education. In the words of the Mayor of Schenectady, 'the ideal in direction may be stated to be 'to utilise the opportunity to enlarge the scope of education until it includes men and women in a continued process of increasing enlightenment." It will thus be clear that the educational policy of a progressive municipality would include within its scope, not only boys and girls, but infants and children, and adults of all ages as well. In the words of Comte the whole of the objective life is a process of education for the subjective life, and the city ought to help the citizen at all ages and help him or her in assimilating the best social heritage.

GENERAL TEST.

The ideal being, to enlarge the scope of educational effort to include citizens of all ages in a

process of increasing enlightenment, what may be the tests by which we may judge of the efficiency of a municipality as regards this important function? Of course, there is the general test whether the city is rising in its scale of nobility, whether the citizens are increasing in mutual goodwill, knowledge, skill and self control, or are torn by internal jealousies, losing grip on the realities of life, becoming increasingly helpless to do any thing well with their hands and pursue the arts, and losing the hold even on their own life through increasing drunkenness, debauchery, gambling, vice and crime? That is the *ultimate test,* the *generational advance, arrest, or retardation in the scale of nobility.*

Specific Tests.

Specific efficiency tests, such as objective tests for different school subjects as reading, writing and arithmetic are still in the course of development. The art of mental measurement is being gradually developed by the Americans, and perhaps the day will come when the cities will conduct a psychological survey of their population and ascertain the general intelligence level of their citizens. It will perhaps be a matter of several decades before we reach that stage.

What then are the available tests by which

we may judge of the educational efforts of a municipality? The percentage of citizens it reaches with appropriate education is one of them. Their steady attendance, the level of education, are other tests for the purpose. Applied to its school system, these tests may be laid down in the words of Dr. Bachman of the committee of School inquiry, New York, as follows :—" Generally then a school system is most efficient: (a) which *reaches* the largest proportion of the children of the community of school going age;

(b) which secures their maximum attendance and succeeds at the same time in giving to the largest proportion of the children of the community, *a complete elementary education* if not a complete high school education;

(c) Which gives at the same time the *best quality* of elementary and high school education;

(d) Which educates the children of the community when everything is taken into account, *at the smallest cost* to the tax payer."

Reach the Greatest Number.

Let us now apply these tests to the 160 Municipalities of our Presidency. What do we find?

While America has compulsory education upto 16 years with a tendency to raise it upto 18, and while England has compulsory education upto 14 with a tendency to push it upto 16, we are here still in the stage when we are aspiring to have compulsory education upto 11. Socialization, and universalization of education is the first sign of an advancing civilization, and our present aspiration shows just how backward we are. Without education our population quality remains low and we cannot advance as a people. Municipalities should therefore exert their best to reach all atleast upto the age of 11. Let us see where they stand when judged by this test. From the Report of the Compulsory Education Committee p. 6, we find that out of 150,000 boys of school going age in our municipalities excluding Bombay city and Sindh, the schools as yet reach only 82000 or hardly 55% and similarly out of 135000 girls of school going age, we reach at present only 29000 or 20½%. The municipalities in Sindh are still more backward. Out of 38000 boys of school going age in the municipalities in Sindh the schools are able to reach only 16000 i, e, about 42% only. While out of 27000 girls, the municipalities reach only 7000 or about 26% , which though better than the rest of the presidency is not very high in itself. This shows

that judged by the reaching test the municipalities of the Bombay presidency are still very backward.

Secure Maximum Attendance.

Applying the attendance test, we find from the Supplement to the Report on Public Instruction 1921-22, pages 35-50, that the attendance in the day schools of municipalities ranges from 78 to 72% for boys, and from 70 to 64% in the case of girls. In the case of boys the Sindh division shows the best attendance having 78% , both the Southern division and the Central show an attendance of 77% , the Northern division shows 76% while Bombay division has the lowest average attendance, showing only 72%. In case of day attendance of girls in Municipal schools the best record 70% is shown by the Northern division, the Southern division standing next with a record of 69% , the Central division showing 66% , Sindh 65% and Bombay division lowest here too having 64% attendance. Each Municipality should chart by ages the total number held in school, and improve on its own records from year to year.

