

LOCAL SELF-GOVERNMENT INSTITUTE
(Bombay Presidency)

TRIENNIAL REPORT

FOR

1938/39/40

AND

AUDITED STATEMENTS OF ACCOUNTS

FOR

1937-38, 1938-39, 1939-40 & 1940-41

I have the pleasure to submit the Triennial Report of the working of the Institute for the period 1938 to 1940 and the audited statements of accounts for the years 1937-38, 1938-39, 1939-40 and 1940-41.

Provincial Council

The last triennial meeting was held in June 1938, when 25 persons were elected to the Provincial Council of the Institute and one person was nominated thereto by the Minister for Local Self-Government who was elected President of the Institute. The names of the persons elected together with the constituency which they represented, and the name of the person nominated are given below :—

1. *President* : L. M. Patil, Esq.,
B.A., LL.B., M.L.A.
2. *Vice-President* : G. D. Vartak, Esq., B.A., M.L.A.
3. *Hon. Secretary* : S. S. Naik, Esq.,
B.A., B.Sc., L.C.E.
4. Balavantray P. Thakore, Esq., Ahmedabad Municipality.
B.A., S.T.C., M.L.A.
5. R.B. Dr. V. V. Mulay, L.M. & S. Sholapur Municipality.
6. T. V. Kirad, Esq. Poona City Municipality.
7. Dr. Tarachand J. Lalvani, M.B.B.S. Karachi Municipality.
8. G. T. Saraiya, Esq., M.Sc., LL.B. Surat Municipality.
9. K. V. Joshi, Esq., B.E.M., R.S.E. } Representatives of Local
10. Dingomal H. Advani, Esq. } Bodies in Sind.
11. Bhailal Sarabhai Patel, Esq., B.A., LL.B. } Representatives of Local
12. Durlabhji P. Desai, Esq., B.A. } Bodies in Gujrat.
13. Chaturbhai N. Patel, Esq., B.A., LL.B. }
14. A. V. Lawate, Esq., B.A., LL.B. } Representatives of Local
15. D. W. Raut, Esq., M.L.A. } Bodies in Konkan.
16. V. N. Khodke, Esq., B.A., LL.B. }



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[B. Pocker Sahib Bahadur]

[1st June 1946]

member in this House or outside it, Sir, any responsible person, who will support black-marketing. But the question is: have you made any effective suggestion for rooting out this evil of black-marketing? I am unable to find one word in the whole of the statement, one constructive suggestion, except the formation of these committees. Have you bestowed any thought on this question since you took up the reins of office? Many of the Hon. Ministers are running about the country, remaining in one place for one hour and going to another place for another hour and so on; but have they bestowed any thought on this subject? Why should they not suggest some constructive method to root out black-marketing? (Interruptions.) I know what I say is distasteful to members of this House. But that cannot prevent me from stating facts. There is no good preventing me from giving expression to my ideas, and they will miserably fail, Sir, if they interrupt me. (An hon. Member: 'What is your suggestion?') I have already said that the existing channels, the trade channels should be employed as far as possible. In extraordinary circumstances, no doubt, the freedom of trade may be interfered with and the freedom of individuals may be interfered with; but at the same time, if there is black-marketing going on, if there is an abuse of the privileges, that has to be prevented at all costs; whether the black-marketeer is a Hindu or a Muslim or a Congressman or a Leaguer or a European—it has to be put down with a very severe hand. But I say it must be prevented through the proper means. While I maintain that the whole thing should be left to the existing trade channels, I know full well that whatever I or my party may say, will be a cry in the wilderness. You will be having your way in any case. But I would submit, if you are going to form committees for this purpose, please exercise the sense of justice which I have credited you with throughout all these decades, so that these committees may include persons of all creeds and views."

Mr. SPEAKER:—"You may continue your speech after lunch."

The Assembly at this stage adjourned for lunch.

(After lunch 2-30 p.m.)

Mr. SPEAKER:—"I wish to inform the House that since many members wanted to take part in the debate, I thought I could have the meeting on Monday also, but many hon. Members have also expressed their desire to go back to their places. So, I would suggest that we sit till 8 o'clock to-night and finish the subject."

* B. POCKER SAHIB BAHADUR:—"Mr. Speaker, Sir, I do not wish to take up much of the time of the House. Though I am not for the constitution of these committees, as I have already mentioned, if these committees are to be constituted, they should be constituted on the basis of representation of the major political parties. There is no good ignoring this fact and if you go

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17. S. S. More, Esq., B.A., LL.B.	} Representatives of Local Bodies in Maharashtra.
18. Sardar Shivrao Bhavandrao Thorat	
19. R. S. Patil, Esq., B.A., LL.B.	
20. M. M. Hansi, Esq.	} Representatives of Local Bodies in Karnatak.
21. R. K. Powar, Esq.	
22. M. B. Hurlikuppi, Esq., B.A., LL.B.	
23. R. V. Parulekar, Esq., M.A., M.Ed., T.D.	} Representatives of Individual Members.
24. Sardar Rao Bahadur Bhimbhai R. Naik	
25. Prof. S. G. Dabholkar, B.A., LL.B.	Representative of Indian States.
26. Khan Saheb G. B. Khan	Minister's Nominee.

Changes

The following changes occurred in the personnel of the Provincial Council during the period under report.

I am sorry to report that Mr. Balvantray P. Thakore, R. B. Dr. V. V. Mulay and Mr. Bhailal Sarabhai Patel who were active members of the Council expired during the triennium. Dr. T. J. Lalwani and Messrs. K. V. Joshi and Dingomal H. Advani ceased to be members of the Council on account of Sind having established an Institute of its own and Local Bodies which they represented having consequently ceased to be the members of our Institute. Messrs. M. M. Hansi and R. K. Powar ceased to be members of their respective Local Bodies and consequently of the Provincial Council.

The Executive Committee

The following members of the Provincial Council served on the Executive Committee for the periods mentioned against their names :—

1. L. M. Patil, Esqr., B.A., LL.B., M.L.A.—President (1938–40).
2. G. D. Vartak, B.A., M.L.A.—Vice-President (1938–40).
3. S. S. Naik, Esqr., B.A., B.Sc., L.C.E.—Hon. Secy. (1938–40).
4. R. V. Parulekar, Esqr., M.A., M.Ed., T.D.—Jt. Hon. Secy. (1938–40).
5. Dr. Tarachand J. Lalvani, M.B.B.S. (1938–39).
6. Balvantray P. Thakore, Esqr., B.A., S.T.C., M.L.A. (1938).
7. S. S. More, Esqr., B.A., LL.B. (1938–40).
8. R. K. Powar, Esqr. (1938).
9. Prof. S. G. Dabholkar, B.A., LL.B. (1938–40).
10. R. S. Patil, Esqr. B.A., LL.B. (1938–40).
11. Khan Saheb G. B. Khan (1938–40).
12. Bhailal Sarabhai Patel, Esqr., B.A., LL.B. (1939).
13. G. T. Saraiya, Esqr., B.Sc., LL.B. (1940).
14. Durlabhji P. Desai, Esqr., B.A., LL.B. (1940).
15. D. W. Raut, Esqr., M.L.A. (1940).

Office-Bearers

The following persons served as Office-Bearers during the period under report :—

President : L. M. Patil, Esqr., B.A., LL.B., M.L.A.

Vice-President : G. D. Vartak, Esqr., B.A., M.L.A.

Hon. Secretary & Treasurer : S. S. Naik, Esqr., B.A., B.Sc., L.C.E.

Hon. Auditor : R. N. Rajadnya, Esqr.

Membership

The membership of the Institute during the year 1937, 38, 39 and 40 was distributed as under :—

	1937	1938	1939	1940
1. Special Municipalities	5	5	5	4
2. Borough Municipalities	16	21	22	20
3. District Municipalities	70	76	82	80
4. District Local Boards	19	23	24	20
5. Taluka Local Boards	49	10	...	...
6. Village Panchayats	19	36	31	115
7. N. A. & Sanitary Committees	10	11	8	8
8. School Boards	...	1	1	1
9. Individuals	22	29	22	20
Total	210	212	195	268

It will be noticed that there has been an increase of about 60 members during the period. The increase is appreciable in view of the fact that out of the 210 members that we had in the year 1937, 49 were Taluka Local Boards and 11 were local bodies in Sind. Abolition of Taluka Local Boards and separation of Sind therefore had the collective effect of reducing our strength by about 40 during the year 1938 and about 60 during 1939. This reduction was however more than set off by the increase in the number of membership in all other groups of local bodies. The increase is particularly noticeable in the case of grampanchayats whose membership has risen from 19 to 115.

It should however be mentioned that the increase in the number of membership has not enabled us to make up fully for the loss in receipt of subscription due to decrease of members on account of the abolition of Taluka Local Boards and separation of Sind. This is so because the annual subscription fixed for a Village Panchayat is Rs. 5 only per annum, whereas Taluka Local Boards paid Rs. 25 per annum and Sind Local Bodies paid in the aggregate about Rs. 1,000 per annum.

An attempt was made by your Provincial Council to bring School Boards on the list of members, and I am pleased to report that at the time of submitting this report 3 school boards have joined the Institute as members in spite of the fact that the Educational Department was not sympathetic enough to recognise expenditure incurred by them for membership subscription for purpose of Government Grant. It is expected that in due course, this obstacle will be overcome and we shall have a steadily increasing number of school boards on the list of our members.

Today the Institute represents the view of practically all the important local bodies in the province in all subjects affecting them. When the school boards take their proper place in the working of the Institute, its opinions on the subject of primary education will be framed after due deliberation with representatives of School Boards who are directly connected with such administration and will therefore command greater respect.*

Relation between the Institute and the Government of Bombay

The Institute is a purely non-official body and has maintained its independence throughout its existence. The Institute and the various

** It is gratifying to state that while going through the proofs, the Office of the Institute has received a letter from the Secretary of the Provincial Board of Primary Education, enclosing a copy of the resolution of the Board which is reproduced hereunder :*

"At present very few School Boards have joined the L. S. G. Institute because the expenditure incurred by them on items such as annual subscription, T.A. to attend meetings, etc., is disallowed even against the P.E. Fund. This Board recommends that in future School Boards should be allowed to join the L. S. G. Institute and expenditure incurred on items such as those mentioned above should be admitted for Government Grant."

"The Board is of opinion that this step will enable the School Boards to join the Institution which will then become a representative institution of Local Authorities and School Boards together and the Board recommends that Government should be pleased to recognise it as a representative agency for consultation whenever Government desire to invite the opinion of Local Authorities and School Boards on matters relating to Primary Education."

It is hoped that Government will be pleased to accept the recommendation of such an august statutory body as the Board of Primary Education.

conferences of local bodies held under its auspices have been always independent and unfettered in the expression of their opinions about Government action. Even during the period, prior to provincial autonomy, all government officers from the lowest rung of the ladder to the Minister for Local Self-Government for the time being, had been sympathetic towards the Institute and offered co-operation. This relation grew friendlier during the ministership of Mr. L. M. Patil, during the period of the functioning of provincial autonomy. His consultations with the Institute were oftener, his sympathy was wider and his desire to appreciate our viewpoint was keener, than ever before. After the resignation of the Congress Ministry, the portfolio of Local Self-Government has been entrusted to Mr. J. A. Madan, C.S.I., C.I.E., I.C.S., Adviser to His Excellency the Governor of Bombay. We are glad to report that he has maintained the traditions of the popular ministers and has shown his sympathetic appreciation of the Institute's work. His relation with the Institute's officials is equally friendly.

The present position however is definitely against the interest of Local Bodies. The need of an elective legislative body and a popular minister, having wide sympathies with local bodies, and a solid faith in the principle of Local Self-Government can never be over-emphasised.

The Institute and other Provinces

The co-operation and assistance rendered by the Institute towards the formation of similar institutions in other provinces has been keenly appreciated by other provinces. The Hon'ble Sir Gulam Hussain, K.C.S.I., M.L.A., who presided over the Conference of Local Bodies in the Punjab, expressed his appreciation of the Institute's work in this behalf. He said :—

"The Bombay Institute has been in close touch with the organisers in other Provinces and has been offering them all possible co-operation and assistance."

"The Bombay Presidency has reason to be proud of the fact that it is the pioneer in the enterprise and that it has shown the way to the rest of India."

"The Bombay Institute has been straining every nerve to increase its efficiency and usefulness. It has established contact with similar organisations outside India. It has also secured the sympathy and co-operation of some administrators of the first rank in England, who have become regular contributors to its *Quarterly Journal*."

"This is the only Journal in the Presidency, which deals exhaustively with the working of Local Self-Government in India and contains articles by well-known students of Local Self-Government."

"It will thus be seen that the Local Self-Government Institute in the Bombay Presidency has been doing very good work and rendering great service to the cause of Local Self-Government in that Presidency."

This co-operation has been requisitioned from various quarters every year and has been gladly offered.

Conferences of Local Bodies

During the triennium, the Institute organised the following Conferences of Local Bodies :—

1. Joint Conference of Local Bodies in East and West Khandesh districts held at Bhusaval on 4th and 5th February 1938, inaugurated by L. M. Patil, Esqr., B.A., LL.B., M.L.A., and presided over by S. S. More, Esqr., B.A., LL.B., President, District Local Board, Poona.
2. Provincial Conference of Local Bodies held at Bombay on the 4th and 5th of June 1938 presided over by L. M. Patil, Esqr., B.A., LL.B., M.L.A.
3. Maharashtra Divisional Conference of Local Bodies held at Ahmednagar on 8th and 9th October 1938 presided over by K. F. Nariman, Esqr., B.A., LL.B., M.L.A.
4. Gujrat Divisional Conference of Local Bodies held at Surat on 11th and 12th May 1940 presided over by Manilal C. Shah, Esqr., B.A., LL.B., President, Ahmedabad Municipality.
5. Karnatak Divisional Conference of Local Bodies held at Dharwar on 15th and 16th June 1940 presided over by S. K. Hosmani, Esqr., B.A., LL.B., M.L.A. (Central).
6. Maharashtra Divisional Conference of Local Bodies held at Nasik on 29th and 30th June 1940 presided over by Mrs. Lilavati K. Munshi, M.L.A.

I have to draw particular attention to the fact that these Conferences have focussed very correctly and reflected faithfully the opinions of local bodies in the province and have not failed to make their impression on Government. To mention only one principal item where they successfully influenced Government, was in the matter of the appointment by Government of the Local

Self-Government Committee, 1939. This Committee was appointed as a direct result of the agitation carried on successively at the Conferences of Local Bodies for the appointment of such a Committee. Three Conferences, one in each Division, were held after the publication of the report of the Local Self-Government Committee to consider their recommendations and the strength of the extraordinary unanimity in the decisions of these three Divisional Conferences held under the auspices of the Institute was tested when a Provincial Conference of the Presidents of Local Bodies which Government convened at Poona confirmed most of the decisions of the Divisional Conferences held by the Institute. There could not be a better index of the crystalising of public opinion on Local Self-Government problems than that indicated at such conferences.

Local Self-Government Committee, 1939

As mentioned above, Conferences of Local Bodies organised by our Institute had been repeating for some years its request to Government to appoint a Committee to examine the constitutional, financial and administrative functions of local bodies and their relation with the Provincial Government and to make recommendations with a view to rehabilitate local bodies and to put them on a sound financial and administrative position.

As a result of this agitation, Government ultimately appointed the Local Self-Government Committee known as the Kale Committee with instructions to examine and report on the affairs of local bodies in the mofussil with a view to improve their efficiency and on a number of other cognate subjects. As the Committee proceeded with its work, a number of important questions were referred to it which considerably widened the scope of inquiry.

It is a matter of great satisfaction for this Institute that two of the members of its Provincial Council, Mr. S. S. More, B.A., LL.B., and myself, were appointed members of the said Committee and your Director, Mr. Barfivala, was appointed a member and Secretary of the said Committee. The office of the Institute rendered from day to day all possible co-operation to the Committee whose office was fortunately located in a room just adjoining to the Institute's office. The Institute's staff has in its turn acquired considerable experience and knowledge about the working of local bodies and have come into closer contact with the Government Departments on the one hand and local bodies and their officers and staff on the other, with the result that the Institute has been enabled to render more effective service to local bodies.

The recommendations of the Committee were favourably reviewed, as stated above, by three Divisional Conferences of Local Bodies organised by the Institute, viz., the Gujarat, the Karnatak and the Maharashtra Conferences and by the Provincial Conference of the Presidents of Local Bodies convened by the Government of Bombay at Poona. The opinions of local bodies, endorsed practically all the recommendations of the Kale Committee. The report was very well received by the press which admired it for the practical character of its recommendations. His Excellency the Governor of Bombay showed his appreciation of the report in the following words:—

“I have read with interest the report prepared by the Kale Committee and have been deeply impressed by the very careful and thorough manner in which the investigation has been pursued. I am equally impressed by the balanced judgment which has been brought to bear on the many and complicated problems which came under review.”

This universal approbation from local bodies and welcome by the press and praise from His Excellency for a balanced judgment created hopes that a large number of the recommendations were bound to be accepted by the Government. Government have now published their decisions on most of the recommendations of the Committee. I will not here anticipate the judgment of the Provincial Conference of Local Bodies which is meeting in Bombay in the beginning of October to review the action of Government on the recommendations of the Committee but from what I know of the opinions of many prominent persons known for their sobriety of judgment and for their deep study and experience that the local bodies have been thoroughly disappointed. Hopes raised by the prompt holding of the Poona Conference by the Government of Bombay to consider the recommendations of the Committee and the remarks of His Excellency made thereat about the thoroughness and the balanced judgment of the Committee and by exceptionally cordial welcome which the report received from all quarters have been shattered. There is a general feeling of despair now prevailing, which is bound to be reflected at the Conference.

Kale Committee Report and the Activities of the Institute

As far as the activities of the Institute are concerned the following references are made in the report of the Local Self-Government Committee, 1939 :

(1) “It is necessary that civic education of rate-payers and prospective Councillors should be taken in hand. This aspect of Local Self-Government has been so far neglected. We, therefore, recommend that this work should be immediately undertaken as a part of the adult education programme and may be carried out with the co-operation of the Local Self-Government Institute.”

(2) “We understand that several local bodies give facilities to the staff for taking training in the classes run by the Local Self-Government Institute for the “L. S. G. D.” Diploma. These facilities take the shape of a contribution to the Institute towards the fees of an employee, travelling allowance to attend the class, leave for study or for examination or an additional increment on passing the examination. It will be in the interest of local bodies to extend these facilities to all their staff, particularly the members who belong to backward and intermediate classes.”

(3) “Secretaries of minor District Municipalities should be at least matriculates, preference being given to those who hold the Local Self-Government Diploma.”

(4) “We feel that co-operation among local bodies will facilitate at least transfers of officers from one body to another. We find that today a large number of superior posts are occupied by persons who have had previous experience in smaller local bodies. We understand that the Employment Bureau of the Local Self-Government Institute has facilitated the transfers of a number of officers, particularly of smaller local bodies.”

(5) “There is a considerable scope for favouritism and corruption in the purchase of municipal requirements. In order that local bodies should obtain the best value for the money they spend for the purchase of stores, it is necessary that proper and *bona fide* inquiries regarding the prices and qualities of the required materials should precede every purchase. Selection of articles is often made by persons who have a very limited knowledge of the different qualities available in the market. Quotations are invited without giving proper specifications regarding quality, size or measurement or maker. Sometimes inquiries are restricted to a few dealers and qualities are selected, not because they are suitable but because other available qualities are not known or worse still, because some favoured merchants are stocking them. Comparisons of quotations so received are not of much use. These quotations merely beguile the auditors or inquisitive members into the belief that tenders were

invited, that the lowest tenders were accepted and that everything was overboard.

"In order to remedy this state of things, we would support the recommendations of the Examiner of Local Funds, who in his oral evidence before the Committee, approved of the practice of inviting tenders through the Local Self-Government Institute in respect of all municipal requirements. We understand that big municipalities like those of Ahmedabad and Poona as well as very small local bodies have found by experience that the services of the Institute in this respect are very valuable. We recommend this practice for the favourable consideration of all local bodies."

(6) "We find that almost all local bodies have been insuring their properties and vehicles against risk from fire and accident through the Local Self-Government Institute. The Institute, we are given to understand, was able to obtain for them the highest percentage of rebate. The rebate system however has ceased with the passing of the new Insurance Act. In this behalf we support the suggestion made by Sardar Vallabhbhai Patel at the Conference of Local Bodies held at Broach that a co-operative insurance scheme for local bodies should be prepared by the Institute and all local bodies should join it. We understand that such a scheme is in operation in England. We recommend the formation of such a scheme by the Local Self-Government Institute."

Training Classes (L. S. G. D.)

Training Classes constitute the most valuable and appreciated activity of the Institute. To quote the words of Mr. L. M. Patil, the ex-Minister for Local Self-Government, "Of the numerous services rendered by the Institute, this single service, viz., the training of officers for Local Self-Government service is of such great importance that the existence of the Institute and the small contribution made by local bodies towards its maintenance would be fully justified."

The Diploma awarded by the Institute to successful candidates has been considered a necessary qualification by practically every efficient local body for initial recruitment of its staff, though there is no statutory requirement to compel a local body to do so. The fact has been generally recognised that the measure of efficiency of the administration of local bodies is in a marked degree proportional to the employment of trained staff. This is proved by the evidence we have of the increasing number of L. S. G. D.s entertained by a larger number of local bodies every year.

The number of advertisements from local bodies for recruitment of their staff, specifying L. S. G. D. as a necessary or additional qualification has been increasing every year. This year was particularly marked by the extraordinary influx of inquiries where services of L. S. G. D.s were requisitioned. Many of our Diploma-holders, now hold important executive posts, including chief officerships of District Local Boards and important Municipal Boroughs.

The future trend is in the direction of making the diploma a compulsory qualification and of compulsory training of a large percentage of the present staff. On the consummation of these desirable reforms, the training Classes are expected to receive a considerable fillip and the efficiency of the working of local bodies will show marked improvement.

Recognition of the Diploma (L. S. G. D.)

The Diploma awarded by our Institute has been recognised by the Government of Bombay (Memorandum No. 5690 of 13-8-30). The following Indian States also have so far been pleased to accord their recognition to the Diploma :—

1. Baroda ; 2. Indore ; 3. Cochin ; 4. Jammu and Kashmir ; 5. Hyderabad (Deccan) ; 6. Gwalior ; 7. Chhota Udaipur ; 8. Bikaner ; 9. Patiala ; 10. Jodhpur ; 11. Navanagar ; 12. Morvi ; 13. Cooch Behar ; 14. Jamkhandi ; 15. Miraj (Jr.) ; 16. Ramdurg ; 17. Cambay ; 18. Jawhar ; 19. Aundh ; 20. Jind ; 21. Jhalawar ; 22. Alwar ; 23. Banswara ; 24. Palanpur ; 25. Junagadh ; 26. Rajkot ; 27. Dharampur ; 28. Banganapalle ; 29. Dungarpur ; 30. Sangli ; 31. Jath ; 32. Bhor ; 33. Rampur ; 34. Baria ; 35. Rajpipla ; 36. Pataudi ; 37. Palitana ; 38. Jambughoda.

Facilities offered by Local Bodies for the Training of their Staff

As previously mentioned, the Local Self-Government Committee recommended that it would be in the interest of local bodies to get their staff trained by the Institute and to extend facilities to their employees to take such training by offering them facilities in the shape of contributions to the Institute towards the tuition fees, payment of travelling allowance to attend the classes, grant of leave for study and for examination and offer of additional increment on passing the examination. The Government of Bombay issued the following circular under G.R.G.D. No. 4086/33, dated the 1st October 1940 :—

"The recommendation relating to the grant of facilities to the staff of local bodies for getting themselves trained at the Local Self-Government Institute, Bombay, contained in paragraph 182 of

the Report of the Local Self-Government Committee, 1939, is one entirely for the local bodies to consider. Government is, however, pleased to direct that the attention of all the District Local Boards and Municipalities should be invited to the recommendation referred to above and they should be advised about the desirability of having their staff trained at the Local Self-Government Institute, by the extension of the necessary facilities."

The Institute has drawn the attention of all local bodies to this recommendation of the Committee and the Government Circular thereon and have circulated the following suggestions for amendment of their rules for recruitment of new staff and the grant of facilities for training their present staff and for due encouragement on passing the examination :—

Suggestions for Amendments to the Rules of Local Bodies.

Re:—*Grant of Study Leave and other facilities to their employees attending the Training Classes of Local Self-Government Institute, Bombay Province.*

(A) NEW RECRUITS :

1. No person who has not passed the L.S.G.D. Examination will be permanently employed on the English-knowing clerical establishment.
2. No person shall be temporarily employed on the English-knowing clerical establishment unless he is eligible for admission to the L.S.G.D. Classes and he shall not be confirmed unless he passes the L.S.G.D. Examination within.....months of his being so appointed.

(B) FEES :

3. In the case of an employee who is deputed to study or undergo the course of the Classes conducted by the Local Self-Government Institute, Bombay Province, a local body may give the required fees to the Institute as donation.

or

4. In the case of an employee who is deputed to study or undergo the course of the Classes conducted by the Local Self-Government Institute, Bombay Province, a local body may give him a loan of the amount as may be prescribed by the Local Self-Government Institute as term fee for students of the Institute, the amount being recovered from the salary of the said employee in small monthly instalments extending over a period of not more than.....months.

(C) LEAVE :

5. (a) Study leave on full pay for the purpose of study for the course of the L.S.G.D. Classes conducted by the Local Self-Government Institute, Bombay Province, at Bombay, Poona and Ahmedabad and such other centre as may be hereafter opened by the said Institute, may be granted to an

employee on the clerical establishment, for the period of the course and for such further period as the Managing/Standing Committee may consider necessary in the case of an employee who fails at the first attempt. Such leave shall be granted though it may not be otherwise due to him and shall count as duty in calculating promotion and pension.

(b) An employee of a local body which has its office within easy reach of the city of Bombay, Poona or Ahmedabad, or any other centre which may be hereafter opened by the Institute, may be permitted to leave office earlier to enable him to attend the classes regularly.

(c) With a view to enable an employee to prepare himself for the L.S.G.D. Examination, study leave on full average pay for 1 month/15 days before the date fixed for the examination may be granted. Such leave will count as duty in calculating service for promotion and pension.

(D) INCREMENTS AND PROMOTION TO FURTHER HIGHER GRADE :

6. An employee substantively holding a permanent post, who passes the Examination for the diploma of the Local Self-Government Institute, Bombay, will be granted one increment in advance on the date of passing the examination, or at his option from the date on which he earns his next increment. If such an employee passes the examination while in the maximum of his grade, he will be given preference, for appointment to a vacancy in the next higher grade over those who are in the same grade with him and have not passed the examination.

It is most gratifying to note that the response given by local bodies in this matter is very encouraging. A number of them have promptly taken up for consideration these suggestions. Several of them have accepted many of the suggestions with or without modifications, and in some cases, Government sanction have been also obtained to the making of rules on the lines suggested by the Institute.

Lecturers

Government of Bombay have permitted their highest officials like the Director of Public Health, Sanitary Engineer to Government, Consulting Surveyor to Government, Director of Public Instruction, Superintending Engineer and other Officers to engage the training classes of the Institute.

The Institute has enlisted the selfless co-operation of quite a good number of first class experts who have agreed to engage L. S. G. D. students in the different Branches of Local Self-Government specialized by them. These experts include some of the best Principals and Professors of Colleges and Chief Officers and Principal Executives of important Local Bodies like the Bombay Corporation, the Municipalities of Ahmedabad, Poona and the District Local Board of Thana, etc.

The names of our honorary lecturers at Bombay, Poona and Ahmedabad are given below :—

BOMBAY CENTRE

1. Prof. V. G. Kale, M.A., Chairman, Local Self-Government Committee, 1939.
2. E. A. Nadirshah, Esq., B.A., B.E. (Bom.), B.Sc. (Edin.), A.M. INST. C.E. (Lond.), A.M.I.E. (Ind.), F.S.I.E. (Lond.), Hydraulic Engineer, Bombay Municipality.
3. R. V. Parulekar, Esq., M.A., M.Ed., T.D. (Lond.), Secretary, Schools Committee, Bombay (Retired).
4. S. S. Naik, Esq., B.A., B.Sc. (Edin.), L.C.E. (Bom.), Hon. Secretary, Local Self-Government Institute.
5. G. S. Gupte, Esq., B.A., L.C.E. Superintendent, City Survey & Land Records.
6. S. S. Pradhan, Esq., B.A., LL.B., Chief Officer, District Local Board, Thana.
7. R. L. Rede, Esq., Retired Chief Officer, Thana Municipality.
8. A. P. Saldhana, Esq., B.A., Chief Store-keeper, Bombay Municipality.
9. G. T. Lalit, G.D.A., Esq., Deputy Accountant, Bombay Municipality.
10. B. L. Patel, Esq., G.D.A., L.S.G.D., Head Clerk, Accounts Department, Bombay Municipality.
11. P. E. Golvala, Esq., M.C.E., A.M.I.C.E., Engineer, Bombay Port Trust.
12. C. D. Barfivala, Esq., M.A., LL.B., Director, Local Self-Government Institute, Bombay.
13. Dr. V. M. Vathe, M.B.B.S., B.Hy., D.P.H., F.C.P.S., Asst. Health Officer, Bombay Municipality.

POONA CENTRE

1. Principal D. R. Gadgil, M.A., M.LITT.
2. Prof. V. G. Kale, M.A., Chairman, Local Self-Government Committee, 1939.
3. Principal P. M. Limaye, M.A., Ferguson College, Poona.
4. P. G. Pundlik, Esq., B.A., S.T.C.D.
5. N. V. Bhonde, Esq., B.A., LL.B., Advocate.
6. Dr. V. L. Deshpande, M.B.B.S., B.Hy., Officer I/c. I. D. Hospital, Poona.
7. G. R. Pendharkar, Esq., B.E., Assistant Engineer, P.W.D. Central Circle.
8. A. S. Deshpande, Esq., B.A., LL.B.
9. B. R. Gholap, Esq., B.A., LL.B., Chief Officer, Dist. Local Board, Poona.
10. Dr. F. Baratto, L.M. & S., D.P.H., D.T.M., Officer I/c. Public Health Laboratory, Poona.
11. Prof. R. S. Deshpande, B.A., B.E., A.M.I.E., Engineering College, Poona.
12. R. N. Gadgil, Esq., B.Com., Assistant Auditor, Poona Municipality.
13. B. M. Gupte, Esq., M.A., LL.B.
14. S. E. Wadia, Esq., B.E., Assistant Engineer, Poona Water Works, District Poona.
15. M. R. Dholakia, Esq., B.E., Special Land Acquisition Officer, Poona.
16. S. S. Naik, Esq., B.A., B.Sc. (Edin.), L.C.E. (B'by.), Hon. Secretary, Local Self-Government Institute.
17. C. D. Barfivala, Esq., M.A., LL.B., Director, Local Self-Government Institute.
18. Prof. S. V. Kogekar, B.A., B.Sc. (Lond.)
19. R. M. Parikh, Esq., B.E., A.M.T.I.
20. Dr. M. N. Natu, B.Sc., M.B.B.S.

AHMEDABAD CENTRE

1. Ishwarlal Ranchhodlal Bhagat, Esq., B.A., LL.B., Chief Officer, Ahmedabad Municipality, Hon. Organiser, Ahmedabad Training Classes.
2. Shankarlal Pranchand Shah, Esq., B.A., Personal Assistant to the Chief Officer, Ahmedabad Municipality.
3. Motilal Jadavray Mehta, Esq., Secretary, District Local Board, Ahmedabad.
4. Mukundray K. Adhyaru, Esq., B.A. (Hons.), L.S.G.D., Secretary, Ahmedabad Municipality.
5. Dr. Kanaiyalal C. Parani, B.Sc. (Lipzig), School Board Supervisor, Ahmedabad Municipality.

6. Chandulal Bhagubhai Dalal, Esq., B.Com., D.P.A. (Lond.), Municipal Auditor, Ahmedabad Municipality.
7. Dr. A. M. Seervai, M.B.B.S., D.P.H. (Lond.), Health Officer, Ahmedabad Municipality.
8. Dr. R. H. Mazmudar, M.B.B.S., D.P.H. (Lond.), Dy. Health Officer, Ahmedabad Municipality.
9. Dr. Ishwarlal R. Pathak, L.C.P.S., L.P.H. (Lucknow), Medical Officer, A. G. Hawa Municipal Dispensary, Ahmedabad.
10. Bhailalbhai D. Patel, Esq., B.E., B.S.E., Municipal Engineer, Ahmedabad.
11. Chhotabhai R. Desai, Esq., B.E., B.S.E., Senior Assistant Engineer, Ahmedabad Municipality.
12. Hiralal M. Patel, B.Sc., B.E., Assistant Engineer, Ahmedabad Municipality.
13. Girishchandra S. Desai, Esq., B.E., L.S.G.D., Sp. Relief Road Officer & Mill Valuation Officer, Ahmedabad Municipality.
14. P. J. Patel, Esq., B.E., L.S.G.D., Building Supervisor, Ahmedabad Municipality.
15. S. S. Naik, Esq., B.A., B.Sc., L.C.E., Hon. Secretary, Local Self-Government Institute.
16. C. D. Barfivala, Esq., M.A., LL.B., Director, Local Self-Government Institute.

Practical Post-Diploma Training

It was considered desirable that L. S. G. D's should undergo further practical training by serving for some time in local bodies. Several local bodies were therefore requested to afford facilities for giving six months' practical training free of cost to those diploma-holders of the Institute who desire to avail themselves of the same. The following local bodies have agreed to the proposal :

DISTRICT LOCAL BOARDS

1. Kaira ; 2. Bombay Suburban District ; 3. Dharwar ; 4. Kanara ; 5. Nasik ; 6. Panch Mahals ; 7. Thana ; 8. Ratnagiri ; 9. Surat ; 10. Satara ; 11. Kolaba ; 12. Poona ; 13. Bijapur ; 14. Sholapur ; 15. Ahmednagar.

BOROUGH MUNICIPALITIES

1. Kurla ; 2. Jalgaon ; 3. Nasik ; 4. Hubli ; 5. Gadag-Betgeri ; 6. Dharwar ; 7. Bandra ; 8. Ahmednagar ; 9. Belgaum ; 10. Bijapur ; 11. Lonavla ; 12. Dhulia ; 13. Broach ; 14. Poona Suburban ; 15. Nadiad ; 16. Thana ; 17. Chalisgaon ; 18. Bhusaval.

DISTRICT MUNICIPALITIES

1. Umreth ; 2. Borsad ; 3. Mehmabad ; 4. Dohad ; 5. Juhu ; 6. Kaira ; 7. Jambusar ; 8. Kapadvanj ; 9. Yawal ; 10. Shirpur ; 11. Dhond ; 12. Ghatkopar-Kirol ; 13. Parola ; 14. Junnar ; 15. Bulsar ; 16. Ashta ; 17. Indapur ; 18. Erandol ; 19. Viramgam ; 20. Prantij ; 21. Karmala ; 22. Wai ; 23. Haveri ; 24. Jejuri ; 25. Chopda ; 26. Yeola ; 27. Gokak ; 28. Sinnar ; 29. Ranebennur ; 30. Bail-Hongal ; 31. Manmad ; 32. Sirsi ; 33. Vile-Parle ; 34. Satara Suburban ; 35. Alibag ; 36. Bassein ; 37. Mahad ; 38. Bhiwandi ; 39. Sirur ; 40. Nipani ; 41. Bagalkot ; 42. Karad ; 43. Barsi ; 44. Matheran ; 45. Byadgi ; 46. Rander.

Our Diploma-holders and our Employment Bureau

You will be pleased to note that the problem of unemployment is not so acute with our Diploma-holders. Most of them have secured service with local bodies. Some have taken up service outside. Some who were already in the service when they received training are in superior positions. Many of them are Secretaries and Chief Officers of important local bodies. Some practising engineers, lawyers and other professional persons find it useful to get this knowledge as it improves their scope of influence in private practice.

The Institute has compiled a voluminous Register of all Diploma-holders containing particulars regarding their qualifications, experience, employment and salary of those who are in service, and their confidential statements as to whether they desire any change and if so the salary they expect. Particulars regarding those who are not in service are also noted therein. This Register has been found very useful in making recommendations to local bodies, many of whom are now asking the Institute to find suitable incumbents for various posts. You will be pleased to learn that several Diploma-holders have found employment through the agency of the Institute. Local Bodies are also saved the trouble and expense of advertisement and of the more troublesome and very often fruitless task of looking over hundreds of applications in search of a proper candidate.

Training Class Results

The following figures will show the progress made by the training classes during the last eight years :—

1933-34	..	..	..	43	passed.
1934-35	..	..	..	65	„
1935-36	..	..	..	80	„
1936-37	..	..	..	89	„
1937-38	..	..	..	83	„
1938-39	..	..	..	79	„
1939-40	..	..	..	103	„
1940-41	..	..	..	105	„

It must however be added that during the year 1941-42 we shall witness a set-back in this progressive improvement in the number of our successful students. The reason is that owing to the communal riots at two of our centres, Ahmedabad and Bombay, a number of students refrained from joining these centres. Several of them who were coming from distant places had to be advised by the Institute not to join the

classes during these troublous times. Classes had to be kept closed for quite a number of days on account of these riots at these two centres and also on account of recent floods at Ahmedabad.

Our Journals

THE ENGLISH QUARTERLY : Our English Journal continues to be published as a quarterly under the editorship of Mr. Barfivala, your Director. You know that with enormous trouble and competent discriminatory editorship, only first class matter is published in the Quarterly. The Journal is now enjoying a first class reputation in India and all over the world as an authoritative publication.

VERNACULAR JOURNALS : Up to the year 1940, we were publishing the Marathi, Gujarati and the Kanarese Journals as Quarterlies. Last year, however, it was decided to publish all these vernacular journals as monthlies and to distribute one of the vernacular journals free of cost along with the English Quarterly to all the municipalities and District Boards and one vernacular Journal to Gram Panchayats. This change has enabled the Institute to cater more effectively to the need of the Panchayats and of the large class of members and employees of local bodies to whom vernacular journals furnish instructive reading material. These journals being monthlies, we are enabled to detail a greater mass of fresh information to our readers.

I am editing the Marathi Journal, Mr. Barfivala, your Director, and Mr. Durlabhji P. Desai, President, District Local Board, Surat, are editing the Gujarati Journal and Mr. R. V. Jathar, who has now joined the staff of the Institute continues to edit the Kanarese Journal. This extension of service to local bodies has entailed an appreciable increase in the amount of work of the office of the Institute and in the cost of publication. It is however gratifying to find that the service has been greatly appreciated by our members. It is requested that all local bodies should take the trouble to send us material for publication which may be of general interest so that the journals may acquire a still greater educative value.

Directory of Local Self-Government in India

During the year 1939-40, the stupendous task of preparing the Directory was commenced with the help of a special staff sanctioned by the Provincial Council of the Institute. All the publications of the different departments of the Government of Bombay were, in the first instance, minutely searched for extracting information directly affecting the domain of Local Self-Government as well as factors which ought to

be taken into account if a fair comparison were to be made of the administrative results of localities with definite and fundamental differences in conditions. The next step was to collect the administrative reports and statements which local bodies are expected to submit to Government every year. To obtain these reports and statements and to shift the required information from them was a task of enormous difficulty. There were several important lacunae almost in all the reports. It was, therefore, found necessary to prepare and circulate a detailed questionnaire on all possible heads of information and to request local bodies in the Province to answer them. The answers, were, however, extremely slow in coming and lacking in several important particulars. A voluminous correspondence with them failed to elicit all required details. It was, therefore, found necessary to send out three trained members of the Institute's staff to collect information directly from the offices of local bodies in the Province. This mass of information was codified in the Institute's office in the narrative account of each local body and minutely classified in seventy statistical tables, each prepared from a different standpoint. An attempt was then made to enliven the narrative and the tables by interspersing maps of all the Districts. These maps were specially prepared by District Board Offices at the request of the Institute. Photographs of Presidents and Chief Officers were subsequently added to create a more personal interest in the work.

To enhance the value of the information given in the Directory on several important items of information, including those of all India interest have been incorporated therein.

The publication of this Directory is perhaps the greatest event in the life of this Institute. It has received the highest praise from all quarters. An extract of the opinions received up to the time of writing this report is published in a leaflet of which a copy is annexed herewith for the information of the members of the Institute.

On behalf of the Institute, I take the liberty of adding a word of tribute to the chorus of praises which Mr. Barfivala, our Director, has received for editing this monumental work with such extraordinary scholarship. Of the labour and care bestowed by him thereon, no one can bear a better testimony than myself. I have no doubt every member of the Institute will join me in thanking him for this masterly encyclopædia of local bodies.

The Institute's other publications are increasing in number and improving considerably in the quality and usefulness of the material

published. The following books have so far been published by the Institute. Some of them have undergone second or third editions.

LIST OF BOOKS

1. Lectures on Local Government in different Countries
By Montague Harris
2. Development of Local Boards in Madras Presidency
By M. Venkatarangaiya, M.A.
3. Cases on Local Self-Government Acts
By C. D. Barfivala, M.A., LL.B.
4. Handbook on the Law of Land Acquisition
By C. D. Barfivala, M.A., LL.B.
5. Mass Education
By R. V. Parulekar, M.A., M.Ed., T.D.
6. Sarvatrik Prathamik Shikshan
By R. V. Parulekar, M.A., M.Ed., T.D.
7. Village Panchayat Act and Rules
By C. D. Barfivala, M.A., LL.B.
8. Village Panchayat Act and Rules (Gujerathi)
By C. D. Barfivala, M.A., LL.B.
9. Village Panchayat Act and Rules (Marathi)
By C. D. Barfivala, M.A., LL.B.
10. Notes on Drainage
By E. A. Nadirshah, B.A., B.E. (Bom.), B.Sc. (Edin.), A.M. Inst. C.E., (Lond.) A.M.I.E. (Ind.), F.S.I.E.
11. Notes on Drainage
By S. E. Wadia, B.E. etc.
12. Notes on Town Planning
By G. B. Soparkar, B.A., L.C.E., F.S.I. (Lond.), A.M.T.P.I.
13. Notes on Land Acquisition
By G. B. Soparkar, B.A., L.C.E., F.S.I. (Lond.), A.M.T.P.I.
14. Notes on City Survey
By G. B. Soparkar, B.A., L.C.E., F.S.I. (Lond.), A.M.T.P.I.
15. Notes on Roads
By S. S. Naik, B.A., B.Sc. (Edin.), L.C.E.
16. Notes on Street Lighting
By S. S. Naik, B.A., B.Sc. (Edin.), L.C.E.
17. Notes on Building Bye-laws
By S. S. Naik, B.A., B.Sc. (Edin.), L.C.E.
18. Notes on Water Supply
By S. S. Naik, B.A., B.Sc. (Edin.), L.C.E.
19. Notes on Accounts
By P. L. Fatel, G.D.A., L.S.G.D.
20. Notes on Primary Education Act and Rules made Thereunder
By P. K. Desai, B.A., S.T.C.

21. Notes on Principles of Town Planning and Rating
By T. V. Talim, B.A.
22. Notes on Finance
By C. B. Dalal, B.Com.
23. Local Authorities Loans Act and Rules Thereunder (text)
By C. D. Barfivala, M.A., LL.B.
24. A Lecture on Accounts
By D. S. Nagarkatti.
25. Growth of Local Self-Government in the Province of Bombay
By R. G. Shah, B.Com., L.S.G.D.
26. Directory of Local Self-Government in India with special reference to the Bombay Province.
27. Village Self-Government in Bengal
By Naresh Chandra Roy.

Purchase of Stores required by Local Bodies

It has been mentioned above that the Local Self-Government Committee, 1939, recommended the practice whereby Local Bodies invite tenders through the Local Self-Government Institute in respect of all municipal requirements. This recommendation of the Committee was based on the oral evidence given by the Examiner of Local Funds before the said Committee wherein he recommended that such a practice should be universally followed. I have great pleasure in reporting that the practice is now being adopted by an increasing number of local bodies every year. It has been realised that by following the practice the scope of favouritism and corruption is eliminated, that the right type of material is obtained from the most reliable dealers at the most competitive price and that the enquiry is broadcast to a very large number of merchants—in short, local bodies obtain the best value for the money they spend.

The *modus operandi* regarding this service which was initiated in 1935 is as under :—

- (1) Whenever local bodies desire to purchase any of their requirements they are requested to send a few copies of the list of articles required to this Institute's Bombay Office.
- (2) The Institute collects quotations from several reputed firms and sends them to local bodies for their consideration, comparison and selection.
- (3) Local Bodies place their orders either through the Institute or directly as they like.

- (4) Payments for the orders executed are made either through the Institute or directly. In the former case, the Institute obtains due receipts from the merchants concerned.
- (5) In case tenders are invited by public advertisements local bodies often mention in their advertisements that copies of tenders will be available also from the Local Self-Government Institute, 11, Elphinstone Circle, Fort, Bombay. The Institute sells copies of tenders at the rates specified and sends the amount to the Local Bodies concerned.
- (6) If, after the goods are purchased, there is any complaint regarding quality, quantity or price and if the local bodies desire that we should approach the merchants, the Institute tries to protect the interests of local bodies.
- (7) It is made absolutely clear to merchants and local bodies that the Institute has NO FINANCIAL INTEREST whatever in the matter. It only aims at serving local bodies.

I should like to add that the biggest of local bodies like Ahmedabad, Poona and Sholapur municipalities as well as small Village Panchayats have all found this service of value and have availed themselves of the same whenever they had occasions to do so. The work connected with the supply of municipal requirements takes up a good deal of the time of the Institute's staff. The service is however found by the local bodies, by the Examiner of Local Funds and by the Local Self-Government Committee of 1939 to be of great value to local bodies and conducive to healthier, more efficient and economic administration of local bodies. The Institute can therefore legitimately claim to be of substantial service to local bodies in this particular matter.

I wish to point out in this behalf that pursuant to the policy laid down by the Conferences of Local Bodies, the Institute has been striving its utmost to push the sale of Swadeshi articles whenever purchases are sought to be effected by Local Bodies after preliminary inquiries are made through the Institute.

Information and Advice

Quite a large number of local bodies have been taking advantage of the Institute's office for obtaining information and advice on a variety of legal, administrative and technical matters. On account of the vastness of the information available with the Institute, and with the long experience gained about the working of local bodies of all types and thanks to the co-operation of municipal experts of the type of Mr. I. R. Bhagat, Chief Officer of the Ahmedabad Municipality, and of persons

experienced in the administration of Local Bodies, like Mr. S. S. Pradhan, Chief Officer of the Thana District Local Board, and Mr. J. M. Thakore, Chief Officer of the Broach District Local Board, the Institute has become a great clearing centre where all local bodies may with advantage turn for information on all Local Self-Government subjects.

This service is particularly valuable to smaller bodies, whose officers cannot be generally expected to have very wide experience.

The members of the Institute will be pleased to learn further that the value of this service has been greatly appreciated by research scholars and writers. Several students preparing their theses for University post-graduate examinations have been regularly consulting the Institute for materials for their study. Some professors writing books which include chapters or references on Local Self-Government subjects have been pleased to use our library and obtain oral information by a visit to our Institute.

Institute's Book Depot

The Institute has developed its activities in the direction of advising local bodies regarding the literature available on a variety of subjects and procuring for them books on those subjects at practically cost price. The Institute has formed business relations with several important publishers with a view to obtaining books on trade terms. A good portion of the commission so earned is returned to the Institute's constituents because the object of the Institute is not profit but service to local bodies and spread of education.

At the request of several Local Bodies the Institute published during the triennium a booklet containing a *Classified List of Books useful to Local Bodies* on different phases of their work with names of the authors and their prices.

The list is a modest bibliography of books on subjects in which local bodies in India are interested. It is trusted that in course of time a greater interest will be evinced in the study of available literature on Local Self-Government subjects particularly by the officials and the members of Local Bodies.

Finances of the Institute and Audited Statements of Accounts

The Statements of Accounts of the Institute for the year 1937-38, 1938-39 and 1939-40, audited by Government auditors and for the year 1940-41 audited by our Honorary Auditor are annexed to this Report. These will furnish an adequate idea of the financial position of the Institute. The financial position will be seen from the following figures from 1933-34 to 1940-41 :—

Year	Receipts (incl. Opening Balance)			Payments			Closing Balance		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
1933-34	29,672	10	0	17,474	6	10	12,198	3	2
1934-35	34,379	10	2	18,192	9	3	16,187	0	11
1935-36	39,253	13	2	20,681	3	7	18,572	9	7
1936-37	39,476	15	1	19,102	3	11	20,374	11	2
1937-38	44,184	2	8	21,078	5	11	23,105	12	9*
1938-39	51,058	14	3	20,435	1	2	30,623	13	1†
1939-40	60,804	14	4	24,797	12	4	36,007	2	0‡
1940-41	61,977	4	8	27,486	1	4	34,491	3	4‡

* This balance is inclusive of Government Securities to the face value of Rs. 10,000 purchased for Rs. 9,784-6-0.

† This balance is inclusive of Government Securities to the face value of Rs. 10,500 purchased for Rs. 10,279-0-6.

‡ This balance is inclusive of Government Securities to the face value of Rs. 16,500 purchased for Rs. 15,634-0-6.

It will be noticed that your Provincial Council has been building a sound financial position not with a view to accumulate funds but in order to meet deficit in revenue from sources which are not always constant and to provide funds for undertaking costly periodical works like the Directory of Local Self-Government recently published by the Institute. It will be seen that this foresight in the management has stood the Institute in good stead during the last year when our income decreased owing to reduction in receipts from membership subscription due to abolition of Taluka Local Boards and separation of Sind as mentioned above, and because of the fall in the number of candidates joining the training classes during the last year. Despite this shortcomings we were enabled to expend a substantial amount on the publication of the Directory, and leave a good closing balance.

Auditor's Remarks

REMARKS OF THE HON. AUDITOR, Mr. R. N. Rajadnya, are reproduced hereinbelow :—

1938-39 :

"I have examined the accounts of the Institute for the year 1938-39.

I am glad to report that despite the enormous growth of the Institute's activities, the accounts department of the Institute's office continues to be exceptionally well maintained.

My audit experience of the Institute's account tallies with the experience of the Government Audit Department whose notes are uniformly favourable."

1939-40 :

"I have audited in details the accounts of the Local Self-Government Institute for the year 1939-40 and am glad to certify that they are kept in the same satisfactory manner as during the last seven years and that they are correct.

"The vouchers, bank balances, pass books, securities and all account books and registers are duly examined, checked and tallied. They present a true state of the finances of the Institute."

1940-41 :

"I have carefully examined the accounts of the Institute for the year 1940-41 and have the honour to certify that they are correct and regularly and very efficiently maintained. I have the greatest pleasure to inform the Provincial Council of the Institute that Mr. S. S. Naik, the Hon. Secretary, and Mr. Chunilal D. Barfivala, the Director, have taken extraordinary care to maintain consistently the highest tradition of the Institute for efficiency in its internal management as they have undoubtedly done to maintain its high reputation throughout India for its services in the cause of Local Self-Government."

GOVERNMENT AUDITOR'S REMARKS for 1937-38, 1938-39, 1939-40 show that the accounts are maintained without any irregularity or fault. No remarks are offered by the Government auditors during all these years except that the accounts were well maintained.

The Staff of the Institute

I owe a duty to the staff of the Institute which has helped to make it what it is. I have been witnessing their strenuous work every day for the last so many years. I am therefore in a position to state without fear of contradiction that the work turned out by such a small but conscientious staff would compare favourably with that of any Government or private office both in quantity and quality.

Mr. Barfivala, the Director

You do not need to be told anything about Mr. Barfivala, your Director. He is the soul of the Institute and the Institute is his life-work.

S. S. NAIK,
Hon. Secretary & Treasurer,
Local Self-Government Institute,
Bombay.

1st September, 1941.

AUDIT NOTE ON THE ACCOUNTS OF THE LOCAL SELF-
GOVERNMENT INSTITUTE, BOMBAY PRESIDENCY, BOMBAY,
FOR THE YEAR 1937-38.

No. L. 2/3A—2113 of 1938-39.

OFFICE OF THE ACCOUNTANT GENERAL :
Bombay, 12 Oct. 1938.

From

THE EXAMINER,
Local Fund Accounts, Bombay.

To

THE SECRETARY TO GOVERNMENT,
General Department, Secretariat, Bombay.

The accounts of the Local Self-Government Institute, Bombay Presidency, Bombay, for the year 1937-38, were audited between the 22nd and 24th August 1938.

2. The accounts were found to have been well maintained and no remarks are called for.

3. A statement of accounts of the Institute for the year 1937-38 prepared in the form approved by Government is appended to this note duly certified correct.

T. N. S. RATNAM,
Assistant Examiner, Local Fund Accounts.

AUDIT NOTE ON THE ACCOUNTS OF THE LOCAL SELF-
GOVERNMENT INSTITUTE, BOMBAY PROVINCE,
BOMBAY, FOR THE YEAR 1938-39

No. L. 2/3A—1704 of 1939-40.

OFFICE OF THE EXAMINER, LOCAL FUND ACCOUNTS :
Bombay, 9th October, 1939.

From

THE EXAMINER,
Local Fund Accounts, Bombay.

To

THE SECRETARY TO GOVERNMENT,
General Department, Bombay.

The accounts of the Local Self-Government Institute, Bombay Province, Bombay, for the year 1938-39, were audited between the 8th and 14th August 1939.

2. The accounts were found to have been well maintained and call for no remarks.

3. A statement of accounts of the Institute for the year 1938-39 prepared in the form approved by Government is appended to this note duly certified as correct.

R. D. BALVALLY,
Examiner.

AUDIT NOTE ON THE ACCOUNTS OF THE LOCAL SELF-
GOVERNMENT INSTITUTE, BOMBAY PROVINCE, BOMBAY
FOR THE YEAR 1939-40.

No. L. 23/A—2593 of 1940-41.

OFFICE OF THE ACCOUNTANT GENERAL,
LOCAL AUDIT DEPARTMENT,
Bombay, 21 Oct. 1940.

From

THE EXAMINER,
Local Fund Accounts, Bombay.

To

THE SECRETARY TO GOVERNMENT,
General Department, Bombay.

The accounts of the Local Self-Government Institute, Bombay Province, Bombay, for the year 1939-40 were audited between the 24th and 26th September 1940.

The accounts were found to have been well maintained and call for no remarks.

A statement of accounts of the Institute for the year 1939-40 prepared in the form approved by Government is appended to this note duly certified as correct.

T. N. S. RATNAM,
Assistant Examiner.

LOCAL SELF-GOVERNMENT INSTITUTE
(BOMBAY PRESIDENCY)

Statement of Accounts for the year 1937-38.

Particulars	Expenditure classified by sub-heads										Miscellaneous
	Receipts	Expenditure	Establishment	Stationery and printing	Postage	Book	Dead stock				
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Opening balances :—											
Head Office	19,741 1 11										
Branches and Training Classes	633 9 3										
Subscriptions	8,371 12 0										
Government grant	3,000 0 0										
Donations	100 0 0										
Public Education	2,405 8 6	3,636 2 9			423 9 3					3,212 9 6	
General Administration		11,773 8 10	7,109 14 7	657 8 0	487 5 9					3,518 12 6	
Library and Equipment		185 8 0									
Conference	157 15 3	537 11 3									
Miscellaneous	1,461 7 0	58 6 0									
Training Classes	6,865 0 0	3,702 1 6	1,368 0 0	473 6 9	181 1 6					1,676 9 3	
Investments	50 0 0	9,834 6 0									
Deposits	613 5 3	847 6 10									
Advances	80 0 0	80 0 0									
Publications	670 15 0	174 0 3									
	44,150 10 2	30,829 3 5									
Closing balances :—											
Head Office		12,848 15 6									
Branches and Training Classes		472 7 3									
	44,150 10 2	44,150 10 2									

Verified and found correct.

T. N. S. RATNAM,
Assistant Examiner, Local Fund Accounts.

LOCAL SELF-GOVERNMENT INSTITUTE (BOMBAY PROVINCE)

Statement of Accounts for the year 1938-39

Particulars	Receipts		Expenditure		Expenditure classified by Sub-heads					Miscellaneous
	Rs.	a. p.	Rs.	a. p.	Establishment	Stationery & Printing	Postage	Dead Stock		
Opening Balance—	Rs. a. p.									
Head Office	12,848 15 6									
Branches ...	472 7 3	13,321 6 9								
Subscriptions ...		8,540 4 0								
Government Grant ...		3,000 0 0								
Public Education ...		3,801 6 0	3,911 2 0				3,460 9 0	450 9 0		
General Administration ...			12,477 2 5		8,842 2 4	923 9 7	467 8 6			2,243 14 0
Library and Equipment ...										
Conferences ...			539 8 3							
Unpaid bills ...		190 9 0*	460 0 9							
Miscellaneous ...		990 11 9								
Training Classes ...		9,672 0 0								
Investments ...										
Deposits ...		735 0 9								
Advances ...		80 0 0								
Publications ...		1,074 0 6								
			179 0 6					179 0 6		
Closing Balance—										
Head office			26,080 13 2							
Branches			14,366 13 10	†						
			977 14 9	†						

*This amount is adjusted against the expenditure heads as follows:—

	Rs.	a. p.	Rs.	a. p.
T. C. Advertisement	...	...	22 8 0	
Publication	...	...	37 3 0	
General Administration, Stationery and Printing	...	...	4 15 0	
Library and Equipment	...	...	45 0 0	
Unpaid Insurance Commission	...	...	80 15 0	
			190 9 0	

† In addition the Institute held the following investments:—

	Rs.
General Fund—	
3½ per cent. Government Securities (face value) ...	10,000
Fixed Deposits ...	5,000
One share of the Poona Central Co-operative Bank (face value) ...	50
Provident Fund—	
3½ per cent. Government Securities (face value) ...	500
	15,550

Verified and found correct.
R. D. BALVALLEY,
Examiner, Local Fund Accounts, Bombay.

LOCAL SELF-GOVERNMENT INSTITUTE (BOMBAY PRESIDENCY)

Statement of Accounts for the year 1939-40

Particulars	Expenditure classified by Sub-heads									
	Receipts		Expenditure		Establishment	Stationery and printing	Postage	Dead Stock	Miscellaneous	
Rs.	a. p.	Rs.	a. p.							
Opening Balance:										
Head Office	15,344	12 7								
Branches										
977-14-0...										
Subscriptions	8,519	4 0								
Government Grant	3,000	0 0								
Public Education	4,287	13 9								
General Administration										
Library and Equipment										
Conferences										
Unpaid Bills	45	11 6*								
Miscellaneous	1,010	8 5								
Training Classes	11,955	0 0								
Investments										
Deposits	685	11 7								
Advances	80	0 0								
Publications	835	2 6								
Directory										

*This amount is adjusted against the expenditure heads as follows:—

	Rs.	a. p.	Rs.	a. p.
Publication	...	...	8 7 6	
General Administration, Stationery & Printing	...	...	37 4 0	
Verified and found correct.			45 11 6	

† In addition the Institute held the following Investments:—

	Rs.
3½% Government Securities (face value) ...	16,000
Fixed Deposit ...	500
One share of Poona Central Co-op. Bank (f. value) ...	50
Provident Fund 3½% Govt. Securities (face value) ...	500
	21,550

Sd/- T. N. S. RATNAM,
Asstt. Examiner, Local Fund Accounts, Bombay.

LOCAL SELF-GOVERNMENT INSTITUTE

(BOMBAY PROVINCE)

Statement of Accounts for the year 1940-41

Particulars	Receipts		Particulars	Expenditure	
	Rs.	a. p.		Rs.	a. p.
Opening Balance	20,373	1 6	Establishment	10,005	5 6
Membership Subscription	...	...	Stationery and Printing	1,094	4 2
Bank Interest	...	...	Rent	1,176	0 0
Government Grant-in-aid	...	...	Telephone	280	0 0
Training Class Fees	...	...	Postage	1,392	10 9
Publication and Notes	...	...	Contingencies—misc. and unforeseen	693	11 9
Journals (subs. and net advt. revenue)	...	...	Travelling and Meetings	368	8 0
Training Class Deposits	...	...	Propaganda Travelling	154	7 0
Poona Central Co-operative Bank	...	...	Conferences	951	3 9
Advance Rent	...	...	Books and Equipment	2,095	12 3
Provident Fund Account:	...	...	Audit Fees, T. A. and Halage Allowance	214	5 0
Employees' Contribution	...	...	Journals and other publications	3,142	13 6
Institute's Contribution	...	...	Training Class Advertisements	497	10 6
Unpaid Bills Account	...	...	Training Class Travelling Allowance	1,346	12 0
Directory Publication	...	...	Directory—Staff, T. A., Printing and Contingency	3,335	8 10
			Poona Central Co-operative Bank	50	0 0
			Advance Rent	80	0 0
			Provident Fund Account:		
			Employees' Contribution	31	3 7
			Institute's Contribution	332	3 9
			Suspense	243	9 0
			Closing Balance	18,857	2 10
				46,343	4 2

XXX

* The Opening Balance of Rs. 20,373-1-6 is exclusive of Government Securities of Rs. 16,500/- and inclusive of Rs. 1,516-9-9 being Provident Fund Account.

† The Closing Balance is exclusive of Government Securities of Rs. 16,500/- and inclusive of Rs. 1,910-4-5 being Provident Fund Account.

Examined and Found Correct.

R. N. RAJADNYA,

Honorary Auditor,

Local Self-Govt. Institute.

16 7 1941

S. S. NAIK,
Honorary Secretary,
Local Self-Govt. Institute.

Literacy of India in Pre-British Days †

By R. V. PARULEKAR, M. A., T. D. (Lond.) M. Ed.,
Secretary, Municipal Schools Committee, Bombay.

1. Introductory

In October 1931, when Mahatma Gandhi was in London in connection with the Round Table Conference on Indian Affairs, in a speech delivered by him at the Royal Institute of International Affairs, Mahatmaji was reported to have observed: "I say, without fear of my figures being challenged successfully, that to-day India is more illiterate than it was fifty or a hundred years ago, and so is Burma, because the British administrators, when they came to India, instead of taking hold of things as they were, began to root them out."*

It was a challenge that could not be ignored and Sir Philip Hartog who, as the chairman of a sub-committee of the Indian Statutory Commission had to report on the condition of education in India, in 1928-29, was naturally persuaded to examine Mahatmaji's statement in the light of the available evidence on the question, which Sir Philip had special opportunities to study. It seems he had an interview with Mahatmaji in England, and there has been some correspondence between them, since. Referring to the interview and the correspondence, says Sir Philip: "I desire to acknowledge the courtesy with which Mr. Gandhi gave me the information at his disposal, both in writing and at a personal interview; and I shall not easily forget the charm and frankness with which he spoke, nor his ready promise, renewed in writing, publicly to retract his statement if I could convince him that it was not justified by the evidence." (Some Aspects of Indian Education, Preface, P. viii).

Sir Philip Hartog took an opportunity to controvert Mahatma Gandhi's statement, on the occasion of the three lectures (Joseph Payne Lectures) delivered by him at the Institute of Education, London (1935-36). Those lectures are now made available to the public, by the Oxford University

† Published with the kind permission of the Editors of the Progress of Education.

* Some Aspects of Indian Education, Past and Present, by Sir Philip Hartog (Published by the Oxford University Press) P. 69.

Press, in a small book, named *Some Aspects of Indian Education, Past and Present*. Besides the three lectures, the book also contains three memoranda the chief purpose of which has been "to remove, if possible, once for all, the imaginary bases for the assertions not infrequently made in India that the British Government systematically destroyed the indigenous system of elementary schools, and with it a literacy which the schools are presumed to have created." (*Some Aspects of Indian Education, Past and Present* Preface P. vii).

THE TIMES OF INDIA, Bombay, reviewed Sir Philip's book in a leader (15th June 1939) under the caption, "An Exploded Myth", giving publicity to the 'controversy' between Mahatma Gandhi and Sir Philip Hartog and pointing out how Sir Philip had successfully destroyed the 'myth' first circulated by John Adam, the Christian missionary employed by Sir William Bentinck, a hundred years ago, to take a survey of the indigenous education in Bengal and Bihar and who has in his Reports stated that there were probably 100,000 schools in Bengal and Bihar. Prof. A. N. Basu in the MODERN REVIEW of August, 1939, has, on the other hand, tried to show that Mahatmaji's statement was not quite beside the mark.

If the talk which Sir Philip had with Mahatma Gandhi in England and the exchange of letters between them, after that, can be labeled a 'controversy' and if Sir Philip's memoranda really present one side of the controversy, it is for Mahatmaji to present the other side. But the controversial aspect apart, the memoranda published by Sir Philip Hartog and the conclusions obtained by him do merit some attention in India where the problem of literacy is one of the foremost national problems and it is certainly worthwhile to find out if in the hundred years of the British rule, the literacy of India has made a perceptible advance, or if it has been almost where it was in Adam's time (1835), or if it has actually gone down as reported in Mahatmaji's speech in London. Because if Mahatmaji's contention be even partially true and the literacy percentage has been nearly the same for a hundred years, a radical reform would be needed in our administration of elementary schools if a decent percentage of literacy in a measurable time be the ideal in view.

There are three distinct statements in the reported speech of Mahatma Gandhi :

- (i) India is more illiterate today than she was a hundred years ago ;
- (ii) India is more illiterate today than she was fifty years ago ;
- (iii) British administrators, when they came to India, instead of taking hold of things as they were, began to root them out.

The purpose of this paper is mainly to examine how far the first statement represents the true picture of the state of education in India a hundred years ago. The published documents relating to the state of indigenous education of the pre-British period are few. The following two which have supplied the material for this paper are both important and authentic, from the very nature of their source :—

- (1) Minutes of the Evidence taken by the Select Committee of the House of Commons on the Affairs of the East India Company, 1832, Volume I (Public). This will be hereafter referred to as "Minutes".
- (2) Adam's Reports on the Vernacular Education in Bengal and Bihar submitted to the Government of India in 1835, 1836 and 1838, reprinted in 1868 by another Christian missionary, Long, with "A Brief View of the Past and Present Condition of Vernacular Education in Bengal". This will be hereafter referred to as "Long".

These two volumes have been also the sources used by Sir Philip Hartog for his memoranda which according to the TIMES OF INDIA have exploded the 'myth' of 100,000 schools in Bengal and Bihar. But statistics and other data must be seen with the correct background and perspective before drawing any definite conclusion from them, and when that is done it will appear that the view expressed by Mahatma Gandhi, that a hundred years of British rule in India has retarded rather than accelerated the progress of literacy in the country, is not quite untenable.

II. Statistics of Literacy: Then and Now

Mahatma Gandhi's speech which raised the issue under discussion, viz. the extent of literacy in India now and a hundred years ago, was delivered in October 1931, when the census figures of 1931 were not available. Obviously, therefore, whatever statistical data regarding literacy that was at the back of Mahatma Gandhi's mind must have been from the census report of 1921, the latest which was then available to the public. The 1931 census report was published in 1933, i.e. two years after Mahatma Gandhi's speech in London. Again, it seems that Mahatma Gandhi has sent to Sir Philip, for his information, transcripts of some articles on the subject published in December 1920, in *YOUNG INDIA*, a weekly with which Mahatma Gandhi was intimately connected*. When those articles were written, even the 1921 census, figures were not available; and it thus seems very probable that the views which Mahatma Gandhi expressed in his speech in 1931 had their origin in what he had read in December 1920 or earlier. The literacy statistics of the 1911 census rather than those of 1921 are, therefore, more pertinent to the enquiry undertaken to prove or disprove Mahatma Gandhi's statement regarding the literacy of India in the present and the pre-British times, based on statistical data. As Sir Philip has admitted in the report of the sub-committee of the Indian Statutory Commission, of which he was the chairman, the transfer of the Education-portfolio to Indian Ministers responsible to public opinion had evoked great enthusiasm and wide strides were taken in the decade 1921-1930, in the

* "The chief authorities relating to the period mentioned in the documents sent to me by or on behalf of Mr. Gandhi are William Adam's *Reports on Vernacular Education in Bengal and Bihar (1835-38)* and Leitner's *History of Education in the Punjab since Annexation and in 1882*...The documents also refer to certain statements in the valuable appendices to Minutes of Evidence given before the Select Committee of the House of Commons on the Affairs of the East India Company, of 1833, relating to Bombay and Madras."

"Mr. Gandhi kindly sent me (also) transcripts of the articles in *Young India* for 8 Dec. and 29 Dec. 1920, entitled, *The Decline of Mass Education in India and How Indigenous Education was Crushed in the Punjab, 1849-1886* by Mr. Daulatram Gupta, M.A.; and Professor K. T. Shah in 1932 wrote to me a long letter on behalf of Mr. Gandhi who was in Yeravda Jail."—*Some Aspects of Indian Education*, Page 71.

field of Primary education, though falling short, in a considerable measure, of the hopes and aspiration of the people of India. If Mahatmaji had before him the figures of 1931 census it is very likely that he would have modified his statement to make it clear what he meant by "today."

Secondly Indians of Mahatma Gandhi's age and experience have a certain amount of direct and indirect knowledge of the state of education in India in the years 1850 to 1860 which, though not put down on record in terms of statistics and figures, has very likely shaped the view of Mahatma Gandhi which he expressed in his speech in 1931. It is possible for Indians of ripe age and experience to visualise the force and volume of certain aspects of a century-old Indian tradition by trying to remember the experiences of their childhood and what they had heard from their elders, an advantage which foreigners cannot possibly possess to the same extent. Sir Philip, probably handicapped by his ignorance of this indirect source of information regarding education in pre-British period has in his attempt to contradict the statement of Mahatma Gandhi, adhered and, from his view-point, rightly adhered to the available statistics. It is, therefore, necessary to eschew for a time, the weight of traditional knowledge, and first discuss the available statistics of those old days and obtain their proper appraisal in the light of authoritative comments and statements which are older than the statistics themselves.

The only published statistics of literacy in India pertaining to the period, nearly a century old, are those in Adam's Report on the Vernacular Education in Bengal and Bihar. Figures regarding educational institutions, pupils and population, of other parts of India, relating to the same period, may be found, but nowhere else than in Adam's Reports are given statistics for literacy of that period. To Adam, therefore, goes the credit of being the first to realise the importance of finding out a numerical measure of the literacy attainments of the people of a part of India and to carry it into effect in his memorable Reports published during the years 1935-38.

Under instructions from Lord William Bentinck, the then Governor-General of India, Adam undertook an educational survey of some parts of Bengal and Bihar. His three Reports will ever remain as matchless documents supplying useful and instructive details about the many and varied aspects of the state of education in India before it was replaced by the British system.

The first Report of Adam was written by him in 1835. It contains a mass of second-hand material with regard to the state of education in most of the Districts of Bengal. His second Report, also written in 1835, confines itself to the state of education as he found it in his survey in the district of Rajshahi and particularly in Nattore, a subdivision of the district. His third Report, submitted in 1838, is the most important Report from every point of view. In that Report he gives statistics of population, adults and children, of educational institutions and of pupils attending 'schools' as well as of those under 'domestic instruction,' *i. e.*, taught privately at home. But the more important part of this Report of Adam is the statistical information about 'instructed' adults as he calls them. The statistics given in this Report of Adam mostly pertain to six well-marked units of population, one city and three *thanas* in Bengal and two *thanas* in Bihar. A *thana* is a sub-division of a district and corresponds to a 'Taluka' in the Province of Bombay. These statistics are not available in a consolidated form as one would wish them to be. They are, therefore, summarised in the three appendices, A, B, C, attached to this paper.

Appendix A—shows the tracts surveyed and the figures of their population under different age-groups.

„ B—gives the figures of 'instructed' adults under six catagories.

„ C—gives the figures of children under instruction both at school and under domestic instruction.

In Indian census reports of 1911 onwards, figures of 'literate' persons include all persons above the age of five who are found to be of the census standard of literacy. While

Adam gives only the figures of 'instructed' (or 'literate') adults who according to him were persons above the age of 14. He excludes children *i. e.*, persons below 14 from the figures of 'instructed' persons given by him, irrespective of their actual literacy attainments.

In order to get over these differences in the nature of figures of the 'instructed' given by Adam and those of the 'literate,' given in the Indian census reports it is proposed, in the first instance, to confine the comparison to the percentage of the 'instructed' adults of Adam and that of the "literate" above the age of 15 in the Indian census reports.

Adam's Report : Figures of Instructed Adults, Bengal Only.

Statistics given by Adam.		1835-36
1.	Total population surveyed, Bengal units only, the first four units in appendix A ...	3,50,082 = 3.5 lakhs.
2.	Total 'instructed' adults (above 14 in age), Bengal units, the first four units in Appendix B ...	18,043 = 0.18 lakhs.
3.	Percentage of the instructed adults to the total population (Bengal units only) ...	$\frac{0.18 \times 100}{3.5} = 5.1$

*Census of India Reports : Figures of Literacy for India
(Excluding Burma)*

	1911	1921	1931
1. Total population (in lakhs) ..	3014	3029	3359
2. Total adult literates above 15 in age (in lakhs) ..	135	158	205
3. Percentage of adult literates to the total population ..	4.5	5.2	6.0

The above two tables show that if a comparison is made between the percentage of 'instructed' adults to the total

population of the Bengal area, in Adam's time, and that of the 'literate' adults in India as revealed in 1911 and 1921, the former figure is greater than that of 1911 and almost the same as that of 1921.†

One may choose another way of comparing the literacy statistics. All the children above 5 years who were under instruction in the Bengal area surveyed by Adam, might be taken as 'literate'; and the total number of literate persons above 5 years and its percentage to the total population may be calculated both for Adam's figures and for those of 1911, 1921 and 1931 census reports.†

		Adam's figures*	Census figures for India (excluding Burma)		
		1835-36	1911	1921	1931
1. Total population (in lakhs)	..	3.5	3014	3029	3359
2. Total number of literates of ages above 5 (in lakhs)	..	0.24	159	190	235
3. Percentage of literates to the total population	..	6.7	5.3	6.3	7

The above statement shows that even if the percentage of all literates to the total population (the usual percentage of literacy) is taken, it was higher in the time when Adam collected his statistics, it being presumed that the Bengal area surveyed by Adam was a fair sample of India as a whole.

The statistics for the two *thanas* in the two districts of Bihar surveyed by Adam are excluded from the above calculation of percentage of literacy, as owing to the character of the places selected by Adam one cannot be certain about the

† See footnote on page 203.

* Bengal units only.

accuracy of the data supplied.* It will, however, be seen that the conclusion is not materially affected even if we were to compare the statistics of literacy of the whole area surveyed by Adam. Figures for such a comparison are available in Appendices A, B and C.

	Adam's figures	Census figures for India (excluding Burma)			
		1835-38	1911	1921	1931
1. Total population (in lakhs)	..	4.97	3014	3029	3359
2. Literate Adults (in lakhs)	..	0.22	135	158	205
3. Percentages of 2 to 1	..	4.4	4.4	5.2	6.0
4. Total literates of age above 5 (in lakhs)	..	0.29	159	190	235
5. Percentage of 4 to 1	..	5.8	5.3	6.3	7

* It will be seen from the Appendices attached to this paper that out of the six units of population surveyed by Adam, four were in Bengal and two in Bihar. As originally conceived, Adam's enquiry was to be confined to the Bengal tracts only. In 1836 he repaired to Calcutta and was detained there by some 'other duty' for about five months, till the end of January 1837. Suddenly he received orders to proceed to Bihar in prosecution of the inquiry into the native education of that Province. He was asked to confine his inquiry to only two districts of Bihar - Gaya district of South Bihar and Tirhoos district of North Bihar. He completed his inquiry of these districts in about five months, from February to June 1837, and returned to Calcutta to write his report (Long, P. 44). Both these districts of Bihar were the most sparsely populated districts which Adam had to survey. The two *Thanas* of Bihar - Jahanabad and Bhawara - contained together 1205 villages as against 738 of the three *Thanas* surveyed by him in the Bengal area. The thought and the care which Adam could bestow on the enquiry of the Bengal units could not possibly be spared by him for these two Bihar units. In his survey of the *Thana* of Bhawara in the South Bihar district which contained as many as 805 villages, it seems, Adam did not get proper assistance from the Magistrate of the district, and in expressing his thanks for assistance, Adam omits to mention the Magistrate of that district. (Long, P. 145).

The above figures reveal that even on mere strength of available statistics India was distinctly better off in point of literacy in Adam's days than in 1911 and almost on a par in 1921. In 1931 the increase in literacy percentage was distinctly perceptible and the comparison is more in favour of 1931.†

The question may be asked here, "Has not Sir Philip used these very figures from Adam's Reports? And if he has, how is it that he arrives at a different conclusion?" The reply to that question is: "No, Sir Philip has not included in his calculations all the figures supplied by Adam." On a reference to Appendix B, it will be noticed that Adam has six categories of "instructed" adults. Sir Philip has omitted to include the sixth category of instructed adults as literates. He appears to think that Adam was not right in regarding as "instructed" those who could "merely decipher or sign their names". Sir Philip is here defining literacy from the modern view-point and that we submit is not a correct method of comparing literacy statistics of two periods with a long interval of 100 years between them.

† An obvious discrepancy has been allowed to creep into the above discussion, because it could not be avoided. Adam has given figures for instructed adults above 14 years while the figures for literates in the census reports are for persons above 15 years. It is not possible to obtain the number of "instructed adults" in Adam's time above 15 years, nor do the census returns supply figures for literates above 14 years. The discrepancy, therefore, could not be avoided; nor was it possible to suggest corrections to make the two sets of figures exactly comparable. The same difficulty appeared in comparing the figures of *all* literates. It is assumed that all children of 5 + who were in Adam's time attending school might be regarded as literates. That is obviously not a correct supposition. But it is difficult to say what particular correction would counteract this error.

But the discrepancies, in our opinion, do not materially affect the conclusion. Moreover, it will be shown hereafter that Adam's figures of school-going children and instructed adults were incomplete and were underestimates. That was particularly so in regard to his figures of pupils under domestic instruction; and these factors more than compensate any effect which the above discrepancies may have on the conclusion.

In trying to compare the statistical data of literacy as found in Adam's Reports with those of modern times, in India, it is necessary to remember that "literacy" cannot have identical connotation in 1840 and 1940. The modern definition of a literate person according to the Indian census standard (adopted in 1911) is: *One who can read and write a letter*. Adam's sixth category consists of adults "*who can merely decipher or sign their names*" and, therefore, Adam's definition of an 'instructed' or, as we would now call him, a 'literate' person is one whose minimum qualification is the ability to merely decipher or sign his name. In comparing the literacy statistics given in Adam's Report with those of the present day, Sir Philip Hartog has not taken into account the figures given by Adam in his sixth category of the 'instructed' adults, because in his opinion a person who is reported to be *able to merely read or write* cannot now be considered as literate.

It seems to us that it is not fair to exclude the figures of Adam's sixth category of instructed adults in comparing the statistics of literacy of his time with those of the present day. It is very significant that at the time of his enquiry (1835-38) Adam thought it desirable and necessary to include this group among the 'instructed' and all along in his Reports he has included this group in ascertaining the literacy attainments of the population surveyed by him. Further, it must be noted that Adam was not quite sure whether the persons counted by him in this sixth group were not also able to read and write. For Adam wrote of this group as 'those who can either sign their names or read imperfectly, or perhaps can do both'. (Lorg, P. 136).

Printed books were not available in large numbers at the time of Adam's enquiry and Adam was justified in taking the whole of the sixth group as 'literate' or 'instructed'. We shall be getting a wrong idea of literacy percentage of Adam's days if we omit that group from our calculation. For it will be seen that we shall then be excluding 25% of Adam's figure. Literacy attainments of a society should be judged from the general requirements of that society from time to time. Persons enumerated by Adam in his sixth group had a definite function to fulfil as 'instructed' or 'literate' persons in the Indian

society of the time. A person in those old times remained under instruction only to the extent which enabled him to acquire what he wanted. And if his wants were confined to mere reading or writing or perhaps both, surely he must be treated, as Adam has treated him, as an 'instructed' person when he had acquired that ability. Adam who grouped the 'instructed' adults into six well-marked categories, would have certainly omitted the last category, had he felt that the persons enumerated in that category had no place in the society of the time as 'instructed' persons. But they were as good products of the educational system of the time as the 'literate' persons of the present day are and to eliminate them from the literacy figures of that time, would be wrong. In comparing century-old social standards with those of the present times, we must make due allowances for the social wants of those times and now. It may be noted that even in modern times a lower standard for 'literacy'—*ability to read and write*—was considered enough till the year 1911; and yet when comparing the figures of 1911 and later years with those of 1881, 1891 and 1901 we do not think of excluding certain groups from among the literates of 1881, 1891 or 1901. Adam's statistics should receive the same treatment.

III. The Value of Adam's Figures

India owes a debt of gratitude to Adam, for collecting general information and statistics of the state of education in those distant days and thus affording an opportunity for later generations to know something definitely about Indian education of pre-British times. His was the first systematic census of literacy in India. In the words of Sir Philip Hartog, "Adam's own reports reveal a man of wide sympathies and knowledge, of practical ability and shrewdness, intellectually honest, and capable of facing unwelcome facts and of envisaging clearly the many-sidedness and the difficulties of the problem he had offered to tackle."* But it must be realised that Adam worked under certain difficulties and limitations and, on that account, the statistical

* Some Aspects of Indian Education—P. 75.

portions of his reports are not as valuable as the descriptive ones. His statistics, particularly those of the instructed adults and of children in schools and under domestic instruction could indicate only the minimum. Adam's figures could not possibly reach the stage of perfection of those of the census returns of recent years, which are carefully collected by Government with the help of an efficient and organised agency and an army of enumerators who go from house to house in every nook and corner of India. The greatest limitation which Adam had to face in his investigations was inadequacy of time. For a general survey of one thana in a district with an average population of over a million souls and a detailed survey of one thana in a district with an average of about 300 villages in the Bengal area (and 600 in the Bihar area) Adam was able to devote on an average only two months. Considering the crude conveyances available in those days, it could be imagined how Adam's figures could not possibly record all that was worth recording in order to describe the real state of things. Some light is thrown on the extent of this defect of the enquiry when we take note of certain statements made by Adam himself in the course of his Reports.

Speaking of the thana of Doulatbazar Adam writes : "The most improved mode of investigation to which I had attained in Rajashahi, in respect both of the agents and forms employed, was applied to this thana; but the result disappointed me; for I found, at the close of the enquiry, that there was not (reported) a single Sanskrit or Arabic school in the Doulatbazar thana, although existence of such institutions in the district was undoubted." (Long, P. 148).

Then again with reference to his personal visit to villages, Adam says : "The sudden appearance of a European in a village often inspired terror which it was always difficult and sometimes impossible to subdue. The most influential or the best informed inhabitant was sometimes absent, and it required much labour to enable others to comprehend the object of my visit." (Long, P. 150).

Referring to the census taken under his supervision, Adam says : ".....the discrepancy in the returns of males and

females between fourteen and five years of age, that is, the much less number of females than of males of that age, seems to prove that concealment was systematically practised." (Long, P. 150).

Writing about the agency employed, Adam observes: "The efficiency of such agency must depend on the efficiency of the supervision to which it is subjected; but although I laboured to render my superintendence vigilant and searching and although I believe that the returns I received are in general worthy of confidence as far as they go, yet I have no security that they are not defective. In traversing a district my agents could not visit all the villages contained, amounting to several thousands. This was physically impossible without protracting enquiry beyond all reasonable limits. They were, therefore, compelled to depend either upon their personal knowledge or upon the information that could be gathered from others as to the places possessing schools, every one of which was invariably visited and examined. But that in no instance a village institution has been overlooked is more than what I can affirm, and in point of fact I have sometimes discovered instances in which such institutions at first escaped attention. I have thought it right to show that this source of error did exist; but I believe that such oversights still remaining undetected are, if any, very few." (Long, P. 150-151).

But the most important observation of Adam throwing powerful searchlight on his survey of indigenous elementary schools is in the following lines: "On other occasions teachers both of common schools and schools of learning, from some misapprehension, have concealed themselves to escape the dreaded inquisition." (Long, P. 151).

Suspicion with which such an enquiry was looked upon by the people was not a peculiarity of Adam's enquiry. It persisted for many more years in no milder intensity. The Hon'ble Sir Syed Ahmed Khan, while giving evidence before the Indian Education Commission of 1882 (The Hunter Commission), said with reference to the reported number of indigenous schools in the sixties of the last century: "I remember that at the time

when inquiries as to the number in indigenous schools were being conducted, a great misconception had arisen in the minds of the people regarding the object of the proceedings. Some of them used to detain their children from going to school, while teachers were invariably in the habit of giving less numbers than what they actually were." (Appendix to the Report of the Indian Education Commission, N. W. Province and Oudh, P. 283).

It has not been possible to collect the statistics about indigenous educational institutions in India with a fair amount of reliability even in later years. They have been, as a rule, highly under-estimated. An excellent example of this is supplied in the Punjab enquiry conducted in connection with the Indian Education Commission of 1882. At first the Educational Department of the Punjab had estimated that the number of indigenous schools and of scholars learning in them, in the Province of the Punjab in 1879, were 4,662 and 53,027 respectively. The figures being challenged by Dr. Leitner, Principal of the Government College, Lahore, who had himself conducted an inquiry in this field, the Lieutenant Governor of the Punjab ordered a fresh enquiry; and as a result of it, it was found that the numbers of the indigenous schools and their pupils were 13,109 and 135,384 respectively.* The new estimate of the number of schools was nearly three times and that of their scholars two and a half times the number at first reported.

The under-estimation was not necessarily due to the carelessness or indifference of those who were charged with the enquiry. It was, to a great extent, due to certain conditions under which schools in those days worked. In fact it was impossible to obtain a correct count of those schools in a hurried inquiry. Often 'schools' were not permanent institutions. They were opened and closed, in most cases, according to the needs of particular localities. Their locations were shifted to suit the convenience of the teachers and pupils. At times, they were kept open for a part of the year only, the master following some other

* Report of the Indian Education Commission of 1882-Note by the President, Sir William Hunter-P. 621.

occupation for the rest of the time for eking out his livelihood. Some schools were kept open during the rainy season and others during the cold season only, when the children had little work to do at home and could spend a few hours per day at school. Such being the conditions under which the indigenous schools of old times worked, only a very patient and careful enquiry with the fullest co-operation of local residents could give results with some semblance of completeness. There is nothing to show that Adam was particularly favoured with such co-operation and therefore his estimates of indigenous schools and their pupils were bound to be under-estimates. The same could also be said of his figures of instructed adults. If even teachers thought it fit to conceal themselves from the dreaded enquiry*, what chance was there to secure a correct count of *all* "instructed adults."

What the extent of this under-estimation was, cannot be ascertained definitely. But it was big enough to make one admit that Mahatma Gandhi stated only the truth when he said that India was more literate a hundred years ago than now (*i.e.* between 1911-1920).

IV. Domestic Instruction, a Source of Literacy

In pre-British days domestic instruction, *i.e.* instruction provided at home, instead of in a school, was a powerful factor in the spread of elementary education and Adam seems to have recognised the important place of it in the educational system of his time. From his figures, however, one is led to think that for every two children learning in 'schools', only one was taught at home or under domestic roof. (Vide Appendix C). It was possible to know at least approximately the correct number of children attending 'school'. But to know even approximately, the number of pupils under instruction at home, either taught by a relative or by a paid private tutor, was an inherently difficult task and it must have been much more so, when, as mentioned by Adam himself, his enquiry was met by the people with suspicion regarding the bona fides of the inquirer. And the question arises:

* Long, P. 151, quoted on page 208.

"What could be the correct ratio of Adam's estimate of children under domestic instruction to the number of those actually under such instruction?"

In the pre-British period and even for some decades in the early British period, elementary education - reading, writing and arithmetic - was mostly imparted to children, under the domestic roof. The schools which are enumerated by Adam and other investigators before or after him, no doubt were there. But an account of the indigenous system of elementary education of those distant times and the extent of literacy among the people, would not only be imperfect but positively misleading, if only the schools and their pupils are taken as the basis of our calculations. Adam did appreciate this fact and did take into consideration also the number of pupils under 'domestic instruction'. And he was perhaps the only investigator of educational statistics of the time who had understood its importance. In other parts of India, similar investigations were undertaken by officers of Government even before Adam took up his enquiry; but they were either ignorant of this extra-mural agency or did not, like Adam, realise its full significance in promoting literacy in India, in those days. It was particularly so in Bombay and Madras. The result of the failure of these investigators to note the number of pupils under domestic instruction has been that those who relied only upon the figures of pupils in schools and tried to draw from them a picture of the extent of indigenous education in India of those days unwittingly obtained a wrong picture.

One may even go further and say that in pre-British days, domestic instruction was the main agency which imparted elementary instruction to the children of the soil. Compared to it school-instruction was of small account. And sufficient confirmation of this is available in the writings of those times.

Adam himself has given in his Reports a glimpse of the strength and volume of domestic instruction in the districts surveyed by him. Writing about the district of Rangpur, from the account given by others before him, Adam observes: "In some of the sub-divisions having no common schools, parents,

to supply the want of them, either employ teachers in their own houses, in whose instruction the children of neighbouring families are allowed to participate, or themselves instruct their own children. The employment of a private tutor and, still more, parental instruction would appear to be very common." (Long, P. 71).

About the district of Dinajpur, Adam writes: "Even these small fees are beyond the reach of the bulk of the people, so that, were not many parents at pains to instruct their own children, very few would be able to read and write." (Long, P. 73).

About the district of Purneah, Adam says: "A large proportion of the children of the district are taught to read and write by their parents." (Long, P. 79).

While surveying the thana of Nattore in Rajshahi district Adam found: "The proportion of those who receive elementary instruction at home to those who receive it in schools is thus as 1000 to 109.9" or nearly 10:1. (Long, P. 109).

Of the same thana of Nattore, Adam further writes: "It thus appears that, in addition to the elementary instruction given in regular schools, there is a sort of traditionary knowledge of written language and accounts preserved in families from father to son and from generation to generation. This domestic instruction is much more in use than scholastic elementary education." (Long, P. 110).

One peculiarity of the indigenous educational system of the pre-British period was that those who aspired to higher learning, the knowledge of Sanskrit language and literature, did not, as a rule, receive their elementary education in the common schools. In fact two systems, elementary and higher, seemed to thrive independently of each other; one providing elementary instruction to those who aimed at higher learning and the other providing elementary instruction to those who did not entertain that aim. The former was mostly provided at home; the latter was provided both at home and in schools. The pupils of the common elementary schools seldom took to higher learning. When they left school they entered into life straight away. Adam writes: "The instruction in Bengali

and Hindi reading and writing, which is necessary at the commencement of a course of Sanskrit study, is seldom acquired in the vernacular schools, but generally under the domestic roof." (Long, P. 196).

Adam further enumerates the following classes of people as giving domestic instruction to their children: Zamin-dars and Talookdars, Shopkeepers and Traders, Gomashtas and Mandals, Pandits and Priests. But of these, Pandits and Priests constituted the largest section. (Long, P. 234).

It would also appear that Kayasthas (the writer class) did not send their children to common schools in such numbers as would be expected from their population in a locality. This was particularly noticed by Adam in the districts of South Bihar and Tirhoot. He found that in the 285 single-teacher schools, in the district of South Bihar there were 278 Kayastha teachers; and yet the number of Kayastha pupils in the schools of that district was only 220. Surely, a community which could give 278 teachers had more than 220 pupils of school-going age and willing to learn. Adam noticed this disparity and observed: "That small number of Kayastha scholars contrasts with the almost exclusive possession by that caste of the business of vernacular teaching." (Long, P. 172). The Kayastha community which largely supplied teachers of the common schools, appeared to favour domestic instruction for their sons, to that in the common schools.

In short, from the information supplied by Adam himself it is evident that almost all castes and communities which valued literacy, if not also higher learning, had an instinctive preference for domestic instruction for their children. It could, therefore, be justifiably inferred that the number of children under domestic instruction must have been many times that in the common schools of the time. Adams' figures indicating that there was one child under domestic instruction to two under school instruction could, on his own admissions elsewhere in his Reports, not be the real state of things. Admissions suggesting wider existence of domestic instruction as compared to school instruction, also in other parts of India, are made in the reports of officials and others who conducted educational surveys some years before Adam, but, unlike

Adam, they failed to realise the full significance of domestic instruction in promoting literacy.

In Madras under the direction of Sir Thomas Munroe, an educational survey was made and reported upon, in or about 1824. The Collector of the Canara district did not supply any figures and in support of his action he wrote: "In Canara, education is conducted so much in private that any statement of the number of private schools and of the scholars attending them, would be of little or no use but, on the contrary, rather fallacious, in forming an estimate of the proportion of the population receiving instruction." (Minutes, P. 415). Although conditions in other districts were probably similar to those in Canara, the ability of the Collector of Canara to correctly interpret the value of statistical data was not shared by the Collectors of other Districts in the Province and they submitted figures of schools, colleges and their pupils as they could get them. (Minutes, P. 414). No figures were supplied of pupils under "domestic instruction" by any but the Collector of the District of Madras, and his figures disclosed that in a population of 462,000, there were 5236 pupils in schools and 26,903 pupils under domestic instruction; *i.e.*, out of every 6 pupils under instruction in the district, 5 were under domestic instruction and 1 under school instruction.*

Had the Collector of Canara like the Collector of the District of Madras supplied figures of pupils receiving instruction both under the domestic roof and in schools, probably a similar set of figures would have been submitted by him. Sir Thomas Munroe was naturally surprised at this finding of the Collector of the District of Madras but, instead of demanding re-checking of the figures, he satisfied himself with the observation that "there is probably some error in this number of pupils under domestic instruction" and that "though the number privately taught in the Province does certainly not approach this rate, it is no doubt considerable, because the practice of boys being taught at home by their parents or private teachers is not unfrequent in any part of the country." (Minutes, P. 506)

* Compare Adam's observation, Long, P. 169, quoted on page 212.

In a statistical report prepared by an officer who was for many years East India Company's Resident at the Court of the Raja of Nagpur, after giving some figures about pupils in schools in some parts of the Rajas' territory, he writes: "Private tuition is gratuitously conveyed to a still greater number of children (than those who go to schools) by the Brahmins, Vidoors or village Pandits." (Minutes, P. 455).

From the above extracts, it will be clear that Adam's estimate of the proportion of children under domestic instruction to those in schools (1:2) was far below the number which could be reasonably expected, if his figures for children in schools be taken as fairly correct. The number of children under domestic instruction were at least equal to, if not many times greater than, that of the children under school instruction.

Had Adam been able to appraise correctly the number of children under domestic instruction in the area surveyed by him, the literacy percentage of his time would have been found to be substantially greater than what is otherwise shown by his figures.

V. Indian Education was declining in Adam's Time

Besides the probable under-estimation of the numbers of children under instruction and of 'instructed' adults, for reasons already discussed, there is yet another aspect to be considered which will show that the literacy figures would have been more than what they were found by Adam, had he undertaken his enquiry two or three decades earlier. Wrote Adam: "At Pundua, a place formerly of some celebrity in the district (Hugly), it is said to have been the practice of the Musalman land-proprietors to entertain teachers at their own private cost, for the benefit of the children of the poor in their neighbourhood, and it was a rare thing to find an opulent farmer or head of a village who had not a teacher in his employment for that purpose. That class, however, is alleged to have dwindled away and scarcely any such schools are now found to exist."* (Long, P. 40).

* Italics are mine—R. V. P.

Referring to the district and town of Dacca, Adam writes : "From these statements, and from the preceding account of the depressed state of the principal manufacture (production of fine cotton fabrics) of the district, it may be inferred that popular instruction is at a very low ebb." (Long, P. 56).

Adam further observes : "Inability to pay for school instruction I believe to be by far the most prevalent reason (of schools being closed), and that is confirmed by the fact that, in at least six villages that I visited I was told that there had been recently Bengali schools which were discontinued, because the masters could not gain a livelihood or because they found something more profitable to do elsewhere. From all I could learn and observe, I am led to infer that in this district (Rajshahi) *elementary instruction is on the decline and has been some time past decaying.*"* (Long, P. 111).

The above extracts from Adam's Reports clearly show that from what he saw and heard Adam felt that at the time of his enquiry education in India was on the decline. The inference could not, therefore, be open to a challenge that the number of literates in India was greater some years before the time of Adam's enquiry (1836) and *ipso facto* before 1921.†

That indigenous education in India was on the decline at the time of Adam's enquiry gains support also from the evidence available in other parts of India. In 1826, it was reported. "In the town of Panipat, there are several ill-supported and thinly attended schools, which appear to have had their origin with some respectable individuals, and to have deteriorated year after year, *since the introduction of the British rule.*"* (Minutes, pp. 445-46).

A. D. Campbell, the Collector of the Bellary District in the Province of Madras, in 1823, writes : "In many villages where formerly there were schools, there are none now, and in many others where there were large schools, now only a few children of the most opulent are taught, others being unable from poverty to attend or to pay what is demanded" (Minutes, P. 503).

* Italics are mine—R. V. P. † See tables on pages 201-203.

Assigning reasons for the inability of the village people to meet the expenses of education of their children Campbell further observes : "I am sorry to state that this is ascribed to the gradual but general impoverishment of the country. The means of manufacturing classes have been of late years greatly diminished by the introduction of our own European manufactures in lieu of Indian cotton fabrics. The removal of many of our troops from our own territories to the distant frontiers of our newly subsidised allies has also of late years, affected the demand for grain. The transfer of the capital of the country from the native Governments and their officers who liberally expended it in India, to Europeans restricted by law from employing it even temporarily in India and daily draining it from the land, has likewise tended to this effect which has not yet been alleviated by a less rigid enforcement of the revenue due to the State. The greater part of the middling and lower classes of the people are now unable to defray expenses incident upon the education of their offspring, while their necessities require assistance of their children as soon as their tender limbs are capable of the smallest labour." (Minutes, P. 503).

Had some enthusiast like Adam collected statistics of the literacy of India at the time when indigenous education was not much affected by the advent of the British rule and consequent economic dislocation, as pointed out by Campbell, there would have been no need of presenting indirect evidence to show that there were more literates in India in 1821 than in 1921, *i.e.* after a century of British rule. Even the returns of schools and the pupils attending them apart from those under domestic instruction, would have sufficed to prove the correctness of Mahatma Gandhi's statement.