Reduce the Cost Per Pupil.

Applying the cost test, we find from the same supplement p. 33-50 that the annual cost of educa-

ting each pupil in the primary grade varies from Rs. 50-1 in Bombay municipalities, to Rs. 36-12 in Karachi municipalities, to a minimum of Rs. 14-6 in Satara municipalities, a very wide variation showing great lack of standards. While when we examine the schools within the same municipality the cost per pupil still varies within very wide limits, which shows absence of local standards. A great deal can be saved for further diffusion of education, if optimum standards were rigidly applied, in a matter of routine like primary education. Now if we compare the cost per pupil in Municipal Schools with the cost for the same grade of primary education in aided schools we find that with the exception of Nawabshah, they are uniformly lower ranging from Rs 28-10 in Bombay district, to Rs. 3-15 in Kanara.

It will thus be seen that a great deal can be saved by substituting aided schools for municipal managed schools. Private effort should thus be encouraged to the utmost. The Compulsory Education Committee remark on page 26th of their valuable report as follows. "It will perhaps be safe" they state "to take Rs. 20 as the inclusive cost in the first year of the programme, and to allow for a slow but steady

reduction, say 8 annas each year, bringing the figure down to Rs. 15-8 in the tenth year, and Rs. 15 afterwards." It will be good for the Municipalities to frame a similar programme of reduction of cost per pupil while keeping quality the same. Their great opportunity lies in encouraging private endeavour, in which our Presidency is abnormally backward. Thus on p. 11 of Compulsory Education Committee's report we find :— "It is interesting to note, however, that whereas over 80% of the primary schools in the Bombay Presidency are managed by Government, District Local Boards, and Municipalities, less than 7% of the schools in Bengal are under similar management, and only 27% in Madras. While Bombay depends to a comparatively small extent on private enterprise, Bengal relies on it almost entirely. It is presumably for that reason that a pupil in Bengal primary school costs less than Rs. 3-8 in 1918-19. The corresponding figure for Bombay is Rs. 13, which has since increased to over Rs. 16 (if Bombay City be included.)" There is thus evidently a large margin available for reduction in this direction.

INCREASE THE ALLOTMENT FOR EDUCATION.

Not only the cost per pupils varies within

such wide limits, but the percentage of total expenditure alloted to education varies greatly in the different municipalities. The highest percentage on public instruction is as we have shown spent by the Southern Division, being 34·3% of the total expenditure. Next to that comes the Northern division with 24% appropriated for Public Instruction. The Central Division spends only 21% of its municipal budgets on instruction, and next comes Sind with only 13% alloted to education. Last of all comes Bombay City with only 7% of its vast expenditure devoted to education. The curious fact is that the cost per pupil is the highest in Bombay and Sind where the proportionate allotment for education is the lowest. These figures go to show as we have stated, *that the educational efforts of different municipalties do not expand with their revenues, but are as it were kept at a uniform level, namely the minimum required instead of the mixmum possible under better resources.* In our opinion not less than 30% of its total expenditure should be spent by every municipality on this most important item of service, namely public instruction. If primary education is not able to absorb that, libraries, and laboratories, industrial instruction and local colleges, and even local universities may be run by rich municipalities.

Qualitative Tests.