VI. Paradox Explained

It has been so far shown that, even from the figures supplied by Adam, one can see that the literacy percentage in India in 1840 was slightly higher than that in 1911 and almost equal to that in 1921. It is further shown that the figures supplied by Adam were, in all probability, incomplete and therefore underestimates. Again, in Adam's time a much larger number than that of those attending schools, received instruction at

home and it was impossible for Adam to obtain a correct estimate of that number. Lastly, it has been pointed out that even in Adam's time indigenous education, deprived as it was of any Government support, was already declining. If all these factors be properly appreciated it is difficult to avoid the conclusion that India has not attained even now the literacy which existed in the first quarter of the nineteenth century. But in spite of all the evidence marshalled in the preceding pages, many persons will be unwilling to accept the conclusion which was voiced by Mahatma Gandhi in his speech in London. How, they will ask, could literacy in India be greater a hundred years ago than now? How could it be greater when education was not organised, when it was imparted by voluntary agencies, than when it is the care of organised Departments of Education. They are unaware that the capacity of the present-day elementary schools to send out literates is very much restricted by the fact that a number of children leave school for good, within a year or two after their admission, and that a number are detained every year in the lower classes owing to their failure to cross the artificial bars of 'standards' now imposed on the system. It is well known that, in India, more than 50 per cent of the pupils in the first year class (Infants class) are detained in that class; and as a result they either leave school for good or have to repeat the same class for another year. This has been going on almost un-interruptedly since the institution of regular standards, for over 75 years. Hence, the present day schools send out a proportionately smaller number of literates from among the number of pupils that join schools. In the pre-British days, under the indigenous system, elementary schools did not have any 'standards' or 'classes'. Pupils joined schools or received instruction at home because their parents wanted them to learn whatever was taught to them. There were no formal examinations to pass and consequently no detention. Wastage in the sense that a child has to give up instruction before he is able to read and write did not exist in the old system, because a great majority of the children left school only when they acquired the skill and knowledge which was considered necessary for their future

careers. Some left early after learning only to read and count; others left after they had learnt the three R's., and acquired a certain amount of general knowledge and proficiency in handwriting; each working according to his own capacity and requirement. No doubt the range of instruction in these schools was limited if compared with that of the instruction imparted in our present-day elementary schools with their official syllabus requiring the study of a number of subjects; but it should be noted that the spread of literacy is not necessarily dependent on the quality of instruction imparted in a school. In fact undue emphasis on quality may be antagonistic to the spread of literacy and out-side the official circles the view is held that the Departments of Education in India have neglected the spread of literacy, the ideal of giving minimum education to all, obsessed as they have been with the ideal of efficient schooling, with the result that in respect of literacy, India has continued to be where she was a hundred years ago. In 1840, the indigenous educational system which had then ceased to receive Government support, provided higher education to a few and the minimum necessary to as many as needed it. Disorganised as they were and entirely dependent on private enterprise, the indigenous schools could not do more. The British system which has replaced the indigenous system of a hundred years ago has given India better schools and richer instruction, but have brought in their train an enormously slow spread of literacy. Mahatma Gandhi probably wanted to emphasise this defect in the modern educational system and whatever Sir Philip may think of Mahatmaji's statement, there is little doubt that he voiced in his London speech views which are largely shared by the Indian people.

When estimating the value of schools for the spread of literacy in the pre-British period and at the present time, the easy passage of a pupil from stage to stage unrestricted by examinations and according to his capacity of learning and his goal in attending school, prevalent in the pre-British period must be taken into account. If with three per cent of its population in the present-day elementary schools, a Province could claim a literacy of about 8 per cent in 1921, with the same or even a lesser percentage of population under elementary instruction, in 1821, without restriction of standards, the in-

indigenous schools could easily claim a higher percentage of literates or 'instructed' persons. This is indeed the crux of the problem and there lies the solution of the apparent paradox.

In order to give a vivid idea of how elementary instruction was carried on in those days in India, the following extract from the Report of the Bombay Education Society, for 1817, (Pp. 20-22) may be quoted :

"When a boy joins the school he is immediately put under the tuition and care of one who is more advanced in knowledge and whose duty it is to give lessons to his young pupil, to assist him in learning and to report his behaviour and progress to the master. The scholars are not classed but are generally paired off, each pair consisting of an instructor and a pupil. These pairs are so arranged that a boy less advanced may sit next to one who has made greater progress and from whom he receives assistance and instruction. When, however, several of the older boys have made considerable and nearly equal progress, they are seated together in one line and receive their instruction directly from the master; by these means the master has sufficient leisure to exercise vigilant superintendence over the school and of enquiring into the progress made by each pupil under instruction."

The above mode of instruction precluded or at least very greatly minimised the effects of stagnation and wastage, and as the average number of pupils in 'schools' of the time was also small (often less than 30) the system helped in sending out literates or 'instructed' persons in a much greater proportion. Besides, as the number of pupils under domestic instruction was at least as great as, if not more than, that of those under school instruction, this process of sending out literates worked far more successfully in the aggregate than the present system where stagnation and wastage restrict the output of literates compared to the total number of pupils under elementary instruction. Granting, therefore, for the sake of argument that the percentage of pupils under elementary instruction to the total population was less in the pre-British time than at present, there is little doubt that the output of literates in the indigenous system of

instruction was much more than now as it was not subjected to the influences of wastage and stagnation.

That the indigenous schools made a greater contribution proportionately to literacy than the schools conducted or controlled by the British Departments of Education, will be more evident by studying the case of Burma which even today has retained most of its indigenous schools as they had existed in the land before it passed into British hands. The situation may well be described by quoting here the following excerpts from *Literacy in India*. *

"In Burma, there is a large number of monastic schools conducted in temples by Buddhist monks and priests in which from old times, a large number of children has been receiving a sort of primary education consisting mainly of three R's. During recent years, some of these monastic or temple schools have been brought into the official system of primary education by aiding and recognising them. Such schools follow in some respects the officially prescribed curricula. But there are many monastic schools which do not conform to the Government rules and they carry on their work of teaching children in their own way. The importance of these unrecognised monastic schools—however imperfect they may be according to the prescribed standards—can be realised when it is seen that the number of children under instruction in these schools in 1934-35 was about 200,000, while the number of children learning in all recognised primary schools was 284,000. These monastic schools are so widely spread that they reach 20,000 out of 32,000 villages in Burma. The schools recognised by Government number about 4,500. The effect of this has been that Burma has been able to add in the decade 1921-30, new literates to the extent of about 9 lakhs in its population of about 1½ crore, although according to the usual calculations the recognised primary schools would have been able to add new literates numbering about 3 lakhs only. The indigenous schools are, therefore, a great asset to Burma in promoting literacy.

"The unrecognised monastic schools retain their pupils for two or three years, within which time they become

* *Literacy in India* (Pp. 40-41) by R. V. Parulekar. Published by Macmillan and Co.

literate according to the census standard. They have not to pass examinations nor follow a rigidly prescribed course of instruction consisting of the usual staple of a recognised primary school. There is no need for detaining pupils in the same class because of their failure to pass a test; for there are no classes; the school as a whole is one class, each pupil doing his own work according to his ability. There may be very little 'wastage' because the schools are people's schools and the people themselves send their children, of their own accord. That is why these twenty thousand schools are able to send out such a large number of literates. This would be absolutely impossible if the usual stagnation and wastage factors were to operate in these schools. The situation can be explained only on one supposition, *viz.*, that every child who enters a monastic school leaves it, in a couple of years, after attaining literacy as required by the census standard."

This is best illustrated by the following tabular statement showing the spread of literacy in India and Burma.

	1911	1921	1931
1. Population of Burma (in lakhs)	121	132	147
2. Population of British India, excluding Burma (in lakhs)	2322	2338	2568
3. Literates in Burma (in lakhs)	27	37	46
4. Literates in British India, excluding Burma (in lakhs)	126	148	179
5. Literacy Percentage in Burma	22.3	28.0	31.3
6. Literacy Percentage in British India, excluding Burma	5.4	6.3	6.9

The population of India is about 18 times that of Burma; but the addition of literates in 20 years, from 1911 to 1931, in India was barely three times that in Burma. The superiority of Burma over India in respect of literacy is generally admitted to be due to the presence of indigenous schools; they have given the Province 31.3 per cent literacy when British India has only 6.9 per cent.

The monastic schools in Burma are the descendents of the indigenous schools in existence in that country before the Province was conquered by the British. The indigenous schools in India, in and before Adam's time, were not dissimilar to those in Burma. The Burmese schools are supported by temples; the indigenous schools in India were supported by the villagers. But these latter were equally effective in spreading literacy and imparting the minimum of education sought by their pupils.

It is not the purpose of this paper to condemn the educational administration of India in the British period as bad in every respect or to praise the indigenous system of education which existed in India a hundred years ago as good in every way. Even the most violent critic of the British Government will admit that modern educational institutions in India have been a great contribution of the British people towards the uplift of the country. But even a great blessing may have its defects. A white elephant may be a valuable gift or a source of anxiety according to the resources of the presentee. The modern primary schools have been valuable institutions from the educational view point; but they have hindered rather than helped the spread of literacy, with the result that in this respect the country has made no advance since the days of Adam. It is even held that India is at present less literate than she was a hundred years ago, and the view is based on good foundations. The wholesale replacement of indigenous schools by schools conducted or aided by the Education Department was not a wise step; and the contention of Indian leaders has been that if the British Government had recognised this fact early enough and not allowed the indigenous schools to decay and disappear for want of State support, British India would have shown a much better literacy figure today.

APPENDIX A—Population

Tracts Surveyed	District in which the Survey tract was situated	Bengal or Bihar	Population	Children below 5	Children between 5 & 14	Persons above 14 (adults)
City of Moorshedabad	Moorshedabad	Bengal	124,804	11,894	15,092	97,818
Thana Daulatbazar	-do-	Bengal	62,027	8,772	10,428	42,827
Thana Nanglia	Deerbhoom	Bengal	46,416	7,077	8,929	30,410
Thana Culna	Burdwan	Bengal	116,425	17,204	18,176	81,045
Thana Jehanabad	South Bihar	Bihar	81,480	8,312	15,595	57,573
Thana Bhawara	Tirhoot	Bihar	65,812	7,987	13,409	44,416
Total			496,964	61,246	81,029	354,089

APPENDIX B—Adult Instruction

	City of Murshidabad	Thana Daulatbazar	Thana Nanglia	Thana Culna	Thana Jehanabad	Thana Bhawara	Total of last six columns
1. Adults who have received a learned education and are engaged in the business of teaching ...	33	...	2	38	6	7	86
2. Adults who have received a learned education and who are <i>not</i> engaged in the business of teaching ...	75	13	12	99	19	27	245
3. Adults who have <i>not</i> received a learned education and who are engaged in the business of teaching with attainments superior to a mere knowledge of reading and writing ...	60	25	34	93	53	6	271
4. Adults who have neither received a learned education nor are engaged in the business of teaching but who possess attainments superior to a mere knowledge of reading and writing ...	4,767	555	352	2,424	992	425	9,515
5. Adults who can merely read and write ...	1,700	614	593	2,304	761	303	6,275
6. Adults who can merely decipher or sign their names...	715	565	620	2,350	1,004	265	5,519
Total ...	7,350	1,772	1,613	7,308	2,835	1,033	21,911

APPENDIX C—Children (5-14) Under Instruction.

	No. of children receiving school instruction	No. of children receiving domestic instruction	Total No. of children under instruction
City of Murshidabad	959	300	1,259
Thana Doulatbazar	305	326	631
Thana Xanglia	439	385	824
Thana Culna	2,243	676	2,919
Thana Jahanabad	366	539	905
Thana Bhawara	60	288	348
Total	4,372	2,514	6,886

THE PROBLEMS OF REGULATING BUILDINGS IN TOWNS AND CITIES

CHAPTER I

INTRODUCTORY

All living beings have got an instinct for the provision and possession of a home in some form or other. The instinct has no relation to the stage of evolution or development. The crawling earthworm, who is supposed to hold a very low place in the evolution, makes a sort of home out of earth and some gelatinous substance it gets out of its body. It is this instinct of the earthworm which fertilises many a soils by its slow burrowing in it and turning it up. All forms of life, the birds in air; the reptiles, beasts, vermins, and men inhabiting the earth; and the fish and other aquatic beings of the waters, have all got their own distinctive kinds of houses. The birds construct a nest which ranges from a few bits of sticks put together, to a beautifully constructed nest which for its symmetry, lightness of construction, and beauty is an object of admiration to the highest developed human being. The crawling serpent, the rats, rabbits and others of the same class have got their own holes which serve them as homes. The ants, the busiest and most well organised living beings, construct ant-hills which in their construction, conveniences and grandeur, looking to the size of the ant, would far surpass the most stupendous of all human constructions including the sky scrapers of New York. The beaver constructs, by the side of the river bank, a splendid home for itself. The creation of the coral worms in their colonies in the deep oceans, are such as to reclaim million of acres and make them fit for human occupation, by creating new islands and sub-continent.

Man also, coming in the category of living beings, has the same instinct. But there is a distinctive difference between the constructions of the human home and the homes of other living beings. If we take a class of birds, all their nests will be similar, constructed in the same way on more or less the same design and under similar circumstances, of the same type with very few differences. Among the aborigines and the uncivilised human beings the homes constructed or huts, are almost all of the same type, the types differing however according to localities and climatic conditions.

But when we come to the homes constructed by and for the so-called civilised men, the diversity is so great and attempt at the evasion of the rudimentary amenities is so marked, that the attempt to make some fundamental requirements compulsory is called for. The authority to see that these requirements are satisfied, is the Municipality and the enumeration of the requirements are embodied in the building by-laws.

"Homes" are primarily required for safety. Safety of the person of the occupant against the attacks of the enemies in all forms is demanded as a matter of right. Safety against inclemencies of weather is also demanded. Safety of the young offsprings is also one of the demands, and many of the animals and birds construct and use their homes when they want to rear up their offsprings.

All these demands of safety cannot and are never fully satisfied ; the safety is only moral safety. The villager feels that he has a hut and therefore he is safe against the attacks of the tiger. The hut is not really safe against the tiger who can bring down the door and probably the whole construction by a powerful jump on the door. But the tiger is also afraid of doing any such thing because the whole environment is strange to him, and hence he has a moral fear of the unknown. In Indian villages some tigers who get accustomed to such attacks either by accident or when driven by hunger, attack the huts and sieze the inmates, men or cattle, become fearless and turn man-eaters. And people have to leave villages and huts till such tigers are killed, as they are helpless without arms which the Arms Act refuses to them, even for self-protection. The nearest Saheb has to come and kill the tiger demonstrating to the villagers the impotence of their own countrymen, and the superiority of the Saheb. Whereas among the ancestors of these villagers there had been people who could fight and defeat the tiger with a hatchet or a big cudgel. In cities also, the houses are supposed to be for the protection of the belongings of the occupants against the thieves. The houses are not proof against thieves, as is demonstrated over and over again in hundreds of cases every day in large towns, where the doors and windows are broken open and thefts committed. It is the fear of detection and consequent punishment that constitutes the protection.

When we consider the buildings required for man, upto a certain stage of civilisation it would neither be feasible nor possible to insist on building by-laws. It is only when man lives a corporate life, from the most primary type represented by a village with a village Panchayat, to the most advanced, highly developed modern metro-

politan corporation, that building by-laws can be framed and their obedience insisted upon.

In the case of a primitive man, he used to construct a shelter for himself in the branches of large tree high up enough in the tree to prevent the ordinary enemies from reaching him. These enemies such as the creeping serpents, the jumping tigers and others are numerous in such localities. The man wanted the shelter at night only. The ordinary inclemencies of weather, sun, rain, cold and mist did not affect him just as they do not affect the birds and beasts even today. For such shelters by-laws were neither needed nor expected, except perhaps that it should be above the limit of the jump of the beasts. This precaution the primitive man takes of his own accord by instinct.

The next development is the hut of the man who is a little higher in the scale of civilisation than the primitive man. In this hut also, the inhabitants pass only the time of the night, the whole day being spent outside in the open. The people are generally nomadic tribes who live in small encampments. These huts are generally temporary huts and sometimes made in such a way that they can be packed and removed to a new site. The site selected is such as to have no dampness.

After this the next stage of civilisation is the hamlet or the village. It ranges in size from a few huts clustered together inhabited by a hundred or two hundred people, to a large village of two or three thousand people with a market, and some of the conveniences of a town. The reshuffling due to modern conditions of transport such as railway lines or motor routes, have converted many villages into small or even busy towns, and many an old town into a village. In the Thana District Palghar was a small village and Kelva Mahim was a town. Because of the B. B. C. I. Railway having their watering station at Palghar, Palghar is now a town and Kelva Mahim is a small village, and all Government offices are now shifted to Palghar from Kelva Mahim. It is therefore necessary, while considering villages, to think of their developing into potential towns and to regulate the buildings from this point of view.

Villages have developed and are developing in two different ways, depending upon the general conditions of life and facilities in the localities. They are therefore two distinct types of villages. On the one hand we have :—

- (1) the type of Konkan or sea coast villages, and
- (2) the Up-ghat Deccan or the Gujrat villages.

(1) Konkan Villages

In these villages water is generally plentiful and people utilise this water for fruit and other gardens. Each garden has a well, and the owner lives in a house or hut in his own garden. There is therefore no congestion of people in any particular area, but people live scattered all over the area. The land being comparatively poor, the people are poor and dacoits and robbers are not attracted by these people who have nothing much except their personal belongings.

The wells are shallow wells liable to pollution, but there is not much pollution as there is no congestion and any pollution introduced is diluted to such an extent as to be harmless.

(2) Up-ghat Deccan or Gujrat Villages

In the up-ghat villages, the houses or huts are crowded together in some convenient locality in the village generally called the "Gaathan." All people construct their houses or huts in this Gaathan except perhaps a few who have outhouses in their gardens. Few families live in such gardens. The reasons for such a system are :—

(1) That the fear of thefts and dacoities forces people to live together and seek safety in numbers.

(2) Except during particular seasons, the fields are uncultivated and do not require the close personal attention of the owner as in the case of the gardens of the Konkan villages.

(3) The problem of water for drinking and domestic purposes is very difficult. Water is found at great depths and not found at all in many of the localities in the village. Individual wells for the exclusive use of a family are impossible and people can have only wells common to the whole village or particular area. Hence the Gaathan is situated only where water supply is available or supposed to be available all through the year from such common wells.

In such villages, the regulation of buildings is most essential. The tendency of building houses which have no light and ventilation, the crowding together to such an extent that there is no space left for roads or for open spaces between the houses, the miserable condition of sanitation and of the public water supplies, are things which are characteristic of most of these villages. To add to this insanitation, those who have cattle and particularly milch cattle, stable them in parts of their living space and the house reeks with the bad smell of rotting cowdung and urine. The dung and litter from the cattle stables is stored for manure in parts of the village and the effluent from these easily finds its way to the village water supply well, and contaminates

the only available water supply for the locality. There is no medical aid within miles of such villages and generally there is no decent road by which a medical man can be easily or speedily brought. In case of fire more than half of the village would be gutted, with appalling loss of property and life. Cholera, plague, typhoid, influenza, dysentery and diarrhoea, malaria and small-pox often rage in epidemic form claiming millions of victims year after year. Poverty, ignorance and apathy to their conditions and surroundings add to the misery of the people and during epidemics people die in millions. Malaria is claiming its victims in millions in places in this Province and in Bengal. Yet the remedies tried are merely for the sake of "window dressing". In the Panama canal area in America, malaria was the worst enemy of man. Western science and effort has converted this area into almost the most healthy in the world, whereas under the same Western domination the death-rate due to malaria in Bengal is not on the decrease.

This rural population is at least 70% of the total population and yet unfortunately there are no attempts to check and regulate the housing conditions and sanitary conditions of the people who are the backbone and the food growers and suppliers to India, and to a large portion of the British Empire. The Government was only concerned with collection of the taxes. Political parties except one or two are concerned with the grabbing of power wherever and under whatever conditions possible, and with verbose discussions of chimerical schemes. The new regime tried to improve the conditions by Acts passed so as to relieve distress and by Rural Improvement schemes, but the work is incomplete and must be pushed on.

We think, that the regulation of these village sites by prescribing the minimum requirements of building operations, sanitary conditions and water supplies in villages are very important. These must be managed by local bodies or Government, by specially deputed and empowered officers. Ample funds must be made available for such work and for creating a civic sense amongst the people. This work is more important than the framing of building by-laws for towns and cities, because of the numbers of people concerned.

The next stage in the human development is that of the towns. Some of the small towns have got municipalities. Those towns which have not got municipalities have no building regulation and hence the buildings crop up like mushrooms, everyone building in any way he likes. The results are overcrowding in most places. No regard is paid to sanitation and hygiene much less to the aesthetic appearance. The streets are narrow, the buildings of a greater height than they ought to

reeds or straw made into thatch. There is a door for the occupant to creep in or go in according to the height of the door.

The main ingredient in the construction of a hut is its *nominal cost*. All materials required for the hut are obtained from the nearest forest. In some cases a fee is charged by the Government Forest Department for the permit for cutting the materials needed. The applicant pays the fee, takes out a licence to cut in a particular forest area and cuts and transports the materials needed by his own exertion either on headload or by his cart.

A hut also pre-supposes some sort of communal or joint stock labour. The man notifies in the village that he is going to cut materials needed for his hut from such and such an area in the forest and will require help in cutting and removing the materials. Neighbours are bound to help him, the quota of the men to be supplied by each neighbour being fixed by usage or fixed by the headman. The materials being brought, the construction of the hut is also a communal or joint stock concern as described above. The owner of the hut has to give his own quota of labour when demanded by the neighbours under similar circumstances.

Now-a-days attempts are being made to supply material needed for such purposes as construction of huts, fuel, etc., free from Government forest. Hence no cash payment will be required for the permit.

Thus actually speaking the hut costs very little to the owner, as no money value is and can be assessed for the labour employed on the construction.

The materials of which the hut is constructed are such that the effect of rain and weather on them is very great. The roofing deteriorates and has to be renewed year after year. The walls have to be removed every two or three years and so also the main corner posts. So that the hut lasts only one or two years, or its "life" is very short. Once the materials have lost their usefulness or the "life" of the hut is run out, the owner leaves the hut, and constructs a new one at a new site, or if such a site is not available for some reason, he dismantles the existing hut, burns the materials and constructs a new one.

Thus we see that in case of a hut, there are two essential characteristics (1) *very low cost*; and (2) *very short life*, which distinguish this class of buildings from others given below.

The construction of the roof and the walls are the only two items in the construction of a hut wherein variations of type are possible.

Bamboo matting is used in some cases. Galvanised iron corrugated sheets are used in some cases—generally old and useless sheets. In some cases of poor Harijans or Bhangis, the old kerosene oil tins are made in small pieces of sheets and used for the roof and sides, constituting hovels that do not keep the wind, rain, sun and heat out of the huts.

Huts constitute almost all the habitable houses in small villages or 'wadis'. In the larger villages and small towns they constitute quite a large proportion of the houses. The poorer localities on the outskirts of moderately large villages and small towns can only boast of huts for residential buildings. In larger towns they are also found in the outskirts as residential quarters for the poorer and depressed class of people. Even in the large cities they are sometimes found in the poorest quarters. One can see huts in Dharavi, Sion, Worli and such places in Bombay, though they are slowly disappearing. The insanitation is bad enough, but the danger of fire is the worst of all the dangers for such huts in all villages, towns and cities.

(b) Framed Buildings

This is the further development of the hut. When a man gets more riches and has better possessions, he requires a more commodious and a stronger house. The four corner posts of the hut are now converted into large wooden or stone posts or pillars taken to solid or satisfactory foundation. The house is divided in many parts or rooms. The roof is a tiled roof on wooden rafters and battens. Good doors and windows are provided. The walls may be mud walls, kachha or pukka brick or stone walls. The main point in this structure is that all the load of the superstructure is carried by the framework which is constructed first of all and then the walls are taken in hand. The walls serve as partitions and have little or no strength or power of carrying the load.

Naturally, such buildings entail a lot of cost from a few hundred rupees to a few thousand rupees each, according to the materials used, class of construction used and also the size demanded. The owner who has spent so much money, requires some more durability in the building and hence the life of the building is considerable, ranging from about 10 years to 30 years. In course of time the wood used suffers from dry rot or deterioration owing exposure to alternate dry and wet weather and has to be renewed at intervals. In some cases these houses last much longer and we can see in many older towns rows of such houses being kept in good condition because of the repairs carried out from time to time.

be, looking to the width of the streets. Cattle stables are situated in the heart of the town. Indescribable filth abounds everywhere and the water supplies are neglected and contaminated. The result is a high death-rate and the prevalence of epidemics.

In large towns there are municipalities which have the power of framing building by-laws. Some of these do frame such by-laws. But very few municipalities in this Province have got any by-laws worth speaking of. Things are allowed to go in a happy-go-lucky way. Even those municipalities which have got building by-laws, do not think much of allowing a breach of the by-laws in force by favoured parties. Market by-laws, stable by-laws, slaughter-house by-laws, or obnoxious trade by-laws, theatre by-laws and such other by-laws are not known in most of the municipalities. The result is that the old portions of the towns are of course insanitary because they are old, the new portions are equally bad because the municipality do not care to regulate the development.

The only city that has tolerably good building by-laws is Bombay. The existing by-laws are found to be inadequate and antiquated and hence they are being revised. Whenever we give reference to any Bombay building by-laws it is to the draft of the revised by-laws.

We would suggest that a committee be appointed to frame model by-laws of four or five different types for different conditions of villages and towns. These model by-laws should be sanctioned by Government and should come into force immediately and automatically as soon as they are sanctioned. Any town or village authorities, who want a modification for any particular reason, should approach Government for the necessary changes and then the modified by-laws will replace the model ones. As long as any by-law is in force no relaxation of it should be allowed. The indiscriminate and haphazard growth of cities, towns and villages, the appalling squalor due to insanitary conditions, the terrible loss of life due to fires and pestilence, the existence and growth of slums, the alarming high increase in lung diseases and T. B., the sapping of the vitality of the working population and consequent loss to the nation and the heavy cost of medical relief and the insufficiency thereof even with a heavy expenditure, call for the conjoint efforts and action, and stern measures in enforcing the by-laws.

CHAPTER II

BUILDINGS

(1) Buildings classified according to the type of their construction

We take the question of framing suitable building by-laws for the various kinds of localities we have considered in the foregoing chapter. The conditions are so different and the types of buildings are so many, that it would be best to study the basic principles underlying the framing of the by-laws and to lay down certain minimums which every building must have.

We must define and classify a "building."

Building means any structure built for the support, shelter or enclosure of persons, animals, chattels or property of any kind, but does not include a watchman's booth, a mandap or any other similar kinds of temporary structure erected for ceremonial occasions.

From the above it will be apparent that there are so many varieties of buildings that the classification is most difficult. Generally buildings can be classified from two points of view :—

(1) Buildings classified according to the type of their construction.

(2) Buildings classified according to the use to which they are put.

There is bound to be an overlapping in the two classifications because a building of one type can be used for many different purposes and, vice versa, a building required for a particular purpose can be of any one of the types. In each case we will have to put some restriction as required under the conditions in a class (1) and some more under class (2) and it has to satisfy the conditions under *both these heads*, to justify its creation or existence.

We now take the buildings under class (1).

These would fall under three heads :—

- (a) Huts.
- (b) Framed buildings.
- (c) Pukka buildings.

(a) Huts

The primary conception of a hut is that of a shelter constructed mainly on four posts made of rough timber obtained from the nearest jungle. The roof covering and sides are made of branches of trees or

fire are the wooden fittings and the furniture in the buildings. A fire even if started is only local in its extent and the municipality has not much to bother in such cases.

Such buildings, therefore, have everything to recommend their more extended use.

CHAPTER III

BUILDINGS—(Contd.)

(2) Buildings classified according to the use to which they are put

In this classification we find a much greater diversity than in the first classification, because each town has got its own problems of life, trade, commerce and industry which make the conditions different. Population is no criterion of the conditions. Thus, if we examine Poona and Sholapur or Karachi and Ahmedabad, they are towns which one might be tempted to classify alike from point of view of population. But the fact that Sholapur and Ahmedabad are industrial and manufacturing centres and Karachi is a great export and import harbour makes the conditions very different and call for variations in the by-laws. Not only that, but the physical, geographical, climatic and geological conditions of the towns must be examined for the proper framing and administration of the by-laws.

Buildings can be classified under this head into buildings for—

- (1) Residential purposes—dwelling houses ;
- (2) Trade and business purposes ;
- (3) Manufacturing purposes—factories ;
- (4) Public buildings.

(1) Residential Buildings

Taking classification (1), we find that this is the most common of all the buildings in the world and generally constitute the common conception of a building. The general association of ideas about the word building is a residential house.

This may be defined as a building used or constructed or adapted to be used wholly or principally for human habitation. These include a very wide range from the palace of a prince, a millionaire or an industrial magnate, to the hut of a poor man.

These can be further sub-divided into—

- (a) Buildings constructed and used as complete units for the exclusive use of one family ;
- (b) Buildings constructed and used as flats or sub-divided into self-contained units each one for the occupation of one family and thus having passages, staircases, verandahs and the compounds in common used by all the tenants, but each unit of flat for the exclusive use of one family ;
- (c) Buildings used as chawls in which the rooms are let singly or in sets of two or three rooms to one family, but all compounds, passages, corridors, staircases, latrines, urinals, bath-rooms and sometimes even the water pipes are used in common.

These sub-divisions pre-suppose the human psychology of using one's own premises or things as carefully as possible, with a certain amount of disregard or callousness for those premises or things which are not one's own or exclusively one's own. This human weakness forces local authorities to make more stringent by-laws for places not in exclusive use of one family alone. Also an owner when constructing a house for his own exclusive use is as lavish as possible in the expense to ensure his own safety, convenience and comfort, whereas if he is constructing a building for being rented to others, he tries to obtain,

- (1) as much space for the accommodation of his tenants as possible in the amount he wishes to spend, and
- (2) as high a return for his outlay as possible even at the cost of the safety, convenience and comfort of his tenants.

This is how slums are created in most of the towns and probably the owners of the slum are the millionaires of the city. This is also how inferior buildings constructed by jerry builders are sold as good buildings and cause a good deal of inconvenience and trouble to the tenants and to the municipality.

Taking each of these sub-divisions, we will find that buildings under (a) in towns comprise of a very wide range from palace to a small bungalow, usually the owner occupying it or the tenant who can afford to pay a high rent occupying it. Generally now-a-days, the high cost of land, running sometimes into hundreds and thousands of rupees per square yard, which is prevalent in large towns, and the existence of congested areas in the cities force the class of people who desire to use such buildings to migrate to the suburbs where land is comparatively cheaper and where pure air and good light are available. The large

These houses constitute the majority of the houses in medium towns, a large percentage in larger towns and a few of the houses in cities. The great danger of these houses is their perishability by fire and the rapid spread of such a fire to the adjoining houses. Sometimes the range of the fire is so great, that whole streets and localities are devastated, with terrible loss of life and property. This is one of the greatest dangers in the towns in this country which have neither fire-fighting appliances nor water available for the purpose. Even if these are available, the spread of fire is so quick that before the municipal authorities are ready to fight the fire, the fire takes all the toll of life and property it can. It is for this reason that in large cities, such houses are not allowed or are allowed under exceptional circumstances only in some of the old quarters of the cities. It is expected that in such cities the new reinforced concrete construction, which is fire-proof will replace all these framed structures in near future.

(c) Pukka Buildings

This is a third class of buildings in which all the parts are well designed and expected to be durable and semi-permanent. The strength of each member such as the walls, posts, is so designed that it adds to the strength of the building, having inherent strength of their own.

Such buildings require special care with regards to the work of their foundations. These have got to be taken deep enough for the extra load that has to be carried by the foundations owing to the large size of the building and to the weight of materials used in the construction.

The cost of such buildings is very great ranging from a few thousand rupees to lacs of rupees depending on the size, the architecture, the materials used and all such details.

The life of these buildings is also considerable about 50 years or more, being about the lifetime of one generation. It is for this reason that these buildings are called permanent buildings, though clearly permanent is a misnomer. Many of the old buildings are hundreds of years old and if some urgent and necessary repairs are carried out, they could be expected to be good enough for a long time to come.

The older patterns of these buildings are liable to danger of fire, and hence in many of the building by-laws, fire-proof materials are specified. Now-a-days, the whole building can be made fire-proof.

The chief trouble with such buildings is the change of fashion from time to time with the change of generations. What was good enough

in 1900 is not good enough now. In Bombay all the residential buildings along the Girgaon Road were of the double-storied bungalows type in 1900. Today these are out of fashion and, may be, uneconomic if the rent is considered and compared with cost of plot. They may not also conform to modern requirements of sanitation and hygiene. A five or six-storied building can alone be economic. Old buildings then become an eyesore in those places where they are remaining intact and the poor owner who cannot erect a huge and tall structure on the plot because he has no money to do so, has to sell the plot and go as a tenant in some other block of buildings. The money received for the value of the plot is not necessarily conserved and there is one more of the old-fashioned family almost ruined and converted into the class of tenants from the class of the landlords. Such huge buildings can only be constructed by professional landlords who usually do not stay on their own premises but on the Malabar Hill or Camballa Hill, and to whom the construction of the building is a pure business proposition and in the construction they try to economise at the cost of comfort, convenience and even safety of the building in order to get a 10% return.

(d) Reinforced Concrete Buildings

The modern reinforced concrete buildings are, when considered from a structural point of view, buildings belonging to the framed buildings class. All the loading is taken up by the reinforced concrete pillars at corners and by the beams. The walls are all simple partition walls carrying no part of the load. The roof is a terrace roof.

These buildings when considered from a point of view of cost and life are really buildings which come under the class (c), because they are costly and are expected to be longlived. The only factor which might affect their life is the action of the acids and alkalies in the atmosphere on the cement work and on the steel cores if these acids penetrate to the steel core through the covering cement work. But this is rare in a dry country like India.

As to how they last in the climate of this country is yet to be seen. But there can be no adequate reason why they should not be successful in India, when they are found to be successful in the West where the climatic conditions though different are very severe with rain, frost and snow, with all the industrial waste products floating in the air and creating a greater percentage of acids and alkalies in the atmosphere than in India.

The one great advantage is that such buildings can be made almost completely fire-proof. The only things liable to the danger of

passes, lapse into slums and the removal of these slums is a matter of thought (though not actual action because the owners are generally very powerful men, sometimes millionaires and have power of resisting to the fullest extent any proposal to demolish these buildings which are very lucrative business proposition to them) in all towns and cities. This class of buildings therefore requires all the consideration and care from the municipality.

(2) Buildings used for Trade and Business Purposes

Taking this sub-head, we find a very vast variety of purposes to which the buildings for trades and business can belong, depending upon very great diversity in classes of trade and business. Thus the general sub-divisions would be—

- (a) Shops ;
- (b) Godowns and warehouses ;
- (c) Stables ;
- (d) Slaughter-houses ;
- (e) Eating houses ;
- (f) Hotels ;
- (g) Theatres and cinemas ;
- (h) Railway stations ;
- (i) Dock and harbour buildings connected with docks and harbours.

We see that each sub-class of these has its own requirements which are peculiar to itself and cannot be adapted to others. Thus we see that—

(a) Shops require a good open frontage with very good light when the front is open. They do not require ordinary windows as they are unsafe and would admit mice and rats who make the premises insanitary and spoil the goods. The rooms do not require any mori, water-pipe or sanitary conveniences because they are not to be used as living rooms.

(b) The conditions required for godowns and warehouses are very different. Large stocks of goods are to be stored for large periods. Hence they require—

- (i) vast space for storing, having generally no need of partitions and small rooms ;
- (ii) good ventilation, so as to have a good circulation of air so that the stored goods may not be spoiled if they require such a supply of air. The ventilators must be so

constructed and protected as not to allow rats and other vermins to come inside, and must be waterproof so as to prevent rain water from entering ;

- (iii) strength of the floors, etc., to withstand the heavy weight of materials stored must also be considered.

(c) *Stables.* A stable is a place used for tethering animals used for domestic purposes. All appurtenances required for such purposes also must be included in these stables.

In villages where the space is vast, the nuisance of the stables is not too great. In many cases the poorer cultivators use a part of the house as stables and the whole arrangement leads to very great insanitation in the conditions of living.

In large towns, individual ownership of cattle used for private purposes is rare. In such cases where an individual owns a horse or a cow, the stable ought to be generally well constructed and should not cause a lot of nuisance, and of course the municipality has got to watch these.

Most of the stables in large towns and all those in the cities, belong to men who own animals for business purposes, horses for hack victorias, bullocks as draft animals for carts, and cows or she-buffaloes for milk. The horse and bullock stables are being slowly replaced by motor garages as the autocar is slowly replacing the tanga and the cart.

The stables of the last sort called the milch cattle stables are the most important of all, though all the stable by-laws are common to all the kinds of stables. These stables can be a paying proposition only if there are quite a good number of cattle stabled therein. The owner of the stable and the hirer who is the owner of the cattle are people who are out to make the most on the money they invest and do not care what happens to the health of the town, provided they can save a little even at the cost of sanitation.

The question of stables is one of the most neglected though one of the most important questions in cities. A neglected and insanitary stable is a source of contagion in many ways. In the first place the condition of the stable will be a source of nuisance and danger to the surrounding area on account of the indescribable filth and the offensive odour it produces owing to the carelessness, callousness and slovenliness of the owner and users. Secondly the animals when kept and milked in the filthy condition and surrounding, yield milk which abounds in germs and bacilli which propagate diseases in localities using the milk. If the milk supply of Bombay and the suburbs were scrutinised it will be found, that many of the deadly typhoid and other

town or city plots in business quarters are only used for building large and high buildings. The height of every new building has a tendency to increase over that of its last year's neighbour.

The users of these bungalows have got good ventilation, plenty of space, plenty of water, all sanitary fittings, large open compounds, in fact the space is so much and the occupants so few that the municipality need not worry about enforcing the building by-laws, because there is no occasion to break these.

The use being restricted to a few select people of sanitary habits, the by-laws are all properly observed and by-laws about congestion and misuse specially required for chawls and crowded places are not needed here.

Considering buildings under (b), we find that these buildings are for the upper middle class and the rich who have no residence of their own. In such buildings each family has for its own exclusive use one complete unit of rooms or what is called a "flat" having all the sanitary and water supply arrangements of its own for the exclusive use of the tenant. The compound, staircases, passages, verandahs and such other places are common to all. Naturally, therefore, inside the flat, where all the fittings and appurtenances are paid for directly in the form of rent, the landlord and owner has a tendency to be at least adequate, if not lavish, in the provision of these fittings and appurtenances. But he is liable to economise in the provision of those that are in common, though he gets rent from the same, as a part of the rent of the flat. Besides, the cleanliness and maintenance of these places falls on the owner and he is likely to neglect these matters as it entails a recurring expenditure. The drainage water from the place it leaves the flat to the place where it enters the public drains and sewers if there is a drainage scheme, or the way in which it is to be led and collected for removal by the municipal agency, the provision of all the fittings, tanks, cess-pools needed for such collection is also an expensive item and hence there is likelihood of neglect in this matter. It is therefore the duty of the municipality to have strict by-laws for such provisions.

Now taking (c), the last group of residential buildings, 'chawls', we find that these constitute the bulk of the available housing accommodation in any town or city. A 'chawl' means a building so constructed as to be suitable for letting in separate tenements each consisting of a single room or two rooms but not more than three rooms. The tenants have only the privacy and exclusive use of their own rooms. The latrines, privies, water pipes, bath-rooms, staircases, passages, corridors, being common to all of them. The major part of the popula-

tion of chawls consists of those people who come to earn their livelihood in the city, either as small and ill-paid clerks and workers in mills, factories, offices or on works of construction and repair of buildings and railways, docks and such other concerns and the usual hangers-on and satellites of large town or city, such as vendors, small traders, small artisans, carters, motor and bus drivers and such other people who earn a small salary or wages just enough to keep body and soul together in a poor way for themselves and their families. These people belong to the lower middle class or the poor working class of the population, the thin line of demarcation between the two being only a little amount of education and external polish in the former class.

To such people the cheapness of the rent is the most important criterion of the usefulness of the residential space. Landlords who want to guarantee their 10% or more return on the capital invested on the building, try to provide as large an accommodation as possible, in the small limits of outlay. They care nothing for the strength of the building, for the provision of sanitary and hygienic conditions needed such as windows, open air spaces for light and ventilation, the provision of fire-proof materials for the building and staircases, the provisions of ample verandahs, passages, bath-rooms, latrines, urinals and for provisions required for the collection of sullage water, household and other refuse and garbage and for its disposal. The want of education, the slovenly habits, the want of the sense of public cleanliness and the want of time and means for those who have such a sense and last but not the least the want of public discipline, make the life of the people so miserable that they are subject to all sorts of ailments and diseases and are a source of danger to the cleaner quarters, because most of the diseases are bred here and when they are of a virulent type of epidemics, they spread to the cleaner parts of the city.

For such quarters, the municipal building by-laws must be very strict, compelling the landlord to provide all the necessary amenities and for the tenants to observe all the regulations. It is not only from a philanthropic point of view that the municipality should do this but from a selfish point of view. The provision of free hospitals to treat and cure the sufferers in these quarters is one of the most costly items in the municipal administration and even the richest municipalities in the West such as London, Paris, Berlin, New York and others are finding the greatest difficulty to find funds to discharge this obligation even partially or in a small way. The provision of sanitary conveniences such as public latrines, urinals and baths taxes the resources of these Local Bodies. The extra staff of menials and the superintendence of these places is also a costly item. Many of these quarters, as time

diseases could be traced to milk supply. And if Bombay which boasts that it is the *Urbs Prima* in the East, cannot protect its inhabitants from such diseases propagated by milk which can easily be controlled and prevented, I do not know what other town or city can.

It is therefore necessary to have very stringent by-laws for stables.

(d) *Slaughter-houses.* These have got to be specially constructed as the work of slaughter is of a special kind and produces a very large amount of waste products which must be stored in a special way as long as they are kept inside the premises and removed as quickly as possible by special transport vehicles. The animals to be slaughtered also require a close examination so that no animal having any disease should be allowed to be slaughtered. The meat after it is ready must be transported to the market in a specially constructed vans so as to have no pollution during the transport.

Again there are religious susceptibilities in this country which require special construction of slaughter-house. Many people such as Jains, Brahmins, would strongly object to the work of slaughter in the open and also to the sight of the carcasses of animals during the transport and hung from the hooks while exposed for sale. Slaughter-houses must therefore have very high compound walls. The blood, entrails and the rubbish in the entrails that are obtained as the result of the slaughter have to be stored in a particular way till they are removed in covered and specially constructed wagons. They cannot be allowed to escape in the common drain because the putrefaction starts almost at once, and the odour is most offensive.

The floors of the slaughter-house must be made of a non-absorbent and polished material so as to allow no opportunity or place for any particle of the offensive waste products to lodge in the interspaces or to be absorbed. Otherwise the floor would give the most offensive smell. The floors and sides of walls upto a certain height to which these particles splash must therefore be made of polished stones or of cement concrete also polished. There must be special arrangements of water-supply to clean the floors and part of walls so that the place can be thoroughly washed immediately after use.

If possible the place must be fly-proof, so that the flies may not settle on the carcasses hung after they are cleaned. The storing and quick removal of the skins is also a matter which requires municipal care.

In Bombay, no slaughter-houses are allowed. Slaughtering of animals also is an offence in Bombay. The slaughter-houses for Bom-

bay are situated in Bandra and Kurla. So there is no provision for slaughter-houses in the Bombay Building By-laws.

(e) *Eating Houses.* Eating houses are defined as any premises to which the public are admitted and where any kind of food is prepared and supplied to the public for consumption on or outside the premises for the benefit or gain of any person owning, having interest in or managing the premises.

Restaurants, tea shops, Irani hotels, etc. are also buildings of this kind. The large concourse of people gathering there require special arrangements of light and ventilation, the sanitary arrangements of the place reserved and used for cooking on a large scale must be properly attended to; the floors must be made of non-absorbent and smooth materials and there must be a supply of copious water. Such places, therefore, require special arrangements and must all be registered.

(f) *Hotels.* Hotels are in one sense eating houses as above defined and therefore one part of the hotel comes under the sub-head (e) noted above and requires the regulation as such by the municipality. Some part of the premises is used as a residential quarter with special fittings for sanitary purposes such as bath-rooms, water-closets and urinals. These require regulation according to the classes to which they belong.

(g) *Theatres and Cinemas.* These are becoming more and more prominent every day and there is a tendency to construct these on a large scale to accommodate as many people as possible so that they may be run as a commercial proposition. In all these, people, a very large concourse of people, gather at certain fixed time. And when the show is going on the doors and windows, in the afternoon shows, are covered so as to produce comparative darkness for better light effect. It is therefore necessary to have sufficient means of ventilation and sufficient supply of air. Fans only are not of much use, because if there is no constant influx of fresh air, the fans will only churn the impure air which the large concourse of people breathes out. Therefore the by-laws must provide for, and must guarantee a supply of fresh air constantly. Air conditioning which is now carried on in many of the recent theatres also requires special consideration.

The strength of the floors must be such as to withstand the load and pressure of the dense mass of humanity and as such the floors must be specially prepared and specially tested. The recent collapse of a cinema floor at Secunderabad (Deccan) brought this matter into great prominence and today it is realised that it is necessary to regulate the construction of theatres even in small towns.

The next point to be regulated is the temperature of the theatre. The large concourse of the people, the screened door and window openings which admit air, the impure products of the breathing of the multitude of people and the additional staleness given by the mass of perspiring humanity and the smoking which is indulged in, even though forbidden, raise the temperature of the place to such a pitch as to be unbearable and unhealthy and many people, who go out during the interval from this foetid atmosphere to the outside fresh and cooler air, get chills that might develop into pneumonia or bronchial troubles. It is therefore necessary to adopt such measures as would keep down the temperature. A good unimpeded height between the floor and the roof is absolutely necessary. This provision and the provision for ventilation considered above are correlated and must be governed by a set of by-laws.

The protection from fire, and the provision of extra means of escape in case of fire, require a special consideration in theatres. It is the experience that theatre fires have been the worst on record and the loss of life in case of fire is tremendous. There are two reasons for this. In the first place, most of the articles used for scenes are of a very inflammable character and the fire is liable to spread almost at once all over the part where the stage is situated. For such places an asbestos fire-proof curtain must be made compulsory and must be dropped immediately there is a fear or suspicion of fire. Secondly, the public get panicky and lose all control and rush towards any exit they see, without any sort of order, dignity or restraint. Even the best of men, who are always cool, lose discipline and grip over themselves and start or join the stampede, with the result that there is confusion, loss of valuable life and sometimes crushing or trampling of the weak. For this reason there must be as many exits as possible available easily from seats and there must be a disciplined regulation of the crowd of frightened humanity towards these exits by the theatre authorities. A copious supply of water for putting out the fire must also be available and provided.

The provision of urinals and latrines on a lavish scale is also one of the necessary functions to be attended to in such buildings. All those who want to use these, want them during the short time of the interval and hence the rush is great. An adequate scale of urinals based upon actual experience and calculated upon the maximum number of people expected to attend the show must be fixed and insisted upon. All these urinals must be self-flushing and an adequate supply of water must be guaranteed.

All these provisions add to the cost of the theatre and its fittings. The rent therefore is high. The capitalists who own the theatres and who finance the shows are very powerful. The scale of entrance fees are almost fixed by usage and if this is increased there is a falling off in the number of spectators and consequent loss of income. The capitalists therefore oppose such provisions and are powerful enough to influence the local and Government authorities to overlook the proper provisions needed for the public well being. The result is that in many of the small towns, the theatres are almost the filthiest places in the towns and the nuisance round about the theatre is very great. The theatres are in such cases the places which spread disease and ill-health to those who frequent them. Those who remember the old Dane Ali (दाने आळी) theatre in Poona and the filthy conditions of that locality will realise this. Even today in many a municipal town the same conditions exist. As a return for a free visit to the show whenever desired, many a Government official, municipal member and official might be tempted to ignore the insanitation and shortcomings of the theatre with the consequent ill-health to the general public using the theatres.

It is therefore necessary to consider this class of buildings as separate unit requiring special by-laws.

(h) & (i) *Railway Stations and Dock and Harbour Buildings.* In these buildings also large concourse of people periodically gather, particularly at times of departure and arrival of trains and steamers. Special provisions of hygiene, sanitation and water-supply are needed to meet the requirements of this influx of people.

These places being in the charge of Corporations, they might be tempted to economise in the cost of providing the necessary amenities as stated above. Even though some of the Indian Railways are owned by Government, they are managed by the Company and the same remarks apply to all. The absence or inadequacy of water-supply at some of the stations of the B. B. & C. I. Railway and the G. I. P. Railway are too well known to be mentioned here.

CHAPTER IV

BUILDINGS—(Contd.)

(3) Factories or Buildings used for Manufacture of Articles

Factory can be defined to mean and include the whole or part of premises within or within the precincts of which machinery worked by steam, water, gas, oil, electricity or other mechanical power is employed or utilised in the manufacture or production of any article (including food and printed matter) or part of any article, or in the adoption for sale of any article, or in the alteration, repair, ornamentation, finishing, cleansing or dyeing of any article, but shall not include a kitchen on merely a shop so used.

Thus we see that the definition is all embracing and there are many kinds of factories :—

- (i) Factory for the manufacture of yarn, cloth and such other articles, or an ice factory ;
- (ii) Factory for the manufacture of chemicals which are innocuous such as potassium and sodium salts, or which are harmful to the workers such as lead, sulphuric acid and its products ;
- (iii) Factories for the manufacture of dangerous articles, such as manufacture of matches or other substances liable to sudden explosion, inflammation or explosion of terpentine, nafta, varnish, tar, resin or Brunsbrick black or any other manufacture dangerous on account of the liability of the substances employed therein to cause sudden fire or explosion. The factories for the manufacture of gunpowder and fireworks come under this head ;

[“ Dangerous business ” is defined as any trade or operation which in the opinion of the Commissioner is dangerous to life, health, or property, or is likely to create a nuisance either from its nature or by the reason of the manner in which or the conditions under which the same is, or is proposed to be carried out.]

- (iv) Factories for the manufacture of articles which give abnoxious smell such as leather tanning, glue making.

In all these cases it is necessary to see that the building is safe for the work which is being carried on there. Here we have to take into account the weight and vibrations and stresses produced by the working of the machinery. The place must be designed in such a way as to give safety to the workmen and enough working place.

But the most important thing is the disposal of the waste products of the manufacture. These are of three kinds—gaseous, liquid and solid.

The gaseous waste products are again of two sorts. One consists of the smoke coming out of the factory, and though this cannot be said to be a waste product of the manufacture but is caused by the machinery and is common to all manufacturers using fuel. The other consists of the gases given up in the actual process of manufacture which may or may not be innocuous, or of the fine dust produced from the manufacturing process and mixed with the air of the factory and pervading the whole space of the factory.

Smoke nuisance is so vast a problem now-a-days that all the best brains in the world are thinking of ways and means and methods of fighting it. Best method is to work the machinery by electricity, which would also be cheaper than when worked with coal. But the initial cost of replacement of the machinery which is working with steam by machinery to suit electric power and the total loss caused by the scrapping of the boilers and other appliances used for power generated by coal are both so great that the factory owner is not prepared to, nor can he economically think of installing machinery to suit electric power. Of course, all new factories can be forced to use electric power. Those who have seen the pall of smoke hanging over London, Glasgow, Manchester, Bombay, Ahmedabad or Sholapur, will realise the evils of smoke nuisance which undermine the health of the mill area residents in particular and of all the residents in these towns in general. As I have said above the best brains in the world are thinking as to how to abate this necessary evil. The present regulations only deal with the size and height of chimneys, so that the smoke might cause as little inconvenience as possible.

The other kind of gases which are produced from the manufacture must be collected and absorbed before they are allowed to mix with the air in the factory and thereby pollute it. The case of dust is still worse. The dust is injurious to the throat and lungs, and the average life of a lead factory worker is only 8 to 10 years. The dust must be absorbed before it can spread.

In all cases it is necessary to have a good height of the factory room so as to have a large supply of air, and so as to have a better circulation of air. In case of those factories which are for the manufacture of dangerous articles or which manufacture articles in the production of which offensive gases or poisonous gases are given out, the best method is to locate such factories away from towns so that the public outside the

factory may not suffer therefrom, and to take ample precautions in the factories themselves.

In the second place, where the products of the manufacture are liquid, these can run into the drainage where there is a drainage system. The disposal of drainage where the drainage is utilised for irrigation or where the drainage is biologically treated, might and does present some difficulty, as some waste products might affect this disposal. In such cases, a previous treatment of the effluent may be necessary before it is allowed in the public drains. Each case has got to be considered on its own chemical merits and their reactions to the disposal of drainage. In those cases where the effluents are to be allowed in cess-pools and removed at the pleasure of the municipality, the case is different and the nuisance will be very great. In cases where the effluent is let off on the open ground the nuisance is very great. Such a state of things can be seen at Chembur in the Bombay Suburban District, in the case of leather tanning factories.

The case of the solid by-products and waste products is different. A proper disposal must be insisted on so as to give the least possible trouble to the surrounding population.

Therefore the municipality has to consider all these cases and frame suitable by-laws.

(4) Public Buildings

The last class of buildings, public buildings, are of many kinds :—

- (a) Schools, Colleges, etc. ;
- (b) Offices ;
- (c) Hospitals and dispensaries ;
- (d) Public halls—lecture rooms ;
- (e) Places of religious worship such as temples, mosques, churches, synagogues, etc.

Technically a public building means a building used or constructed or adapted to be used either ordinarily or occasionally as a place of public worship, or as a hospital, college, school (not being merely a dwelling house so used), hotel, restaurant (not being merely a shop so used), theatre, public hall, public concert room, public lecture room, public exhibition room, or as a public place of assembly or entertainment for persons admitted thereto by tickets or otherwise or used, constructed or adapted to be used either ordinarily or occasionally for any other public purpose.

We have dealt with hotels, restaurants, theatres and such places elsewhere. They are constructed or used with a definite purpose of trade or manufacture. We therefore take only the buildings besides those in the above classification.

(a) *Schools and Colleges.* As a very large number of students is to collect and work at their desks, the conditions of lighting and ventilation must be very good. Otherwise the eyes and lungs of the rising generation will be affected and the boys will have to carry the ill effects so derived for their life and probably to transmit them to their children. The location of schools and colleges is also a matter for thought. Government have considered the whole subject and have got type designs and various regulations for school buildings.

(b) *Offices.* In offices, a large number of clerks and officers have got to sit during the office hours and work at their desks. The public have to visit these offices for their work. The lighting and ventilation must be well regulated.

(c) *Hospitals and Dispensaries.* In hospitals, people suffering from diseases are to be treated. There are two aspects, one is from the point of view of the patient and another from the point of view of the public. The patient must get all the ease and comfort he requires for his well being and treatment, whereas the public want to be assured that they will be safe from the contagion of disease, if any. The floors and walls must be non-absorbent and smooth, made of glazed tiles or glass with the joints well laid out, smooth and having no crevices. The water-supply and sanitary arrangements must be good. All this requires special regulations.

Special precautions are necessary for hospitals dealing with dangerous diseases, such as cholera, plague, small-pox or generally any endemic, epidemic or infectious disease by which the life of man is endangered.

(d) *Public Halls or Lecture Rooms.* These are all special constructions, though they must have the minimum requirements of safety and hygiene. Sanitary arrangements may or may not be insisted on as the duration of the lectures or meetings is generally short—an hour or two.

(e) *Places of Worship.* These are a class by themselves. As they are sacred and there is a strong feeling against the interference in religious matters by Government or local bodies, these regulations are difficult to make and still more difficult to enforce. The regulations

are absolutely necessary as a large concourse of people gathers in these and stays inside for a long time.

Exempted Buildings

Some buildings are exempted from the operations of the building by-laws. In the existing by-laws of the Bombay Municipality, all buildings used by Government or by the Bombay Municipality are exempted from the operation of the building by-laws. No reason is assigned as to why it should be so, except probably to show the power and authority they possess. I would think that on the other hand, these authorities should be the first to observe to the utmost all the building by-laws and set an example to the public.

It is now proposed to alter this by-law and exclude these buildings from the exemptions. The exemptions are now given to—

(i) Any building erected and used or intended to be erected and used, exclusively for the purpose of a plant-house, summer-house (not being a dwelling house), poultry-house, or aviary, which shall be wholly detached and at a distance of ten feet at least for any other building.

(ii) Any building erected or intended to be erected by, with the sanction of the Commissioner for use solely as a temporary hospital for the reception and treatment of persons suffering from any dangerous infectious disease.

CHAPTER V

SAFETY OF BUILDINGS

Having so far considered the kinds and uses of buildings, we will now consider those underlying principles on which we can base building by-laws. There are certain minimum requirements which must be satisfied in each building so far as it is considered individually and certain conditions which must be satisfied when we take the building as a member of a group of buildings and when we consider the requirements of the whole group.

Under the head of minimum requirements of each individual building, we have two groups of requirements :—

(1) Those to ensure the safety of the building ;

(2) Those to ensure the minimum requirements of hygiene and sanitation for the inhabitants.

Under the second head of collective requirements we have to consider the requirements needed to :—

(3) Regulate the heights of buildings with regard to the widths of streets ;

(4) The distances between buildings or the leaving of open spaces between buildings which are situated in the neighbourhood of each other.

Besides this there are by-laws which are framed for the administrative purposes so that the enforcing of all regulations under the above heads may be both facilitated and carried out with minimum inconvenience to all concerned.

We will now take these in order.

Safety of the Building

Of all the building by-laws the most important requirement is that the building must be safe for the purpose for which it is meant. We have explained in detail in Chapters III and IV in the foregoing parts of the book that different uses require different degrees of strength of buildings. A residential building requires a certain amount of strength, but because the structure is strong enough for this purpose, and if we give the same degree of strength for a theatre, the results would be disastrous. As we have treated this matter fully before, we will not go into it again but knowing the kind of use the building is put to, we will have to design it to be strong enough to withstand the stress.

The safety of the building consists of three factors :—

(a) Safety of construction consistent with the use.

(b) Safety to withstand the natural elements which put a strain on the construction.

(c) Safety against destruction due to fire ; and precaution to be taken against the occurrence of fire and for putting out fire in case it occurs.

As regards (a) safety of the building consistent with the use to which it is put, the main principle is that the materials and the way in which they are used and the type of construction must be such as to ensure that the building is strong enough. Every part of the building must be individually strong and the whole of it must be collectively strong.

This consideration is necessary because of costs and particularly in the modern town life where the owner builder who builds mainly to get rent, has a tendency to put up jerry buildings and get out as high a return as he can from the building. Naturally, he has a tendency to economise and if left to himself would use materials of a cheap and of an inferior quality and make the sizes as small as possible. Good material, sufficiently strong sizes and good workmanship would certainly cost more. Of course in the end, if good materials, etc., are used, the cost would be much cheaper. But looking to the immediate small cost and having a false idea of economy the owner is tempted to use the inferior materials. It is for the municipality to guard against this.

It is for the Engineer's science to design the whole building and its details. Every member from the smallest to the most complex must have sufficient strength to withstand the maximum stress put on it and the arrangements of all the members must be such as to make the whole combination strong enough. Even the smallest flaw or a miscalculation in the smallest member is bound to have disastrous results.

All parts of the building must, as we have said above, be safe and consistent with the use and the construction. The main parts which carry the load are the walls, the posts or pillars, the girders and the floors. All these parts must be designed by engineers. In most of the engineering tables and in most of the building by-laws, the minimum sizes of these are given for reference. So that even a layman can easily check the sizes. These being the minimum sizes, if the sizes used by the owner are more than these, there can be no objection. The thickness of masonry wall, for the ground floor of a nine-storied building with a height of 99 feet above the plinth, is laid down as $33\frac{1}{2}$ " and for the top floor it is 9". Usually now-a-days most of the buildings are of reinforced concrete construction and the thickness of walls are different, as the walls do not carry any load but only serve as partitions.

The minimum sizes of the various ordinary members commonly used in the structure are given in the municipal by-laws. The sizes used must be slightly greater than this. The modern reinforced concrete construction has made the design and construction of buildings more and more complicated, driving the builder necessarily in the hands of the Engineer. The buildings are however cheaper and better and stronger and what is most important, fully fire-proof.

When the building is constructed on scientific lines as above indicated the various walls, pillars, floors, roofs and terraces, balconies, staircases, and all the members are strong enough for the purpose they

are meant for. The question of foundations is very important and is considered later on.

We will in the meanwhile consider the strength and safety of the superstructure from the other aspect as well.

(b) Safety to withstand the natural forces

All buildings are subject to the forces of nature that it has to bear during the course of the years. These can be classified into two heads :—

- (i) Common, and
- (ii) Abnormal forces of nature.

(i) The Common Natural Forces

These are generally rain and heavy wind. During the rainy season water comes down in torrents and all roofs, walls and other parts of the buildings must be strong enough to withstand the rains. If the walls are mud walls and they get wet with water, and the mud becomes plastic or liquid, there is a fear of the collapse of the house. The rain also produces unequal strains in the various members of the superstructure and these must be balanced and members designed to withstand these. But the greatest fear during rains is of the foundations. The materials on which the building is founded lose their cohesion or lose their power of resistance to the load and there is a fear of the collapse of the building. During the heavy rains, some at least of the older buildings collapse year after year and there is a loss of life and property.

The effect of the wind is also felt on buildings. Many a roof have been removed from the building and blown away to some distance in a heavy wind. The walls of the building offer resistance to the wind and the strain put on the foundations and members on the side away from the wind is very great and the wind load has got to be allowed for in the design of buildings.

(ii) Abnormal Stresses

What we have been contemplating above are the ordinary rain and wind. But sometimes these are abnormal. For instance in a place like Poona or Hyderabad, the heaviest rain might be taken at about 5 inches of rain in a day. At Hyderabad there was once a rainfall of 13 inches in one day. All the ordinary calculations were upset and even if we were to know that such an abnormal rain was coming, it would not be possible to be prepared for it. Similarly an ordinary wind is 4

or 5 miles an hour, a hurricane is 30 to 40 miles an hour, and a tempest is 80 to 100 miles per hour. Even mother nature is not prepared for the abnormal conditions. The coconut palms and palm trees standing majestically erect for centuries were rooted out or snapped midway in the hurricane of 1902 in Ratnagiri, Colaba, Thana and Surat Districts near the seashore. The same hurricane blew away the roofs of many a building and many buildings collapsed. Some precautions can no doubt be taken to prevent such catastrophe but after all such measures are found insufficient as no one knows what is the maximum condition to expect. Sometimes the extra cost may be so much as not to keep the construction within the reach of the builder and he is forced to be fatalist and take all ordinary precaution and leave everything else to fate. It is the same argument as that of the gardeners on the slopes of the Vesuvius. He cultivates his fine grape gardens on the slopes below the Vesuvius even though the whole countryside is under molten lava periodically. The catastrophe of the destruction of Pompei is well known in history. In such abnormal conditions man cannot but be a fatalist.

The case of earthquakes is also similar. I have seen the town Catania in Sicily devastated by earthquake. I went to Quetta to see carefully the effects of the earthquake that brought almost utter annihilation on that city in the Baluchistan Hills and to see the work of human ingenuity in constructing the quake-proof houses. Japan has frequent earthquakes and has in a way provided for against such quakes. The quake-proof houses in Quetta are constructed on the principle that the whole building is constructed as one piece by reinforced concrete in which the reinforcements are all connected together in the whole structure. So that if there is a tremor or a shock the whole rocks together and the different members do not fall off singly. There is some truth in the argument, but where the last quake bent a 24" rolled steel girder as if it were a piece of thin wire, I do not see how these structures would last. The reinforcements used may be 50 to 100 times as strong and hence the cost is comparatively very great and almost beyond the reach of the ordinary builder and the safety is only problematic.

I suppose the best method would be to take all ordinary precautions for the ordinary conditions prevailing in the place and to leave the extraordinary catastrophes to themselves. In the Khandesh for instance rainfall is scarce and Dhaba or earth terrace houses are provided. In severe rains these might leak, but in the terrible heat of the summer they keep the rooms cooler. Therefore the Dhaba houses must be accepted as a compromise in Khandesh. At Lonavala, Mahabaleshwar

or Castlerock where the rainfall is 200 to 400 inches, such houses can never stand for a day in rains. In all abnormal cases human ingenuity can go some way but not all the way, and is circumscribed by the considerations of cost and possibility and as said above, most of it is a matter which depends upon compromise between cost and possibility.

The same argument applies to floods and construction of houses beyond the flood limit. Yet in many towns and villages we find houses that are useless in floods. If there are abnormal floods as in Baroda in the year 1928 or 29 or in some parts of Bengal year after year, nothing can be done. The houses are abandoned during floods with terrible loss of property and cattle, and if the floods come all of a sudden in night time, of human life also.

(c) Safety Against Fire

Safety against fire has been the subject of very deep consideration particularly in India where fires are more common owing to our wooden-framed houses, wooden fires and long periods of dry weather for eight or nine months a year. Our careless habits, unprotected kerosene oil or castor oil lights and habit of using anything combustible as fuel in an open hearth and of storing fuel in inhabited rooms for want of space, are also the cause of many a fire. Water being scarce, there are no means of putting out the fires and many of the municipalities have neither fire engines nor water available. If water is available, it has not got the force needed for putting out fire and for all these reasons, the fires spread enormously causing damage to life and property.

In order to safeguard the inhabitants against the danger of fire, fire-proof materials are used. In old times, when wood was the only material used for posts, post-plates, staircases, floor-girders, beams, joists and flooring boards and for the roof for trusses, purlins, rafters, ceiling and battens and also for balconies large and small, there was a very great danger of fire; and a fire in one place used to spread like wild fire owing to wind. In summer the fear of fire is very great and all precautions have to be taken for the safety of the building and of the inhabitants.

The first precaution taken, is to use what are called fire-proof materials for the building or what is called fire-resisting material. These are given as under :—

The expression 'Fire-resisting material' includes any of the following materials, and things, namely (*From Bombay By-laws*) :—

Brickwork constructed of good hard, sound, well-burnt bricks, stone or other hard and incombustible materials properly bonded

and solidly put together :—(i) with mortar well compounded of not less than one part of good fresh burnt lime and not more than two parts of clean sharp sand or other like and suitable material to be approved by the Commissioner ; (ii) with good cement ; or (iii) with good cement mixed with sand or other suitable material to be approved as aforesaid, encased in cement concrete or asbestos sheets.

Iron and Steel.

Oak and teak and other hard timber when used for beams and posts, or in combination with iron, the timber and the iron (if any) being protected by plastering or other incombustible or non-conducting external coating not less than 2 inches in thickness or in the case of timber not less than one inch in thickness on iron lathing.

Slate, tiles, brick, and terra-cotta when used for coverings or corbels.

Flagstones when used for floors over arches, but not exposed on the underside and not supported at the ends only.

Concrete not less than 4 inches in thickness, composed of broken bricks, stone chippings, or ballast and lime cement or calcined gypsum when used for filling in between joists of floors.

Any combination of concrete and steel or iron, such as reinforced cement concrete.

Any article made of asbestos and cement.

Any other material from time to time approved in this behalf by the Commissioner.

Large municipalities insist therefore on fire-proof construction and fire-proof materials. Now-a-days reinforced concrete construction can provide a fully fire-proof building and if there is a fire in any room, it cannot spread outside the room. Hence, I suppose the by-laws in all towns would do well to insist on fire-proof reinforced concrete construction of new buildings. In the case of old buildings the usual provisions for putting out the fire, such as space for the fire brigade people to work and the provision of fire-proof staircases must be insisted on.

There are all the provisions for the safety of the building and must be incorporated in the building by-laws and enforced.

CHAPTER VI

THE THEORY OF FOUNDATIONS OF BUILDINGS

We now come to the safety of the buildings as required in the foundations.

The foundation of a building is the most important part on which its safety is based and special attention and care has to be paid to it. The foundation is a costly item and is hidden from the human eye once it is constructed, because it is under ground. A jerry builder can easily deceive the Municipal authorities if not properly watched, and construct a building which is a source of danger to the inhabitants and to the neighbours. Municipalities therefore must frame elaborate by-laws for the design, construction and supervision of the foundations.

We will now consider the ordinary scientific principles on which foundations are based.

There are two things to consider in foundations of buildings.

(1) Width of foundations.

(2) Depth of foundations.

These two things depend upon many circumstances which must be considered.

(1) Width of Foundations

The width to be given to the foundations depends upon

(a) The load that comes on the foundations.

(b) Materials composing the ground on which the foundations rest.

(a) The load that comes on each part of the foundation consists of the total weight of the structure distributed at the base of the wall on the foundation and of the stress that comes on, owing to outside agencies such as wind which exert undue pressure in some parts. The deviation of the structure from the verticality, even though slight, exerts some stresses. The unequal or eccentric loading of the structure also gives unequal stresses. All these have got to be calculated and we can get the maximum load per square foot at any point. This may be

different in different places and if great variations are not found in these, the maximum is taken and the foundations designed to carry the maximum load.

(b) The next thing to determine is the capacity of the soil to bear this load. Each soil has got its own capacity to resist the load or in other words to prevent the loaded walls or columns from damaging the ground or sinking in the ground. Each kind of material has got its own co-efficient of resistance depending upon its physical properties and other things. These can be found out by experiment. Even difference in the degree of moisture gives different results. Thus dry black soil has a higher co-efficient than wet black soil. We have to take the conditions in the worst circumstances and base our calculations on that.

This can best be illustrated by sand and a 'walking stick.' In dry sand, the walking stick can be pushed in to a considerable depth, showing that dry sand offers very little resistance to the stick. If the sand is slightly moist, the stick cannot be pushed in, that is, there is great resistance. If the sand has more water and becomes quick sand it has no resistance at all. Dry sand enclosed so as not to spread or escape has great resistance. If it can escape or spread, it has no value as a safe material for foundation.

We have also to consider the behaviour of materials under different conditions and in different seasons. Take for instance black cotton soil. When rain water gets access to this soil, it becomes plastic and swells up, forcing up the foundations of pavements of rooms, and developing cracks in them. When the moisture dries, the black cotton soil shrinks and develops large cracks in its own volume and there is a void between the soil and the pavement, and any ordinary load on the pavement causes the pavement to settle and crack and come out in patches. Such soil is therefore unfit as a material for foundation and you have either to go down to another safer material or to make a special provision by providing a raft or platform of cement concrete.

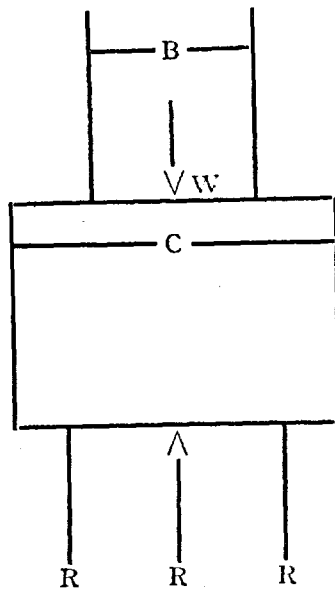
We give below a list of the co-efficients of resistance of various substances :—

	<i>Safe load in tons per sq. ft.</i>
1. Soft, wet, pasty or muddy clay and marshy clay	0.25 to 0.33
2. Alluvial deposits of moderate depths in river-beds	0.20 to 0.35
3. Diluvial clay in beds of rivers	0.35 to 1.00

	<i>Safe load in tons per sq. ft.</i>
4. Black cotton soil	0.50 to 0.75
5. Alluvial earth, loams, sandy loams (clay and 40 to 70 per cent of sand) and clay loams (clay and about 30 per cent of sand)	0.75 to 1.50
6. Moist clay	1.00 to 1.75
7. Compact clay, nearly dry	2.00 to 2.50
8. Soiled clay mixed with very fine sand	4.00
9. Dry compact clay of considerable thickness	3.00 to 5.00
10. Loose sand in shifting river-beds, the safe load increasing with depth	1.50 to 2.50
11. Silted sand of uniform and firm character in a river-bed, secure from scour and at depths below 25'	3.50 to 4.00
12. Compact sand	2.00 to 3.00
13. Compact sand, prevented from spreading	5.00 to 7.50
14. Sandy gravel, or kunkur	2.00 to 3.00
15. Sandy gravel, but compact, dry, and prevented from spreading	4.00 to 6.00
16. Very firm, compact sand at a depth not less than 20' and compact sandy gravel	6.00 to 7.00
17. Firm shale, protected from weather, and clean gravel	6.00 to 8.00
18. Red earth	3.0
19. Murum	4.0
20. Compact gravel	7.00 to 9.00
21. Rock	from laterite 2 tons to granite 25 tons and upwards.

Having thus found out the load per square foot at the foundations and the resisting power of the materials, if we find the load per square foot greater than the resistance it is necessary either to reduce the intensity of the load or increase the resistance. The increase in the resistance is not possible, as long as you confine to the material as it is. It is possible to reduce the intensity of the load by spreading it over a greater area. Thus supposing the load is 6 tons per square foot and the resistance of the soil is 2 tons per square foot, it is necessary to reduce the load to at least 2 tons per square foot and this can be done by increasing the area carrying the load to three times or by widening the foundation to three times.

The figure below will illustrate this.



W = Load on wall per square foot.

R = Resistance of material of foundation per square foot.

B = Width of wall.

C = Width of foundation.

Taking one foot length of the wall and foundation :—

Area of wall carrying the load = $B \times 1 = B$

Area of foundation resisting the load = $C \times 1 = C$

$\therefore$ Load of wall = WB

Resistance of foundation = RC

In order that there should be no yielding or sinking of foundation, the total resistance offered by the foundation must be greater than the load.

$$\therefore RC > WB$$

$$C > \frac{W}{R} B$$

$\frac{W}{R}$ can be called the weight/resistance ratio. The width of the foundation must be little more than the weight/resistance ratio, multiplied by the width of the wall, taking the value of the load as maximum under all circumstances and the value of the co-efficient of resistance, the minimum under the most adverse circumstances such as moisture and allowing also for a factor of safety.

When the load is great it is necessary to provide for the crushing action on the foundation and special materials such as reinforced cement

concrete has to be used for the materials of the foundation and the load reduced to such an extent that it does not tend to crush the materials when so spread out.

(2) Depth of Foundations

In many cases, where it is possible to find at short depths, harder and materials giving more resistance, it is cheaper and safer to excavate and increase the depth of foundation so as to carry the foundations to a harder materials, such materials as hard murum or rock. The question evidently is whether the total expenditure is less and ultimate safety is more with less width and greater depth than that with greater width and less depth. But the decision does not depend on this alone. Materials such as rock and hard murum are safer and more reliable because their resistance is not appreciably reduced by moisture and rain as in the case of black or yellow soil. The atmospheric action which reduces the hardness and cohesion of the material at the surface—even hard material like murum and rock at the surface of the earth—is not so active at depths where the atmospheric action cannot penetrate. In many important buildings no reliance is placed even on hard murum or soft rock and the foundations are taken to hard rock so as to eliminate all uncertainty.

But when the material is uniform and you cannot get any harder material even though you go to a considerable depth, as in alluvial deposits or black soil in Gujarat, reliance has to be placed on the mass resistance of the foundation.

In such cases the forces for equilibrium are :—

(i) The downward force = Load W .

(ii) The upward forces are :—

(x) The resistance of the material R .

(y) The frictional force generated by the friction between the materials of the foundation for sliding against the material of the soil. This we can call F . This depends upon the area of the surface sliding, on the load W and on the co-efficient of friction, U .

$$F = AUW$$

so that for safe foundation we must have :

$$W < R + F$$

$$\text{That is } W < R + AUW$$

In this we know W , R and U and find A . Thus we know the depth of foundation needed.

CHAPTER VII

REQUIREMENTS OF HYGIENE AND SANITATION

Coming next to the personal requirements of the inhabitants of the building which the building must satisfy, there are certain minimum requirements that must be guaranteed to them for their health and well being.

Under these requirements we have to consider the hygienic requirements first, because even before food and water, air is most essential to human body; and the development of the human body, and its general freedom from disease depends upon a copious supply of pure air. Light is also necessary for all the human work that is done by day. Every man, family, village, town or country desire for themselves or their members an unlimited supply of light and air. The middle class people living in cities are pale and emaciated because they are denied good supply of light and air, and when starved for light and air, they are without vitality and energy, leading a humdrum life, going listlessly to their work and meeting helplessly any fate that awaits them. Nothing rouses them. The most severe national crises leave them unmoved. They are like so many sheep driven to their doom. And these people have enough intelligence and education to produce good leaders and very good followers. All this good element is lost partly owing to the poor conditions of housing which sap their vitality. Ill-ventilated theatres, cinemas, restaurants and such other public places, which create unnatural excitement which they are not used to in their routine life, further help to complete on the process of devitalisation began in congested and ill-designed schools and colleges and continued in their indifferently ventilated and lighted houses and offices. If a disease such as consumption or insanity gets entrance into such a family the results are disastrous both to the family and the city. Statisticians from U. S. A. have traced families and their members for 100 years. In one town a consumptive father gave the town 407 and odd consumptive descendants during one century. As time goes on these families swell the ranks of the slum dwellers in these towns and cities. Our only consolation from the point of view of municipal funds is that we have no compulsory poor houses where these people will have to be housed and fed at the expense of public rates and taxes. As it is, the beggar problem and waste of private charity is more than enough. Men under similar status of life in villages, who have not the benefits of the doubtful educational institutions of the cities, nor the polish and pleasure of the places of amusement, nor further the steady income from the attendance at the offices which demand all the

energy one can give and even more, are more manly, robust and able and willing to take their own place in national life and struggle, if they are well led and if the desire to do so is created by able leaders.

But the supreme importance of the blessings conferred by these regulations can be realised when we consider the housing of the poor. These people form the majority, 60 to 70 per cent of the total inhabitants of the city. The miserable housing conditions, the allowance or enjoyment of less than the minimum allowable floor space, the provision of less than the least requirement of light and air, or in many instances the absence of all light and air, the miserable conditions under which the people have to work in factories, mills and godowns, the poor nourishment they get, the insanitary eating houses and places of amusement they frequent and last but not the least the drink evil, the houses of ill-fame, the secret gambling dens they frequent in order to have a little morbid excitement in their miserable existence, makes the life of these people in these surroundings worse than the conception of hell described by authors. The squalor and filth, the stench and insanitation, the heat and moist perspiration, and the consequent misery of life cannot probably be realised by the city fathers sitting in their well-ventilated, well-lighted, cool and spacious corporation hall, in an easy chair, under an electric fan, voting for rises of salaries to fat salaried officials who flatter them, but voting against and arguing about the insufficiency of municipal funds when any amenity or improvement to these poor people is contemplated. Such city fathers must be forced to live for a fortnight in the labourers' quarters at Parel or DeLisle Road, in some rooms of their poor peons or low-salaried teachers and clerks, and must not be allowed to have an access to their own usual life and surroundings. Then only they will realise the misery of the life of the poor who are their wealth producers, food givers and who toil to provide the rich with a palatial house, luxurious life and motor cars and the pleasures of the idle rich.

These houses breed germs of disease, impart the disease to the inhabitants, propagate it to the healthy, and produce the epidemics that spread to the healthy localities when they are severe. All the medical aid and hospital space available, is not enough for these people. Even if all the available funds were utilised for the medical aid, they would still be insufficient for the work alone. The fear of the spread of epidemics from these plague spots to their decent and comfortable quarters, and the consequent fear of expense and some deaths, and the vast amounts of public funds demanded for medical free relief, should at least force the rich to contemplate the condition of the poor sympathetically.

The requirements are mainly two from a hygiene point of view in the construction of a building. These are concerned with—

- (a) provision of ample light,
- (b) provision of ample air.

It would appear that these are the fundamental requirements of every house and it is not necessary to be very insistent on this behalf. But unfortunately the provision requires more cost and more technical knowledge than what an individual builder possesses. If some men avoid the provision to save cost, others avoid because of ignorance and some others owing to both these reasons aided by religious scruples and observances.

(a) Provision of Light

As we have said before, after the initial stages of civilisation are passed, when man becomes a dweller in a city, in every house in the city there are persons who have to carry out all their daily routine work in the house itself. Such people require light for their work. In all middle class and poor houses, the men do a little reading in their spare time from work or office, the children do a lot of reading and writing when preparing for their studies in the morning, evening or night and the women of the house attend to their household work all day long and many women hardly move out of the house during the 24 hours of the day and carry out almost all the work in the precincts of the house. Therefore for all this work there must be enough light to do the work without putting a strain on the eyes.

The human eye is a very complex and very delicate organ that requires the utmost care. The city dweller's eye is the eye of a civilised man. He has to concentrate his eye on small script written or printed and the pupil of the eye consequently loses its elasticity. It becomes incapable responding to small quantities of light or to adjust itself to the changes at once. The more a man, woman or child is required to work in indifferent light, the worse it is for the eyes and many of the defects we see in the eyes of children today could have been avoided by care and adjustment of light for the eyes. The case of Indian ladies, particularly of Pardah ladies, deserves consideration. They have to work the whole day inside the house—cleaning rice and dal, sewing clothes by needle and doing a multiple of other duties which call for the concentration of the eyes on the work. The light for such work must be very good. But in our houses it is very bad. Besides, when one goes out in the open sunlit streets and comes back to his own dark home, the strain put on the eyes to perform work in the house is great.

[To be continued.]

THE GROWTH OF LOCAL SELF-GOVERNMENT IN THE PRESIDENCY SINCE 1858

By RASIKCHANDRA G. SHAH, B.Com., L.S.G.D.

(Continued from July 1940, page 138)

VILLAGE PANCHAYATS

Self-Government in Ancient India

In ancient India, "the smallest administrative division was a grama (village) reckoned by Kautilya as constituting 100 to 500 families. The next administrative division was a Sangrahana, a group of villages, 7 and upwards, Dronemukh consisted of 400 villages and Sthawiya of 800 villages. The Gramanni was the village officer who had both Civil and Military powers."¹

In the Bombay Presidency, the unit of revenue administration is the village. . . . The Village system is the keystone to the arch on which the stability of the whole of the revenue administration of the Province depends.² The existence of a distinctly effective, if somewhat shadowy, local organisation, in one form or the other form of Panchayats, which was in fact now and then giving decisions on matters of communal concern, adjudicating civil disputes, and even condemning offenders to reparation and fine, cannot be questioned. The staff of functionaries, artisans and traders by means of which the village communities carried on their internal government have survived in a recognisable form almost everywhere.³ The most characteristic feature of the government of village community was the Panchayat or the Village Council.⁴ The term Panchayat might denote either a general meeting of the inhabitants or a select committee chosen from amongst them. The two forms are very often found side by side in the same community. . . . The Panchayat is often a nebulous thing which appears, in the minds of the villages, to drift between the ideas of a meeting of the whole community and the idea of a more or less select council.⁵ There existed definite rules for the appointment of judicial boards, and for the election of certain committees for local administration in the same village.⁶ The qualifications for memberships were also laid down.⁷ There are references here and there to women members of the village committees, and apparently women were under no absolute prohibition.⁸

1. Cf. D. S. Modak's *The Bombay Land Revenue System & Village Administration*, p. viii.
2. Cf. *Ibid* p. xii.
3. Cf. John Matthai's *Village Government in British India*, Para 13, p. 15.
4. Cf. *Ibid* Para 21, p. 18.
5. *Ibid* Para 24, p. 20.
6. Cf. *Ibid* Para 33, p. 27.
7. *Ibid* Para 34, p. 28.
8. Cf. John Matthai, Para 34, p. 29.

The village enjoyed a large amount of self-government. "In ancient Gujarat towns and cities, local administration was entrusted to Committees mostly consisting of non-officials. There was a Committee to collect revenue, another to supervise over the water supply, a third to carry out repairs of public temples and buildings. There were probably similar Committees to look after drainage and road repair, to keep a watch over the foreigners and to maintain intact the defences of the towns."⁹

The village community has now lost much of its internal cohesion and local autonomy. Many of the administrative duties which in more leisurely and less exacting days were left to be done by the village community have had necessarily to be taken up into the hands of the Central Government and its subordinate agencies. The progress of education and the rising spirit of individualism were helping this process from within. Nevertheless, as an administrative organ of great potential usefulness for the rural population the village community is by no means dead.¹⁰

The village in India has thus been from times immemorial the unit of revenue administration and has survived all the changes in the upper structure of the Government. Under the pre-British administration, the village was practically an autonomous body, since the rulers never interfered with the village organisation and generally fixed the responsibility for payment of the State revenue on the village itself or some large landholder. With the advent of the British rule in India, centralisation gained grounds. The British centralisation proved fatal to the growth of the village administration. It lost a part of its autonomy and some of its characteristic features owing to the establishment of local and criminal courts, the present revenue police organisation, the increase of communications, the growth of¹¹ individualism and the operation of the Indian Ryotwari System. Yet its form has not gone beyond recall. The Report of the Indian Famine Commission¹² recognised that the future progress of the country demands encouragement of the principle of local self-government, by which business of all kinds should be left more to local direction. This principle is of much moment and nowhere so than in dealing with local distress.

But the real development of the villages, in the modern sense, started after the Report of the Royal Army Sanitary Commission. The Report pointed out the filthy condition of the villages and the import-

ance of increased attention to sanitation. The earliest efforts of the Government in village sanitation consisted in the promulgation of rules for enforcing certain elementary sanitary precautions. But these rules did not achieve any substantial progress, partly because there was no proper executive agency to carry them into effect, and partly for lack of funds. The idea of utilising the ancient village machinery for carrying out the new sanitary programme was first drawn attention to by the Army Sanitary Commission in England in their review of 1879. The Commission suggested four possible agencies for the sanitary improvement of villages: (1) the inhabitants, (2) the village officers, (3) the village proprietor, and (4) the Government. "The village officer", they said, "where he exists, may help to remove the most important causes of ill-health which afflict the great mass of the people in India. He might take the following steps, and in some way authority might be given to him for this purpose. He should see that all the village streets and lanes are kept clean and free of nuisance, that no filth or foul matter is thrown on the surface and that no one is permitted to perform the offices of nature in any village street, lane or open space."

It was the Central Provinces which first attempted to this responsibility upon the village officers, and various efforts were made for the good sanitary condition of the villages but yet there was a complete absence of a properly equipped executive agency for rural sanitation. In the creation of the District Local Boards, we see some form of executive agency. The Village Unions were formed in Madras and Bengal. But Bombay had no Village Unions. To the Government of Bombay, the impetus came after the important statement of Sanitary Policy issued by Lord Dufferin, in 1888.¹³ It firmly pointed out that there should be no hesitation in taking the necessary power by legislation where the then existing law made no or insufficient for the enforcement of necessary sanitary measures in rural areas. The result was the passage of the Village Sanitation Act of 1889 in the Presidency but the purpose was exclusively and solely sanitary.

In Bombay, villages were divided into three classes for the purposes of the Act: (1) those in which the inhabitants had taken measures independently for sanitation; (2) small villages in which the needs were few and a simple type of local machinery was sufficient; (3) large villages in which a fairly elaborate system of sanitation was necessary.

The first class of villages were left out of the operation of the Act. In the villages of the second class, it was open to the Collector of the

9. Cf. A. S. Altekar's *A History of Imp. Ancient Towns and Cities in Gujarat and Kathiawar*, p. 54.

10. Cf. *Ibid* Para 43, p. 37.

11. Cf. Decentralization Report, Para 696.

12. Cf. Famine Commission Report, Part I, Para 142.

13. Cf. Resolution of Government of India of July 27, 1888, Para 18.

District, at his discretion, to appoint a Sanitary Committee. In the third category was appointed what are called Sanitary Boards. The constitution, functions and finance of the Sanitary Boards are dealt with in details in the latter portion of this Essay.

The Sanitary Committees were not successful and popular due to the exiguous nature of their resources and want of inducement to interest the inhabitants in local affairs. The constitution of such Committees was the first attempt to resuscitate the village as a local self-governing unit. The success of such Committees depends upon a variety of factors. They engage the minds of the people in works bringing economic relief as well as works of public utility and projects of improvement directly affecting themselves. The psychological effect of the fact that the people themselves are the financiers, organisers, and administrators is vitally essential for the success and full development of the Committees and Boards. The schemes of permanent benefit being carried out are admittedly necessary. The funds must be adequate and sufficient. But Village Panchayats as an independent unit of rural self-government in the Presidency were not yet born.

The Revival of the Panchayats

The need for reviving the Village Panchayats was strongly recognised by the Decentralization Commission. "The foundation of any stable edifice which shall associate the people with the administration must be village as being an area of much greater antiquity (than the new administrative creations) and one in which people are known to one another and have interests which converge on well recognized objects. . . ."¹⁴ The Commission also recommended the constitution and development of Village Panchayats possessed with certain administrative powers with jurisdiction in petty civil and criminal cases and financed by a portion of the land cess, special grants, receipts from village cattle-pounds and markets, and small fees on civil suits.

This proposal, favourably commended by the Government of India, who expressed their readiness to acquiesce in some form of permissive taxation, if need be, has in general been sympathetically received.¹⁵ The Commission recognised that any policy of establishing Panchayats would be the work of many years, and would require great care and discretion, and much patience and judicious discrimination between the circumstances of the different provinces and villages.

14. Cf. Decentralization Report, Para 639.

15. Resolution of 1915, Para 37, p. 34.

The Government of India in 1915 considered that the following general principles indicate the lines on which advance is most likely to be successful:¹⁶

- (1) The experiments should be made in selected villages or areas larger than a village, where the people in general agree.
- (2) Legislation, where necessary, should be permissive and general. The powers and duties of Panchayats, whether administrative or judicial, need not and indeed, should not be identical in every village.
- (3) In areas where it is considered desirable to confer judicial as well as administrative functions upon Panchayats the same body should exercise both the functions.
- (4) Existing village administrative committees, such as village sanitation and education committees, should be merged into the Village Panchayats where these are established.
- (5) The jurisdiction of Panchayats in judicial cases should ordinarily be permissive, but in order to provide an inducement to the litigants reasonable facilities might be allowed to persons wishing to have their cases decided by Panchayats. For instance, court fees, if any, levied should be small, technicalities in procedure should be avoided and possibly a speedier execution of decrees permitted.
- (6) Powers of permissive taxation may be conferred on Panchayats, where desired, subject to the control of the Local Government, or Administration, but the development of the Panchayat System should not be prejudiced by an excessive association with taxation.
- (7) The relation of Panchayats on the administrative side should be clearly defined. If they are financed by district or sub-district boards, there can be no objection to some supervision by such boards.

The next milestone in local self-government in rural areas was the famous declaration of His Majesty's Policy on 20th August 1917, in commenting on which H.E. the Viceroy explained on the 5th September 1917, that there were three roads along which an advance should be made towards the goal indicated in the pronouncement. Of these, the first road was in the domain of local self-government, the village or rural boards and the town or municipal councils. The broadening of

16. Cf. *Ibid* Para 39.

the basis of local self-governing institutions was one of the substantial steps to be taken with a view to the progressive realisation of responsible government in British India.

The Government of India, in the Resolution of 1918,¹⁷ stressed the necessity of legislation to accelerate the rate of progress and to stimulate the sense of responsibility of the rural areas. The Government of India desired that the matter should be further pursued and with exceptions noted below, they concurred in the views expressed in the Resolution of 1915. The Government would modify the first principle by saying that the area under the Panchayats should normally be a village; they would further omit the seventh principle. They also emphasised the importance of as simple and elastic a legislation as possible with the fullest scope of details.¹⁸ Also the development of a Village Panchayat System would, in any case, be secure by separate legislation unconnected with the acts relating to the municipal and rural boards.¹⁹

In 1918, the Government of Bombay appointed a special officer to investigate the question of the establishment of Village Panchayats in the Presidency, and it was the report of this officer which formed the fundamental basis of the Bombay Village Panchayats Act of 1920. It is recognised that the prospect of successfully developing Panchayats must depend largely upon local conditions, and that the functions and powers to be allotted to them vary accordingly; but where the system proves a success it is contemplated that they might be endowed with Civil and Criminal jurisdiction in petty cases, some administrative powers as regards sanitation and education, and permissive powers of imposing a local rate.²⁰ Such was the history and growth of rural self-government in villages before the passing of the Bombay Village Panchayats Act of 1920.

Constitution under the Act of 1920

Under the Act of 1920, the Commissioner of a division, on application in writing made to him either by a District Local Board after previous notice to the Collector of the District or by the Collector after previous notice to the District Local Board, may declare any area to be a village for the purposes of the Act by a Notification published in the Gazette. The Act lays down that in every such village, a Panchayat shall be established consisting of such number of persons (not less than 5) as

shall be determined by the District Local Board, and that the officiating Patel (Headman) of the village, if any, or, if there be more than one, the officiating Revenue Patel, or, if there be more than one Revenue Patel, the senior of them, shall be an *ex-officio* member of the Panchayat. As regards the constitution of the Panchayats, the points to which the Government of India attached most importance were:²¹ the association of the principal village officers with the Panchayats and informal election of the other members by the villagers themselves. They, however, allowed the Panchayat to choose its own President who should be the Village Headman as suggested by the Decentralization Commission.

The members of the Panchayat elect one of themselves as Sarpanch (Chairman) in whom is vested the entire executive power of the Panchayat. The Sarpanch is also directly responsible for the due fulfilment of the duties imposed upon the Panchayat by the Act. His removal from office, by the District Local Board if he is found unfit or is persistently remiss in the discharge of his duties, is allowed by the Act.

Franchise

Every adult male resident of the village is qualified to vote at the elections of members of the Panchayats. Elections are held in accordance with rules made by the Government at a meeting presided over by the Assistant or Deputy Collector, or other persons appointed by the Collector in this behalf. Members of the Panchayats hold office for three years.

But the Panchayats were not a success in the Presidency. It cannot be said that any success has attended the experiments in this Presidency. No Panchayats have been established in Sind or the Bombay Suburban District, and where they have been established in other districts, they cannot be said to be working satisfactorily. So little success was achieved that in 1926, Government appointed a Committee (Hatch) of the Legislative Council to report on the question. A Bill was introduced in the Bombay Legislative Assembly and was amended by the Select Committee. The Act of 1920 was so unsuccessful that critics like Rao Bahadur R. R. Kale went so far as to say that the present Village Panchayats Act was no Panchayat but a revised edition of the Sanitary Act. What was wanted was a radical change in red-tapist policy and the spirit of administration; without it all superficial attempts would be of little use. The Bill introduced by the late Sardar Sir Rustom Jehangir Vakil, Kt., was passed in 1933 with a view to fostering the growth of Village Panchayats and of increasing their utility in the further

17. Cf. Resolution of 1918, Para 23.

18. Cf. *Ibid* Para 24.

19. Cf. *Ibid* Para 25.

20. Cf. Report on Indian Constitutional Reforms, Para 196, p. 123.

21. Cf. Resolution of 1918, Para 21.

development of local self-government in rural areas and in the administration of civil and criminal justice. The Bill was brought forward before the Select Committee. On the whole, Sir Rustom's Government Bill was far more acceptable than the amended Bill that had emerged from the Select Committee. The Select Committee exhibited unprogressive and retrograde attitude in the Bill as amended by them. The Government Bill was more liberal, showed greater trust in the capacity of the villages to elect suitable candidates for Panchayats, greater confidence in the administrative as well as judicial capacity and impartiality of the representatives of the people, greater faith in the district local boards, and greater anxiety to keep the local Government in direct touch with the people. It was less bureaucratic and above all free from communal outlook. Government had shown better responsiveness and sympathy towards public aspirations than the Select Committee. It was certainly the Government Bill that showed a progressive attitude.

Constitution under the Act of 1933

The Act of 1933 enacts that on a written application made (i) by the District Local Board with previous notice to the Collector, (ii) by the Collector with previous notice to the District Local Board, or (iii) by not less than twenty adult residents of any local area, the Commissioner may, after making such inquiry as may be prescribed, declare the local area, in respect of which the application has been made, to be a village or to cease to be a village, or declare that any area is included in or excluded from a village (Section 4). In every village declared to be such, there shall be a Panchayat (Section 5). The Local Self-Government Institute said that the local Government should be the statutory authority for the creation of the Panchayats and that it makes a world of difference between the Commissioner's having the statutory powers and their having powers delegated to them by the Ministers in charge. Local Governments in other provinces have also substituted the word 'Local Government' for the purpose, and it would have been better if Bombay had followed suit. The Bill as introduced by the late Sir Rustom retained the numerical strength of the Panchayats at the minimum five for elected members but also prescribed the maximum of elected members at seven. The Patel was given his *ex-officio* seat; a nominated landlord was added. The power to vary the number of elected members between the fixed minimum and maximum was to be retained by the District Local Board.

But the Select Committee fixed the total strength of the Panchayats at 17, the number of elected members varying from 5 to 11, the Police Patel being given an *ex-officio* seat and a landlord or his representative

being nominated. The Select Committee deprived the District Local Board of the right to fix the number of elected members and gave it to the Collector after consultation with the District Local Board. The Select Committee thus gave powers to the Collector to such an extent that the non-elective element in the Village Panchayats may be increased by him upto the maximum of nearly 71%.

The Act now enacts that a Panchayat shall consist of the following members, namely :—

- (1) Such elected members, not being less than five or more than eleven in number as the Collector after consultation with the District Local Board, may determine : Provided that when among such elected members there is not a member of any class of persons residing in the village, which in the opinion of the Collector, by reason of its number or for any other reason, should be in the public interests, be represented on the Panchayat, the Collector shall nominate a member of such a class qualified and willing to be so nominated a member of the Panchayat : Provided further that the number of members nominated by the Collector under the first proviso shall not exceed two.
- (2) An officiating Patel in the following order of preference :—
 - (a) the senior officiating revenue Patel, if there be more than one officiating revenue Patels in the village, or
 - (b) the officiating revenue Patel, if there be not more than one officiating revenue Patels in the village, or
 - (c) the officiating Patel, if there be no separate officiating revenue Patel in the village. For the purposes of Clause (2), an officiating Patel includes a village officer appointed under the Sind Village Officers Act, 1881.
- (3) The holder of any revenue village and where there are more than one revenue villages in the village as defined under the Act, the holder of any such revenue village, and where there are more than one holders of any such revenue villages, the principal among such holders nominated by the Collector. If such holder is unable or unwilling to serve, the Collector shall nominate a representative of such holder whom the Collector may approve (Section 6).

Thus what is now required is that the power to vary the elected and representative element should be re-vested in the District Local Boards.

Franchise

Sir Rustom's Bill substitutes 'persons' for 'males', thereby enfranchising women also. His Bill confines voting rights to persons who reside in or who own or occupy a house assessed to house tax in the village (this tax being kept compulsory). It is good that the Select Committee made the house tax optional, gave voting rights to all adults and extended it further to absentee landlords—house-owners, if their houses have been assessed to house tax where it is levied—and land-owners, assessed to cess under the Act of 1923.

The net result is that we have all residents as voters. Females and absentee tax or cess paying house-owners or landlords have acquired fresh voting rights.

The Act now enacts that all adult persons who ordinarily reside in the village and all adult persons who own in the village a house assessed to house tax or land assessed to cess under Section 93 of the Bombay Local Boards Act, 1923, shall be entitled to vote at the election. (Section 7 (2).)

Sir Rustom's Bill made no change in member's qualifications. As recommended by the Hatch Committee, disqualification for incompetence is made incurable for one year. Females have their disqualification continued and the Select Committee became not only apathetic but also anti-pathetic. It was felt that the Select Committee did not recognise the capabilities and importance of women as representatives, though the disqualification was removed from the Municipalities and the Local Boards as early as 1924.

The term of office of a member nominated under Clause (c) of Sub-section (1) of Section 6 shall be co-extensive with the term of office of elected members which is three years and which can be extended by the Collector for a period not exceeding one year (Sections 11 and 12).