Enough of these quantitative estimates. They simply show that the number reached leaves still 45% boys and 70% girls to be reached in the municipalities excluding Sindh, and in Sindh has still to reach 58% boys and 74% girls of school going age. We further find that the maximum attendance is not secured, that the cost per head need not be so high, and that in the richer municipalities greater percentage of the budget should be alloted to education. Let us now consider the question of education from the qualitative point of view. Qualitatively education appears here to have stuck in routine, just as it has done in most other parts of India. Habit seems to rule the Municipalities as well as the department rather than fresh or forward thinking. The result is that cities have not evolved systems of education suited to their individual needs, but just taken the line of least effort, in copying what the educational department has laid down for them, without any inclination to utilise even the latitude allowed. In our educational endeavours we have often adopted the form, but left out the life. To improve our educational endeavours we need to make our schooling a living reality rather than a mere dead form and routine. To improve the

quality of our education we have to improve the proficiency in the taught as well as to introduce certain new characteristics into our education, the characteristics towards which scientific endeavours in education seem to be tending. My reading and reflection lead me to group all modern tendencies under half a dozen principles which constitute I believe the very life of a sound educational system. I shall enunciate these and show what changes they suggest in our educational endeavour.

Relativity or Adaptation.

The first cardinal principle of sound education appears to me to be the principle of relativity or adaptation. The best type of education will be relative to the physical surroundings, relative to the aptitude of the individual and his age, and finally relative to the social needs of his times. One stereotyped system will not do for the city, as well as the country, for mountain side as well as sea side. Thus Ruskin, a great educationist of modern times, pleaded for coastal schools being different from rural schools, and rural schools teaching different subjects from urban schools. We have only developed the city type of education and have yet to develop the coastal type required for particular

surroundings in such cities as Bombay or Karachi. Education is for helping us to do well what needs to be done. Now fishing needs to done by the fishermen, the original occupants of Bombay and Karachi. Shipping needs to be taught, at least management of country craft, yet Bombay and Karachi have done nothing in the direction of marine education. It seems to have been forgotten by these municipalities, that Bombay and Karachi are just fishing villages transformed into a harbour cities. The fishing section of the population seems to have been neglected by the educational department of the municipalities. A good starter in this line would be an aquarium, at the Backbay Bombay or on the Native Jetty Karachi, like the one we have at Madras, its upkeep being provided from a slight fee levied on visitors. The aquarium may be placed in charge of the professor of biology, or the curator of the museum, or one in charge of the zoological section of the museum.

Again this same principle of relativity requires that education should be suited to the age and aptitude of the individual child. Child education has to be different from adult education, and this again to differ with different types of minds. The child repeats the history of the race, and so educa-

tional methods differ with different age periods. William James thus talks of the transitoriness of instincts, and advises the teacher to seize the happy moment for imparting skill, to sieze the wave of pupil's interest in each successive subject before the ebb has come. Stanley Hall another great educationist, describes the different educational periods and the methods to be followed. I shall take only one instance, the training of the child from 3-5 years of his age. Sense training is an essential before training in speech and letters. Let the thing and the word go together else clarity of ideas will not result. Most of our children are form-blind, and colour blind; their tactile, thermic and pressure senses are defectively developed. Their schooling thus becomes difficult for them. To remedy this we need Kindergarten and Montessori as regular features of our educational system. It has been found by American educationists that those trained by these methods go through their elementary course at least half a year quicker. I therefore plead that a more serious attempt be made to universalise Montessori, and Kindergarten, to start the foundation of child education aright. It is the right of the child to be "taught through his finger tips." My suggestions on this point are that Montessori is really a pre-

school course. In all muinicipalities we need childrens' homes in every city quarter. We need a Montessori set for each neighbourhood of about 500 people. Our municipalities should appoint travelling Kindergarten lady teachers, to hold demonstration lessons in different neighbourhoods, in the home of the most cultured lady, and train her up for this sort of volunteer effort two hours a day. A beginning may be made by having the travelling lady teacher spend a month at a time in each neighbourhood and plan for suitable volunteer effort along with her demonstrations. The girls in our girl schools taking up the domestic course should have Montessori as one of the subjects, so that they may be able to impart sense training to children in later life. Sets of apparatus may be lent out by the municipality to such trained girls. It is when the mother takes up the teaching function that we shall have the educational foundations well and truly laid.