Every Panchayat shall be presided over by a Sarpanch who shall be elected by the members from among their own number. The Panchayats shall elect one of its members to be a Deputy Sarpanch (Section 14). A Sarpanch or a Deputy Sarpanch holds office for one year but they are eligible for re-election (Section 15).

The executive power for the purpose of carrying out the provisions of the Act and the resolutions passed by the Panchayats vests in the Sarpanch who shall be directly responsible for the due fulfilment of the duties imposed upon the Panchayat by or under the Act (Section 20).

The District Local Board has the power, after giving due notice to the Panchayat and after such enquiry as it thinks fit, to remove from

office, with the previous sanction of the Collector, any member, or any Sarpanch or Deputy Sarpanch who, in its opinion, is unfit to be a member or Sarpanch or the Deputy Sarpanch, as the case may be, or is persistently remiss in the discharge of his duties (Section 21).

Another important and essential feature of the Bill of 1933 is the constitution of the *Village Benches* having *judicial* powers. The necessity of these powers was long recognised and it was this Act that incorporated the powers.

In the Bombay Presidency, the first attempt to use Panchayats in the regular administration of justice was made by a Regulation of 1802, which was modified by a Regulation of 1877. But the system entirely failed in actual working and it was definitely abolished in 1861.²² Since then, it has not been revived in the Presidency. A proposal to revive it was made by Mr. Wedderburn which aimed at appointing arbitration boards or Panchayats in place of Courts presided by Headman sitting singly. It had the support of a large body of educated Indian opinion in Bombay at that time, and it was ultimately thrown out chiefly on account of the strong opposition of the Provincial Government of Bombay. But in 1879, the appointment of Village Headmen as civil judicial officers was sanctioned by Deccan Agriculturists' Relief Act. The unique feature of this Act is that along with investing the Village Headman with judicial powers, there is also a system of what are called Conciliators. The functions were described in the Bombay Administration Report, 1911-12, Para 27. Though in the first instance, the Act was confined to selected areas in four districts, its application was in August 1905 made universal in the Presidency. The same administrative report in the same para points out that the Act had not been worked with any conspicuous success.

But its importance was not lost sight of. The Royal Commission on Decentralization, the Government of India Resolution, the Martin Report, the official and non-official reports of successful judicial administration by Panchayats in provinces where they have been given these powers, the popular demands evinced by resolutions passed at conferences of local bodies, prepared the soil for bestowing these long withheld powers to the Panchayats. The Government of India in 1914 laid down that in areas where it is considered desirable to confer judicial as well as administrative functions upon the Panchayats, the *same* body should exercise both functions. The Government of India²³ in 1918 concurred with the above principles.

22. Cf. John Matthai's *Village Government in British India*, Para 12. p. 176.

23. Cf. Resolution of 1918, Para 23, p. 16.

Other provinces had made a headway in this respect. In the United Provinces, village courts were set up in pursuance of the Act III of 1892. In Burma, the village Headmen received their judicial powers by the Burma Village Act of 1907. The Punjab Government entrusted the administration of civil and criminal cases to the Village Panchayats by Act VI of 1912. Now it was for Bombay to invest the Panchayats with judicial powers.

The Government had under the Bombay Village Panchayats Act of 1933 power to declare that in any village where a Panchayat has been established, a Village Bench shall be constituted to exercise, in accordance with rules, all or any of the judicial powers which may be conferred on a Village Bench under this Act. But the Bombay Act differed from similar legislation in the Punjab and the United Provinces inasmuch as a *separate* body was created. The Select Committee was practically unanimous in its recommendations but there was one member who had been courageous enough to write a minute of dissent. It was Rao Bahadur Bhimbhai Naik who championed the cause of public demand. In his Minute of Dissent, he emphasised that the elected Panchayats should be given judicial powers by pointing out the dangers of a separate body. "The very creation of a separate body is totally against the avowed principle of fostering and developing the Village Panchayats and furthering Local Self-Government. Although the functions of the two bodies, the Panchayats and the Bench, are to be distinct and independent from each other, there is no doubt that conflict and rivalry are bound to arise between the two bodies in a village, and I am afraid the object of the Bill is likely to be frustrated."²⁴

Those Panchayats which failed to obtain judicial powers had to attend to administrative work. People began to think that those which had judicial powers were superior to those which had mere administrative powers. The administrative Panchayats knowing that they were looked down by the people, neglected their work and practically ceased functioning. The judicial Panchayats felt that their work was more important and they also neglected administrative work. The administrative work, therefore, suffered. In some Panchayats, jealousies and quarrels arose between those who were merely concerned with administrative work and those with judicial work. Naturally, it was impossible for the Panchayats to develop under these circumstances. The Panchayats Act was therefore amended to the effect that judicial powers are now entrusted to every Panchayat that applies for it, to be exercised by *all* the members of the Panchayat. The elected Sarpanch is the Chair-

24. Cf. Minute of Dissent, published in Bombay Government Gazette, 10th January 1933.

man and he presides over the Village Court. This has resulted in great success. Government have, therefore, increased the powers of the Panchayats by increasing the valuation of civil suits triable by such Courts and by entrusting more important criminal cases to the jurisdiction of the Panchayats.

Despite all these things, the Government enacted that such Village Bench shall consist of five or seven members as may be appointed by the Collector. When the Village Bench consists of five members, three members, and when the Village Bench consists of seven members, five members, shall be appointed by the Collector in the manner prescribed from among the members of the Panchayats. The remaining members shall be appointed by the Collector in the manner prescribed from among persons not being persons in the service of the Government or of any local authority who may or may not be members of the Panchayats: Provided that if there be a holder of any revenue village within the limits of that village in which a Village Bench is constituted, the Collector shall appoint the holder of such revenue village a member of such Village Bench. When there are more than one such holders in any such village, the Collector shall appoint the principal among such holders the member of the Bench. If any such holder is unable or unwilling to serve on the Bench, the Collector shall appoint a representative of such holder whom the Collector may approve. The Chairman of the Village Bench shall be appointed by the Collector from among the members of the Bench (Section 37 (4).) This shows a distrust in the District Local Board.

Now the next important legislation is the Bill introduced in the Bombay Legislature by the Congress Cabinet. The Bill seeks to amend the Act of 1933, the aim of the Bill being the democratisation of the Village Panchayats.

Although the law relating to the Panchayats was revised in 1933, experience has shown that the provisions of the present Act are not suitable for the development and growth of these bodies which are primary units of local self-government. The object of the Bill is to remove the difficulties and obstacles which retard such development and growth and to democratise the constitution of such bodies with a view to popularise them, as far as possible. The main features of the Bill are:

- (1) the compulsory establishment of Panchayats for every local area having a population of 2,000 or more, the Provincial Government having power to direct the establishment of a Panchayat for any area having a population of "less" than 2,000;

- (2) the abolition of the system of nominations and *ex-officio* members and the constitution of Panchayats consisting of elected members only ;
- (3) the establishment of Village Benches for every Panchayat for the purpose of exercising the judicial powers ;
- (4) the compulsory house tax in village areas ; and
- (5) providing for appeals and revision to District Courts and District Magistrates in cases decided by the Village Benches.

The nomination to the Panchayats would now be abolished. The Panchayats then would be constituted solely of elected members not being less than 7 or more than 15, seats being reserved for Mahomedans and Harijans on a population basis (Clause 4). The Bill proposes that every Panchayat shall elect five of its members to form a Panch for the purpose of constituting a Village Bench to exercise judicial powers. Power is taken to the Government to remove any member elected or a panel of members to constitute a Village²⁵ Bench for misconduct or neglect of duty or incapacity to perform his duties. Under Section 8 (b) of the existing Act, a person is disqualified to be a member of a Panchayat who in law has been sentenced to imprisonment or whipping for an offence punishable with an imprisonment for a term exceeding six months or to transportation. It is now proposed that in order to disqualify a member, the offence in question must also be one which, in the opinion of the Provincial Government, involves moral turpitude. The Bill also introduces an additional disqualification, viz., failure to pay arrears of any kind due to a Panchayat within three months from the date of service or a special notice in that behalf. This is a welcome addition having a salutary and beneficial effect. The existing power of the Commissioner to remove the disqualifications (g) and (h) of Section 8 is now proposed to be abolished.

Functions

During the last quarter of the nineteenth century, unofficial associations and informal Panchayat have been set up in rural areas for the promotion of sanitation. "They do not owe their initiation to Legislative or official action, though in the course of their development they have received an active support from the Government ; nor is it possible to trace any definite connection between them and the old village community. They are generally private enterprises, due to the spread of education and the growth of a new public spirit, but is conceivable that they have been helped by local traditions of the old corporate

25. Cl. 22 of the Bill published in the Bombay Government Gazette.

unity."²⁶ The direction of starting Village Panchayats to take control of public works started in the Madras Presidency in 1915. The Panchayats are so keen and trustworthy that it is a matter of pride with them to do the work.²⁷

The tie of corporate unity had led to the growth of functions. The Royal Commission on Decentralization further investigated the subject. The Government of India in 1914 laid down that the powers and duties of the Panchayats, whether administrative or judicial, need not, and indeed should not be identical in every village.²⁸ The Resolution of the Government of India in 1918 vetoed the principle of Resolution of 1914. "Of the possible functions to be assigned to Panchayats, the most important are, in their (Decentralization Commission's) opinion, village sanitation and village education (in the direction indicated in para 712 of the Commission's Report) and jurisdiction in petty civil and criminal cases. With reference to this last class of functions, it is specially desirable that the Panchayats should be, as a rule, a body representing a single village, otherwise the great safeguard for proper disposal of such cases, namely, local public opinion will be lost."²⁹ The Bombay Village Panchayats Act of 1920 divides the administrative duties into the following classes :—

- (1) what are called elsewhere "Compulsory Obligations", performance of which could be enforced against the Panchayats ;
- (2) what are known as "Discretionary Duties" which the Panchayat can perform with the approval of the District Local Board.
- (3) "Additional Duties" undertaken by agreement with the District Local Board ; and
- (4) "Other Duties" which comprise supervision of schools, labour employed by Local Boards, management and maintenance of cattle-pounds and other administrative duties that the Government may assign.

All these the Panchayat 'shall' perform.

It is worth noting that judicial powers to try civil and criminal cases are not given to Village Panchayats by the Act of 1920, despite the recommendations of the Decentralization Commission and the policy

26. Cf. *Village Government in British India*, Para 25, p. 110.

27. Cf. *Ibid.* Para 18, p. 131.

28. Cf. Resolution of 1914, Para 29, p. 33.

29. Cf. Resolution of 1918, Para 23, p. 16.

enunciated by the Government as revealed in the Resolutions of 1914 and 1918.

The functions of the Panchayats are briefly :—

- (a) the supply of water for domestic use in the village ;
- (b) the cleansing of the public roads, drains, tanks and wells (other than tanks and wells used exclusively for irrigation) and other public places or works in the village ;
- (c) the construction, maintenance and repair of minor roads, drains and bridges subject to the proviso that such works shall not be undertaken without the permission of the person or authority in whom or in which the road, drain or bridge vests ;
- (d) sanitation, conservancy, and the prevention or abatement of nuisances ;
- (e) the preservation and improvement of public health ;
- (f) the maintenance and regulation of the use of public buildings vesting in the Panchayats, of grazing lands, tanks and wells (other than those used exclusively for irrigation) ; and
- (g) the lighting of the village.

In addition to the above duties, the Panchayats, subject to rules made by the District Local Board, also (i) supervise the village schools ; (ii) supervise the labour employed by local boards on works within the village ; (iii) manage and maintain cattle-pounds, and (iv) perform such other administrative duties as are from time to time assigned to them by the Governor-in-Council.

Sir Rustom's Bill followed the same system of classification. The Select Committee accepted the above classification but added one more class of works performed "outside the village" with "District Local Board's sanction". The Select Committee made a distinction between the works to be done "within the village" and those to be done "outside the village". They stipulate in the former case "previous approval" and in the latter case the "sanction of the District Local Board".

In respect of the class of compulsory duties, the Act of 1920 enumerated, as we have seen, seven items and left it to the District Local Board to direct that the Panchayat shall perform such of them as they may direct. Sir Rustom's Bill repeats the list and adds one heading (h) control of fairs, bazaars, slaughter-houses and cart stands.

The Select Committee practically repeats the original seven headings of the original Bill, and the eighth one added in Sir Rustom's Bill,

shuffles in the construction, maintenance and repair of bunds, and the maintenance and regulation of the use of forest lands in (e) and (f) respectively, and adds a ninth heading (i) provision and maintenance of burning and burial grounds. But the most important change and perhaps not well conceived effected by the Select Committee is that instead of leaving the selection of items or matters to the District Local Boards, the Select Committee attempts to leave the Panchayats selection of "any" of the items and have dropped from Clause 26 the words "as the District Local Board may, from time to time, direct" and substituted the words "subject to the general control of the District Local Board." The Act of 1933 has enacted that it shall be the duty of a Panchayat, so far as the village funds at its disposal will allow subject to the general control of the District Local Board, to make reasonable provision *within* the village in regard to the matters. (Section 26 (1)). The matters enumerated are the same as provided in the Act of 1920, plus the addition of Sir Rustom's Bill and plus the changes mentioned above effected by the Select Committee. Thus the total enumeration comes to nine items.

A Panchayat may also make provision for the carrying out *within* the village any other work or measure which is likely to promote the health, safety, education, comfort, convenience or social or economic well-being of the inhabitants of the village (Section 26 (2)). A Panchayat may, with the previous sanction of the District Local Board, also make provision for the carrying *outside* the village any work of the nature specified in Section 26 (1) and (2), viz., in the above three paragraphs.

The District Local Board may, at any time with the consent of the Panchayat, transfer to such Panchayat the management of any institution or the execution of any work not provided for in Section 26 and it shall thereupon be lawful for such Panchayats to undertake the management of such institutions or execution of such work. But the District Local Board shall have to place the funds necessary for such management for such execution. (Section 27). The Act also imposes 'other duties' which are :

- (1) The supervision of the village schools and the carrying out of the necessary repairs for its maintenance and upkeep : Provided sufficient funds are placed at the disposal of the Panchayats by the local authority or the School Board.
- (2) Subject to the by-laws made by the District Local Board :
 - (a) supervision of labour employed by local boards on works within the village ;

- (b) supervision of repairs to the Dharamshalas ;
 - (c) management and maintenance of cattle pounds ; and
 - (d) execution of such works as are entrusted to it by the District Local Board. In this case, also, sufficient funds are to be put at the disposal of the Panchayats by the District Local Boards.
- (3) The performance of such other administrative duties including the distribution of irrigation water as may be assigned to it by the Government. All these functions are obligatory as the wording is that "the Panchayat shall" and "not may".

The Congress Cabinet's Bill to amend the Act gives an additional power to Panchayats to increase expenditure with the previous sanction of the Collector on any public reception, ceremony, etc. : Provided such an expenditure shall not exceed Rs. 5/- (Clause 18).

Powers

The powers of the Panchayats may be classified under the following heads :—

- A—Powers of appointment, etc., of establishment ;
- B—Powers to frame rules and by-laws ; and
- C—Powers of taxation.

A—Under the Act of 1920, a Village Panchayat may determine the number and salary of its servants required for carrying out the duties imposed upon it by or under the Act, subject to the control of the District Board, which can require the Panchayat to reduce either the number or the remuneration of the servants appointed or proposed to be appointed by a Panchayat, if in the opinion of the District Local Board such number or remuneration is excessive. A Panchayat is bound to carry out the requirements of the District Local Board, subject to the proviso that it may appeal against any such requirement to Government whose decision is final. The actual powers to appoint the servants of the Panchayat (except in the case of the Secretary whose appointment is made by the Panchayat itself subject to the approval of the District Local Board), when once their number and salaries having been fixed, vests in the Sarpanch.

The Act of 1933 lays down that a Panchayat shall determine and submit for information to the District Local Board a Schedule of the number and salaries of its servants required for carrying out the duties imposed upon the Panchayat by or under the Act (Section 34), subject

to the dual control of the Collector or the District Local Board which may compel the Panchayat to reduce either the number of the servants maintained or proposed to be maintained, or remuneration given or proposed to be given, by the Panchayat to such persons, if in the opinion of the District Local Board, such number or remuneration is excessive. If there is a difference between the requirement of the Collector or the District Local Board, in the above matter, the Panchayat shall refer the matter in difference to the Commissioner whose decision shall be final (Section 98 (2).) The Panchayat may appeal to the Commissioner against any requirement to reduce the number or remuneration by the Collector or the District Local Board, and the decision of the Commissioner in the matter shall be final (Section 98 (3).)

The power of appointment of a Secretary vests in the Panchayat. Such appointment shall be subject to the approval of the Standing Committee of the District Local Board (Section 33). Otherwise, the Sarpanch shall appoint the servants of the Panchayats and pay their salaries from the Village Funds at his disposal. The Sarpanch has also the power, in cases of emergency, to engage such temporary servants as he may deem necessary. The Sarpanch may, from time to time, by written order, fine, suspend, or dismiss any servant appointed by him (Section 35). An appeal lies to the Panchayat, but the power to remove the Secretary of a Panchayat from office for being unfair or persistently remiss in the discharge of his duties vests in the Panchayat subject to the previous sanction of the District Local Board, and after due notice and inquiry (Section 21).

The Bill introduced by the Congress Cabinet proposes that the Secretary of a Panchayat should be a part time or full time Government servant to be appointed by the Government, Clause 20, and that the Secretary shall act as Judicial Clerk of the Village Bench, Clause 22. The appointment by the Government is really a negation of and an encroachment upon the popular rights of a democratic self-government.

B—Under the Village Panchayats Act of 1920, the Panchayats by themselves have no power to frame any rules or by-laws, all such power being vested by the Act in the District Local Board. The latter are empowered to make rules regulating the levy of additional taxation by the Panchayats and fixing the form for submission by the Panchayats of statements of their annual income and expenditure. The power to make by-laws regulating sanitation, conservancy, sources of water-supply, disposal of corpses, offensive trades or callings and such like matters also rests with the District Local Boards. It should be noted that certain minor magisterial powers are also invested in the Panchayats. Section

39 of the Act of 1920 provides that every breach of a by-law made under the Act, shall, unless the District Magistrate otherwise directs, be cognisable by the Panchayats.

Under the Village Panchayats Act of 1933, the power to make rules vests in the Government under Section 108 of the Act. In that Section, the matters in respect of which rules can be made are enumerated. The Government of Bombay was pleased to make the rules on 18th December, 1934; on 6th June, 1934 known as the Bombay Village Panchayats Election Rules; on 19th December, 1934 known as the Bombay Village Benches Rules; and on 2nd January, 1935 known as the Village Panchayats Budget and Accounts Rules. The power to make by-laws rests with the District Local Board subject to the previous sanction of the Commissioner (Section 109). The District Local Board may make by-laws under Sections 19, 20, 26 and 28.

C—The Act of 1920 had enacted that the levy of a house-tax, subject to the maximum fixed by the Government is compulsory in the case of the Panchayats. The following was the maximum prescribed by the Government. For house-tax based on annual letting value of houses, 10% in the Presidency and 6½% in Sind of such value. For house-tax based on capital value of houses, 6 annas in the Presidency and 4 annas in Sind per Rs. 100/- of capital value.

The Panchayats also have power to levy, subject to the veto of the Governor-in-Council, and with the approval of and in accordance with rules made by District Local Boards, any tax on the owners or occupiers of houses or lands within the village and to impose an octroi.

Section 89 of the Act of 1933 makes it obligatory to levy such of the taxes or fees mentioned below as may be necessary for the proper discharge by the Panchayat of its duties. The manner of levying rates is prescribed by the Government. The Local Board may, if the income falls below the amount necessary for the proper discharge of its duties, require the Panchayats to levy or increase any of the taxes or fees not beyond the maximum prescribed by the Government (Section 90). The following is the maximum prescribed by the Government :—

I.—For house-tax based on capital value, at 4 annas per Rs. 100/- of the capital value of the house; for house-tax based on letting value at 8% of the annual letting value.

III.—For pilgrims, at 4 annas from every pilgrim. Other maximum rates are also prescribed, details being given in the Village Panchayats Rules.

Judicial Powers

A special feature of Sir Rustom's Bill was the power given to the Village Benches in judicial matters. A Village Bench has the power, under Section 39, to try the following suits, namely :—

- (a) Suits for money due on contracts, not affecting any interest in immovable property ;
- (b) Suits for the recovery of movable property or for the value of such property ;
- (c) Suits for compensation for wrongfully taking and injuring movable property ;

where the amount or value of the claim does not exceed Rs. 25.

With the written consent of both the parties, recorded in the presence of the Village Bench, suits of the above nature, but the value of which does not exceed one hundred rupees, shall be triable by such Village Bench. The Government reserves the power to direct any Village Bench to try any suit of the above nature, not exceeding one hundred rupees in value (Section 39). The Village Bench is also authorised to try some enumerated cases under the specified sections of the Indian Penal Code and the Cattle Trespass Manual. The Government also has the discretion to allow any Village Bench to take cognisance of any or all the offences as well as abatements of or attempts to commit (any) such offences as are enumerated in Section 41 (2). No suit shall be brought before any Village Bench

- (1) on a balance of partnership account ;
- (2) for a share or profit or part of a share under any intestacy, or for a legacy or part of a legacy under a Will ;
- (3) by or against the Secretary of State for India in Council or any local authority or an officer or a servant of the Government or a member, officer, or servant of a local authority in his official capacity ;
- (4) by or against a minor or a person of unsound mind ; and
- (5) on account of any dispute or matter in respect of which any suit or application would be cognisable by a Revenue Court (Section 40).

Certain persons accused of theft are also not to be tried by the Village Bench (Section 42). Also offences by or against public servants are not cognisable except in case of a breach of a by-law by a Village Bench. A Village Bench may discharge after due admonition, a

youthful offender who, in the opinion of such Village Bench, is, at the time of conviction of the offence, under the age of sixteen years.

Power of Penalty

A Village Bench is not empowered to inflict any sentence of imprisonment, whether substantive or in default of fine or of whipping. The following are the maximum penalties which may be inflicted by a Village Bench for the offences mentioned in Section 41.

- (a) Under the Indian Penal Code—Fine not exceeding Rs. 10/- or double the amount of the loss or damage caused to a limit of Rs. 20/- (Section 45 (A)) ; or Fine not exceeding Rs. 20/- or double the amount of the loss or damage caused, whichever is greater, when the Government empowers the Village Bench to inflict (Section 46 (A)) ;
- (b) Under Section 21 of the Cattle Trespass Act, 1871—Fine not exceeding Rs. 5/- (Section 45 (1) (b)) ; or Fine not exceeding Rs. 10/- when the Government empowers a Village Bench to inflict this maximum penalty (Section 46 (b)) ;
- (c) For a breach of by-laws made punishable under this Act—Fine not exceeding Rs. 10/- or Re. 1/- a day for a continuing breach as provided in Sub-section (3) of Section 109.

If a Village Bench is satisfied, after enquiry that a case brought before it is false, frivolous or vexatious, such Village Bench may order the complainant to pay the accused such compensation, not exceeding Rs. 5/-, as it deems fit (Section 48). The amount of fine or compensation is recoverable by distraint and sale of the defaulter's movable property (Section 84 (2)).

(A) Direct Income

1. The proceeds of any tax or fee imposed under Section 89.
2. The income or proceeds of any property vesting in the Panchayat.
3. The sale proceeds of any dust, dirt, dung or refuse collected by the village servants, subject to private rights.

(B) Through Government

1. The amount which may be allotted to the Village Fund by Government under the provisions of Section 191 of the Bombay District Municipal Act, 1901.
2. Sums contributed to the Village Fund by Government.
3. All sums received by way of loan from Government.

4. Such other sums as may be assigned to the Village Fund by any general or special order of Government.

(C) Through District Local Boards

1. Sums contributed to the Village Fund by a District Local Board.
2. All sums received by way of loans from the District Local Board.

(D) Through Courts

1. All sums ordered by a Court to be placed to the credit of the Village Fund.
2. All sums and fines ordered to be paid as compensation realised under Sections 45 and 46.

No suit shall be entertained by a Village Bench after the expiration of one year from the time when the right to sue first accrued. No case shall be cognisable by a Village Bench after the expiration of one month from the date on which the offence was committed.

Finance

The sources of a Village Panchayat under the Act of 1920 are mainly :

- (1) The local taxes ;
- (2) Grant from the District Local Boards ;
- (3) Fines realised in the prosecutions for breaches under the Act ;
- (4) The sale proceeds of or income from any property vesting in the Panchayat ;
- (5) Any amount which may be allotted to the Village Fund by the Government ;
- (6) Any sums other than fines ordered by a Court to be placed to the credit of the Village Fund ;
- (7) All sums received by way of loans from the Government or by way-of gift.

Unlike the District Local Boards and the Municipalities, the Village Panchayats receive no grants from Government. Before Village Panchayats were instituted, there were sanitary committees and boards which were receiving Government grants. The house-tax was made compulsory which was the main cause of failure of the Village Panchayats. The finances of the Village Panchayats were not adequate and sufficient. Inadequate funds are a hindrance to the natural growth of these primary units of rural self-government.

The Act of 1933 may be said to mark a definite advance in respect to the financial growth of these rural units. The Village Fund under the present Act of 1933 consists of :

- (a) the amount which may be allotted to the Village Fund under the provisions of Section 191 of the Bombay District Municipal Act, 1901 ;
- (b) the proceeds of any tax or fee imposed under Section 89 ;
- (c) all fines and sums ordered to be paid as compensation realised under Sections 45 and 46 ;
- (d) all sums ordered by the Court to be placed to the credit of the Village Fund ;
- (e) the sale proceeds, except in so far as any person is entitled to the whole or a portion thereof, of all dust, dung, dirt or refuse (including the carcasses of animals) collected by the village servants ;
- (f) sums contributed to the Village Funds by Government or District Board ;
- (g) all sums received by way of loans from the Government or the District Local Board or by way of gift ;
- (h) such other sums as may be assigned to the Village Fund by any general or special order of Government ;
- (i) the income or proceeds of any property vesting in the Panchayat ; and
- (j) fees laid for the institution of suits and cases under Section 59.

The powers of taxation are broadened by the Act of 1933. Every Panchayat is authorised to levy in such manner and at such rates as may be prescribed, such of the taxes or fees specified in Sub-section (2) as may be necessary for the proper discharge by the Panchayats of its duties under this Act. Taxes or fees which are leviable by a Panchayat under Sub-section (1) are : (1) a tax upon the owners or occupiers of houses or lands within the limits of the village ; (2) a pilgrim tax ; (3) a tax on fairs and festivals ; (4) a tax on sales of goods ; (5) an octroi ; (6) a tax on marriages, adoptions and feasts ; and (7) any other tax which may have been approved by the District Local Board and sanctioned by the Government. Provided that when such tax is other than a tax specified in Schedule II to the Schedule Taxes Rules made under Clause (a) of Sub-section (3) of Section 88 (a) of the Government of India Act. Such tax shall not be levied without the previous sanction of the Governor-General-in-Council. Limitations to the powers of

taxation may be exercised by the District Local Board or the Government. Any person aggrieved by the assessment, levy or imposition of any such tax or fee may appeal to the District Local Board. The decision of the District Local Board in the matter shall be final (Section 89 (3).)

District Local Board has the power to increase taxation of the Panchayats. If in the opinion of the District Local Board, the regular income of a Panchayat falls below what is necessary for the proper discharge of its duties specified in Sections 26 and 28, the District Local Board may require the Panchayat to take steps, within six months, to such extent as the District Local Board considers necessary. If the Panchayat fails to take adequate steps to increase its income to the required extent, the District Local Board may require it to levy or increase any of the taxes or fees not beyond the maximum prescribed, specified in Section 89 (Section 90 (1).)

Any Panchayat may appeal to the Commissioner against an order made under the above paras and the Commissioner may stay the execution of such order until he has decided the appeal (Section 90 (2).)

The Government also exercises limitations by suspending the levy or imposition of any tax or fee and by rescinding such suspension (Section 89 (4).)

The Government of India in Resolution of 1918 stated : It should be also permissible though not as the Commission suggested, universally necessary, that the Panchayats should receive some portion of the land cess raised in the villages.³⁰ The Government of India are also prepared, differing herein from the opinion of the Decentralization Commission, to allow the Panchayats voluntary powers of supplementary taxation, the proceeds of which would be devoted to the special purpose or purposes for which the tax was levied. After 15 years, the Bombay Village Panchayats Act of 1933 enacts that the District Local Board—

- (1) shall assign to every Panchayat within the district not less than one-fifth of the local fund cess realised within the limits of the village ;
- (2) may, subject to rules, grant a loan to such Panchayats for the purposes of the Act.

Control

The Government control can be exercised in two ways, from within and from without. It is the State that is ultimately responsible for

30. Cf. Resolution of 1918, Para 23, p. 16.

good and the efficient administration of the work delegated. The vital principles of civic democracy necessitates as little control as possible. Nationalism and good government demand that some sort of control must be exercised for ensuring regular functional and financial organisation and administration.

It is the District Local Board, which directly controls the working of the Panchayats within its jurisdiction. Such control may be classified under the following heads :—

(1) Appointment of servants ; (2) Framing of the annual budget ; (3) Inspection of accounts ; (4) Suspension of execution of orders passed by a Panchayat ; (5) Execution of necessary works in cases of emergency ; and (6) Performance of duties in case of default of the Panchayat.

(1) The extent of the control of District Local Boards over the Village Panchayats in regard to appointment has already been indicated in connection with the powers of the Panchayats. The Collectors of the District Local Boards have power of reduction of establishments entertained by the Panchayats (Section 98).

(2) Under the Act of 1920 the District Local Board is empowered to lay down the form in which and the date by which the annual budget estimates of the Panchayats within its jurisdiction should be submitted for its approval. It is also open to the Board to direct that the expenditure on any of the items shown in the estimates should be increased or decreased, provided that any such order of the District Local Board is passed within two months after receipt of the estimates and provided that the total expenditure as proposed by the Board does not exceed the estimated income of the Village Fund for the following year. The Act of 1933 gives the power to Government to prescribe the form. It further lays down that a Panchayat shall determine annually and shall submit to the District Local Board, on or before such date and in such form as may be prescribed by Government, a statement of

- (a) the opening balance of and estimated income of the Panchayat for the following year ;
- (b) the expenditure proposed on establishment and the discharge of the duties specified in Sub-section (1) of Section 26 ;
- (c) the expenditure proposed under Sub-section (2) of Section 26 and Sub-section (1) of Section 28. (Section 36 (1)).

The District Local Board exercises further power by approving, increasing or decreasing of the proposed expenditure on any of the

duties specified in Sections 26 and 28, but the District Local Board will have no power to direct that the total proposed expenditure shall exceed the estimated income of the Village Fund for the following year and the opening balance (Section 36 (2)).

(3) Under the Act of 1933 the audit of the accounts of the Panchayat shall, unless provision is made otherwise by Government in this behalf, be carried out each year by the District Local Board, and such Board shall, within one month of the completion of the audit, forward a copy of the audit note to the Collector (Section 97).

(4) Under the Act of 1920, a District Local Board has power, subject to the orders of the Government to suspend the execution of any order or resolution or to prohibit the doing of any act by Panchayat if in its opinion the action of the Panchayat is likely to cause injury or annoyance to the public or to lead to a breach of peace. Under the Act of 1933, the Collector is given this power. The Collector may, by order in writing, suspend the execution of any order or resolution of a Panchayat or prohibit the doing of anything which is about to be done or is being done by or on behalf of a Panchayat, if in the Collector's opinion it is likely to cause injury or annoyance to the public, or to lead to a breach of the peace. (Section 99 (1)). The Collector has to send to the Panchayat affected thereby a copy of the order, with a statement of the reasons for making it (Section 99 (2)).

The Collector has also to submit to the Commissioner a report of every case occurring under this Section, and the Commissioner may revise or modify any order made therein and make in respect thereof any order which the Collector could have made.

(5) In cases of emergency the Board may provide for the execution of any work which a Panchayat is empowered to execute and the immediate execution of which is, in its opinion, necessary for the health and safety of the public, and may direct that the expense of executing shall be forthwith paid by the Panchayat. The Act of 1933 transforms this power to the Collector. In cases of emergency the Collector may provide for the execution of any act necessary for the health of the public. The Collector may also direct that the expense of executing the work or doing the act shall be paid by the Panchayat (Section 100). If the expense is not so paid, the Collector may direct the officer in charge of the treasury in which the Village Fund is kept to pay such expense, or so much thereof as is possible, from the balance of such Fund in his hands (Section 100 (2)). The Collector shall forthwith report to the Commissioner every such case in which he exercises this power.

(6) Under the Act of 1920, the only important power which the Government had reserved was that of superseding the Panchayat which exceeded or abused its powers or made persistent defaults in the performance of its duties.

The Government has now power, after consultation with the District Local Board, to (i) dissolve a Panchayat, or (ii) supersede a Panchayat for a specified order, if in the opinion of the Government, such a Panchayat exceeds or abuses its powers, or makes persistent default in performance of the duties both imposed on it under Section 26 or any other law for the time being in force (Section 102). Under Section 101 a District Local Board may order a Village Panchayat to perform within a specified time the duties in respect of which it has made defaults. If the duty is not performed within the specified period, the District Local Board may appoint a person to perform it, the expenses of performance being paid by the defaulting Panchayat. The District Local Board has to report to the Commissioner any such case occurring under this section and the Commissioner may revise or modify any order made therein and make in respect thereof any other order which the District Local Board could have made.

Power to call Proceedings, etc.

The Collector or the District Local Board shall have power—

- (a) to call for any extract from the proceedings of a Panchayat, or any book or document in the possession or under the control of the Panchayat and any return, statement, account or report which the Collector or the District Local Board may think fit to require such Panchayat to furnish,
- (b) to require a Panchayat to take into consideration—
 - (i) any objection which appears to the District Local Board to exist and the doing of anything which is about to be done or is being done by such Panchayat, or
 - (ii) any information which the Collector or the District Local Board is able to furnish, and which appears to the Collector or the District Local Board to necessitate the doing of a certain thing by the Panchayat, and to make a written reply to the Collector or the District Local Board, as the case may be, within a reasonable time stating its reasons for not desisting from doing or for not doing such things.

All or any of the powers given to the District Local Board under Sub-section (1) may be delegated by it to its (i) President, (ii) Vice-

President, (iii) Chief Officer, (iv) Public Health Officer, or (v) Executive Engineer (Section 94 (2).)

Power of Entry

The District Local Board may authorise its President, Vice-President, or any of its officers to enter on and inspect, or cause to be entered on and inspected, any immovable property occupied by any Panchayat or any work in progress under its directions.

"When the Provincial Governments in India become autonomous, the very first step to be taken in the interests of the rural population should be to grant self-government to the villages in a liberal measure similar to that functioning in Japan. Self-governing villages would soon create a much needed spirit of self-help and constructive effort among the local population leading to healthy development in every sphere of activity—economic, social, cultural, recreational, and the like." It is worthy of note that the Congress Cabinet have placed the reform of Local Self-Government in rural as well as urban areas in the forefront of their programme. They have made a welcome of auspicious beginning in this direction by abolition of nominations in urban as well as rural units. Yet there is an enormously wide field open for the popular Government for real constructive work and far-reaching constitutional advance which call for foresight, vision, enthusiasm and sympathetic understanding of the complex and delicate problems of self-government. This alone will go a long way to place the local self-governing institutions on a sound and firm footing.

SANITARY COMMITTEES AND SANITARY BOARDS

Introductory

The constitution of the Sanitary Committees and Sanitary Boards was the first attempt in this Presidency to resuscitate the village as a unit of local self-government. Lord Ripon in 1882 championed the cause of advancement of local self-government. The Bombay Village Sanitation Act, 1889, was passed for the purpose of improving the sanitary condition of villages in the Presidency of Bombay. These committees and boards form a most interesting experiment by the Legislature for the purpose of utilising the old communal life of villages in an important object of local government.¹ The Bombay Village Sanitation Act, 1889 forms the basis of progress and evolution in the ideals of local self-government in the villages.

1. Cf. *Village Government in British India* by John Matthai, Para 15, p. 100.

Under the Bombay Village Sanitation Act of 1889, two types of village organisations are created in the Presidency, viz., Village Sanitary Committees by Part II of the Act and Village Sanitary Boards by Part III of the Act. The Act was amended from time to time, important amendments being made by Bombay Act III of 1915 and Act XXV of 1931.

Village Sanitary Committees : Constitution

The Act provides that there shall be a Village Sanitary Committee or a Sanitary Board in every village or in a group of two or more villages to which the Act is extended. The Collector is given the power of extending the provisions of the Act for constituting Sanitary Committees. But the Commissioner reserves the power to direct that the provisions for the Act of Sanitary Committees shall cease to have operation in such villages (Section 5 (1).²)

The power to extend the provisions of the Act for constituting or ceasing to constitute the Sanitary Boards is vested in the hands of the Commissioner (Section 5 (2).³)

The Sanitary Committee consists of three or more adult householders, residents of the village, chosen with their own consent by the Collector, of whom the Police Patel shall be one, unless the Collector, for reasons recorded in writing in any particular case, determines otherwise. For the purpose of aiding him in his choice, the Collector may, in his discretion, procure the nomination or election, by the householders of the village, of qualified persons, in such a mode as he shall deem expedient (Section 8 (1).⁴) The Chairman of the Committee is nominated by the Collector (Section 8 (2).⁵)

Every Magistrate having jurisdiction in the village may take part in the proceedings of the Committee at any meeting thereof at which he is present, and such a Magistrate or, if there be more than one, the highest in Magisterial rank of such Magistrates, shall for this purpose be deemed to be a member and President of the Committee for the occasion (Section 10).⁶

Despite the political progress of the people in the Presidency and the constitutional development and reforms, the whole country has undergone, the Village Sanitary Committees have not advanced in the growth of its constitutional aspect.

2. The Bombay Village Sanitation Act, 1889.

3. *Ibid.*

4 to 6. Sections of the Bombay Village Sanitation Act of 1889.

Functions and Powers

The Sanitary Committee may from time to time make rules and regulations, and may repeal or vary the same, with the approval of the Collector :

- (a) for regulating the terms of office of its members and its proceedings ;
- (b) for determining the manner in which its proceeding shall be recorded ;
- (c) for procuring and preserving for the use of village an adequate supply of pure potable water ;
- (d) for the cleansing of the streets and open spaces of the village ;
- (e) for preventing accumulations of offensive and noxious matter in the village ;
- (f) for preventing nuisances and indecent or insanitary acts or omissions in the village ; and
- (g) generally for giving effect in the village to the purpose of this Act⁷ (Section 11).

Thus the Sanitary Committees, as the name signifies, are mainly concerned with and are responsible for the improvement of the sanitary condition of the villages.

All offences against the rules made by the Committee are (Section 14 (1)) cognizable by the Committee,⁸ the person convicted having an appeal to the Magistrate of the District⁹ (Section 15 (1).)

The Sanitary Committee has the power to prepare the annual budget which is to be submitted to the Collector for approval. The Sanitary Committee is empowered to incur expenditure within the budget so approved, but if any further expenditure not included in the budget is necessary, the previous sanction of the Collector shall be obtained thereto by the Committee¹⁰ (Section 18-A).

"Their activities have been limited in scope which has precluded them from becoming valuable educative agencies, and there has been no general desire on their part for conversion into Village Panchayats, presumably in view of the compulsory house-tax which such conversion would involve."¹¹

7. Sections of the Bombay Village Sanitation Act of 1889.

8 to 10. The Bombay Village Sanitation Act. 1889.

11. Cf. *The Review of Local Self-Government*, 1931, p. 22.

The main defect of the Act was that the Sanitary Committees had no powers to hold property or to levy taxes. The Bombay Act XXV of 1931 marked an important step in removing some of the grave defects which limited the scope and smothered the true evolution of this primary unit of self-government. It amended the Act of 1889 in such a way that now every Sanitary Committee is a body corporate, and has perpetual succession and a common seal, and may sue and be sued in its corporate name.¹² A Sanitary Committee may acquire and hold property, both movable and immovable, whether within or without the limits of the village or villages subject to its authority¹³ (Section 30-B).

The Sanitary Committee was given power to execute the contracts. Every Sanitary Committee shall be competent, by a resolution duly recorded, to lease, sell or otherwise transfer any movable or immovable property which may, for the purpose of the Act, have become vested in or been acquired by it. Money limit of one hundred rupees has been fixed in case of contracts involving such expenditure, provided that no contract involving an expenditure exceeding one hundred rupees or purchase of immovable property (involving such expenditure) shall be made without the previous sanction of the Collector. Provided further that in case of lease of immovable property for a term exceeding three years, and of every sale or other transfer of such property, the previous sanction of the Collector is required¹⁴ (Section 30-C).

The power to remove any member or chairman of a Sanitary Committee is vested in the Collector¹⁵ (Section 32).

The growth of functions is a *sine qua non* for the full realisation of the ideals of local self-government. The powers have considerably developed with the Amendment Act XXV of 1931 coming into force.

Sources of Income

For the purpose of providing for the village an adequate supply of pure potable water, cleansing of streets and open spaces thereof, removing offensive and noxious matter therefrom, and for other purposes conducing to the health and comfort of the inhabitants of the village, the Sanitary Committee may utilise, as far as available, the voluntary labour of the villages and the services of the village servants placed at its command by the Collector;¹⁶ and, when these means are insufficient it may from time to time employ such servants and authorise such expenditure as may be essential for the purposes aforesaid¹⁷ (Section 16).

12. Section 30-A of the Bombay Village Sanitation Act, 1889.
13 to 15. Sections of *Ibid*.
16. Section 42. *Ibid*.
17. *Ibid* Section 16.

The inhabitants of the village may, by voluntary subscription, raise any sum of money of which the expenditure is authorised by the Sanitary Committee, and if any sum of money of which the expenditure is authorised by the Committee is not forthcoming from voluntary subscription and is not available from any other source, it may be recovered by a rate charged on the inhabitants of the village and assessed by the Collector in conference with the Sanitary Committee. The levy of the rate, however, is subject to the proviso that the amount so charged in any year on the inhabitants of the village shall not exceed one-half of the aggregate amount leviable in that year as local fund cess from the inhabitants of such village¹⁸ (Section 18).

The Sanitary Committee may levy a rate on open air stalls in the village and the amount so received shall form a part of the Sanitary Committee Fund¹⁹ (Section 19).

Fines imposed for the breach of any rule made by the Sanitary Committee shall also form a part of the income of the Sanitary Committee²⁰ (Section 36). Moreover, any District or Taluka Local Board may from time to time assign, by way of donation or loan, to the Sanitary Committee of any village in the area subject to its authority, for expenditure on any purpose contemplated by the Act, such sum as it shall deem proper²¹ (Section 40).

Thus all moneys received by or on behalf of the Sanitary Committee by virtue of this or any other Act; all rates, fines, fees and penalties paid to or levied by it or on its behalf under this Act; all proceeds of land or other property sold by a Sanitary Committee and all the rents accruing from its land or property; and all interest, profit, and other moneys accruing by gifts or transfers from the Government or private individuals or otherwise, shall constitute the Sanitary Committee Fund and shall be applied by it as a trustee subject to the provisions and for the purposes of this Act²² (Section 30-D).

Hence it can be seen that the Village Sanitary Committees have no power of taxation, and this limits their scope. The Sanitary Committees should be given the powers of taxation which is a most tremendous factor for the real infusion and propagation of the ideas of self-government and corporate life. Normally the Sanitary Committees receive grants to the extent of 3/12th of their expenditure from the provincial funds and 4/12th from the local board funds. The remainder they are expected to provide locally. Another disability which these

18 to 19. *Ibid* Section 18.
20. The Bombay Village Sanitation Act, Section 36.
21. *Ibid* Section 40.
22. *Ibid* Section 30-D.

Committees suffer from is that the amount of the grant given by the Government is dependent on the voluntary subscriptions raised in the village. This defect strikes at the root of the phenomenal development of rural self-government.

Expenditure

The expenditure which a Village Sanitary Committee can incur is definitely limited to the amounts received either from the District Local Board or the Government or from the rate which they have the power to charge on the inhabitants, together with the voluntary contributions and the amounts of fines recovered. The main items of expenditure are: the expenses undertaken for the supply of drinking water, for the cleansing of the streets and open spaces, and for the removal of dirty and offensive matter from the streets of the village. The Sanitary Committee has to prepare a Statement of Accounts showing the estimated Income and Expenditure ²³ (Section 18-A).

Adequate financial resources are the most vital and fundamental features for the full-fledged and all-round development of any institution. The efficient carrying out of the duties and functions of that body depends upon this primary necessity. Lack of sufficient funds acts as a great hindrance to the rightful recognition of the fruits of advancement in the local self-government.

SANITARY BOARDS

Constitution

A Sanitary Board consists of such number of persons appointed by the Collector as he may deem fit and expedient from among those residing within or near the area which is subject to the Board's authority and having property therein. The Police Patel is ordinarily a member of the Board. The Bombay Act XXV of 1931 made an important advance in the constitutional sphere by introducing the elective element in the Boards. Elective element makes people conscious of their political rights and responsibilities, and is a great instrument for educating the people in the art of self-government. The Act provided that each Board shall consist of such number of members not less than seven as may be determined by the Collector, of whom not less than two-thirds shall be elected: provided that there shall be one elected member for every fifty houses within the area of the Board's authority. The remaining members (to be called nominated members) shall be appointed by the Collector and shall ordinarily include the

23. *Ibid* Section 18-A.

Police Patels.¹ Hence the Boards consist of elected and nominated members. The amendment Act of 1931 is memorable as it inaugurated the elective element which is a necessary concomitant of advance in political education.

Franchise

The amendment Act of 1931 introduced franchise in the Sanitary Boards. Every person, male or female, not being less than 18 years of age and being resident within the area subject to the Board's authority and occupying, as owner or part-owner or tenant or sub-tenant, a building or other immovable property therein and not otherwise disqualified under the rules made by the Collector in this behalf, shall be entitled to vote at the election of the Board² (Section 19 (3).) The minimum qualifications for the members of the Board are: the age of 21 or more and the voting qualifications of an elector³ (Section 19 (2).)

The manner of holding elections has been prescribed. The election shall be by show of hands, or by ballot if the Collector so directs.⁴ The term of office of the members of the Board shall be three years, but every member is eligible for re-election or re-nomination.

The meetings of the Board are presided over by the Magistrate of the highest rank present who is a member, or, in the absence of such a Magistrate, by such a member as the Collector may appoint to be the President. But the Act XXV of 1931 amended and laid down that the Board shall elect annually one of themselves to be the President⁵ (Section 19 (7).) Provided that he shall be removable from office as President for gross misconduct either by the vote of two-thirds of the whole number of members of the Board, subject to the approval of the Collector,⁶ or by the Collector for being incompetent or guilty of misconduct or negligent in duty.⁷ Each meeting of the Board shall be presided over by the President. In the absence of the President, the meeting of the Board shall be presided over by such one of the members present as may be chosen by the meeting to be the chairman for the nonce. It is worth noting that the Act does not provide for disqualification of salaried servants of Government from being Presidents as is provided in the local self-governing Acts. The Collector is empowered to make rules for regulating the procedure at a meeting⁷ (Section 19 (9).)

1. The Bombay Village Sanitation Act, 1889, Section 19 (1).
2. *Ibid* Section 19 (3).
3. *Ibid* Section 19 (2).
4. *Ibid* Section 19 (4), (5).
5. *Ibid* Section 19 (7).
6. *Ibid* Section 32.
7. *Ibid* Section 19 (9).

Thus the elective element has been given an entrance in the Sanitary Boards. The constitutional development of the Boards stands in a flagrant contradiction to the unprogressive character of the Committees. Constitutional evolution of the Boards can in no way be said to be bad. The right to vote goes a long way to make the people interested in the significance and value of political education and the worth of local self-government.

Function and Powers

The functions and powers of the Sanitary Boards run on the same lines as those of the Sanitary Committees. The Sanitary Board may, from time to time, make rules with the approval of the Collector, and except as hereinafter provided, shall discharge the functions and exercise authority for the area subject to its authority in respect of the same matters, in the same manner, and subject to the like provisions, restrictions and conditions as are hereinbefore enacted in the case of the Sanitary Committees⁸ (Section 10). The only important additional provision in the case of Sanitary Boards is that relating to the appointment of the Sanitary Inspectors. The Act provided that the Collector may, from time to time, appoint a Sanitary Inspector for any area or any part of the area subject to the authority of the Sanitary Board and also such other subordinates as shall appear necessary, and shall determine the amount of the salary to be paid to each of the officers. But the Act XXV of 1931 vested the above power of appointing the Sanitary Inspector in the Sanitary Board with the sanction of the Collector. The Sanitary Board may also, with like sanction, dismiss or suspend him or the said subordinates.⁹ The duties of the Sanitary Inspectors are laid down in the Act.

Every Sanitary Board is empowered to construct such works and buildings as shall be necessary for providing for the area subject to its authority or any part thereof :

- (a) an adequate supply of water ;
- (b) proper and convenient places for the temporary deposit or final disposal of sweepings, dust, ashes, refuse, rubbish, carcases of the dead animals and other offensive or noxious matter ;
- (c) means of conveying away or removing the several matter and things specified in clause (a).

8. Ibid Section 10.

9. The Bombay Village Sanitation Act, 1889, Section 21 (1), (2) and (3).

The Sanitary Boards were suffering from the same defects as the Sanitary Committees, viz., that they were not entitled to hold property. But the Bombay Act XXV of 1931 gave the Sanitary Boards the power to hold and acquire property, both movable and immovable, whether within or without the limits of the village or villages subject to its authority. The Boards are a body corporate, having perpetual succession and a common seal. They can sue and be sued in their corporate name.

The mode of executing contracts runs on parallel lines as that of the Sanitary Committees. The Boards, like the Committees, are empowered to invest and deposit their surplus funds.

Income

Every Sanitary Board has got a fund known as the Sanitary Board Fund. All the moneys received by or on behalf of the Sanitary Board by virtue of this or any other Act ; all rates, fines, fees and penalties paid to or levied by it or on its behalf under this Act ; all the proceeds of land or other property sold by the Sanitary Board and all rents accruing from its land or other property ; and all interest, profits and other moneys accruing by gifts or transfers from the Government or private individuals or otherwise, shall constitute the Sanitary Board Fund, and shall be held and applied by it as a trustee, subject to the provisions and for the purposes of this Act¹⁰ (Section 30-D).

Like the Sanitary Committees, the Boards are authorised to fix and levy a rate on the inhabitants. For the purposes of raising any money for expenditure by a Sanitary Board under this Act, the Board may, subject to rules made in this behalf by the Collector, fix and assess a rate on the inhabitants of the area or of any part of the area subject to its authority. The levy of the rate, however, is subject to the provision¹¹ that the amount so charged in any year on the inhabitants of any area subject to its authority shall not exceed one-half of the aggregate amount leviable in that year as local fund cess from the inhabitants of such area.

Another source of income is the amount of fines recovered for the breach of rules.¹² Any District or Taluka Local Board may also assign, by way of donation or loan, such sum or a portion of the Local Fund at its disposal, as it shall deem fit and expedient.

The Boards receive the grants from the Government and the Local Boards in the same proportion as the Sanitary Committees. The Boards have no powers of taxation.

10. Ibid Section 30-D.

11. Ibid Section 30 (3) and (4).

12. Ibid Section 36.

Expenditure

A Sanitary Board has four main items of expenditure :

- (a) paying the salaries of the Sanitary Inspector and other officers, if any, appointed under Section 21 ;
- (b) providing stationery and other requisites for the use of the Board and of the said Sanitary Inspector and other officers, if any ;
- (c) fulfilling any contract entered into by it under Section 30 (c); and
- (d) constructing necessary works and buildings under Section 27.

Accounts

The Sanitary Board has to keep a debit and credit account, the form being prescribed by the Government. To the debit of such account shall be placed all expenditure authorisedly incurred under the provisions of this Act. To its credit shall be placed all sums raised by voluntary subscriptions, all sums realised from any other source for meeting the Board's expenditure and the net profits of any rate assessed in the manner prescribed.

One important defect in the working of these bodies is that their accounts and receipts and payments are not audited and there are no means of verifying that the grants made by the Government and the local bodies are properly handled. The Act had made no great advance on the financial side. For the real development of rural self-government, it is not only momentous but also salient that sufficient funds are available for these units and that the people are educated and made fit for self-government, in its aims and ideals.

Thus on the whole, it is noticed that the unfolding and development of the Sanitary Boards has been slow and that of the Sanitary Committees still slower. Though not very highly evolved, they constitute one of the most vitally important units of rural self-government. Their financial resources stand for the crying need of enlargement and expansion. This alone will go a long way to instil the right spirit of performing functions and cease to be mere legislative expressions.

CONCLUSION

Local Self-Government as a conscious process of administrative devolution and political education has taken its start really after the financial reforms of Lord Mayo's Government. It was subsequently

developed on the policies laid down by the Decentralization Commission, by the Indian Local Self-Government Policy, 1915, and by the Government of India Resolution of 1918. Lord Ripon's Resolution of 1882 has not been followed to its logical conclusion. The position prior to the Montford Reforms in the following words :¹ In the vast majority of the districts Local Self-Government continued to be, as in the past, one of the many functions of the District Officer. No real attempt was made to inaugurate a separate system amenable to the will of the local inhabitants. In effect, outside a few municipalities, there was in India nothing that we should recognise as Local Self-Government of the British type before the era of the Reforms. The Reforms of 1919 liberalised the constitution by lowering the franchise, by replacing the official President by a non-official one and increasing the elective element in the unit. The Government of India Act of 1919 transferred the Local Self-Government to the control of the Minister answerable to provincial legislature. But these Ministers had not sufficient finances because the reserved subjects devoured a large portion of the resources. It has been said that under the aegis of the Montford Reforms, local bodies have not been able to give a very satisfactory account of themselves. Hence the problems of Local Self-Government demand expert tackling so that they may stand on a firm footing.

Future

Municipal constitution plays an important part in the administration of the city. With the coming of Provincial Autonomy, many veterans in the sphere in Local Self-Government have recognised the need of reconstructing it. The Hon'ble Mr. Dwarkaprasad P. Mishra,² Minister of Local Self-Government, Government of C. P. and Berar, has also put forward a scheme for reconstruction of Local Self-Government.

It has been proposed to make the District Council a unit both for the purposes of Local Self-Government and also for the purposes of decentralized administration ; and to introduce the largest possible decentralization coupled with Local Self-Government in the District.³

We have got the long-needed reform of abolition of nomination by the Government so that the Council is now wholly elective. Extension of franchise is a corollary of increase in the elective element. The Congress Cabinet has accepted the principle of adult suffrage. The experiment is first to be tried in the City of Bombay in 1942, and it is

1. Simon Commission Report.

2. Quarterly Journal of the Local Self-Government Institute, Vol. VIII, No. 4, pp. 357 to 398.

3. Ibid p. 374.

hoped that all other units of Local Self-Government might achieve the ideal, due attention being paid to the financial position and election convenience. Adult franchise is the democratic basis of representation. "Every adult citizen has the right to indicate what persons he desires should undertake the task of government. Neither sex nor property, neither creed nor race, ought to prevent the citizen from aiding in the choice of his rulers. If it be argued that his choice is often wrong, the answer is that democracy lives by the method of trial and error. If it be said that he rarely has the knowledge necessary to give a reasoned choice, the answer is that the State must then organise on his behalf access to that knowledge."⁴ Adult franchise is urgently needed to evoke interest or creative support of the citizens. The Local Self-Government Institute of Bombay had proposed that a tax-paying qualification should be retained. Educational qualification may be added, voters and members qualifications might be differentiated by providing for a higher age and educational qualification for membership and still higher qualification of education and experience if possible in the case of Presidents.⁵

Municipal Council should continue to be the supervising and legislating body for the city, as the general elected Board in case of other units. The Hon'ble Mr. Mishra has advocated that the President should be elected by the direct vote of the whole town on adult franchise.⁶ Prof. K. T. Shah⁷ is in favour of the principle of proportional retirement of the councillors every year so that municipal legislation may be in accordance with the popular demand and local sentiment.

The American expedients of Recall, Initiative and Referendum may be introduced, with advantage, in the municipal constitution with suitable precautions against misuse. The rationale of Recall lies in the fact that the voters have a right to expect their elected representatives to remain true to their elected pledges. The principles of Initiative, Referendum and Recall are more generally practised in the United States and Switzerland.⁸

The power of appointing the Chief Executive Officer should be vested solely in the Municipal Council, and the Officers should owe allegiance to the Council. As regards other appointments, the present haphazard system of recruitment should be discontinued. Selection

4. Cf. *Grammar of Politics* by Laski, p. 115.

5. *Journal of the Institute*, Vol. VIII, No. 2, p. 162.

6. *Quarterly Journal*, Vol. VIII, p. 385.

7. K. T. Shah's Book, p. 138.

8. For details refer G. Montagu Harris's *Local Government in Many Lands*, and W. B. Munro's book on *Referendum, Initiative and Recall*.

should be made on the ground of competence, on the basis of efficiency and technical skill and not on the basis of influence and canvassing. The principle of communal appointments should be discredited and hence reservation of appointments on this basis should not be allowed. Insecurity of tenure has a grave effect on the efficiency of local administration. "The obtaining of the L. S. G. D. Diploma should be made compulsory so that a fresh entrant may be initiated into the subject of Local Self-Government before he shoulders actual responsibility."⁹ The problem thus is of securing a properly trained and qualified staff, of regulating pay on suitable scale and of affording the members of the staff sufficient security to enable them to discard interference by individual members of the local bodies without at the same time removing them from their effective control in the event of slackness or disobedience.

"For a proper development of municipal sentiment, for a full-blooded enjoyment of civic life, there must be such an all-round extension and expansion of municipal functions as would effect, improve and brighten every facet of civic life, and satisfy every aspect of the citizen needs."¹⁰

The municipalities in India have no obligation for Public Charity, Civic Insurance, and Poor Relief. The municipal functions should be expanded as the present functions reflect the narrow-mindedness of civic duty. Indian municipalities should accept the highly advanced Western institutions as their friend, guide and philosopher. In the interests of Public Health, municipalities should undertake and start a Social Insurance Service, drug stores, nursing homes, etc. To improve the intellectual and moral health of people, our municipalities should initiate energetically the promotion of public interest and enlightenment in the cinema and music which can only result by the municipalisation of the Cinema Industry. The starting of a Municipal Bank and similar institutions would not only benefit the population but also the Exchequer. The municipalities should start and organise Labour Exchanges and Unemployment Benefit Schemes.

In Stockholm, the Municipality is mainly responsible for public education. Libraries constitute an integral part of all cultural and educational work. Poor relief, separate unemployment relief, old age pensions and child welfare work have been established for a long time. The Stockholm City Employment Office, the City's central labour exchange, is a municipal-managed institution. The Municipality is a

9. *Quarterly Journal*, Vol. VIII, p. 167.

10. K. T. Shah's *Constitution, Functions and Finance of Indian Municipalities*, p. 301.

warden of public health. Information about medical treatment can be had by calling Hospital Exchange on the telephone. Municipal garden cites are characteristic of the City of Stockholm, by which considerably increased residence accommodation has been provided for.¹¹

Under the scheme sponsored by Hon'ble Mr. Mishra,¹² we would have, as the learned Minister points out, *full autonomy* given to the District Councils in case of all matters now falling under the head of Local Self-Government, partial or *administrative autonomy* in the case of other departments mentioned and *advisory powers* given in the case of matters falling under the remaining departments. Anyhow the municipalities should expand their functions and extend their activities for it is high time for the Legislature to give an impetus to the units of Local Self-Government in this regard. The City or the Village beautiful should not yet be a distant dream. The German Municipalities have won the palm and it is now for the Indian Municipalities to climb those high pinnacles of functional development. Under the responsible Ministers, we should take giant's strides in this aspect and more so when the glorious sun of *Swaraj* would shine brightly on the Indian horizon.

The problem of improving the present position is one of the most intricate and pressing problems. "The subject of finances of local bodies is so important that a Committee consisting of those non-official heads of the local bodies, who have some experience to their credit and persons connected with Provincial Finance should be appointed to consider the subject and submit their report to the next session of the Provincial Legislature."¹³ The revenue system has become ripe for legislation. Prof. K. T. Shah¹⁴ has laid down the following as a reform in the municipal revenue :

- (1) that taxation should be reduced to the absolute minimum, if not abolished altogether ;
- (2) that in any case the indirect taxes like town duties or octroi should be abolished ;
- (3) that the deficit caused by the abolition should be made good by the increased rate of direct taxes in proportion or by the development of municipal enterprise ;
- (4) that the German policy of financing, viz., that taxation should be resorted to only when the receipts from Muni-

pal Trading Enterprises fail, ought to be adopted and given effect to in our municipal finance.

The object of municipal financing ought to be to add as far as possible to the wealth and well-being of the citizen and not to deduct therefrom like the compulsory taxes. Increase in the municipal enterprise would have its ultimate goal in the total extinction of municipal taxation.

Taxation of property is, as we have seen, based on the annual value. Personal property cannot be taxed. Prof. K. T. Shah prefers sale value as the basis of determining taxation to the net annual value. Increment due to social circumstances needs be taxed to the benefit of the municipal exchequer. It has been rightly advocated that the local finances should receive a part of the entertainment taxes. Taxation on pilgrims which is justifiable on the ground that the pilgrims are given special attention in regard to public health, safety and convenience should be abolished so that trade activities during the time may receive an impetus. All "primary services" should be performed out of the proceeds of the general property tax.

Municipal expenditure should be well distributed with due consideration to its effect on production,¹⁵ distribution and the community. Not only attention should be paid to the primary, irreducible and imperative minimum of expenditure on utilitarian objects, but the Local Self-Governing Institution should be the warden of everything that promotes the welfare of the whole community. The city should be the standard bearer in the intellectual, economic and social progress.

Borrowing should be allowed only for "reproductive purposes" and not on the "dead-weight" principle. Productivity can be measured either in terms of service to the citizen or of money. Though it is an encroachment on the financial autonomy, the State should exercise control.

The necessity for a rigid system of accounts and audit should be recognised. The continuous audit by municipal auditors and Government audit if begun just after the close of the financial period are morally very desirable and indispensable.

Local Self-Government is our most precious possession. It is the greatest contributing factor to the stability, strength, liberty and progress of the nation. It is the basis of popular representation and political education. In its full-fledged development, we see in it an institution of embryonic *Swaraj*.

11. Cf. *Social Work in Stockholm* by S. G. W. Whalund.

12. *Quarterly Journal*, Vol. VIII, pp. 380 to 385.

13. *Quarterly Journal*, Vol. VIII, p. 166.

14. K. T. Shah's *Constitution, Function and Finance of Indian Municipalities*, p. 508.

15. For details, please refer Dalton's *Principles of Public Finance*, pp. 102 and onwards.

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FINANCIAL ADMINISTRATION OF THE CORPORATION OF MADRAS

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Introduction

The distressing feature of the Financial Administration of the Corporation of Madras is the paucity of funds. The area of the City is 29.4 square miles and the population is 7,50,000 approximately. For discharging the social needs of such a large population living in such a wide area, the funds normally available (for the day-to-day administration) are only about Rs. 70,00,000 per annum; whereas the poverty-stricken Metropolitan Borough of Poplar in London with an area of less than 4 square miles spends nearly Rs. 75,00,000 annually, excluding the amounts spent directly by the London County Council in this area for maintaining the centralised services. This striking difference in expenditure is due (among other things such as the difference in standard of living, taxable capacity, etc.) to the limited conception of local administration which we have in this country. The principles followed in fixing the rates in England differ fundamentally from those followed in Madras. In England an estimate is made first of the minimum amount needed for the upkeep of the essential services; miscellaneous receipts like rents, fees, etc., and also the National Exchequer grant are deducted from the estimated expenditure to arrive at the figure to be raised in rates; and then, the rate per pound (technically called 'the poundage') is determined on the annual rental value of property within the unit to produce the required amount. In Madras, on the other hand, an estimate of the probable receipts is first made and then the money available is distributed between the various competing services. Though there has been, from time to time, an increase in the rate of taxation, the reluctance of the community to increased taxation is reflected in the efficiency of the amenities provided. Essential services are starved for want of funds and the Council is constantly clamouring for Government grants for executing schemes which are of local interest and should, therefore, be financed by local rates.

SECTION I—RECEIPTS

The Budget of the City is divided into six sections.—

(1) General Account, (2) Lighting Account, (3) Water Supply and Drainage Account, (4) Town Planning Account, (5) Deposits Account and (6) Advances Account.

The General Account is financed from the receipts of all taxation, from remunerative enterprises and land development. The Lighting and Water Supply and Drainage Accounts are financed practically entirely from the allocations of the property tax. The receipts under the Town Planning Account are nil and the Deposits and Advances Accounts (which show only the deposits received and the repayments made therefrom) cannot appropriately be treated as part of the revenues of the Corporation.

(a) **Tax Sources.**—The Corporation is authorised to impose the following taxes: (1) a Property tax, (2) a tax on Companies, (3) a Profession tax, (4) a tax on Carriages and Animals, (5) a tax on Carts, (6) a tax on Timber brought into the City and (7) a Stamp duty levied on Transfer of Property with the sanction of the Governor-General-in-Council.

The property tax forms the backbone of the City's finances and constitutes about 56 per cent of its revenues. Upto the year 1937, it was levied at a uniform consolidated rate throughout the City. The noteworthy feature of the financial administration of 1938 was that "the new Council almost began its activities with the introduction of a system of sliding scale of taxation, increasing the rate of taxation in respect of properties of higher valuation without in any way affecting the properties of lower valuation as provided in Section 102 of the Madras City Municipal Act. It was the first time that this system (socialist in its basis) was introduced in this Corporation. The same principle was adopted in regard to the profession tax also."¹ Though this basis of taxation is unique in local administration, it is a desirable innovation as an attempt is thereby made to assess on the basis of the ability to pay. This, together with increased activities in regard to collection work, resulted in higher receipts of about Rs. 3 lakhs to the Corporation, of which the property tax alone fetched an additional income of Rs. 1,16,100.

In respect of the property tax, the graded system worked as follows: (1) a Consolidated rate of 15½ per cent in respect of all buildings and lands whose annual value is Rs. 1,000 and below; and (2) a Consolidated rate of 16½ per cent in respect of all buildings and lands whose annual valuation is over Rs. 1,000. In the year 1938-39 there was an increase of one per cent more in the higher grade, viz., 17½ per cent for all buildings and lands whose annual valuation is over Rs. 1,000 as against 16½ per cent fixed for the previous year; and the lower rate of 15½ per cent for all buildings and lands whose annual valuation is Rs. 1,000 and below, continued to be the same. In the current year 1940-41, a new category has been introduced, by which buildings and lands whose annual valuation is Rs. 5,000 and above are to be assessed at 18½ per cent of the annual value, while the other two rates (17½ per cent for property of over Rs. 1,000 of annual value and 15½ per cent for property less than Rs. 1,000 of annual value) continue to be the same.

The property tax is distributed between three constituent units and this distribution is within the discretion of the Council and variations are made with reference to the requirements under these heads. These are: (1) a tax for general purposes (at 10½ per cent for annual value of Rs. 1,000 and below; 12½ per cent for annual value above Rs. 1,000 and 13½ per cent for annual value of Rs. 5,000 and above for 1940-41); (2) a lighting tax (at 2 per cent for all the three valuations in 1940-41) and (3) a Water Supply and Drainage tax (at 3 per cent for all the three valuations in 1940-41). In the case of the last mentioned item the allocated amount is again distributed under two heads: Water Supply and Drainage. In addition to the water tax which is a general levy, houses which consume water in excess of the free allowance—which is fixed with reference to the rental value—have to pay for the excess on a sliding scale.

The property tax yields about Rs. 42,00,000 of which the receipts under lighting account approximate to Rs. 6,90,000 and those under water supply and drainage account to Rs. 7,30,000. Education tax, under the Madras Elementary Education Act of 1920, which is also an allocation under the property tax, yields about

1. The City Administration Report for the year 1937-38.

Rs. 3,15,000. In 1937-38 and 1938-39 it was levied at 1½ of the consolidated rate, i.e., at 1-7/24 per cent of all the properties whose annual valuation is Rs. 1,000 and below and at 1½ per cent for properties whose annual valuation is over Rs. 1,000 as against 1¼ per cent during the previous years. In 1940-41, it is to be levied at 2/25 of the consolidated rate.

The sources other than the property tax do not yield much revenue. Though they were not originally introduced with the object of equalising the burden of taxation, they do achieve the purpose to a great extent. Thus a tax on companies is levied half-yearly on companies which transact business within the city for not less than 60 days in the half year, in addition to any licence fee payable subject to a limit of Rs. 1,000 per annum. The tax is levied on a sliding scale, the paid-up capital of the company being the basis of assessment. In the case of companies whose head offices are not situated in Madras, the levy is on the basis of the gross income in the city area. The yield of the tax is about Rs. 1,60,000.

The profession tax is an indirect income-tax and the same graded system as in the case of the property and companies taxes applies to the levy of this tax also. Incomes of Rs. 6,000 or above per annum are assessed to tax at the maximum rates allowed by statute, while incomes between Rs. 1,200 and Rs. 5,999 per annum are assessed at 25 per cent above the minimum rates. Incomes below Rs. 1,200 a year are exempt from taxation. The tax is payable by any person, who, in any half year, exercises a profession, art or calling or transacts business or holds any appointment, public or private, (a) within the city for not less than 60 days in the aggregate or outside the city but who resides in the city for not less than 60 days in the aggregate, or (b) resides in the city for not less than 60 days in the aggregate and is in receipt of any pension or income from investments. The yield of the tax is about Rs. 3,75,000.

The tax on Carriages and Animals yields Rs. 90,000. Tolls on Vehicles and Animals entering into the city which were provided by the Act of 1920 were abolished in the year 1931 and the Provincial Government undertook to pay the Corporation a sum of Rs. 3,75,000 as a contribution from the Motor Vehicles Tax which was imposed in lieu of tolls. But the actual contribution was only Rs. 1,54,687-8-0 in 1931-32 and Rs. 1,74,166-2-0 in 1933-34 owing to the very poor yield of the Provincial tax on motor vehicles. In 1934 the Government revised the annual contribution and fixed it at Rs. 3,33,000. But the actual contribution has fallen short of even this amount, the figures being Rs. 1,08,148-8-0 for the year 1934-35 and Rs. 2,13,655 for the year 1937-38. The income from the tax on carts without springs is about Rs. 42,000. The tax on timber, which is an obsolete octroi, fetches about Rs. 1,35,000. The surcharge on Stamp duty is imposed by the Indian Stamp Act of 1899 on transfer of property. The collection of this surcharge is made through the agency of the Government which makes a small charge for the cost of collection. This duty on transfer of properties yields about Rs. 1,40,000. The yield from the taxes on advertisements and entertainments together (the latter being now provincialised) is about Rs. 1,50,000.

(b) **Non-Tax Revenue.**—The important items under the non-tax head are licence fees, remunerative enterprises and Government grants. Licence fees, which are levied for Markets and other trades carried on within the City limits, are never too high and are barely adequate to meet the expenses of the large staff necessary to control these trades. The yield from this source is about Rs. 2,25,000. The Corporation runs a few remunerative enterprises such as workshops, markets,

cart-stands, slaughter-houses and 'land development'. Though workshops are treated as a remunerative enterprise, they are really unremunerative judging from the figures for the last few years.² The heading 'land development' is also a misnomer inasmuch as the rents of buildings and income from licence fees are exhibited under this category. Strictly speaking, they cannot be treated as constituting land development. The total receipts under remunerative enterprises are about Rs. 5,20,000. Government grants given for the execution of specific works such as drainage and water supply depend more upon the financial position of the Provincial Government and are never very liberal. The grants amounted to Rs. 3,10,860 in the year 1937-38.

The normal receipts which were Rs. 63.84 lakhs in 1936-37 increased to Rs. 66.70 lakhs in 1937-38 and reached Rs. 71.31 lakhs in 1938-39. The incidence of taxation per head of population in 1938-39 was Rs. 8-6-9. The incidence of the property tax alone was Rs. 6-14-2.

SECTION II—A CRITICAL REVIEW OF THE TAX BASIS

(a) **Basis of Property Tax.**—The property tax is modelled on the English system of rating but does not possess its elasticity. The basis for the levy of the property tax is the estimated annual letting value of buildings after making an allowance of 10 per cent for repairs, etc. For Railway and Government buildings which cannot be let the basis is 6 per cent of the market value of the land plus the estimated cost of erecting the building at the time of assessment after deducting an amount of 10 per cent for depreciation. Government have fixed the levy of the property tax at not less than 15½ per cent and not more than 20 per cent of the annual value. The rigidity of the system is obvious. Under this system expenditure has to be scaled down to the estimated receipts and not rates fixed to cover the estimated expenditure as in England. The property tax may vary within statutory limits, but it has no relation to the actual needs of the City. This practice is inconsistent with the accepted conception of Local Government. In England the 'poundage' is not fixed arbitrarily but is variable with reference to the needs of the community. In France also, though the addition of centimes to the National taxes has now been fixed by statute and a variation is not permissible, the addition was calculated on the basis of the actuals current in 1935, and the provision for exceeding the maximum was introduced to preserve the existing conditions of levying rates to cover expenditure. The Madras system is open to the grave objection that it ignores the needs of the people altogether. Though the maximum fixed by the statute has not been reached, it is essential that there should be no restriction on the power to impose taxation. It is refreshing to find that, from time to time, the property tax is raised by one per cent, but this unscientific increase without an estimate of the essential requirements of the City takes one nowhere, and there has been a constant clamour for more funds from the different departments for the starving services.

The chief defects in the rules governing the levy of the property tax are:

- (a) Uniform allowance of 10 per cent for repairs, instead of a sliding scale, and
- (b) the absence of a statutory rating and assessment committee. It is evident that

2. During the last 10 years, only 1937-38 and 1938-39 have been profitable years. The profit earned by the workshop in 1938-39 was Rs. 27,530. Deducting rent, rate and account staff totalling Rs. 39,003, the workshop is reported to have suffered a loss of Rs. 11,473.

the cost of repairs to smaller holdings bears a higher percentage to the annual rental than in the case of larger holdings and a larger measure of relief is, therefore, necessary in the case of the former. A sliding scale is not a socialist innovation but is based on equity. The introduction of the sliding scale would not, however, improve the position, as under the Madras method, the tax is paid not by the occupier but by the owner. The reluctance of owners to carry out necessary repairs is notorious and it is doubtful if a larger measure of relief will induce them to devote the abatement to repairs and maintenance. It is perhaps possible to insert a clause that the allowance would be made only if the buildings have been maintained in a state of fair repairs. There is provision in the Madras Act for assessing the estimated rental. In the absence of a proper statutory and assessment committee the practice has been to accept the rent receipts granted by landlords to tenants as the basis of taxation. But it is not infrequent that, under an arrangement with tenants, landlords are granting receipts for amounts lower than the rents received merely to defraud the Corporation of its legitimate dues. In Madras low paid assessors are expected to report if the rent paid is low with reference to rentals in the locality. They are also responsible for reporting on the reasonableness of an increase in rental value by additions and alterations. Very often fictitious rent receipts form the basis of taxation and in spite of improvements the assessments continue to be on the original level so long as there is no change in the monthly rent paid. It is, therefore, imperative to provide against this leakage of revenue by constituting a proper rating and assessment committee. There have been, moreover, many cases in the City where the occupier or lessee sub-lets a house and thereby makes a profit. In these cases, the tax on the difference should be levied on the lessee. It will not be an underestimate to say that with a proper assessment and collection work, an additional revenue of Rs. 6 to Rs. 8 lakhs could be realised from the property tax alone in the City. The percentage of collection to net demand under property tax was only 84.8 in 1938-39 as against 86.50 in 1937-38.

There is provision for derating in the statute. Until 1939 charitable and religious institutions were exempt from taxation. The buildings and lands were entitled to exemption although they were owned, not by the charitable institutions but by other persons to whom rent was payable by those institutions. The benefit of the exemption thus accrued not to the institutions, but to the owners of the properties. Exemption in such cases was therefore withdrawn.

There is, however, provision for the total exemption of holdings with an annual value of less than Rs. 36, provided the owners have no other property and do not pay either income or profession tax. This is no doubt an improvement on the English system which does not allow such individual exemptions on account of inability to pay. But the exemption is rather a curious one. It is intended to have reference to the taxable capacity of the owner to pay the tax. It will be economically justifiable only in cases where the owner lives in his own building and does not own any other in the City. Where, on the other hand, such a house is let and the occupier can afford to pay the tax when shifted on to him, the justification for the exemption disappears. The property tax has reference to the annual value of each individual house, and, if exemptions have got to be granted from payment thereof, they should be based, not on the amount of the annual value of the house, but on the amount of the annual income of the person on whom the tax has to be imposed. The exemption is at present based on wrong principles. The taxes are paid by persons, though they may be imposed on things. Exemptions,

if needed, should therefore be based on the income of the *owners*, and not on the annual value of the house.

Again, one wonders if the bungalows in Madras should for ever enjoy the luxury of the big compounds which one fails to see in Bombay or Calcutta, while elbow space for living is not available for legions of slum dwellers. Some open space round about the house, fixed according to the tax paid to the Corporation, may, no doubt, be allowed free. But the rest of the vacant land should be taxed according to the sale value and not the rental value of the house and land appurtenant to it as at present. This practice besides being in conformity with the policy pursued in countries like the U.S.A., Great Britain and other continental countries, will, if adopted, encourage house building, discourage speculation in land and indirectly mitigate the problem of overcrowding to some extent.

Now, as to the allocation of the property tax under its constituents: Property tax, we have seen, is allocated under three heads: (a) a tax for general purposes; (b) a lighting tax and (c) a water and drainage tax. In England since rates cover all expenses no such allocation is attempted except for purposes of statistics. Water supply in England is a public utility service and its cost is not covered by rates. It is organised as a commercial concern and the consumer has to pay on a certain basis, the most common of which again is the rateable value of the holding. In Madras, on the other hand, we have seen that besides the water tax which is a general levy, houses consuming water in excess of the free allowance which is determined on the rental value, have to pay for the excess on a sliding scale. But only the larger residential houses possess a meter-supply and in most of the holdings the supply is unmetered and it is presumed that in the case of such properties the consumption is within the permissible limit. It is impossible to say how far this assumption is responsible for the acute water scarcity in the City. Wastage cannot be eliminated merely by restricting the hours of supply. On the contrary, such restrictions only tend to increase wastage as, generally, all the taps are kept running during the hours when the supply is on. The only way by which the cost can be kept down and the sources conserved is by charging on the basis of actual consumption.³ The total receipts under this head being inadequate to finance the underground sewage system, the Corporation has to depend on a half grant from Government for a scheme which is of purely local interest. The receipts under this head are utilised in the repayment of loans.

It is also necessary to examine whether the splitting up of one levy under three heads, two of which are service heads, is equitable or has any relation to reality. The rate of property tax is approximately constant and the allocated percentages under different service heads are varied from year to year to cover the cost of these services, and as the main tax remains constant diversion of large amounts to these heads is always at the expense of funds available for general purposes. It is an accepted principle that the service tax should be sufficient to cover the cost of the service rendered. It would be more rational to levy a property tax for general purposes and introduce variable taxes for the service heads.

(b) **Profession Tax.**—Similarly, the assessment of the profession tax which is a form of local income-tax and is peculiar to the Madras Presidency, is also

3. In a subsequent section we have discussed the difficulties of metering all supply and as an alternative suggested the adoption of the Bengal scheme of 'decentralised storage system'.

imperfect. Taxes income in India are central revenues, but under a special dispensation Madras has been allowed to continue this levy. Very serious flaws, however, exist in the levy of the profession tax as at present assessed and collected. In the case of Government officers and employees of business firms it may be easy to get a correct idea of incomes, but in the case of others assessment will be very difficult and therefore inaccurate in the absence of a skilled body of income-tax assessors. A number of people have escaped taxation altogether, and many others have managed to pay less than what is legitimately due from them. The Corporation does not possess a skilled body of income-tax assessors. Income-tax returns submitted to the Central income-tax authorities are confidential and the Corporation assessors have therefore to make their own estimates. It is doubtful if the levy can be successful unless, by an arrangement with the Central Government, this local income-tax is collected by them on the basis of information available to them. But even then the Corporation would be required to prepare rolls for incomes below the assessable limit of the Central Government but above the minimum of the Municipal Act. The percentage of collection to net demand under profession tax was 84.25 in 1938-39 as against 81.77 in 1937-38.

(c) **Paying Capacity vs. Benefit Received.**—Moreover the levy of the profession tax supplementing the property tax does not in any measure equalise the burden of taxation. To illustrate: Suppose a man receives an annual income of Rs. 10,000. This income may arise in any of the three following ways: (1) Rs. 10,000 as salary alone; (2) Rs. 5,000 as salary and Rs. 5,000 as house rent; (3) Rs. 10,000 in the shape of house rent alone. In the first case he does not pay any property tax but a profession tax of Rs. 180 only (assuming the tax is being levied at the maximum rate permissible). In the second case, he pays a property tax of Rs. 925 (at the rate of 18½ per cent) and a profession tax of Rs. 25. In the third case he pays a property tax alone of Rs. 1,850. The disparity in the incidence is very great although the ability to pay is the same in all the three cases. But it may be argued that the property tax is included in the house rent and is recovered wholly from the occupier and the burden is distributed amongst say 10 tenants, the burden to the owner being apparent and not real. But if this hypothesis is accepted what is the justification for levying Rs. 130 as profession tax in the first case considered above and not from the third? It can also be argued in justification of the present system that the owner of 10 houses is receiving on behalf of his 10 or more tenants, much larger benefit than a salaried official living perhaps in a room, in a hotel, or in a small house and therefore he must pay in proportion to the benefit received. But all such arguments are fallacious. Viewed in this light, the burden is shifted from the criterion of 'ability to pay' to 'benefit received'. It is obvious that in the illustration given above, the ability to pay is the same in all the three cases, but the degree of benefit received varies. Is it possible, then, to assess the benefit received and is the tax a measure of this benefit? In the case of the supply of gas or electricity, consumption is susceptible of measurement, but in the case of services rendered by a local body in the shape of roads, educational institutions, drainage and sewage, public health activities, etc., the benefit received cannot be distributed. A house with its own septic tank, tube-well and other conveniences provided by the landlord would bring in a higher rent and therefore contribute a larger amount to property tax than a house of identical size in the same locality but without these conveniences provided by the landlord. Quite unreasonably the person who receives smaller benefit pays more. Moreover, vacant buildings when unoccupied or unlet, receive no benefit at all, because the

remission applies only to "one half of such portion of the tax as relates to the building only as is proportionate to the number of days during which the building was vacant and unlet in the half year." The Madras system is, therefore, neither a measure of ability to pay nor of benefit received and is irrational and arbitrary. Profession tax has failed as a fruitful source and is extremely difficult to assess. It does no more than sting the rich, but the sting is hardly perceptible. It would be much more equitable to perfect the machinery of assessment and levy a rate on the houses payable by the occupier in lieu of the profession tax, as in Calcutta.

In regard to the Companies tax also, until the year 1936, when the City Municipal Act was amended, the procedure adopted in levying the tax worked manifest in justice in some cases. The basis of the levy was the paid-up capital of a Company whether it had its head office in the City itself and transacted business or whether it did its business through a branch office, agent or firm. Take for example two companies with the same paid-up capital. One Company may be making double or treble the profit than the other Company was making. Yet they had to pay the same tax. In the case of foreign Companies which had branch offices or agents or firms to represent them, they were looked upon as Companies incorporated in the City and were taxed on their entire paid-up capital, irrespective of the fact that only a small portion of that capital may be put to use in the local branch itself. Equity required that such foreign Companies should be assessed on a fairer basis and therefore the gross income in the City area was substituted for the paid-up capital in the case of such Companies. The percentage of collection to net demand under this tax was 95.30 in 1938-39 as against 94.34 in 1937-38.

(d) **Indirect Taxes.**—As in the case of the direct taxes the machinery for the levy of indirect taxes like the taxes on carriages, carts and animals is also far from perfect. The percentage of collection to net demand under this head was 84.30 in 1938-39 as against 85.20 in 1937-38. The inadequacy of the collecting staff and the frequent changes in the ownership of vehicles make it difficult to fix the liability on any particular person. The Corporation of Madras quite placidly states⁴ that there are no pigs or goats in the City, but it is not unusual for traffic to be held up in the poorer localities by a stray goat or pig. It is rarely that one comes across a dog with the Municipal ticket around its neck. As has been well said, "So long as vehicles and animals in the City are taxed, tolls ought to be levied on those entering the City from outside because the incoming vehicles enjoy the benefits of good roads and other amenities of the City without in any way contributing to their upkeep; also absence of tolls might induce residents of the City to keep their animals and vehicles outside and so evade payment of the tax."⁵

The same problem of collection remains unsolved, especially since the abolition of tolls in 1931, in the case of the timber tax also. It has recently been brought to the notice of the Corporation that large cart-loads and lorry-loads of taxable timber are being brought into the City by the roads leading to the City and such import and even sale of timber so brought remain unnoticed by the assessing staff of the Corporation, consequently entailing loss to the Corporation's legitimate revenue. The tax on timber is moreover an instance in point of the criticism that indirect taxation is inclined to be discriminatory. There is no reason why timber alone should be taxed. Is it because timber traffic is large and consequently would

4. Cf. *The City Administration Report for the year 1937-38*.

5. G. T. Boag's *Evidence to the Indian Taxation Enquiry Committee Evidence*, Vol. VII, P. 147.

bring in larger revenues? If this obsolete levy of octroi is to continue, it should obviously include other commodities as well.⁶

(e) **Need for a Re-examination of the Tax Basis.**—This review of the Madras system emphasises the need for a re-examination of the basis of Municipal taxation. If progress is to be achieved, the system of taxation should be rationalised, and the present method of distributing the available resources between the competing services should be given up in favour of the Western conception of local finance. If, however, the English basis cannot be adopted, Government should prescribe the minimum services to be maintained by local authorities at a minimum standard; and in fulfilling these obligations, the authorities will be compelled not only to perfect the machinery of assessment and collection, but also to increase taxation. The existence of a maximum limit is demoralising and should be removed. As has been well pointed out, "The existence of a maximum tends to the local bodies being short of funds and to neglect of services. Its removal will not lead to local bodies raising the rates unnecessarily. On the other hand, their tendency is always to reduce the rates wherever possible. It cannot be said that the presence of a maximum limit forces them to adopt other forms of taxation less dispensible from an economic standpoint."⁷

SECTION III—EXPENDITURE

(a) **Heads of Expenditure.**—The functions of the Corporation may be inferred from the Financial Rules in Schedule V of the City Municipal Act where it is laid down that "the objects on which the Municipal Fund may be spent include in general all matters necessary or conducive to the safety, health, convenience or education of the citizens of Madras or the amenities of the City and all matters incidental to the administration."

Municipal expenditure is also classified under the following six heads:—(1) General Account; (2) Lighting Account; (3) Water Supply and Drainage Account; (4) Town Planning Account; (5) Deposits Account and (6) Advances Account.

The General Account is split up under the following sub-heads:—(a) Management, (b) Education, (c) Communications and buildings, (d) Public Health and (e) Remunerative Enterprises. The cost of Management is Rs. 6,00,000. The expenditure on Education is Rs. 3,90,000 of which Rs. 3,10,000 represents the contribution to the Elementary Education Fund. The total expenditure under Communications and Buildings, excluding the instalment of interest on loans and repayment of debts is approximately Rs. 10,00,000 of which establishments excluding labour absorb Rs. 2,00,000. In other words, 20 per cent of the expenditure is absorbed by the supervisory staff.

Under the head 'Public Health' the total expenditure is Rs. 10,00,000. A detailed examination of this expenditure is necessary. The first section under this

6. Recent Merchants' Associations in Madras raised a clamour (as reported in *The Madras Municipal Review*, dated 27th May 1939) about the growing menace of unlicensed trades of numerous commodities which goes on merrily in competition to their established trade. Instances were quoted of cases of hundreds of oil tins and tons of casurina timber which come into the city quite freely in carts and motor vehicles and are sold to citizens in their houses. The merchants pleaded strongly for the levy of octroi duties on all imports.

7. Mr. L. B. Cotterell, Secretary to the Government of Madras, Local Self-Government Department, *Evidence of the Taxation Enquiry Committee Evidence*, Vol. VII, P. 288.

head deals with Medical Relief. The expenditure on Corporation Dispensaries is Rs. 2,90,000 of which Rs. 40,000 represents the contribution to Government Hospitals and interest on loans and repayment of debts. Of the net expenditure of Rs. 2,50,000 on dispensaries, establishments alone absorb Rs. 1,07,000 representing 40 per cent of the expenditure. Medicines account for Rs. 17,500 only. The second sub-division is preventive medicines, which has two sub-heads: (1) Sanitation and (2) Conservancy. Under sanitation, the total expenditure is Rs. 99,000 of which establishments cost Rs. 93,000, and a paltry sum of Rs. 1,800 is spent on propaganda. Conservancy accounts for Rs. 10,60,000. The Corporation spends Rs. 2,50,000 on the maintenance of bullocks and Rs. 14,000 on the maintenance of carts. It is an anachronism in the 20th Century that the premier City Council in the Province should adhere to these primitive methods of transport. The expenditure on maternity and child welfare is also insignificant being only Rs. 1,40,000.

The expenditure on poor houses is Rs. 19,000 only and a sum of Rs. 3,000 is spent on the maintenance of playgrounds. A subsidy of Rs. 6,500 is paid to the poor for constructing huts, but radio music absorbs Rs. 22,000 annually. The expenditure under remunerative enterprises is Rs. 1,90,000. The City spends a sum of Rs. 6,30,000 on street lights. The expenditure of Rs. 9,15,000 under drainage goes mainly towards the repayment of debts and interest on loans. These two alone absorb Rs. 5,50,000. The whole expenditure on Town Planning Fund Account relates similarly to these two items alone and accounts for the entire expenditure of Rs. 85,000.

The incidence of the charges under the various lands in relation to the total revenues is as follows:—Management, 9.5 per cent; Education, 5.7 per cent; Communications, 15.5 per cent; Public Health, 27.5 per cent, of which the incidence under Medical Relief is 4.25 per cent, under preventive medicine (including Conservancy and Fire Protection) 23.00 per cent, under public amenities 2 per cent; (under the Madras Public Health Act of 1938, the Corporation is obliged to spend in future not less than 30 per cent of its total annual income on public health activities); Remunerative enterprises, 3 per cent; Lighting, 9.25 per cent; Water Supply, 11 per cent; Drainage, 13.5 per cent; and Town Planning, 1.25 per cent.

Besides these forms of expenditure a sum of Rs. 10 to Rs. 12 lakhs is usually expended every year out of Loan Funds on works of a capital nature under various heads such as Lighting, Water Supply and Drainage, Roads, Construction of tenements to the poor, etc. The debt, at the end of the year 1938-39, amounted to Rs. 193.99 lakhs and the sinking fund relating to the various loans, exclusive of the Government loans, repayable in instalments was Rs. 68,06,800 in Government Securities and Municipal Debentures and Rs. 82,291-15-10 in cash payments amounting to Rs. 8,28,800 were also made during the year towards the payment of principal and interest on the Government loans of Rs. 113.75 lakhs. We shall study this question in detail in a subsequent section.

The normal expenditure which was Rs. 59.17 lakhs for 1936-37 increased to Rs. 65.65 lakhs in 1937-38 and Rs. 65.02 lakhs for 1938-39. The figures for non-recurring expenditure are Rs. 0.80 lakhs for 1936-37, Rs. 1.94 lakhs for 1937-38 and Rs. 3.61 lakhs for 1938-39.

(b) **Financial Position.**—The following figures sum up the financial position of the Corporation for the last three years:—

RECEIPTS (NORMAL AND EXTRAORDINARY)

	1937-38.	1938-39.	1939-40.
	Rs.	Rs.	Rs.
General Account	41,85,987	47,04,067	48,30,930
Lighting Account	6,88,187	6,29,387	6,37,845
Water Supply and Drainage Account	17,97,440	18,05,852	15,36,479
Town-Planning Account	1,03,500	35,741	71,250

RECEIPTS (CAPITAL)

	Rs.	Rs.	Rs.
General Account	1,52,857	10,21,151	7,84,000
Lighting Account	1,99,720	5,70,082	..
Water Supply and Drainage Account	4,35,353	7,34,819	7,36,607
Town-Planning Account	..	1,15,994	1,16,249

EXPENDITURE (NORMAL AND EXTRAORDINARY)

Corresponding to the increase on the side of receipts, expenditure has also increased. In certain cases the opening balance has been encroached for increased expenditure, leaving a smaller closing balance at the end of the year. The following are the figures on the side of expenditure:—

	Rs.	Rs.	Rs.
General Account	44,57,442	46,63,543	50,60,093
Lighting Account	6,32,737	5,44,079	5,37,031
Water Supply and Drainage Account	16,69,139	17,34,600	17,07,896
Town-Planning Account	85,356	1,37,978	1,59,093

(CAPITAL)

	Rs.	Rs.	Rs.
General Account	42,519	2,57,696	4,22,167
Lighting Account	2,87,825	2,89,833	1,63,847
Water Supply and Drainage Account	5,12,488	55,285	10,27,116
Town-Planning Account	85,802	20,278	46,632

On the side of receipts (normal and extraordinary) excepting the Lighting Account, the closing balance has invariably dwindled into a smaller figure than the opening balance. Increased expenditure over revenue is noticed under the General Account, Water Supply and Drainage Account and the Town-Planning Account. Under capital expenditure there is a slight increase in the receipts (Receipts Rs. 15,86,856 and Expenditure Rs. 16,59,762). The opening balance was Rs. 29,35,706 under all accounts except advances and deposits. The closing balance stood at Rs. 28,64,562. The closing balance in the capital account is thus left again at a huge figure, bearing interest payable between 3 per cent and 4.5 per cent (a loss to the Corporation).

On March 31, 1938, the liabilities of the Corporation amounted to Rs. 188.55 lakhs and its assets amounted to Rs. 343.14 lakhs.

(c) **Financial Activities of the Corporation.**—During the year 1938-39 the Corporation maintained a total length of 371 miles of metalled roads in the City (of which 253 miles were tarred) and completed the work of constructing a third

set of tenements in the Harbour area. The cost of reforming per mile of road was Rs. 3,855 against Rs. 3,652 in 1937-38. The expenditure on the reforming of roads including quarrying and maintenance came to Rs. 8.17 lakhs as against Rs. 8.14 lakhs in the previous year. An intensified programme of constructing pavements on the road margins for the benefit of the pedestrian traffic was also carried out. Water was supplied as usual from the Red Hills Lake and the quantity of water pumped into the City was 8,41,646 million gallons, which is equivalent to nearly 30.70 gallons per head per day for an estimated population of 7,50,630. The total number of house connections was 49,368 and that of meters 2,895. The total capital expenditure on water supply and drainage works during the year amounted to Rs. 8.55 lakhs. There was an acute scarcity of water in the City owing to the almost complete failure of the north-east monsoon in 1938 and several measures had to be devised to economise water including the restriction of supply to certain hours in the day, the prohibition of the use of water for gardens and roads and other 'non-essential' purposes and the sinking of 240 tube-wells. The location of Madras is such that there are few effective rivers and equally few natural springs, but water is in constant demand for irrigation purposes in the adjoining area and the abnormally flat nature of the surrounding country limits very strictly the possibility of finding a natural fall of sufficient height to provide adequate pressure in the water mains. A scheme has, therefore, been devised to augment the supply by constructing a dam across the Kortalar river at Poondi and forming a reservoir. The scheme is estimated to cost Rs. 61.71 lakhs of which the share of the Corporation would be Rs. 36.30 lakhs, the rest being borne by the Government, partly by grants and partly by loans to the Corporation.

Similarly, the flat and low-lying nature of the site of Madras City renders drainage very difficult. Surface drainage is complicated by the uneven distribution of the rainfall, the wet season during the north-east monsoon being marked by heavy rain storms which discharge a volume of water so great that the ordinary surface drains cannot carry it away quickly enough to avert flooding in low-lying areas. Flooding is a normal annual occurrence in some parts of the City. Adequate measures for the mitigation of flooding have not yet been contrived. Again, the presence of sub-soil water near the ground surface has made the construction of an underground sewerage system difficult. Twenty years back a scheme was devised for sewerage the City, the execution of which is not yet complete and is being extended year by year. This scheme depends on a system of pumping stations to which the street sewers gravitate and carry the sewage from the houses, which is then pumped into a cast iron main and conveyed to the City Sewage Farm in the north-eastern corner of the City. This farm is 160 acres in extent and can absorb only 1/5th of the available sewage for irrigation, the other four-fifths being released into the City.⁸ This underground drainage system does not provide for the disposal of surface water though in the heavy rains some storm water does enter the sewers, the bulk of the surface water and storm water is carried by the road side ditches and old masonry drains into the nearest watercourse such as the Otteri Nullah, the Cooum and the Buckingham Canal. The sewerage of the City will make possible the abolition of the primitive and repulsive methods of scavenging and the Corporation has already pressed forward a project for the compulsory provision of flush out latrines which are served by the underground drainage system.

8. Official Handbook of the City of Madras.

During the year 1938-39 a sum of Rs. 5.21 lakhs was spent on new drainage works besides Rs. 3.50 lakhs on maintenance. The length of sewers laid during the year was 13.7 miles and the number of house connections given was 6.92. A sum of Rs. 2.15 lakhs was spent on the construction of storm water drainage works. The Council sanctioned a comprehensive scheme for the construction of public conveniences, urinals and bath-rooms in various parts of the City at a cost of Rs. 2.5 lakhs. The compulsory introduction of the scheme of flush out latrines in private houses was further extended. 27,782 flush out latrines were constructed upto March 31, 1939.

Electric Power in the City is supplied by the Madras Electric Supply Corporation Ltd., and the Corporation of Madras takes bulk power from it for street lighting distribution. The total number of street lights in 1938-39 was 13,505 electric and 33 oil lights. The total length of mains laid down by the Corporation for street lighting was 500.88 miles. Expenditure on public parks was Rs. 34,875.

28.53 lakhs of patients were treated in Corporation Hospitals, Dispensaries and Child-Welfare Centres. 3.06 lakhs of vaccinations were performed; 30,407 births were registered (15,674 males and 14,733 females); the infantile mortality rate being 222.7 per 1,000 births, and 26,064 deaths were registered giving a death rate of 40.3 per thousand of population. 19,166 boys and 11,186 girls were medically examined in schools and 57.07 per cent of the boys and 33.94 per cent of the girls were found to require treatment. 681 children were treated for leprosy.