Rotation or Rhythm.

The second principle of education that needs to be widely used is the principle of rotation or rhythm. The great psychologist William James suggested that there should be half-time school and half-time workshops if we want to give an

efficient education. The day is gone when people pinned their faith on an education merely of the talking tongue and the listening ear. The cry is for an education of the seeing eye and the helping hand as well. Muscular movement will build the mind as much as mind concentration will build up the muscle. The education through sensory impression needs to be balanced by an education through motor expression, so that we may produce our best and utmost by alternating mental with manul work. Perhaps the best example in this direction is the Gary system of eduction. In the Gary system we have an alternation of work, play and study. This gives a longer school day with better work and less fatigue. With four school rooms one can manage eight classes for the rest are in the workshop, or on the play ground, or in the auditorium. Mr. Wirt the talented school superintendent of Gary saw no reason why all the school equipment should not be used all the time. He therefore devised to use the playground, and the school room and the drawing room, and the auditorium all the time in happy alternation, so that work and play afforded relief from study, and sent the student more keenly to his study at the study hour. He made the school a centre of social attractions, so that it was utilis-

ed in the evenings and if possible at night as well. The principles of rotation and full time use of material and human equipment are of great use in increasing our efficiency.

VOCATIONAL TRAINING.

Next to that we may consider the principle of vocational training or the social service idea in education. Education should fit a man for some definite work required by his social surroundings. Nature gives us capacity which may be definitely trained for different purposes Any one almost can be trained for half a dozen occupations. For which one particularly he should be trained should be determined with reference to the social needs of the time, so that we may not have too many lawyers, nor too many doctors nor too few business managers. Right education should not wean a man from his legitimate work but render him fitter to discharge the work he may probably have to do. The educated man is now often a drag upon society, instead of a help. Education should therefore have a vocational as well as a cultural aim. The common operations in kindred occupations have to be analysed and taught so that a student may be able to do one of half a dozen different things. It is highly necessary to intro-

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OUTER ADJUSTMENTS.

A. Relativity or Adaptation	*B.* Rotation or Rhythm	*C.* Vocation or Social Service
To Place, *e. g.* Ruskin's Rural, Urban, and Coastal Schools. To Person, *e. g.* James's Transitoriness of Instincts, Hall's Education Periods. Montessori's Sensory and Motor Training. To Social Needs, *e.g.* Manual Training in Operations common to local Occupations.	Alternation of Work and Rest periods as advocated by Efficiency Engineers. Gary system of Study, Work, and Play in rotation. James's half time Study and half time Workshop programme.	Establish equation between Individual aptitude and Social need. Link Learning to Life. Distribute Talent according to Social Requirements. Condon organised Apprenticeship in connection with existing Works in the Community. In Cincinnati Students alternate between University and Shop, week by week.

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INNER ADJUSTMENTS.

D. OBSERVATION AND COMMUNION	*E.* FREEDOM AND CREATIVENESS	*F.* FELLOWSHIP AND CO-OPERATION
Bergson's first-hand, direct, continued contact, with Nature and with Man, and with Divinity.	Montessori. Freedom for the Child. Let the Child Lead.	Help in each other's creation. Participation in common projects
Pestallozi's Observation and Intuition being the basis of all Education.	Dalton Laboratory Plan. Each one free to follow his own organic time.	Team work, organised games.
	Bergson's helping the Child to create according to his inner urge.	The Indian doctrine of *Satsang*. Character is caught, not taught.
	Sanyasi method of meditation in Solitude, Silence, and Subdued Light.	Penn High School has a Social Workers' Club, which sends out twenty to fifty girls a week to Hospitals
	Wanted not repressionists nor impressionists but expressionists.	Los Angeles Boys constructing their own School Buildings.
		New York Municipal University uses all its Factories, Water-works and all other Establishments for training Students.

duce manual training both for mental clarity, rotation, and vocational fitness. In Pittsburg, and Cleveland something of that sort has already been done and the Russel Sage Foundation Report on Educational Surveys conducted there would be of great service. A wider use should be made of the principle of apprenticeship. All the existing shops and work-shops, whether municipal or private, are possible educational institutions, and advantage should be taken of as many of them as possible. Existing industrial works are utilised in American cities for training students for local industries. Theory at the school, supplements the work at the shop. Similarly where people already go for hand-work, it will be an educational service to supply competent instructors for theory, for drawing etc. Workshops have thus a possibility of being transformed into technical institutes, when educational awakening has reached a certain stage.

Communion or Observation.

To the French philosopher Bergson we owe three more fruitful principles in education, recognised by great educators of all times but now mentioned by the French philosopher with a new emphasis. The first principle of sound education is that of communion. Communion he defines, as

direct and continuous contact with the phenomena to be studied. It is direct method in all things, not only direct method in language learning, but direct look-lore of nature, direct dealing with man and direct dealing with divinity. A very fruitful principle this, an amplified name for what Pestallozi called, observation and intuition, as being the basis of all sound education. This will lead us to introduce a note of out-door education in our policies. Visits to the sea-side and excursions should be a regular feature of sound education. The pupils should be encouraged to cultivate familiarity with their surroundings to such an extent that they may find tongues in trees, sermons in stones and books in the running brooks. 'Till back to the land becomes possible back to the open air will be found highly helpful. Our hermetically sealed education, out of touch with the great outside is not very useful'. So we must encourage the observational note in our educational endeavours. There should be excursions at least once a week in every school.

Creativeness or Freedom

The second note in the new education is the note of creativeness. All sound education is creative, and not merely communicative But crea-

tiveness requires certain conditions. Creativeness is fostered in freedom. Our schools are fear ridden. The student is in fear of the teacher, the teacher in fear of the inspector and the inspector in fear of the director. We want a note of freedom all along the line. Then only can each create. Montessori started this new note of freedom in education. Let the little child lead the teacher instead of the teacher leading the child. Leave him free to choose his own activity. Free to sit, stand or lounge. The teacher must lead by loving provision of what the child mind requires, and not by imposing his adult standards on child mind. Perhaps the most notable further advance in this line is what is known as the Dalton plan of education. Under the Dalton plan we have no classes by standards but by subjects. Each student pursues and organises his own studies in his own way. Each student is free to progress at his own rate in every subject. He is free to continue, without interruption, his work on any subject in which he is absorbed. "No bells tear him away at the appointed hour, and chain him to another subject or another teacher." He works according to organic time not according to solar time. Here then we are learning the lesson of meditation. For one of the conditions of creation is meditation.

Bergson's contribution is still one step in advance. He wants that there should be rooms provided in every school where the pupil when he has the creative mood may retire. Because all creation is travail, a mental labour which needs certain isolation at the time. Every student is to be encouraged to create according to his inner urge. The value of silence, solitude and subdued light for purposes of mental illumination has been forgotten by the modern world and we need to restore that feature which made the thinkers take to caves to open their inward iris in relaxation. Our temples should be used oftener for creative and meditative purposes.

Co-operation or Fellowship

The final principle of new education which I shall consider is the principle of co-operation, sometimes worded the principle of fellowship, also named the principle of association. A sound system of education would not only induce every one to create according to his inner urge, but utilise to the full the principle that union is strength, and that co-operation multiplies capacity. The ancient principle of Satsang is education through fellowship. Education through association with those who excel in a particular line, as well as

co-workers in the same line, or through division of labour and combination of efforts, is a necessary discipline for social life. So each one should be led to take increasing interest in the creations of his companions, and there should be certain objects of co-operative endeavour, in which team work should display itself, such as staging a drama, dramatising history, literature etc. Co-operative games, choral songs, concerts, dancing together and such other features would be helpful. Thus in the Dalton plan the child is assigned his annual or monthly work, he signs his contract and sets about doing it. He plans to complete it in his own way, discusses out with the teacher how he may do it better, and sees how others do it, and through social co-operation finds the best way of adjusting means to ends. In some of the schools the principle of co-operation is employed so far that the students constitute a self-governing body. They hold their own disciplinary councils, they discuss curriculla and suggest what would better suit their inclination. In fact teaching is a partnership between the child learner and his friendly helper the teacher. The teacher should co-operate with the pupil, and seek the co-operation of the educated men in the neighbourhood for general lectures. The municipal board should co-opt educationalists for council.