The total number of the Corporation Elementary Schools was 137 and the number of children on their rolls was 49,766 (24,001 boys and 16,765 girls). There were 137 Head Teachers, 1,082 assistants for secular instruction, 32 assistants for religious instruction, 15 music mistresses and 48 instructors for teaching crafts. A mid-day meal was supplied as usual to 5,500 poor children at a total cost of Rs. 42,087. There were 11 playgrounds maintained by the Corporation for the use of school children. The expenditure on elementary education was Rs. 10.10 lakhs. The balance in the Elementary Education Fund Account at the beginning of the year, was Rs. 0.69 lakh. A sum of Rs. 3.64 lakhs was realised from education tax; Rs. 0.30 lakh from the Government as the grant under the proviso to Section 37 of the Elementary Education Act; Rs. 2.84 lakhs from the Government as equivalent contribution in respect of education tax collected during the previous year, and Rs. 3.29 lakhs from the Revenue Funds of the Corporation bringing the total, together with minor items, to Rs. 10.02 lakhs. In addition to the Civic Library situated at the Ripon Buildings, 16 free reading rooms and a free Circulating Library were maintained for the benefit of the public. The number of Scout units attached to the Corporation was 120.

SECTION IV—A REVIEW OF THE CITY ADMINISTRATION

(1) **Lack of Balance.**—Sound finance is all essential in local administration; but it has to be regretfully admitted that the financial administration of the City has not conformed to the accepted principles. It is regrettable that this old City of Madras which is the capital of the oldest Presidency in India and which only last year celebrated its tercentenary has not completed even today an underground sewerage system. It is a sad commentary on the civic consciousness of this city of paradoxes which has beautiful ornamental lights scattered all over the City but has a deficient system of water supply, which has an alluring country aspect of houses with spacious grounds but has the unhealthiest slums that one can think

of. The explanation which is glibly offered⁹ is: "Madras is a very wide City. It is greater in extent than its sister cities in India and naturally its responsibilities are also greater. Its road mileage is greater; its health responsibilities for underground sewerage are also greater. . . . But its resources are comparatively poor. With its peculiar features and its limited resources, Madras is not capable of rapid and easy improvement." But, is this pessimism born of defeatism justified? Difficulties, there are, no doubt, to be surmounted, but the defeatist mentality has been allowed to have free play too long in this field; and it is time that the City fathers realised the need for launching a well-planned scheme of all-round civic improvement.

The problem of Madras is not merely the lack of resources but also the lack of a sense of balance. The City strives to achieve the spectacular at the expense of the essential. It radiates in the luxury of the desolate but well laid out parks and fascinates the country cousins with its fountains with spout multi-coloured jets into the cloudless sky. It contemplates the concreting of an excellent road like the Marina when it has not even fulfilled its primary obligations for making education compulsory and providing sanitary houses for its legions of slum dwellers. The fact of having released for the first time in 1937-38 from the General Funds a sum of Rs. 50,000 only for the vital problem of improving the slums is being boasted,¹⁰ while the discretionary grant of Rs. 80,000 a year to the Divisional Councillors and equally large amounts spent on ornamental lights and re-fencing of parks are not considered enough. It is a state of affairs which no logical human mind can view equanimity.

This brings us to the question of a well conceived plan.

(2) **Roads.**—If the City roads are to be improved, a survey of all the roads in the City should be undertaken and a seven or ten year plan evolved for the improvement of roads. The present method of selecting roads for improvement without reference to necessity, can hardly be justified. This practice is not conducive to the City fathers' ability to make use of increased taxation. So far only the main roads have been taken up to the neglect of roads in the poorer quarters. The connection between the traffic system, road planning, safety and civic comfort is so great that it is highly desirable that traffic authorities should be provided with technical advice by town-planning experts and a traffic committee formed with representatives of the Corporation, the police and traffic experts, to regulate road development.

(3) **Education.**—The Corporation spends annually over Rs. 11 lakhs (Education Fund) and Rs. 50,000 (from General Fund) for educating about 40,000 children only. It can by no means be said that illiteracy in the City has been dispelled, although the Corporation is providing free elementary education by supplying books, mid-day meals, etc., to the poor children. Adequate measures for enforcing compulsion have not yet been contrived although a beginning has been made in this direction recently by admitting 6,000 additional boys and girls in 1939. There has been a heavy rush in the Corporation Schools and there is need for more schools in many poorer localities. There is noticed waste in some schools and inadequacy of provisions in others. The distinction between boys' schools and girls' schools must go, and instruction must be co-educational. This will effect some economy in expenditure. A seven or ten year plan for enforcing compulsory

education in the City should be drawn up and the necessary funds should be raised by increasing the education tax.

(4) **Water Supply.**—It is sad to find the helplessness of the Corporation in dealing with the water supply problem. A City like Madras situated in a place which is subject to prolonged periods of drought must needs devise measures for the provision of a dependable supply of water. Nearly two crores of rupees have so far been expended in the water supply system, but there is no evidence, to judge from the daily complaints, that matters have improved very much in this respect. There is no certain and steady flow of water and one often finds that the taps fail when water is most needed. We hope that with the completion of the Poondi scheme the problem of water supply will be solved satisfactorily. Even then, measures for the conservation of the source will become necessary. Wastage cannot be eliminated merely by restricting the hours of supply. In fact, restrictions only tend to increase wastage, since all the taps are generally kept running during the hours of supply. The only way to keep down the cost and conserve the sources of supply is to charge on the basis of actual consumption. Metering the entire supply seems to be the best method of measuring consumption, but the capital cost of reliable meters is heavy and adds to the cost of the scheme. Moreover an expansive staff of meter readers and inspectors have to be maintained. Bengal has therefore tried what is known as the 'decentralised storage system,' by which an agreement is effected between the occupier or owner of a house and the Municipality to supply a stipulated quantity of water at a stipulated rate; the supply instead of being metered flows into a storage tank, the capacity of which should be sufficient to hold at least one day's supply, and the feed pipes of the storage tank are so adjusted that the daily supply will equal the stipulated quantity. A householder who pays a certain water-rate receives a certain amount of water. The water-rate payable, however, bears a relation to the annual valuation of the premises. Above a certain point, the amount of water given is proportional to annual valuation but below this point the amounts given are greater than the valuation. This provision is made to encourage poorer people to take house connections. If a householder finds that the water supplied to him on the basis of the water-rate is insufficient, he can obtain an additional supply, but this must be for a minimum period of one year as otherwise the adjustment of check pipes would be impracticable. Provision is also made for large supplies of water temporarily but the rates are higher to ensure that the connection is given up as soon as possible. The other interesting features in the system are: As the storage tanks are fed throughout the period of supply, the mains can be of smaller sizes and the central storage can also be considerably reduced if not eliminated. Control of street supply is obtained through local storage tanks, which are of reinforced concrete, heat resisting as well as proof against pollution. The tap has a spring attachment and closes automatically. If, however, wastage occurs at any point, the check pipes of the tank having been set at a pre-determined volume, will not admit of further water and the locality will see that the water is not wasted in future. The advantages of this scheme are many. There is an even demand on the plant: there is no capital expenditure in purchasing meters or recurring expenditure in employing a number of meter readers and wastage is eliminated. Water is available all the 24 hours of day and night and there is no scramble at certain hours at public taps. The main objection to the scheme is that water has to be stored and unless the tank is kept clean, the water supply is bound to be contaminated. On the whole, the balance seems to be in favour of

9. Administration Report of the Madras Corporation for the year 1937-38.

10. Vide The City Administration Report, 1937-38.

the scheme and an experiment on the scheme is worth-while for comparing the results with the existing system.

(5) **Health and Slum Clearance.**—The Corporation should not forget that the provision of a protected water supply is not its only urgent problem. The mortality rate has been increasing and there is an urgent need for greater drainage facilities and slum clearance. "Bad housing conditions in the city have not only tended to increase the incidence of respiratory diseases but also have been the pre-disposing factors for the high death-rate in general and infantile mortality in particular."¹¹ The existence of several villages and small towns round about Madras without any drainage and protected water supply has been a serious menace to the health of the City. A fourth of the City's population is living in slums containing mostly one-roomed huts built close together and often "back to back" without any drainage and ventilation. Not only is each house overcrowded as a rule, but too many huts stand on a small area. Cases of 75 to 100 huts per acre are not rare. The absence of effective storm water drainage leads to the flooding of areas, destruction of huts and increase of dampness of flooring. Thousands are rendered homeless and mortality from respiratory and bowel diseases shoots up.

The City is supposed to have a town-planning scheme but, so far as one can see, there is no evidence to show that the development of the City is being directed along carefully ordered lines. The City is expanding irregularly north, south and west, and more huts are springing up in the out-lying divisions with inadequate piped water supply and are returning higher mortality figures. The Poondi scheme may bring in a certain striking addition of water to the existing supplies, but since there is a close relation between effective supply and the range, route and means of distribution, even the Poondi scheme may be found inadequate if the City's population is allowed to aggregate in clusters of extensions distributed all over the City and suburbs with little thought to the many and difficult problems to which they will assuredly give rise in future. It is therefore imperative to review afresh the City's Town Planning Scheme and revise it with reference to present day conditions, so that the City may formulate a housing policy and steps be promptly taken to clear it of the numerous slums in which it abounds. For, while the population of the City has been rapidly increasing, there has not been a corresponding increase in sanitary houses. Although the Mambalam extension has grown with considerable rapidity in recent years, the available sites there are mainly occupied by bungalows belonging to both the rich and the middle class, so that little has been done to relieve the congestion prevailing in poorer localities. Already in 1932 the City Health Officer uttered the following note of alarm: "Slum improvement has now become the most vital issue for Madras transcending other civic problems. Unless this is tackled boldly and comprehensively, the health of the City as a whole may be in peril."¹² But little has been done since then, to meet this pressing need.

11. Report of the Madras City Housing Committee (1939), P. 4.

The death-rate based on census population during 1938-39 was 40.6 per mille against 39.7 per mille in 1937; while the rate calculated on the estimated population shows little change, the figures being 35.03 and 34.9 per mille in 1938 and 1937 respectively. These rates are high when compared to the average municipal death-rate of 29.32 per mille. The infantile mortality rates worked out to 222.1 and 220.8 per 1,000 live births in 1938 and 1937 respectively.

12. The City Health Report, 1932.

(6) **Housing Finance.**—The problem of slum clearance with its correlative, the problem of providing healthy dwellings at a cost within the means of the tenant may not be easy of solution; but for many reasons it must be resolutely tackled. A well directed housing policy, instead of throwing any extra burden on the ratepayer, may well relieve him of part of that burden as shown by Western experience. "Slums", remarks an American writer, "not only increase for the community the cost of protection against fire, crime and delinquency but also take a heavy toll of life, health, property and moral values".

So far as the Madras Corporation is concerned, the problem of finance will, if properly tackled, present few difficulties. If in the past its efforts at slum clearance have proved futile, the reason is to be found in utter carelessness and culpable failure to take expert advice on a far-reaching scheme evolved on the basis of long period requirements. A Housing Committee was, no doubt, appointed in 1933 to recommend a comprehensive housing policy, but its recommendations for financing the scheme were too ambitious: (1) All the slums (about 200 at the present time) in the City were to be re-constructed at a capital cost of Rs. 100 lakhs. Government should make a free grant of half the cost and a loan for the other half. (2) Houses, costing not more than Rs. 350 each, were to be constructed. The rent charged should be Rs. 1-8-0 to Rs. 2 per house per month and the realisations should be credited to a repair account. (3) An improvement trust should be constituted which, among other things, should take steps for the elimination of the slum mentality.

For one thing, the emergency arising out of the war has put a stop to all liberal financial assistance on the part of the Government. Moreover, it is a well recognised principle that to rank for State subsidy, a problem should have assumed national importance. The housing problem is more or less localised in Madras and the Provincial Government cannot reasonably be expected to bear a large share of its revenues. It is not our intention to under-estimate the responsibility of the Government towards this problem,¹³ but only to stress the impracticability of any scheme which would rely on a generous measure of State aid for its success.¹⁴ It is therefore necessary to examine acceptable alternatives. This involves an analysis of what has been done and what remains to be done.

The Madras Corporation has expended, from 1908 to 1939, a sum of Rs. 1,60,000 on slum improvement and Rs. 12,60,000 on the acquisition of land and the construction of the miscalled 'model' tenements. But there has been no decrease in the number of slums, nor has this expenditure checked, in any way the growth

13. It is well to note in this connection that in the U. S. A. the Government have set up a National Housing Authority with a Government grant of 15,000,000 dollars per annum to be distributed as grant-in-aid to public housing agencies with an extra 4½ million dollars for administrative expenses, most of which, however, is chargeable to the local housing projects. These contributions constitute a subsidy to provide the difference between the cost of operation and maintenance of the premises and the amount which these poor people can afford to pay. This expenditure, though large in the aggregate amounts, it is said, to less than one-fifth of one per cent of the total proposed Federal Budget for 1940. In England, however, state aid to housing is greater, amounting to 75,000,000 dollars.

14. The Madras Government had already made an attempt to help in the building of about 1,400 tenements, thatched or tiled, with one to three rooms, at rents varying from Rs. 1½ to Rs. 3¼ per mensem to house over 7,000 workmen. But these operations could not be extended as it was stated that they had not the requisite statutory power to acquire land in the City for depressed classes.

of slums, or overcrowding. In fact slum conditions are said (by the City Women's Civic Group) to have been re-produced in the tenements recently built by the Corporation. A good portion of this outlay also went towards the construction of Corporation Cheries where conditions today are no better than those prevailing in the privately owned slums. The Commissioner in his Administration Report for the year 1937-38 states that full and intensive remodelling of every slum is really necessary. Yet, he says, "this was the first time that such a large sum (Rs. 50,000) was released from the general funds for the improvement of slums". The Commissioner also says: "From the manner in which building activities are proceeding, I believe, the construction of quarters suitable for the poorer classes will soon be taken up by private agencies and until this is done the congestion in Georgetown cannot be effectively cleared". But is this subdued optimism (born of defeatism) justified? It has to be remembered that housing for the poorer classes can never be an economic proposition. As has been well-said "merely to meet the economic demand of those who are prepared to pay economic rents is no solution of the housing problem". It is a fact that even in richer countries the income of many workers is insufficient to buy or even rent decent houses. Private enterprise can hardly be expected to provide the right type of houses for the rents which the workers can pay. Grant of subsidy to, and the financing from rates of, housing schemes are based on a recognition of this indisputable factor. Nor can we accept the postulate that the housing problem cannot be solved without private enterprise.¹⁵

It is clear from this analysis that the measures taken by the Corporation upto now have been ineffective and that local taxation should bear the main burden of expenditure on housing. Ways and means have to be devised so as to reduce the incidence of this burden to the absolute minimum.

It has been suggested,¹⁶ that it should be made obligatory on all employers of large scale labour in the City to provide an adequate number of houses for their labour population. In support of this proposal it is said that the Railways and the Buckingham and Carnatic Mills have, to some extent, realised their responsibility in this matter and built houses for at least a fraction of their employees, and that they even admitted before the Royal Commission that "workers provided with houses become more healthy, settled and contented." Moreover, it is said, that compulsory housing, as pointed out by the Indian Industrial Commission is not a burden on Industry and that Railways and Mining concerns have, at all times, sought to provide housing for reasons of convenience. The extension of this principle is therefore suggested. The suggestion is also made that where employers have provided houses, there must be an equal obligation on the part of the employees to live in them. But this is not easy to work, as many workers find it economical to live in joint families and are scattered over different places and in different kinds of employment in the City. Moreover, such an arrangement might encourage the employers to use it as an additional lever in the event of a strike. As against this contention, it is said that this difficulty can be met by suitable

15. That state aid has contributed to economy is evident from the fact that in the U. S. A. "the average amount by which the United States Housing Authority net construction costs were lower than private net construction costs was 1,010 per unit". Even in the bigger Cities like New York, the schemes sponsored by the Housing Authority were executed at a cheaper cost than private undertakings.

16. Cf. Report of the Royal Commission on Labour in India.

legislation requiring the labourers to vacate only if the Government or the Arbitration Court decide against the strikers and that threats of eviction at short notice of employee residents for showing any tendency to agitate for better conditions and taking any leading part in trade union activities should be prohibited by law. But, all this is impossible to enforce and no employer can be asked to harbour malcontents in their houses. In fact, the solution, from a practical point of view, would be to reverse the process and ask for financial contribution by employers to a municipal scheme of housing. The contribution should be fixed on the basis of the principle of ability to pay and the number of workers employed. The problem of housing a quarter of the slum population in the City and relieving the Corporation of a fourth of the estimated expenditure of a crore of rupees may be solved by the adoption of this proposal. The Corporation in its turn should provide building sites at its own cost, and even share the loss on housing in certain equitable proportions. It would, however, have the right of preparing the plans, approving the estimated cost and fixing the rent.

Again some amount could also be realised from unearned increment but its psychological value is more important. The taxation of vacant sites higher than built-up areas will have the effect of indirectly encouraging house construction, discouraging speculation in land, and at the same time mitigating, to a limited extent, the problem of overcrowding.

Further, the Corporation should acquire all the slums gradually, and after improving the sites, release a portion of them for sale. The main problem in Madras is that concerning the private hutting grounds which number as many as 140.¹⁷ It has been found that the standards required for improving the condition of these private hutting grounds are generally costly and in some cases the cost would be more than that of the land itself, and the land owners have been generally reluctant to spend large sums of money which probably they have no chance of recouping. At the same time there is the question whether the Corporation would be justified in spending large sums which would go to the benefit of the private owners. Hence the need to acquire the sites gradually by the Corporation. The trend should be towards developing building sites outside the City area and provision should be made for housing within the City only those workers who must necessarily live near their place of employment.

But this question is complicated by the problem of transport. Had the transport services in the intra-city area been owned by the Corporation, a little financial sacrifice on the part of city dwellers in increased fares would have made it possible to provide the necessary facilities to the population living outside the city limits. But, following the practice on the Continent and in England, where, even in the cities where the transport services are owned by private agencies, the workers are charged only a nominal rate, it should be possible to effect similar financial arrangements with the public transport services in Madras also. In the extra city areas, cottage development should be undertaken and housing operations in these areas should precede action in relation to clearance areas for re-housing the displaced population. But in the City area, cottage development may not be

17. "Hutting grounds" are spaces upon which the poor classes have erected dwellings usually made of mud and thatch. Some of these hutting grounds are the sites of early villages.

practicable or desirable. The loss of housing accommodation which would result from cottage development would greatly restrict the number of people who can be housed and would also appreciably add to the financial burden. Moreover, if the area is surrounded by high buildings the cottages would be seriously overshadowed and deprived of light and air. The extent of reclaimed slums, which can be released for sale, should, on this basis, be not less than one-third of the total area. The profits, if any, from these reclamation activities should go towards forming the nucleus of a housing fund. An experiment conducted in Calcutta in reclaiming five slums resulted in an increase in the value of sites by Rs. 13 lakhs. Similar increases can be expected here also.

The practical difficulties in acquiring slum property and sites outside the City limits will be (1) to counteract the avarice of the profiteer in slum properties and (2) to prevent land speculation in the new areas proposed to be developed. These difficulties could be met by adopting the provision of the English Housing Act of 1936 in which areas are classified into clearance and re-development areas. In the former category, the compensation is paid on the value of the site above and the cost of superstructure is ignored, but there is provision for a limited payment when the building, notwithstanding inherent defects has been well maintained. In re-development areas the compensation paid is market price. But a wholesale copy of the English Act will not suit our purpose. The superstructures in many slums in Madras are not those of the landlords but of the tenants. Ways and means must, therefore, be devised for making a fair and equitable compensation for them, though this is not a serious problem here as most of the huts are thatched.

Again, a surcharge of 10 per cent on the property and profession taxes should be levied for a period of about ten years and the proceeds credited to the housing fund. The income from this additional taxation will bring in a sum of Rs. 4½ lakhs a year approximately (on the basis of the present annual yield of these two sources, which is about Rs. 45 lakhs) or Rs. 45 lakhs in 10 years.

Finally, the rents realised should be credited to a renewal and replacement fund, so that once the scheme is completed, future development may not be held up by financial obligations to maintain and reconstruct the houses completed.

No solution of the housing problem can be considered adequate which ignores the fact of thousands of homeless street dwellers who throng in the City. The beggar is ubiquitous in Madras and he pursues his profession almost entirely unhampered by law. The existing legislation in Madras relating to vagrancy and begging is so inadequate as to be quite useless.¹⁸ The City Municipal Act provides for the maintenance of rest-houses, aims-houses and poor-houses. The Corporation started a Poor House in 1927 at Tondiarpet. There is the Monegar Choultry, a long standing institution with a history of nearly a century and a half behind it and the Friend-in-Need Society's Home, an equally old institution, providing indoor and outdoor charity for destitute Europeans and Anglo-Indians. Besides these, there are a number of Annadhana Samajams for the dispensation of free meals, of which the most important are those of Triplicane and Purasawalkam and the Chennapuri Samajam. The beggar problem is one of the acutest problems of the City awaiting solution, ranking equally with the problem of slum clearance. There is an urgent need for more adequate institutional provision for dealing with the

various classes of beggars and for controlling the immigration of the homeless people into the City.¹⁹

To Sum up.—The housing problem in the City has grown to such large proportions that it will be criminal to neglect it any longer in the interests of the City as a whole and the poorer classes in particular. It is not merely the labour classes and artisans that are huddled in damp low roof windowless quagmires, but even the very large middle classes whose earning capacity is a rupee or two a day, lead their miserable existence in rooms, respectfully so-called but in reality stinking with foul gas and odours which would irritate one's nostrils. There is a marked difference between the congestion of the centre of the City and the spaciousness of its suburban margins; and the divisions showing the highest number of occupants per house are found huddled in the centre, while the lowest figures per house exist in the outer divisions. The congestion is marked in many cases by a family having to share a room with others.²⁰ The real solution of the problem lies in an increase in the supply of houses of all types and sizes to suit the needs of the middle classes as well as of the poor. The adoption of the scheme outlined above would place at the disposal of the Corporation sufficient resources to enable it to complete its ambitious Rs. 1 crore programme without resorting to borrowing.

(7) Need for an Improvement Trust.—Among other matters that call for comment may be mentioned the provision of underground drainage which has been rather inadequately tackled. Present indications are that it will be years before it is completed. The most urgent problem is to contrive measures in some of the northern divisions of the City which have been suffering from flooding in the rainy season. One finds, moreover, no sign of determination on the part of the authorities to clean the Coom, one of the main factors contributing to the ill-health of the City. The controversy as to whether it is the Corporation or the Government that should undertake the work should be settled for good.

Without going more into detail in cataloguing the defects and drawbacks of the City administration suffice it to say that whether it is public health or traffic convenience, aesthetic appearance or housing comfort, Madras lags far behind other cities of its size and importance. The reason is that the City has been allowed to grow, as it would, during the last 300 years of its development without any order or plan behind it, with the result that despite attempts and expense year after year, its major and minor civic problems remain unsolved. The only panacea for the rapid and orderly progress of the City would seem to lie in the constitution of an efficient Improvement Trust which, besides being responsible for planning land in the intra and extra city area, with great care and so as to prevent the reappearance of slum conditions in the new quarters, should also guard against the lack of balance in the City's development. The Improvement Trusts in Bombay, Calcutta and Hyderabad have functioned satisfactorily and a similar Trust for Madras could be worked successfully. Experience has shown that an administrative

19. Space forbids making more than a passing reference to this very important problem in the City which has assumed serious proportions. Migration to Madras has been governed largely by the movement of prices; and the City has tended "to grow rapidly or slowly according to whether prices have tended to rise or fall." Mr. Ranson says that the migration which inflates the population figures of the City may be broadly described as "the migration of despair rather than the migration of hope."

20. *History of Madras* by C. S. Srinivasachari, P. 293.

18. *A City in Transition* by C. W. Ranson, P. 149.

body like the Madras Corporation, which has to satisfy varied interests, cannot function efficiently as a business body can, and it is imperative that such a body is constituted and the necessary funds placed at its disposal for the efficient execution of its schemes. The constitution of the Housing Fund, detailed above, may form the nucleus of its resources.

Already in 1920, the Madras Government constituted "The Madras City and Suburban Town Planning Trust," which submitted the Mambalam Southern Section Town Planning Scheme and the Mylapore Eastern Section Town Planning Scheme. But the Trust could not function on account of financial difficulties and was therefore dissolved and the Government ultimately vested power in the Madras Corporation to execute Town Planning Schemes in the City. In 1936 the City Council requested the Government to undertake necessary legislation at a very early date for the constitution of an Improvement Trust for the City, but the Government did not agree to this. Recently the Council has requested the Government to reconsider their decision in the matter.

In Calcutta, an Improvement Trust is already working successfully and is being financed by an increase of 2 per cent *ad valorem* in the duty imposed by the Indian Stamp Act on transfer of property within the Calcutta Municipality, a terminal tax at the rate of half an anna on each journey made by a passenger arriving in or leaving Calcutta by railway or in steam launches, a custom duty on the exports of jute from Calcutta levied at rates to be determined by the Bengal Government and a contribution from the Calcutta Corporation equivalent to 2 per cent on the annual value of properties and betterment fees. The Trust is also authorised to borrow in the open market.

The proposed Trust in Madras could be financed in a similar way. The surcharge on transfer of property (Rs. 1.29 lakhs in 1933-39) now received by the Corporation should be paid to the Trust, besides the average amount annually spent by the Corporation on town improvements of a permanent character (about Rs. 1.31 lakhs). The Trust should also get the betterment contributions which should soon be coming in under the provisions of the several Town Planning Schemes now under execution (for which no date is available). A terminal tax on all persons coming into the City by rail from any station beyond 15 miles of the City limits should be credited to the funds of the Trust. A surcharge, levied on the sales tax collected in the City,²¹ should also be paid to the Trust. Finally the Corporation should pay annually Rs. 4½ lakhs from the income of property and profession taxes (as we have said above) and the Government should make an equivalent contribution of at least Rs. 2 lakhs for the next few years. A body, financed in this way, could take effectively an all-round improvement of the City.

(8) **Need for Rationalising the System of Taxation.**—It is obvious from what has gone in the preceding pages, that the City must have a better surface for its roads, an improved system of water supply and drainage, a system of compulsory education and sanitary houses for its huge slum population and more dispensaries and child-welfare centres. Is it possible to achieve what would be considered essentials elsewhere but a miracle in Madras on the present basis of taxation? If the poor borough of Poplar in England could bear a rate of 17s. 6d. in the

21. A surcharge of 25 per cent on the sales tax at ¼ per cent now levied in the City is expected to produce Rs. 17.5 lakhs.

pound cheerfully even before the outbreak of the present war (when local authorities in England were not saddled with additional burdens as now, such as civil defence, etc.), there is no reason why the educated population in Madras should grudge in handing over to its civic organisation the minimum sum required for maintaining its essential services. The present hostility to increased taxation is not unjustified because though the rates of taxes are increased now and then no improvement in the amenities provided is noticeable. The weakness of the present basis is not merely in the reluctance of the community to bear additional burden, but also in the difficulty of planning when the receipts are uncertain. It is therefore imperative that taxation must follow and not precede a determination of the requirements of the City.²² A seven or ten year programme should be evolved in respect of the different services and the expenditure to be incurred within this period should be accurately estimated and the required money raised by rates, setting off all receipts from non-tax resources including Government grants which are of an uncertain character as they depend on the state of Provincial Finances at the time. Local Self-Government has passed the stage of adolescence and it must be able to stand on its own feet and justify its youth. It is demoralising and degrading to go around perpetually with a beggar's bowl, and the diffident and helpless attitude of the Corporation must be replaced by local pride in its unaided achievements. The electorate should learn that there are circumstances in which social utility can be better promoted by public than by private expenditure. Such a lesson ought to be easier in the field of local than of central or provincial taxation, as the benefits accruing from expenditure by local authorities are more immediate and direct.

(9) **Public Utility Services.**—It is necessary at this stage, to dispel the notion commonly held that the Public Utility Services, if owned by the Corporation, would finance its activities to a considerable extent and thereby mitigate the burden of rates. Taking England as a whole, the Public Utility Services are run at a loss, though individual cities might be making handsome profits. But normally, the profits do not go towards an abatement of the burden of rates, but are utilised for improving the efficiency of the specific services which earn the profits and in providing more comforts and ultimately in reducing the charges made. The underlying idea of municipalisation is not to earn profits but to supply the services efficiently and cheaply. It is quite unusual to divert the profits as a contribution towards rates. It would be inequitable to adopt this basis. If large profits are made in the supply of, say, electricity, the relief must evidently go to the consumers who have contributed towards the profits and not to the general ratepayers. Indirect benefits in reduced charges will, however, accrue to a majority of ratepayers, but the incidence of rates must remain unaltered. Only such of the ratepayers as utilise any specific service should benefit to the extent of the use, from the reduced charge of that service. In ignorance of the position in England and of the fundamental principle underlying the scheme, time and again a clamour is raised in Madras that if the Public Utility Services were owned by the Corporation.

22. The Director of Town Planning, Government of Madras, has stated recently (as reported in *The Madras Mail*, October 24, 1936) that Madras City is "trying to run on a property tax which is less than some small mofussil municipalities where problems have not developed anything like the same proportions. . . Madras, for the things it is attempting to do or ought to be doing, should have a property tax of 24 per cent and not 15½ per cent."

considerable improvement could be effected in the City.²³ This attitude is indefensible in any case.

If the Corporation should take over the Public Utility Services, it must be on two considerations: (a) that the services are not well run, and (b) that the charges are excessive. Even if these two factors are present, it has to be considered if Municipal ownership will result in better organisation and more economic administration. On the basis of present standards, it is extremely doubtful if the Corporation can attain either the organisation or the financial results which Company management gives. It is quite likely that instead of being assets they may prove to be liabilities. Unless and until the Corporation can inspire confidence in the public by its wise administration of the City's finances it is unlikely that Municipalisation would evoke considerable enthusiasm.

The most important Public Utility Service in the City is the supply of electric power which is done by the Madras Electric Supply Corporation, a Limited Company with a capital of more than a Million Pounds or Rs. 150 lakhs. Already in 1929 a point was raised in the Council as to the possibility of municipalising the electric supply but as the capital invested in the service was found to be too large for the Corporation to manage, it was decided to municipalise the distributory system for street electric lighting only. The cost of the scheme is Rs. 12½ lakhs and the advantage expected is saving of about Rs. 1½ lakhs per annum by way of current bills, besides many technical improvements such as better brilliancy of lights, easy and quick localisation of faults, etc. The distributory system for street lighting is still incomplete and if completed, the Corporation, it is expected, will be in a position to generate its own power for all its Municipal purposes, if it so desires. It has been stated that it would cost nearly Rs. 19 lakhs to have a Municipal generating supply. But there is no possibility of municipalisation materialising in the near future as the licence for the Madras Electric Supply Corporation expires only in 1947 and as, in the meanwhile, the Government of Madras is likely to introduce the Grid system of electric distribution in the Presidency with the Madras Electric Supply Corporation Power House as one of its thermal stations linking it up with the Grid distribution.

The other important Public Utility in the City is its transport service. It has a limited Electric Tramway Service provided by the Madras Electric Tramways (Madras) Ltd., with a capital of £3,00,000. There were 103 tram-cars in 1933-39 and operated a route mileage of 16 miles, 1 furlong and 31 yards, of which 10 miles, 7 furlongs and 31 yards were covered by double track. The Tramways are used by large numbers of people (the number of passengers carried in 1933-39 was 25,390,554), but are quite inadequate to meet the needs of a City which has spread far beyond the range of the present tramway system. It is doubtful if in a City like Madras whose streets are inconveniently and often dangerously narrow, tram-cars are a suitable form of transport under modern conditions.

The electrification of the South Indian Railway for a distance of 18 miles outside Madras City is a new enterprise (with an invested capital of Rs. 173 lakhs) which is likely to have a wholesome effect on the development of the City. The

23 The City Council at its meeting held on 10th January 1939 moved a resolution for Municipalising Public Utility Services such as the entire transport services, the production and distribution of electric power and all Markets in the City, besides opening a printing press, a model talkie house and a dairy farm. Nothing, however, has been done so far in this direction excepting the acquisition of a few markets in the City.

tendency of the rapid development of the 'Greater Madras' area in recent years on the southern side of the City is likely to be still further accelerated by this new provision of cheap and speedy transport.

The development of Motor-bus services helps to serve the needs of cheap passenger transport within the City which the tramways could not meet. The bus services are privately owned mainly by small Companies or private individuals, and lack of capital (the invested capital being only about Rs. 3 lakhs) combined with keen competition results in a marked lack of efficient organization although things are not so bad now owing to the amalgamation of a few Companies. The endeavours of the police authorities to regulate bus traffic have proved futile as their powers are limited to the task of reducing congestion on the various routes by ensuring regular starting intervals. There is at present a great deal of duplication and overlapping between bus and tram services and there is an obvious need for more efficient organization of the passenger transport services which could be achieved only by the creation of an *ad hoc* Passenger Transport Board along the lines of the London Passenger Transport Board, being responsible for the provision of efficient services on all the main routes of the City and for the co-ordination of the transport services to this end.

In fact, the solution, from an economic and administrative point of view, lies in the formation of such Public Corporations or Boards, on a Provincial basis, to direct and manage Public Utility Services as in England, South Africa and many other countries. The method of Public Utility management by a Central Board, being ultimately responsible to the people but freed from interference in the day-to-day administration of business, has now become a widely accepted principle of Modern Public Administration. In London, for example, the Public Utility Services are not owned by the London County Council, but separate authorities have been constituted (on which the London County Council is represented) which control these services. The Metropolitan Water Board, the London Passenger Transport Board, the Port of London Authority, etc., are the *ad hoc* bodies which London is familiar with. It is on these lines that reorganization must proceed here also, as we are also, in a limited way, familiar with such public bodies, e.g., the Railway Board, Port Trusts, the Public Health Board constituted under the Madras Public Health Act of 1939.

The most serious drawback of such an *ad hoc* body, according to Dr. Robson,²⁴ is that "there is no method of co-ordinating its work with related activities carried out by other bodies." "The services of a great modern City", reminds the Doctor, "are becoming more inter-related everyday, and even their efficiency is determined to no small extent by the degree of co-ordination that is attained." Strong as the objection is, the fact that Parliament in England has in recent years reversed to *ad hoc* bodies is a testimony to their proved efficiency and in so far as these bodies must work only within the powers allotted to them (as they are established by Government), their constitution and powers might always be changed and controlled so as to serve best the interests of co-ordination. The problems which co-ordination raises are problems of values on the one hand and of men on the other. They are met only by finding men of vision and insight who know how best to use their powers and who realise that the ideal which we all seek, irrespective of our party allegiance and political creed, is an improvement in our national life.

24. Vide Robson's *The Government and Misgovernment of London*.

Thus the primary condition of the success of such an institution is the character of the administration and the chief executive staff. The Board should consist of competent men whose only title to appointment should be their business ability and experience. No private or sectional interests should be permitted to have any voice in its administration. Government must possess the power of appointing one or two directors to watch the interests of the Board and to ensure that nothing is done that will lead the Corporation in disaster. But it is not necessary to empower the Government directors with veto as it is very unlikely that the other directors will refuse to listen to the advice given by the official directors and to act upon it, if it is sound, in their opinion.

Government may, however, have to support the Board by taking up a certain portion of its share capital. A further measure of state assistance by guaranteeing the debentures of the Board for a period of five or ten years will also be justified with a view to inspiring confidence in the investor. The amounts of debentures may be varied, from time to time, according to the activities of the Board. As the financing of Public Utility Services is the most important task of the Board, deposits, if received from the public, should be for a long period, say two years or longer.

A State-aided institution along these lines is the one and only solution for the problems confronting Public Utilities. Municipalisation is neither an economic nor a feasible nor even a desirable proposition.

(10) **Remunerative Enterprises.**—Are there, then, any alternative sources of revenue for the Madras Corporation to be tapped? Rents, fees, etc. contribute towards the finances of the Corporation, but their importance is negligible. It should, however, be possible to augment the income by embarking on remunerative enterprises (as distinct from Public Utility Services) such as the municipalisation of Markets, Cart-stands, land development, etc.—activities which could and should be undertaken by the Corporation. It should be remembered that these are perhaps the most satisfactory sources of local revenue. The payments are not in the form of taxes but are definite payments for value received. A man who wants a stall in a market has no objection whatever to pay a reasonable price for it. In fact he would much sooner do so than not have facilities for selling his goods. These payments avoid the most objectionable feature of all taxation, viz., the unwillingness to pay. A real effort in this direction will not only be in the financial interests of the Corporation but also provide increased facilities and amenities to the public.

Another urgent need in the City is the provision of an efficiently organised milk supply. The Municipality would be doing a great service to public health, besides increasing its own revenues, by abolishing the primitive method of supplying milk, insisting on the milch cattle being removed from the crowded parts of the City and organising a series of well-run dairy farms on the outskirts of the City for the production and supply of bottled milk, under hygienic conditions. The whole question of Municipal Trading should be examined by experts with a view to its possible extension.

But a sound loan policy is a condition precedent for the success of such schemes as these are sources of permanent utility and bring benefit to the rate-payers over a series of years. This leads us to the study of the capital programme and loan operations of the Corporation.

SECTION V—CAPITAL EXPENDITURE AND LOAN POLICY

(1) **Role of Borrowed Money.**—The formulation of a sound financial policy involves not merely provision for expenditure which is charged to the revenues but also a comprehensive survey of the requirements of the existing services and of the need for inaugurating new services. In other words, the capital programme assumes the dominating role in the evolution of a financial policy. It is obvious that while current revenues should be responsible for the maintenance of existing services at the existing levels, the inauguration of new services, the acquisition of new assets and the material renovation of old assets, should properly be debited to 'Capital' and the expenditure met wholly out of loans. The need for a sound loan policy emerges directly from the dependence of progress on the existence of confidence and goodwill in the minds of the lending public. It is necessary, on the one hand, to formulate a well conceived and co-ordinated five or seven year plan of departmental expansion and to assess the relative importance of the different schemes. It is also necessary on the other hand to estimate accurately the financial implications of the accepted capital programme, to spread the expenditure over a sufficient number of years and to restrict the loan operations in any one year to immediate requirements. Only such activities should be included in the capital programme as will confer a real and lasting benefit on the citizens. It is fatally easy to pile up debts, but it is not easy to arrange for their amortisation without imposing an unjustified burden on the ratepayers. Any negligence and irresponsibility in this direction will have its repercussions on the finances of a local authority. Are these accepted financial concepts followed by the Madras Corporation in formulating its capital programme and loan policy?

(2) **Present Defects.**—The capital programme of the City is financed entirely out of loans. A careful study of the administration reports and a review of its loan position reveal that the Corporation has been floundering in a fog financial ineptitude and that it has not sufficient financial talent at its disposal to work out satisfactorily the intricacies of loan operations. While there is the marked absence of a rational scheme of capital expenditure in its striving after the spectacular at the expense of the essential, we do not propose to examine here the deficiencies of the Corporation on this account. The ratepayer has received some return, however little and inadequate. Our examination is confined to a review of its loan position to reveal its weaknesses.

The first defect which does not strictly relate to loan policy but has a material share in its shaping is the inaccuracy of the Capital Budget. The figures, for the last five years, relating to the estimated and actual receipts and expenditure under the head 'Capital', show that the Corporation budgets, year after year, bear no relation to realities.

CAPITAL BUDGET FINANCED OUT OF LOANS (In Lakhs)

Year.	I—RECEIPTS			
	Budget Estimate.	Revised Estimate.	Actuals.	
	Rs.	Rs.	Rs.	
1934-35	 23.84	19.25	12.33	
1935-36	 35.40	23.47	9.86	
1936-37	 49.61	11. 5	10.94	
1937-38	 34.43	8. 5	7.88	
1938-39	 62.43	30.62	24.42	

II — EXPENDITURE

Year.		Budget Estimate.	Revised Estimate.	Actuals.
		Rs.	Rs.	Rs.
1934-35		29.52	36.17	10.19
1935-36		37.74	42.85	14.03
1936-37		52.91	30.47	12.11
1937-38		36.54	21.77	9.29
1938-39		67.11	37.47	14.23

The revised figures are compiled on the basis of the actual expenditure in the first nine months of the year and the probable estimated expenditure in the next three months. Hence it should be possible to rely and proceed on the basis of these figures. If this criterion had been followed, such inflated figures would not have been included in the revised estimates. It is strange that in 1934-35 and 1935-36, the revised estimate figures under expenditure exceeded the original budget figures even when the total expenditure in the two whole years was less than 30 per cent of the Corporation. It is a pity that the Council has failed to exercise any effective control over these extravagant programmes. This inaccuracy has had its inevitable repercussions on the loan position of the Corporation.

The second weakness consists in the reliance of the Corporation on Government aid to finance its capital programmes. In England, it may be noted, local authorities after obtaining the requisite Government sanction, must float their loans on the security of their own revenues. This gives an opportunity to the lending public to examine critically the financial administration of the authorities. Thus if the administration had been inefficient, it is very unlikely that the local bodies would obtain credit readily or at reasonable rates of interest. The finance officers and the members of the Finance Committee of the local authorities are also thereby indirectly acquainted with the current trends of the money market, and this in turn helps the growth of a financial policy. In Madras, on the other hand, though there is no statutory embargo on a local body making its own loan arrangements, the invariable practice has been to rely on the benevolence of the paternal Provincial Government. The loan programmes of the local bodies are all controlled by the Government of the Province. Only once—in 1924—was a public loan floated by the Corporation of Madras. As early as 1920 the Madras Financial Relations Committee, while examining the loan requirements of the local authorities, recognised that the ability of the lesser authorities to float loans on their own revenues successfully had already been demonstrated and that, even if such authorities had to pay a slightly higher rate of interest, it was worth paying in view of the education it would afford in loan financing. They also observed that certain forms of developmental loans might find more favour and might be raised more cheaply in a local market where the effects of the expenditure of the loan can be appreciated. This bolder policy recommended by the Committee had not been given effect to by the Government. The present position is, therefore, defective in that a local body has neither to satisfy the public about the soundness of its financial policy nor to disclose to the people its future capital programme. The ignorance of the officials in the matter of loan operations, says the Examiner of Local Fund Accounts,²⁵ Government of Madras, is colossal and so long as the local bodies are not made self-reliant, with a growing faith in their own ability to

25. Cf. A. K. Chanda's paper on *The Financial Basis of Local Government* read on 9th December 1939 in the Madras Institute of Public Administration.

manage their own affairs efficiently, he fears that the irrational and irresponsible administration of local finances must persist.

The third defect is statutory in that the Municipal Act prohibits the utilisation of any loan for any purpose other than that for which it is borrowed. The objects for which a loan may be floated in the case of the City are: (a) Construction of works; (b) acquisition of lands and buildings; (c) slum clearance and construction of tenements; and (d) repayment of Government or non-Government loan. Evidently it is the intention of the Government that the Corporation should not have the liberty to divert loans granted for the execution of specified schemes for schemes and projects which have not been approved by them for being financed out of loans. But it must be said that the prohibition is not absolute and there is a saving clause which permits the diversion of unutilised balances of ear-marked loans on other projects with the previous sanction of the Provincial Government.

(3) **Unutilised Loan Balances and Interest Payments.**—The fourth and most important defect is that loan applications are rushed through in a flood of optimism even when the essential preliminaries like the alienation of the necessary land, the preparation of technical estimates, etc., have not been completed. The loan accounts for the last five or six years indicate that even though there were more than sufficient loan balances to meet the expenditure during these years, considerable amounts were obtained from Government as loans and unnecessary interest charges were paid on the balances. To illustrate:

(1) The total expenditure in the two years, 1934-35 and 1935-36, was slightly in excess of the loan balance on April 1, 1934; yet, the Corporation obtained loans approximating to Rs. 15 lakhs on which interest charges of over 1 lakh were paid in these two years.

(2) In 1938-39 the expenditure was Rs. 13 lakhs which could have been easily met out of the available balance of 16.65 lakhs on April 1, 1938; yet, the Corporation obtained a large loan of Rs. 24.4 lakhs.

(3) In January 1939, a loan of Rs. 5 lakhs was obtained from Government for special road-making. The expenditure on this scheme till the end of September 1939 was Rs. 80,000 only. At about the same time another loan of Rs. 17,000 was obtained from Government for an overhead bridge.

(4) In November 1930 a sum of Rs. 1 lakh was borrowed bearing interest at 6½ per cent for the improvement of markets, when the available balance under the same head was Rs. 70,000 approximately. The balance on April 1, 1931 was Rs. 1,55,000 and the balance on April 1, 1932 was Rs. 90,000. It was certainly possible to defer the loan application by a year and effect economy on the interest charges paid.

(5) A similar lack of care is noticeable in the loan account relating to Town Planning. On April 1, 1933 the balance on this account was Rs. 1,20,000. Yet a further loan of Rs. 1 lakh was obtained in 1933-34 bearing interest at 6½ per cent, and the year closed with a balance of over Rs. 2 lakhs. Although the expenditure in the year was only Rs. 15,000 and there was an available balance of Rs. 1,20,000, yet a further loan of Rs. 1 lakh was obtained.

(6) Against a loan balance of Rs. 3.45 lakhs on April 1, 1936 in the account relating to slum improvements, the expenditure incurred in 1936-37 was Rs. 23,000 and in 1937-38 Rs. 37,000. Setting off this expenditure of Rs. 60,000 in these two

years, the available loan balance during the year 1937-38 was Rs. 2.85 lakhs. Yet a loan of Rs. 1 lakh was taken in that year.

(7) In the year 1930-31 a loan of Rs. 1.45 lakhs bearing interest at 6½ per cent was taken from Government for improving the Parthasarathi Kuppam, one of the most wretched and insanitary slums in the City. The balance of this loan on April 1, 1939 was Rs. 1,32,000. In other words, in the last 10 years an expenditure of Rs. 18,000 only has been incurred on this scheme. The interest charges alone paid on this loan amount to Rs. 60,000. As early as December 1934, Government noticed that the progress of expenditure on this scheme was extremely slow and requested the Commissioner of the Corporation to report if it would not be advantageous to the Corporation to refund this sum in case it was not required for immediate use. It is not known what the Commissioner replied, but as no refund was made to the Government, it has to be assumed that the Commissioner expected to utilise the amount in the near future. The explanation recently offered by the Commissioner was that, as the Collector of Madras has not yet alienated the land in favour of the Corporation, the progress of expenditure had been extremely slow and that a loan had to be taken as the Collector would not start proceedings to alienate the land without a guarantee that the requisite sum was available for acquisition proceedings. This explanation is totally unacceptable. For, we cannot assume that the Corporation's finances were so low as not to be in a position to guarantee payment of a sum of Rs. 1.5 lakhs without obtaining the loan and earmarking it for this purpose. And the ratepayers of Madras cannot view with satisfaction this unnecessary and wasteful expenditure of Rs. 60,000 on borrowed capital which has remained practically totally unutilised.

Without burdening this review with unnecessary details, it may be said that on a moderate estimate the Corporation has been paying every year interest charges between Rs. 75,000 and Rs. 1 lakh on loan balances which have not been put to any use. The cumulative effect of this careless policy has been a waste of a sum between Rs. 10 and Rs. 15 lakhs of the ratepayers' money in the last few years. The lack of funds is not the only factor, but the inability of the Corporation to make the best use of the funds available that is responsible for retarding the desired and necessary development of the City. The revenues of the Corporation have been spent away in unnecessary payments of loan charges while essential services have been starved for want of funds. The explanation offered is that the loan balances are ear-marked for different projects and the Corporation has no right to divert them for other purposes. But a little foresight and a little prudence in the framing of the capital programme as well as in the formulation of the loan policy, would have led to the diversion of loan balances with Government approval (for which there is provision in the Act) and brought relief to the starving services. Recently, there have been cases where the Corporation, at the instance of Audit, requested the sanction of Government for the diversion of outstanding loan balances and where such sanction was readily accorded.

(4) **Need for a Rational Loan Programme.**—The need for a rational policy has become insistent because of the emergency arising out of the War. The Corporation could no longer obtain loans on the same liberal scale as hitherto, nor could it float its loans except at prohibitive rates of interest. Hence the need to review with great care and caution the capital programmes of the Corporation for the next few years and also initiate a loan policy which will conserve its resources, offering at the same time the greatest return for the sums available.

It is desirable, in the first instance, that the scrutiny of loan applications should be more stringent and the control exercised by the Government made stricter. Government control to be effective should not only take into account whether large unspent loan balances are outstanding, which could be easily utilised in meeting the immediate requirement of the new schemes, but should also involve a careful examination of the estimates to see whether schemes are executed as economically as possible. In other words, Government should in consultation with its technical officers, impose an upper limit on expenditure on any one scheme. They should also satisfy themselves that the necessary preliminaries have been concluded before sanctioning loans. Above all, they should determine the precedence of schemes, refusing to admit any or all, if in their opinion, other most pressing and deserving needs are being overlooked.²⁶ Though the statute reserves to Government the power to veto any loan, in actual practice loans have been readily granted without a proper examination of the loan position of the Corporation. This practice should go and the power of veto should be freely used as and when occasion demands.²⁷

Secondly the Corporation should adopt a rational method of budgeting. The Works Committee should be responsible for overseeing all the estimates of capital expenditure prepared by the Works Department. It should satisfy itself of the needs of the various schemes and enquire and establish that all necessary preliminaries for the execution of schemes have already been undertaken by the executive authorities. The Finance Committee should then further examine the capital programmes, fix the order of priority and determine how many of them could be undertaken in the next five or seven years, and finally sanction the estimates having regard to the total liability involved (whatever the period over which it might be incurred) and fixing the estimated expenditure within the year which alone should be included in the budget of that particular year.