The college should interact with the school and for the city organised for education, all should find an appropriate place for their effort. There should be in short an educational association for each city. There should be interborrowing between libraries of different schools, there should be co-operation with the museum, and exhibits may be borrowed or sent round to different schools. And in a thousand ways the principle of co-operation may be employed to improve educational effort.

RECOMMENDATIONS.

What then are my recommendations for increasing educational efficiency of municipalities. My first recommendation is that the goal of educational endeavour be clearly conceived as the effort to *reach all the citizens* with what they require in the matter of education. The municipality should try to enlarge the scope of their educational policy till it includes all men and women in a process of increasing enlightenment. We are now reaching only 6% of the total population and so we have to reach the remaining 94%

The education so concieved should be *adjusted to local needs* and requirements, should be related to the physical, and social surroundings. This means that for cities like Karachi and Bom-

bay, for example, there should be marine type of education developed, besides the commercial type and the industrial. It means the establishment of an aquarium and fishing and shipping school.

Similarly another immediate step seems to be laying the foundation of our educational system on sound sense training, *by universalising Montessori.* For a city like Karachi we need 400 Montessori sets, a set for every neighbourhood of 100 families, at least two travelling lady teachers to teach mothers to train children in each neighbourhood. We need inclusion of this as a subject in the domestic course and as an optional for any girl who wants training in that direction.

Then we need greater efforts in the direction of *industrial education.* A list of local industries and how far they will accept apprentices, and allow an hour's daily teaching among their workers would be a good feeler in that direction. At any rate all the municipal workshops should be places for teaching as well. The workers in the Railway workshops may likewise be aided through evening classes and books in Urdu and Gujerati on technical subjects likely to help them in their work. I consider as an immediate necessity a corres-

pondence course library, for all industries that are prevalent in any city. If the Municipality can do nothing for this subject, let it build an industrial section to the local library, where second hand correspondence courses may be kept for reference by those interested in different industries. The co-operation of the engineering colleges should be sought in this connection.

ADULT EDUCATION.

Then with regard to adult education, the municipality ought to promote this by a regular system of volunteer lectures or discussions in every primary school The lectures and courses may be on personal hygiene, or on other subjects which interest the citizens, for which lecturers of approved educational qualifications are forthcoming The college, highschool, and school resources ought to be freely drawn upon Authors, editors, and sound thinkers should be freely utilised. In fact the volunteer educational resources of the community should be mobilised.

Outdoor education should be encourged. There should be excursions at least once a week in all our schools and colleges. Batches of students should be guided through the gardens and the museum. We should have more of scouting

activities, and open air education by day and night sometimes.

Temples should be more utilised *for meditation* and creative endeavour, and for moral instruction purposes, the best ethical teachings of each religion being put before the adherents, through the effort of the best representatives of each sect. Temples are really adult education institutions, and it should be the duty of citizens to see that they are utilised for that purpose. Of course each community will have to be stimulated to do its best in this direction being helped only by the knowledge of the best actual example that may be discovered.

And finally there should be an *educational association*, of all interested in education, to view the problem comprehensively and keep in touch with latest thought on the point and circulate it among the teachers and those interested. Such an association may list all the books on teaching in different educational institutions, and establish interborrowing rights among them, and invite teachers and professors and municipal workers in education to conferences for solving the educational problem of the city. Papers on education recieved in the different institutions may be

exchanged for mutual profit. We have very few resources and are enormously backward and we must mobilise and utilise all our resources, if we want to do the first duty of a civilised people, namely to socialise education and put it within the reach of every one.

Of course as a last demand I would like that 30% of the revenues be devoted to educational purposes, and that these be spent very economically, that is the cost per pupil be kept reasonably low. Thus the cost per pupil in aided schools is only Rs. 6 to the municipality and therefore such schools should be encouraged, rather than municipal schools which cost Rs. 40 per pupil in a place like Karachi. And even in the case of municipal schools the cost should be brought down say to 25 without ofcourse bringing down the quality. This can be done by finding how other cities in the same region say Shikarpur and Sukkur in Sindh are able to have that low cost, and seeing how far a similar procedure can be adopted.

Much needs to be done, may the public workers have the courage to combine to do it, to discharge this primary duty of a civilised people—socialising education.

Literature on the Subject.

Besides the Compulsory Education Committee's valuable report, and the annual report of the Director of Public Instruction, which should both be very carefully studied by those who want to see where their city or municipality stands in the matter of education, a very good book on the subject of modern advance is that by Dr. Jhon Adams entitled, Modern Developments in Educational Practice, published by the University of London Press. That should be in every municipal library, to start interest in modern improvements in this direction.

Bachman's Suggestions.

The chapter on "Attaining Efficiency in City School System" contributed by Dr. Bachman to Vol XII of the Annals of the American Academy of Political and Social science, p 158-175, contains valuable graphic presentment of school facts and should be studied by all who want to improve city school systems. In the words of Dr. Bachman "The main points in the method of attaining efficiency in a school system may be readily inferred. There is involved, first, the collection of data on the number of children the school should reach, on the number of children the

school is reaching, on the amount of schooling the children are actually receiving, on the quality of instruction given and on the cost; there is involved, second, the interpretation of these facts and their use in fixing upon new administrative plans, in providing new kinds of schools and new courses of instruction, and in devising new methods of teaching, and, third, there is involved the measurement of the results attained through the new plans, the new schools, the new courses, and the new methods to the end that the data thus derived may be used in judging of their worth and in providing for the further improvement of of their system."

XXIV. THE PUBLIC SAFETY TEST.

In the statement of expenditure of the municipalities in the Bombay Presidency, under the heading Public Safety are included four items, namely fire, lighting, police, and destruction of wild animals. The expenditure under these headings amounts to about ten lakhs in the municipalities excluding the Bombay City and forms about one seventeenth of the total budget or nearly six per cent. In the different divisions the expenditure varies between 4 5% in the Southern division to about 8% in the Northern.

POLICE.

As police functions here are not directly municipal functions, and as the destruction of wild animals, forms only a small part of municipal activities, the two main items to be considered by us are safety against fire, and provision of adequate lighting.

FIRE FIGHTING.

We shall take up safety against fire first, for though the expenditure under that heading is less

than that on lighting, the total loss to the citizens is a heavy item, which municipal and citizen effort should constantly aim at reducing. An easy gauge of municipal efficiency in this direction is the comparative annual per capita loss in different municipalities and in the same municipality from year to year The total absence of comparative statement of per capita loss even for a decade, shows that municipalities have not awakened to the importance of having standards wherewith to measure their performance. Similarly while we find statement of efforts to put out fires that actually occur, there is little mention of preventive effort Prevention is better than relief here as well as elsewhere, and we need awakening in this direction.

The annual per capita losses show, even in the few cases for which the figures are available, that they vary a good deal from municipality to municipality, and therefore show that human mismanagement counts for more than natural calamity in the case of fire losses. Thus, in the few cities for which I have been able to collect figures, I find that the per capita losses through fire, vary from Rs. 3/3 in Bombay city to 3 per head in Karachi, to $1\frac{1}{4}$ per head in Ahmedabad, to $\frac{1}{4}$ per head in Poona,