Thirdly, on the English precedent, a Consolidated Loans Fund should be constituted. In regard to its annual loan operations, the Corporation is advantageously placed. If it had to go to the market for its loan requirements, it would not have always been possible to limit its loan operations in any year, but it would have been necessary to borrow in excess of its requirements. But as the loans are obtained annually from the Government, there should be no difficulty in restricting its demands (based on an accurate estimate) to the probable expenditure of the year. As this very important principle has not been observed in the past and as there are large loan balances available without any probability of being utilised on the schemes for which they were sanctioned, the only course open is to accord permission either to divert these loans for other purposes or to constitute a Consolidated Loans Fund. The Corporation, after determining the total capital commitments of the various schemes which it proposes to undertake, should obtain the sanction of the Government to the floatation of loans required

26. In 1939 a loan was granted which included a provision for Rs. 90,000 as discretionary grant to 30 Divisional Councillors. It is inconceivable that the Corporation should have floated a public loan on such an undeserving object and the Government should have readily sanctioned the same.

27. In a recent notification as reported in *The Hindu* (12th June 1940), it is understood the Government have pointed out that the person or persons responsible for extravagant demands for loans will be surcharged on the loss, save when such loans are obtained with the considered advice of the Commissioner and of the Heads of Departments of the Corporation regarding the possibility of utilising the loans for the purposes for which they are applied for within the year of grant.

for meeting the total expenditure on the schemes. Loan applications in any particular year should be limited, without any details of the schemes on which the money is proposed to be spent, to the actual requirements of the year. There would, then, be no question of obtaining Government sanction for diversion as and when occasion arises. The Consolidated Loans Fund should be a pool of money irrespective of the sources from which it is obtained whether by a loan from Government or by floatation of debentures or by a subvention from the revenues. Expenditure could be incurred from this Fund on any scheme which has been admitted to rank for loan by the Government. The adoption of this plan would assure the Government that borrowed money is not being spent on any scheme which has not received its approval; at the same time, the Corporation will be able to utilise the sum available on any scheme which is mature and which has received the necessary sanction.

Finally, there must be constituted a Loans Redemption Fund in lieu of the individual sinking funds which the Corporation has to maintain under the statute in respect of debentures floated on the security of its own assets. At the end of 1939, the total loan liability of the Corporation to the public was Rs. 84.6 lakhs in respect of 38 separate loans. The total investment of the sinking funds of these 38 loans amounts to Rs. 66 lakhs approximately and the annual contribution from revenues to the sinking funds approximate to Rs. 4 lakhs. The present policy conforms to orthodox finance which requires that in respect of each loan there should be a sinking fund into which must be paid an equated instalment calculated with reference to the period of the loan and the rate of improvement of the possible investments. The repayment of a loan has to be completed within a maximum period of 60 years but usually the loan is extinguished within the life of the assets. Orthodox finance also requires that the accumulations in the sinking fund should be invested in gilt-edged securities. The funds are invested separately either in the securities of the Central and the Provincial Government or the Municipal Debentures issued by the Corporation of Madras, Bombay, Calcutta and Karachi. The joint Trustees of the fund are the Finance Secretary to Government and the Accountant-General who are responsible for the investment of funds and also for examining the adequacy of the accumulations for the repayment of loans. In the case of loans obtained from Government the constitution of sinking funds becomes necessary and repayments are made annually of capital and interest.

In all Western Countries, however, there has been a departure from this orthodox view. It is recognised that instead of these sinking fund accumulations being invested in gilt-edged securities, it might more advantageously be utilised in financing capital programmes of local authorities themselves. The principle behind this deviation is that, if a local body can avoid floating loans as far as is practicable, its credit is conserved and improved, and when it has actually to float a loan it is able to obtain better terms than if it went on piling debt on debt. Also when the money market is unfavourable the authority may bank on its sinking fund more advantageously. It is obvious that in following such a policy it is of supreme importance that liquid assets should be held in the sinking funds for the repayment of such loans as are likely to mature in the near future. Though we advocate this policy as a general measure, its advantages have become more apparent as a result of the emergency arising out of the War. It is no longer possible to borrow money readily and at reasonable rates of interest and consequently, all activity, however beneficial, has to be stopped abruptly. Had the Western concept been adopted, the Corporation could have continued its work

uninterrupted by outside forces over which no one has any control.²⁸ There is still time and with the adoption of a rational capital programme and a sound loan policy, it should be possible not merely to rectify the deficiencies of the past but to undertake a more comprehensive plan of development without burdening the revenues with larger loan charges.

SECTION VI

The Budget.—The Commissioner is required to submit, by the 15th of January each year, to the Standing Committee on Taxation and Finance, a budget containing a detailed estimate of income and expenditure for the ensuing year. He also recommends whether any variation in taxation is necessary and whether any loans should be raised. This Committee, after obtaining any necessary information from other Standing Committees or the Commissioner or both modify the budget and formulate its own proposals regarding income and expenditure. After this, the Commissioner is required to print the estimates and send a copy to each Councillor not later than the 15th February. The specific statutory obligations imposed on the Committee are two: (1) It has to provide for the payment of instalments of principal and interest due on loans outstanding; and (2) it must allow for a cash balance of Rs. 1,50,000 under the head "General Account". The budget is required to be discussed early in March by the Council.

Contrasting with the practice in London in the preparation and presentation of the budget with that obtaining in Madras, we find that in the former place the Departmental Committees frame the estimates relating to their own departments and they may or may not be amenable to the reasoning of the Finance Committee. In Madras, however, the estimates are prepared by the Commissioner without very little, if any, consultation with the Standing Committees. The Taxation and Finance Committee here has larger powers and exercises the power of veto over expenditure proposed for departments. Of course, the members of the other Committees can and do criticise the budget in the open Council. The system obtaining in London resembles the Cabinet system and the Chairman of the Finance Committee who presents the budget functions more or less like the Chancellor of the Exchequer and constitutes, with the Chairman of the Standing Committees, the cabinet. In Madras, the evolution has not proceeded so far and the reliance on the Chief Executive Officer still persists. In England, the statutory dates prescribed have to be observed, as notices for the new general rate have to be issued before the commencement of the financial year; but in Madras we are not worried by such urgency. In 1939 the Commissioner presented his estimates to the Standing Committee on the 16th January (instead of the 15th), the Committee approved the estimates on the 27th February; they were circulated to the members on the 3rd March (instead of the 15th February) and presented to the Council on the 8th March.

SECTION VII—AUDIT AND ACCOUNTS

(a) **Audit.**—If properly carried out, audit constitutes a wholesome check upon any tendency on the part of the local authorities to cause loss to their funds. The Examiner of Local Fund Accounts, with two officers of District Inspector's rank under him in the Corporation Audit Office is responsible for the conduct of

28. Recently, the Madras Corporation was faced with the extremely difficult situation of having to repay a loan when the investments held had depreciated in value to such an extent that on a loan of Rs. 5 lakhs it was likely to lose Rs. 80,000.

audit in the Corporation of Madras. The Commissioner is required to produce the annual accounts and registers before the auditors for scrutiny not later than the 1st July in the year succeeding that to which such accounts and registers relate. He is also to submit all accounts as required by the auditors who, in their turn, are required to report to the Standing Committee any material impropriety and irregularity which they may observe in the expenditure, or in the recovery of moneys due to the Corporation or in the municipal accounts and submit to the Standing Committee a final statement of the audit and a copy of it to the Provincial Government. The Standing Committee is expected to remedy forthwith any defects or irregularities pointed out by the auditors and report the same to the Council which, in turn, is to submit its remarks on the audit report, if any, to the Provincial Government through the Examiner of Local Fund Accounts within six months after the receipt of the report by the Corporation. It is a matter for surprise to find that audit objections have been accumulated for years together, numbering nearly 4,000 and involving an expenditure over Rs. 2 lakhs and are pending disposal by the Committee and the Council. Since 1937-38 the system of concurrent audit has been introduced and has resulted in considerable improvement. It is hoped that a systematic and frequent scrutiny of the audit objections will render their disposal very easy and avoid accumulation of objections.²⁹ The auditors may disallow every item contrary to law and surcharge the same on the person responsible for the illegal payment and charge against him the amount so lost. The aggrieved person may, however, appeal (within 14 days after he has received or been served with the decision of the auditor) to the Court of Small Causes of Madras or the Provincial Government who shall pass such orders as they think fit. The Corporation shall pay to the auditors out of the Municipal Fund such remuneration as the Provincial Government may determine.

(b) *Accounts.*—The accounts of the Corporation have been overhauled at various stages in its history. At present they are divided into four main parts: (a) Revenue (Taxation and other receipts); (b) Deposits (Deposits received and repayments made therefrom including those of sinking funds for the loans taken by the Corporation); (c) Capital (Receipts from borrowing and the expenditure met therefrom); and (d) Elementary Education Fund (constituted under the Elementary Education Act of 1920). Besides these major accounts, there are also subsidiary accounts (demand collection and balance statements) intended to ascertain the real surplus or deficit of the year in the particular account concerned.

The form of accounts adopted has been based on the recommendations of two expert Committees (the Financial Relatives Committee of 1920 and the Accounts Reorganisation Committee) and has undergone the scrutiny of the Examiner and

29. The Corporation is considering the question of constituting a Committee, on the lines of the Public Accounts Committee of the Central Legislature. The proposal is to constitute at the first meeting of the Council in September each year a Joint Committee of the Taxation and Finance Committee and Accounts Committee to examine the annual accounts and registers of the previous year and the audit report thereon. This Joint Committee, while satisfying itself about the legality of every item of expenditure, will also see that the provision made in the budget for expenditure is spread out through the year and is not rushed at the end. Power will be vested in the Committee to summon and examine the Heads of Departments on all relevant matters concerning the accounts and the audit report.

Government at several stages. The classification in the Municipal Accounts is based on the *object* of expenditure rather than the *subject* of it.

The Central Accounts Department is the authority to audit before payment all claims against the Corporation and arranges for the issue of cheques on the Bank for payment of the Bills. It compiles the monthly and annual accounts of the receipts and disbursements and keeps the books required for the purpose. It examines all the proposals involving fresh expenditure before they are submitted for the sanction of the competent authority. The preparation of the Budget is also done here and the proposals of the several departments in connection therewith are scrutinised and consolidated before they are submitted to the sanctioning authority. It exercises a general control of monthly expenditure against the sanctioned appropriation and watches the prompt clearance of the audit objections. The Head Accountant is in charge of the Department under the control of the Revenue Officer, who is, however, not an Accounts Officer.

This Department initially receives objection statements of the Examiner of Local Fund Accounts and sends extracts therefrom to the departments concerned to take steps to remove the objections. A perusal of the replies to some of the objections raised shows that the Central Accounts Department, which audits all payments completely, generally passes on the objections to the departments concerned, restricting themselves to reply to objections affecting the accounts. It will be more calculated to efficiency if all objections relating to expenditure audited by this department, are dealt with by itself initially, obtaining information, if any, required from the other departments. The objections in the other departments are dealt with mostly by audit clerks and the replies put up do not appear to be scrutinised by the heads of sections and the Heads of Departments with the close attention they deserve. To illustrate: When audit points out discrepancies between the Central Accounts and the Departmental Accounts, the reply furnished in most cases is "noted" or "will be reconciled" and the same objection is being repeated year after year.

(c) *Need for Internal Check.*—There is a lack of effective internal and administrative check over the accounts. A change should be made in the account forms and procedure wherever necessary. There is, for example, no record to show the total amount of bills outstanding at any time, with each tax collector, and the bills are not delivered to them in batches but in lumps as soon as they are made out. There is no regular examination of the bills, in the hands of the tax collectors with the outstandings, according to the demand registers. When the check is not properly exercised, the system of wholesale issue of bills to the tax collectors may lead to temporary misappropriation and fraud. The following extract from a note by Sir H. E. Stokes, dated 9th February 1883 will illustrate the seriousness of the situation:—"In some towns, when the bills are ready, the whole of them are made over at once to the Bill Collectors for realisation. This practice is fraught with grave danger and should be at once altered wherever it prevails. Under it, the only check against the money being collected and made away with or temporarily used by the Collectors is the periodical verification in office of the bills remaining in the hands of each Bill Collector. This check cannot at all be relied on and especially when the number of bills is large, is certain not to be applied with the completeness and frequency which are essential. For the check to be at all effective, the bills should be fully verified every two or three days, and this is not even attempted now. At most, the bills are checked or supposed to be checked once a month. A Bill Collector may easily collect and

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CONFERENCE OF LOCAL BODIES AT POONA

CONVENED BY THE GOVERNMENT TO CONSIDER
 THE REPORT OF THE KALE COMMITTEE

[Friday, the 16th and Saturday, the 17th August 1940]

Inaugural Speech of His Excellency the Governor of Bombay

Mr. MADAN—GENTLEMEN,

I am very glad to welcome you at the Head Quarters of Government and I thank you for your ready response to the invitation extended to you by my Government to come here to consider certain very important questions relating to local government. Many of you have come from distant places and at great personal inconvenience to attend this conference. Both I and my Government are conscious of the sacrifice you are making and we appreciate deeply your anxiety to contribute towards a solution of the problems which will come under examination. I have met many of you during my tours in the districts and I can assure you that it is a very great pleasure to me to have this opportunity of seeing you once again.

As you are aware, my Government, nearly two years ago, appointed a Committee presided over by Professor Kale to consider a very wide range of subjects dealing with local boards and municipalities. The report of that Committee is now before Government, which is engaged in an examination of its recommendations. But before coming to any decision Government has thought it wise to submit the conclusions of the Committee to you gentlemen who are engaged daily, as Presidents of District Local Boards and of large Municipalities, in the multitudinous and complex problems which local government presents. I have not the slightest doubt but that your advice and guidance will prove of the greatest value in assisting Government to reach conclusions which will lead to the better conduct of local administration.

I have read with interest the report prepared by the Kale Committee and have been deeply impressed by the very careful and thorough manner in which the investigation has been pursued. I am equally impressed by the balanced judgment which has been brought to bear on the many and complicated problems which came under review. I should like to express my thanks to Professor Kale, who, I am glad to know, is here to assist in your deliberations, and to the members of the

have in his hands several hundreds of rupees and this is a temptation to which men of this class ought not to be exposed."³⁰ The position as described above is as true of the Corporation of Madras today as it was of some other towns in 1883; and it is urgent to adopt regular checks in this direction.

At present, for the detailed classification of accounts, neither the Control Accounts Department nor the Collection Manager, who takes the place of the Taluk Head Accountant so far as receipts are concerned, has any responsibility. This anomaly should be removed by making the Collection Manager and his staff part and parcel of the Central Accounts Department; so that the accounts of receipts may be dealt with in detail by a Department fully acquainted with the details of Accounts.

Steps should be taken for ensuring better safety of the Treasury Balances. Though there are orders for conducting transactions at the Treasury, there are, however, no prescribed rules concerning the opening and closing of the Treasury, as to the officers to be present then, the seals to be affixed to the locks and the examination of the seals the next morning, etc. In Government Treasuries the precaution adopted is to see that the balances in the sole charge of the Cash Department staff do not exceed their security. This practice does not seem to obtain in the Corporation as there are no orders regulating to that effect. In fact, the balances in the hands of the Assistant Cashiers on many days exceed four or five times their security deposits. The arrangements for ensuring the safety of the Treasury Balances do not appear to be adequate and it is necessary to provide guards to be in charge of the Treasury at nights and to attend to escorting duties during the day and also to accompany the Assistant Cashiers when they have to carry large amounts of money to make outdoor payments.

Again, the accounts do not come under the scrutiny of the superior officers at any time during the year, except at the time of the preparation of the Annual Administration Report when the demand, collection and balance statements recorded in the registers of revenue are passed by the Heads of Departments, as they have the opportunity of seeing them only when a reference has necessarily to be made to them in disposing of inward correspondence. The Accounts are thus left to the sole charge of the clerks and the effective scrutiny over them is only that of the Audit Department. A periodical review of the Accounts Registers is necessary if the check to be exercised over the progress of revenue and expenditure—to see that the dues of the Corporation are received in time and that the expenditure is kept within the minimum limit required and within the limit of appropriation—is to be effective. In regard to expenditure, some watch is no doubt kept through monthly appropriation statements, but these do not contain details of the amount spent or appropriated, and the checks exercised through these statements will not be as effective as a detailed review of the registers. Hence a monthly review of the various registers is an imperative necessity.

(d) **Need for a Chief Accounts Officer.**—The Central Accounts Department which is the internal audit department, is now in charge of the Revenue Officer and with his multifarious duties connected with revenue administration it would be hardly possible for him to exercise the close attention and control over matters of finance, account and audit which is the proper sphere of a separate Chief Accounts Officer. There is no such officer at present in the Corporation, and the

Revenue Officer relies practically on the Head Accountant in the fulfilment of his functions as the Chief Financial and Accounts Officer of the Corporation. However much the Head Accountant may try to do his work with zeal and interest, the absence of an authority of the status of an independent financial officer with the rank of the Head of a Department stands much in his way of exercising an effective financial control. The Corporation of Bombay and Calcutta have separate Chief Accounts Officers and the Madras Port Trust with an income and expenditure less than those of the Madras Corporation has also a separate Chief Accountant with a Gazetted Status. It is necessary, therefore, that the Corporation of Madras also, should have, in the interests of efficient financial administration, a Chief Accounts Officer with the status and rank of the Head of a Department, and subordinate only to the Commissioner. And it is gratifying that the Corporation has now provided for the appointment of such an officer, having secured the necessary sanction of the Provincial Government for the same. The Accounts Officer should, then, be made responsible, for the entire accounting of the Corporation including that of the departments, for an efficient internal check of the several accounts and of the accounts kept in outdoor offices and all matters relating to finance generally. To fulfil this responsibility he should have a control over the accounts staff in other departments of the Corporation and have the assistance of a staff of inspecting Accountants and Clerks to help him in the discharge of his duties.

(e) **Need for an Account Code.**—Finally, a recorded and authorised procedure for the maintenance of accounts and for conducting internal check is necessary in order to facilitate the staff in charge of accounts and pre-audit in maintaining a proper standard work. The Corporation Code containing also the accounts procedure was issued in 1910 and only one list of corrections to that Code was issued in the same year. There has been no revision of the Code ever since to suit later developments and it is now looked upon as being out of date in several respects. When there is no definite and authorised procedure, changes in the existing procedure are easily effected to suit the convenience of the individual employees without the change being noticed. An Account Code containing the authorised account system, procedure and the details of internal check to be effected with the prescribed forms will, therefore, go a long way in rectifying many of the deficiencies of financial administration of the Madras Corporation.

30. G. O. No. 1059 (Financial), dated 29th May 1883 (Government of Madras).

Committee, and to the Secretary, Mr. Barfivala, to whom the Committee have, in their report, paid a well-deserved tribute.

I shall, purposely not anticipate your discussions by making my own comments on the recommendations of Professor Kalé and his colleagues, for, as I have indicated, the object of this Conference is to obtain your views on the recommendations, but I would commend to you the very valuable historical survey of the development of local self-governing institutions in the Presidency contained in Chapter II of the report, for an understanding of the past history of these institutions is to my mind an essential preliminary to the consideration of their further growth. It cannot be denied that growth has been slow and that a very great deal remains to be done to put local administration on a really satisfactory basis. The relations between the Provincial Government and local authorities, particularly in respect of finance and powers of taxation, can never be an easy one in this or any country governed by democratic forms of control. Let me assure you, however, that it is the aim of my Government to assist in the building up of local authorities which will administer efficiently the functions committed to their care. It would be foolish to pretend that all is well when that is not in fact the case and I cannot conceal from you my misgivings when I read the reports of the Accountant General. Year by year, instances of laxity and maladministration are all too frequent. This should not be the case and it is my hope that your discussions here may assist you in improving the standards of work in the authorities over which you preside.

The functions which local authorities control concern very directly every resident in the province and are indeed vital to the health and convenience of the public. You must therefore expect that every detail of your administration will be subjected to the closest public scrutiny and that, with the growth of demands for better amenities, that scrutiny will become increasingly keen. I recognise the very great difficulties which beset you and I am conscious that the solution to some of them lies only in the growth of a greater civic consciousness and in the expansion of education. Time is therefore essential but much can be done by the unremitting and detailed supervision of Presidents and Chief Officers—and I am glad to see that so many of your executive officers are present today.

I would not have you understand that I am not appreciative of the high standards of administration maintained by some Local Boards and Municipalities and of the ungrudging service rendered by numbers of citizens everywhere. It is never easy for busy men to find time for

the business of local government and I am glad to have this opportunity to convey to you and, through you, to the members of your Boards and Municipalities my thanks for the very considerable contribution you are making to the well-being of your fellow citizens. I rely on you to insist on even better standards of administration.

Gentlemen, I cannot let this occasion pass without referring to the war situation. While we are able to discuss here, in peace and order, the problems of local government with the aim of securing advances in the civilised life of the people who dwell in the towns and villages of this Province, we cannot be unmindful of the fact that in these days and weeks the whole future of civilisation is at stake. The din of battle, as it rages over the English Channel, and on the shores of the Mediterranean and the Red Sea, cannot be heard in this Council Hall : your towns are not being razed to the ground, your villages are not abandoned by fleeing refugees. These dangers are being kept from you by the courage and steadfastness of those who are engaged in the actual battle. In their fight they are defending not only themselves, but the security of India, and the independence of the spirit of man itself. It is to the self-interest of all men who do not want to see the triumph of Nazism and Fascism to help to build up this dam of brave men and modern equipment which is preventing those forces of evil, which have already enslaved a large part of the civilised world, from pouring into more territory. That there exists a real consciousness of the issues involved in this struggle and a corresponding desire to help, I already know from the visits I have recently paid to several of your districts and towns. I know that you all, both as individuals and as Presidents of local authorities, will play your proper part in helping to win this war. India's war effort is getting into its stride : it will require a great deal of money. Local Boards and Municipalities can assist by investing their surplus funds in Defence Loans, and I strongly commend this course to you as a method by which you can help, without disadvantage to yourselves.

There are many other directions in which help can be given to the common cause. Government is bringing to the notice of their servants the various ways in which they may contribute to Defence Loans and the War Gifts Fund, while all those, whose duties admit, have permission to join the Civic Guards. Local authorities can help in the same manner and I am confident not only that they will do so but that they will give the fullest measure of co-operation to Government and to the District War Committees in all matters connected with the war.

Gentlemen, no apology is necessary for this digression from the immediate purpose of this Conference. We should be living in a fool's paradise indeed if we had not the courage to face the fact that we are living in the gravest hours in human history, and that, after them, the future will not be the same as the past. Yet, whatever the outcome of the war—and that Great Britain will win I have no doubt whatever—the strongest things will survive: and amongst them democratic institutions will survive in Great Britain: they have withstood many assaults in the past and they will not be overthrown by Hitler. It is now your duty and privilege to assist in devising methods whereby the democratic forms, under which the local administration of this Presidency is controlled, may be improved. Make it your aim to prove that free men and women can produce results better than those whose methods require the total destruction of liberty.

I shall follow your deliberations with the closest interest, and with the confidence that your advice to Government will be framed in the sincere desire to secure the greatest happiness and well-being of the peoples of this Presidency. My Government will approach the problems in the same spirit and it will be its duty, as it is yours, to balance the demands of local authorities against the claims which must be met in connection with Provincial responsibilities.

Gentlemen, I am delighted to have had this opportunity of meeting you all and I thank you again for your response to the invitation of my Government. I now leave you to your deliberations.

The Chairman: Your Excellency, on behalf of the local bodies of this Province I thank you very warmly for inaugurating this Conference. The Local Self-Government Committee appointed by Government two years ago has gone carefully into the various problems affecting the local bodies of this Province and has made important recommendations. It is only natural and fair that these recommendations should be fully and frankly discussed by the representatives of the local bodies themselves before Government can decide what action should be taken on them.

Your Excellency has kept yourself in close touch with the working of local bodies in this Province and your encouraging message today will hearten us in our discussions. We hope that, with your good wishes, the Conference will succeed in chalking out fresh lines of development for future progress.

I thank you again, Sir, for taking the trouble to come here to open this Conference.

(His Excellency, after being introduced to the members, left the Conference.)

The Speech of Mr. Madan, the Chairman

GENTLEMEN,

I have very great pleasure in welcoming you to this Conference this morning. It is a matter of gratification that almost all the local bodies which were invited to send their representatives to this Conference have responded to the invitation so readily. You have come here at great personal inconvenience and I trust that the value of the contribution which each one of you will make will help to make the Conference a success.

I think you will all agree with me that Professor Kale and his colleagues have submitted a very useful and careful report touching all the different spheres of the activities of the local bodies. They have discussed very carefully almost all the present problems of local bodies and have made recommendations of far-reaching importance. Government and local bodies owe a deep debt of gratitude to the Chairman and the members of the Committee for the valuable report presented by them.

The Committee was appointed as there were several questions affecting local bodies pending decision. Some of these were raised by the local bodies themselves; others arose from the reports of auditors. There were also several which arose out of the Government's review of the position of local bodies, as disclosed by the various reports received by them. As there were a good many questions raised, it was thought desirable and necessary that they should be enquired into by an expert committee, so that steps may be taken to remove defects and introduce improvements wherever necessary.

The Committee consulted local bodies and general public opinion, and after carefully weighing all the proposals that had been received made the recommendations which are incorporated in the present report. It is these recommendations that you are now to consider, criticise or support.

The Local Self-Government Institute has already held three divisional conferences to discuss these proposals. As, however, Government have to take action on these recommendations, they decided to call this Provincial Conference where representatives of the important local bodies in this Province would be present, so that they would know what the reactions of the local bodies were to the Committee's proposals, how far they were acceptable to them and what modifications, if any, they had to suggest therein.

Only important recommendations which call for joint discussion between the Government and the representatives of local bodies have

been included in the Agenda of the Conference. You will notice that, as it is, the Agenda is heavy and will occupy us fully during the period of this Conference. Some of the recommendations of the Committee have not been included in the Agenda, but this need cause no apprehension as to the fate of these recommendations. I can assure you that each and every recommendation of the Committee will be carefully considered, and that it is only limitation of time which has imposed on us the selection of the main recommendations, so that the Conference may not be unduly prolonged and be inconvenient to the representatives of local bodies.

In order to assist you in your deliberations certain notes on the items on the Agenda have been prepared for your information. But I should like to make it quite clear that these notes do not in any way represent the opinion of Government. They have been compiled so as to contain information and opinions on the different points and are meant, very often, to supplement the information and the arguments given in the Committee's report and not infrequently give views opposed to those expressed by the Committee. The idea is that different points of view should be present before the members of the Sub-Committees and before you all when you discuss the proposals made by the Committee. Government have not yet formed any definite views on any of the proposals made by the Committee. The decision of the Government on the recommendations of the Committee would be taken only after very careful consideration has been given to the proceedings of this Conference.

You will realise that owing to the extraordinary nature of the present administration it will not be possible for Government to take action on such of the recommendations as call for legislation unless the need for it is emergent or the proposed legislation is non-controversial. The powers of legislation are now vested in His Excellency the Governor and His Excellency would ordinarily be reluctant to exercise these powers except in cases requiring emergent legislation and in cases where the legislation is not controversial. Consequently, legislation in all cases which are not emergent and are controversial will have to wait until such date as the legislature resumes its functions. At the same time, however, this Conference can do useful work in clarifying the issues and putting up on record the opinion of local bodies about the numerous recommendations of the Local Self-Government Committee. If action as regards legislation cannot be taken immediately, the proceedings of the Conference will still supply very valuable information to

the future democratic Government in arriving at decisions on some of the recommendations of the Kale Committee.

Apart from the recommendations requiring legislation and apart from those requiring the commitment of the Provincial Government in financial matters, there are many recommendations on which action is possible in the near future. Your discussion, opinion and advice on these matters will be valuable and I can assure you that it would be given due consideration when these subject-matters are being considered and orders issued thereon.

The history of the development of Local Self-Government is well known to all of you, for most of you have been working in the sphere of local self-government for a number of years. The development of the structure of local self-government in this Province has been in consonance with the willingness and the capacity of local bodies to shoulder additional responsibilities and exercise additional powers. On the whole from the detailed review of the working of the local bodies, published from time to time, it will be seen that some of them have worked well, while in other cases there have been instances of mismanagement, and in some of gross mismanagement. The powers of Government have been restricted to remedial control and wherever the local bodies have been functioning with a due sense of responsibility, Government have acted mainly as a guide, philosopher and friend. Even in advanced countries substantial powers of control over local bodies are vested in Government but the exercise of similar powers in this Province has been restricted to rare cases wherein Government could not continue to be neutral in the interests of large masses of taxpayers. In a few cases of gross mismanagement Government have found it necessary in the past to take the extreme step of supersession, but generally their attitude has been one of tolerance and attempts are usually made to get the defects remedied or the faults rectified by friendly advice and guidance. It is only as a last resort, when the advice given is not heeded and things do not improve, that the local body is superseded.

As one keenly interested in the development of local self-government in this Province, I have been greatly distressed by the remarks of the Accountant-General in the last Audit Report of Local Bodies. These remarks point to the urgent necessity of improvement of the financial position of most of the local bodies and the adoption of strict standards of administration. Rigid observance of the provisions of Acts and Rules and By-laws is obviously necessary. With the exception of a few municipalities it is reported that the financial condition of most of the

local bodies is deteriorating. It is generally pleaded that this is due to restricted sphere of taxation allowed to local bodies. While this plea will be examined in detail during the Conference, I should like to invite your attention to the remarks of the Local Self-Government Committee that local bodies have considerable scope for raising more revenue from existing sources allowed to them.

In the matter of finance the Committee has made some important and valuable proposals. Some of these refer to grants and financial help by Government, others to responsibilities of taxpayers themselves. It is likely that as regards the former local bodies would be only too willing to accept the proposals which require the Provincial Authorities to give them help to improve their financial position. There are, however, other considerations to be taken into account. In the first place if local bodies are to build up principles of independence and freedom, it is but proper that they should grow more and more self-reliant and not depend on increasing doles from Government. There is a general desire among the local bodies for independence from outside interference but this desire can only be achieved to the extent that outside help is eschewed by local bodies, whether that help takes the form of direct financial assistance or of collecting through Government agency, the taxes levied by local bodies.

Moreover in considering proposals for additional financial help from Government you will have to see how far these are feasible in the present state of the finances of the Province. Recent policy of Government with reference to the development of rural areas and with reference to the undertaking of various reforms has taxed the Provincial finance considerably and however much Government may wish to help the local bodies as they naturally do, they are not in a position to give at present much material financial help in excess of what they have already been doing. They have to do all they can within the resources available. If and when the financial position of Government improves, Government will no doubt be pleased to consider in which way additional financial assistance can be given to local bodies.

If Government cannot give any substantial contributions, local bodies would have naturally to fall back upon their own resources. There can be no two opinions regarding the desirability of augmenting the resources of local bodies. There is an insistent demand for extension of the beneficent activities of local bodies. Illiteracy still dominates the rural areas and hampers further social and economic progress. More schools and adult classes are urgently necessary. The provision of medical relief requires to be extended. Improved sanitation which is

the only safeguard against recurring epidemics is one of the crying necessities of the rural areas. Improvement of village water supply and of communications call for urgent action. Taxation by local bodies however is always unpopular and local bodies can extend their beneficent activities only in proportion to the willingness of the taxpayers to bear additional burdens. The Committee has made some valuable suggestions as to how the resources of the local bodies could be developed in this direction, and I am sure you will give your earnest consideration to these proposals. The civic sense amongst the people has got to be developed if they are to support the proposals of local bodies for enhanced taxation.

In this connection, I particularly welcome the recommendation of the Committee for sustained publicity of the activities of local bodies. Civic education of the taxpayers is very essential if the local bodies are to carry out their programme for the expansion of their beneficent activities. In this respect the Local Self-Government Institute can play a very vital part. It is indeed a matter for gratification that the Institute is serving the local bodies so well by training their staff, by organising the joint purchase of requirements of local bodies, by assisting recruitment of suitable staff and by conducting a very useful Quarterly Journal devoted to subjects of Local Self-Government. I have heard with great interest that the Institute intends to bring out monthly journals in future in all the regional languages, and I hope that this venture will be successful. I have no doubt but that the Institute will in future continue to play a very vital part in the development of Local Self-Government Institutions in this Province.

While on the subject of finance, I might refer to 2 or 3 important questions which the Committee has raised. One is as regards contribution by people on the principle of payment for services. It is argued that people would be more willing to pay if they see that they get a direct return for the payment made. However, this system is regarded by some people as objectionable on principle. But whether from the practical point of view it would not reconcile the people to the payment is a question you have got to consider.

Another important point raised is that the burden of local board taxation now falls to a very great extent on the agricultural classes and the non-agricultural classes who are very often better off, escape from payment not only to the local bodies but sometimes to the Provincial and Central Governments as well. These people reap the benefits of local administration to the same extent and in some cases even to a

greater extent, than the agricultural classes. Can they not be made to contribute their due quota to the income of the local bodies? Similarly it is said by some people that the Urban Areas being more prosperous than the Rural Areas ought to receive proportionately less assistance from Government and that any savings which would be effected in the grants given to the Urban Areas could equitably be diverted for the benefits of the Rural Areas. These are all important questions which you will have an opportunity of discussing in this Conference.

Apart however from the questions of finance, there are various questions raised by the Committee, the solution of which would add to the efficiency of local board administration in this Province. On the administrative side I might refer only to three or four questions. One question which has raised some controversy is as regards the minimum educational qualifications for members and office-bearers of local bodies. On the one hand, most people are agreed that there should be some minimum qualifications laid down, on the other, several people may think that having regard to the general level of education and the available educational facilities the qualifications prescribed by the Committee are too high and will defeat the object of having a real democratic constitution for our local bodies. There is also the question about the comparative merits of the cumulative as against the distributive system of voting in the election of members. The Committee has also proposed that all the executive work of local bodies should be concentrated in one standing committee. This is also a question on which opinion is likely to be divided.

Another question raised by the Committee which is very important from the purely executive point of view is the desirability of having a cadre for the officers serving in local bodies. It is admitted on the one hand that such a cadre might lead to a better class of officers being selected for local board service and preserving their independence; on the other hand, it is feared that selection of officers from a cadre might lead to loss of control of such officers by the local bodies under whom they serve. The comparative advantages and disadvantages of the present system as against the system of a cadre for such officers will have to be considered and some decision arrived at as to the suitability of such cadres for local board service. Here I would like to digress for a moment and appeal to you, if I may, and through you to the local bodies, to place more trust and confidence on the staff employed by local bodies and to treat them with due consideration. Trust begets trust, and I am sure that if you trust them your staff will extend to you

hearty co-operation and will loyally assist you in carrying out the onerous responsibilities of local bodies.

It has been stated that local bodies are the training grounds for workers in social and political institutions. The standards which you set in practice will determine the course of social, economic and political progress of the country.

There are various questions about the functions of local bodies which have evoked interesting comments in recent years. As you all know a good deal is being done in recent years for the cause of rural development. A part of this work is being done through the appointment of committees, district and provincial. It is the opinion of some people that these committees have deprived local boards of some of their proper functions, e.g., those relating to village water supply, roads, minor irrigation works and school buildings. The idea of Government in starting these committees for different purposes was to intensify and expedite work in these different directions—work which you will all admit, is for the good of the people, especially the people in the Rural Areas. Has the creation of such different committees for the different purposes reduced the importance of local bodies? Does it not lead to a real intensification of work in these various directions? Has it not been for the good of the people or would the same amount of work have been done with the same expedition by the local boards if they had been entrusted with it? These are some of the questions which you might usefully discuss in relation to the various items of Rural Development included in the Committee's report.

You will thus see that there are various questions, apart from the question of taxation of primary importance to the working of local bodies. In several of these it should be possible to take executive action without the necessity of fresh legislation. Your views on these points would be extremely useful to Government before they arrive at any decisions on the various points that have been raised in the Committee's report. I shall not comment any further on those recommendations but I am sure you will consider carefully the different points of view urged at this Conference and favour Government with your advice.

Before I conclude may I appeal to you to discard personal and communal considerations in all your deliberations and by your conduct clear the atmosphere of clouds of distrust and suspicion which hang heavily on public life today? Mutual confidence will work wonders in every case.

Gentlemen, I will not detain you further except to thank you for your ready response to our invitation and to express a hope that this Conference will be successful in chalking out clear lines for further development of local self-government in this Province.

Recommendations of the Conference

ADMINISTRATIVE COMMITTEE

1. *Adult Franchise*.—Legislation should be introduced to require all municipalities to adopt adult franchise.

Legislation should be introduced enabling local boards to adopt adult franchise at once and requiring all boards to adopt it within five years.

Municipalities should pay for the whole cost of their elections. Government should pay the whole cost of local board elections. All servants of Government, and of local bodies and Government-aided institutions should be required by law to work at elections without other payment except travelling allowance. The election day should be declared a holiday.

2. *Minimum qualifications for members and office-bearers*.—There should be a minimum educational qualification of literacy for membership of municipalities and local boards applicable to all seats except those reserved for Harijans or members of aboriginal tribes. The majority is in favour of recognising the passing of the IVth standard in any regional language as the criterion of literacy. A minority thinks that it would be enough for the candidate to convince the returning officer that he is literate.

A few members consider that there should be no educational qualifications for membership at all.

No member is in favour of having different qualifications for membership of municipalities and local boards.

The Sub-Committee by a majority is in favour of having a higher educational qualification for the President, Vice-President and Chairman of Standing Committees of local bodies than for members. Two forms of minimum higher qualifications were considered, matriculation and third standard English. Of these matriculation was favoured by a majority. The Sub-Committee's majority view was agreed to by the Conference.

3. *Should voting be cumulative or distributive*.—The sense of the Conference was in favour of having single-seated constituencies.

If this was not accepted by Government then the feeling in the Conference was in favour of the introduction of the distributive voting system.

4. *Should all executive work be concentrated in one Standing Committee*.—The Conference is in favour of maintaining the present practice and not concentrating all executive work in one Standing Committee.

5. *Is the formation of a cadre desirable*.—The Conference expressed itself against having a cadre.

6. *Should Government have the power of vetoing appointments of officers*.—The Conference expressed itself against giving Government this power.

7. *Punishment of officers*.—The Sub-Committee by majority is in favour of doing away with the present principle of a 2/3rds majority for dismissal, etc., of officers and substituting the principle of a majority of the total number of members. It considers that Government should have no power of veto or other power of interference in such cases except that when a Government grant is paid towards an appointment, dismissal should be subject to the previous approval of Government and suspension to ratification by Government. The Sub-Committee's majority view was agreed to by the Conference.

8. *Should arrears of taxes of two years' standing become recoverable as arrears of land revenue through the Collector?*

The Sub-Committee with two exceptions would answer this question in the negative. The answer was agreed to by the Conference.

9. *Disqualification of members* [paragraph 183 (8)].—If taxes payable by members of local bodies remain unpaid during the year in which they are due, they automatically become disqualified provided that notice of the demand for taxes is served on the member before the disqualification is incurred.

10. *Whether the powers exercised by local bodies for collection of taxes require to be extended in any way, and if so, in what manner* (vide paragraph 184).

(1) The Local Boards Act and Municipal Boroughs Act should be amended to make it clearly legal for a local board and a Borough Municipality to acquire property for which there are no bidders in execution proceedings.

(2) The Municipal Boroughs Act should be amended so as to enable the municipality to take possession of immovable property which has been auctioned in recovery of dues.

(3) The District Municipal Act should be brought into line with the Municipal Boroughs Act so amended.

(4) District municipalities should be permitted to farm out market dues.

(5) Railway authorities should continue to collect terminal tax and octroi wherever practicable.

(6) If the tax on transfer of properties is to be levied it should be collected by the Registration Department.

(7) The system of rebates for prompt payment should not be introduced.

(8) Profession tax should be collected by municipalities in municipal areas and Government in local board areas.

11. *Publicity of local public works*.—The Sub-Committee considers that local bodies should be responsible for their own publicity and should be encouraged to spend funds on such purposes. The Sub-Committee's view was agreed to.

12. *Co-operative Insurance Schemes for local bodies.*—The Local Self-Government Institute should be invited to prepare at an early date a co-operative insurance scheme on the lines of the scheme operating at present in England for local bodies and all bodies should join when it is ready.

13. *Model by-laws.*—No by-laws are framed by municipalities in matters affecting public health and for regulating dangerous diseases and Government should call upon local bodies to submit by-laws within a fixed time-limit and remind them from time to time and on their failure Government should make model by-laws applicable to the districts; and Government should frame model by-laws on all important subjects, and ask local bodies to adopt them with alterations to suit local conditions.

14. *Local Fund Cess.*—The minimum rate should be compulsorily raised to 1½ annas, except in the districts of Kanara, Panch Mahals and Ratnagiri and the maximum should be raised to 2½ annas.

Wherever the minimum local fund cess is Re. 0-1-6, there should be a compulsory minimum contribution of 8 pies of the local fund cess earmarked for primary education by district local boards, subject to the proviso that the amending Education Act of 1938 is repealed.

15. *Assignment of Land Revenue.*—Government should give a grant of 10 per cent of the land revenue to the local boards.

16. *Cess on Forest Revenue.*—A local fund cess of 1½ annas in the Rupee should be levied on forest revenue derived by Government from the sale of major or valuable forest produce.

17. A tax on professions should be levied by the local bodies, and its collection in the case of local boards should be by a system of licences to be managed by the Revenue Department.

18. *House Tax.*—Government should take steps to enhance the existing rate of the house tax under Section 74 of the Bombay District Municipal Act, 1901, or Section 100 of the Bombay Municipal Boroughs Act, 1925, wherever it may be found that a municipality has neglected to raise the rate.

19. *Terminal taxes and octroi duties.*—Local bodies should consider whether it is to their advantage to substitute octroi for terminal tax, in view of the legal position under which it is open to the Government of India to abolish terminal taxes.

No local board other than the Ratnagiri district local board should be allowed to levy octroi.

20. *Primary Education grant.*—The time has come when Government should review or define its policy regarding the expansion of primary education, both voluntary and compulsory, and until that is done it should be made clear in the Act that expenses on voluntary expansion should be admissible for grant in the same way as on sanctioned compulsory expansion and that the present statutory percentage of Government grant in the case of municipalities and district local boards should be continued in both the cases.

21. *Educational cess.*—In order to introduce compulsory primary education in municipal areas, a special educational cess on the basis of the house tax should be made compulsory only if the amending Education Act of 1938 is repealed.

22. Local bodies should be empowered to levy a tax on marriages, adoptions, feasts and similar ceremonies.

23. *Grants for local public works.*—(a) The Kale Committee's recommendations should be accepted. Grants should be allotted for a certain number of years and notice should be given before there is a change in the amount of such grants.

(b) It should be open to the local boards to utilise such portion of the grant as they think fit on ordinary repairs of public works.

24. *Grants under Motor Vehicles Act.*—The surplus proceeds from the Motor Vehicles Tax, instead of being spent wholly at the discretion of Government, should be fully distributed among the local boards in proportion to the grants which they are now receiving under the same head.

25. *Dispensary Grants.*—Government should fix the dispensary grants in the proportion of 50-50 in the case of dispensaries in rural areas and 40-60 in the case of those in urban areas.

26. *Veterinary Dispensaries.*—The present amounts of grants allotted to veterinary dispensaries are very meagre and inadequate and should be substantially increased and placed on a statutory basis.

27. *Establishment Grant.*—Government should not abolish the establishment grants to local boards on the ground that certain local boards have failed to develop their resources but should reconsider their proposal and instead of doing so they should lay down conditions for the maintenance of an adequate and qualified staff.

28. *Public utility concerns.*—Local bodies should run public utility concerns like bus and tram services as a means of increasing their revenue. There is no objection to the municipalisation of such utility services provided Government sanction is previously obtained. Government should encourage such municipalisation and should examine each proposal carefully and sanction it after it is satisfied that the local body proposing such a scheme is likely to run the concern efficiently and economically. Government should also assist the local body in securing protection against unfair competition.

29. The Kale Committee's recommendations should be adopted. Alterations should be made in the rules under the Local Authorities Loans Act in order to facilitate the early disposal of loan applications. There should be no percentage charge for the scrutiny of plans and estimates and inspection in respect of schemes for which a Government loan is applied for. Subscriptions should be permitted by an amendment of Section 20 of the Indian Trusts Act to loans floated by public bodies.

30. The proposal of the Kale Committee should be accepted, with the addition that the surcharge should be imposed at the request of the local body concerned.

31. *Non-Agricultural Assessment.*—Government should reduce non-agricultural assessment on building plots within municipal limits or hand over to municipalities the whole or a substantial portion to the extent of 75% of the non-agricultural assessment recovered by them and that local boards should get 10% more on what they are at present getting on that assessment.

32. *Entertainment Tax.*—The whole of the entertainment and betting tax should be transferred by Government to local bodies.

33. *Surcharge on Electricity.*—Government should pay to each local body 50% of the revenue derived by them from the net proceeds of the duty on the consumption of electric energy as the demand of local bodies to such income has also been held to be sound.

34. *Petrol Tax.*—Government should distribute the receipts from petrol tax on an equitable basis between the Government and local bodies.

FUNCTIONS COMMITTEE

35. The opinion of the Sub-Committee was that those functions of the Rural Development Department which were functions allotted to local boards by law should normally be entrusted to the local boards, and the funds allotted therefor should be given to those boards to help in that work. Otherwise also Rural Development work should be placed as far as possible on the local boards. The Conference agreed to the proposal.

36. The Sub-Committee considers that as far as the village water supply scheme is concerned, the amount that can be made available will be expended by the District Local Boards as on their own works. The Sub-Committee agrees that the priority should be based on the recommendations of the various engineers who have been appointed for the purpose.

It is expected that the preliminary experimental priority list that will be prepared as suggested in the Government note * will be forwarded to the Presidents of Local Boards in order to give them an opportunity of offering remarks on the priority of works in their districts. The Conference adopted the view of the Sub-Committee.

37. The general opinion of the Conference is in favour of the Sub-Committee's recommendation.

The general feeling of the Sub-Committee is that—

- (1) each district local board should compulsorily have a health officer;
- (2) that Government should pay three-fourths of the pay as subsidy; and
- (3) that the services of this officer should be at the disposal of the Public Health Department in the case of epidemics or other emergencies in other districts. The opinion of the Sub-Committee is that the appointment of such officer should be made on the same lines as for municipalities. In order to have uniformity of methods followed by different officers, it was agreed that they should, if necessary, undergo a course of training.

* Not printed.

38. The Sub-Committee decided that it should be made clear that their recommendation did not cover the establishment (office or minor) of health officers, so far as grants are concerned. The Sub-Committee's view was agreed to by the Conference.

The general opinion of the Sub-Committee is that the fundamental principle laid down by the Committee is sound, that Government are in a much better position than local boards to deal with major epidemics more efficiently. The Sub-Committee is further of opinion that the Public Health Department of Government should in such a case have power to send health officers, sanitary inspectors or other establishment of the various districts to the point of danger even though it might be outside the jurisdiction of the district. Government should bear the extra expenditure involved by reason of major epidemics. The Sub-Committee's view was agreed to by the Conference.

39. The Sub-Committee considers that vaccinators should be included in the recommendation regarding transfers which has been made above regarding Health Officers and Sanitary Inspectors but the meeting felt very strongly that vaccinators should only be transferred in exceptional circumstances and to meet difficult situations. As each Board will have a recognised Health Officer the objection to local appointment and control of vaccinators will be removed.

The Sub-Committee considers that although the appointment of sanitary inspectors is not obligatory, the proportion of grant paid by Government should be the same as in the case of health officers, viz., three-fourths. The Sub-Committee considers that the ideal to aim at is a Sanitary Inspector per Taluka. The Sub-Committee's view was agreed to by the Conference.

40. The Sub-Committee is of the opinion that these works should be transferred to the local bodies and requests Government to expedite their decision in the matter. The Sub-Committee's view was agreed to by the Conference.

41. The Sub-Committee considers that the burden involved in improving housing conditions should be laid on employers on the lines laid down in paragraph 119 (c) (iii) of the Rent Enquiry Committee Report and that further action should be taken on the lines of the recommendations of that Sub-Committee particularly in paragraphs 119 (c), (iv), (v) and (ix). The Sub-Committee also considers that Government should be expected to give help on the lines of the recommendation contained in paragraph 221 of the Kale Committee's report as far as is financially or otherwise possible.

The attention of the Sub-Committee was drawn to the latest amendment of the Town-Planning Act, under which sections and benefits of that Act would become automatically applicable to slum clearance areas; and it was pointed out that the result of this would be that the cost of such schemes was likely to be considerably reduced. The Sub-Committee's view was agreed to.

42. The Sub-Committee accepts the principle that expenditure for the acquisition of properties in unhealthy localities wherein improvement

schemes are undertaken by municipalities must be dealt with on different lines from the ordinary and is of the opinion that necessary legislation should be taken in hand as soon as possible for the amendment of the relevant Acts. The Sub-Committee's view was agreed to by the Conference.

43. The Sub-Committee agrees entirely with the recommendation of the Kale Committee that the special powers mentioned in Section 184 (2) of Bombay Municipal Boroughs Act should be exercised normally by all Borough Municipalities with recognised health officers. The Sub-Committee's view was agreed to by the Conference.

44. The Sub-Committee considers that the Kale Committee's recommendation should be accepted, but that the facility should be extended to all inferior servants in municipal employ. The Conference agreed with the Sub-Committee's view.

45. The Sub-Committee considers that the powers exercised by the standing committee should be exercised by the managing committee of a district municipality and not by the president of such municipality. The Sub-Committee recommends that the proposed amendment on the lines of section 163 (1) of the Bombay Municipal Boroughs Act, 1925, should include its expansion as suggested in paragraph 218 of the Kale Committee's report. The Sub-Committee's view was agreed to by the Conference.

46. The Sub-Committee agrees that the management of cattle pounds should be re-transferred to Government and that their transfer to Panchayats should be expedited. The Committee also agrees with the suggested financial arrangements. The Conference adopted the Sub-Committee's view.

47. The Sub-Committee accepts the principle that municipalities should set up or encourage museums and public libraries within their areas. It also agrees that official libraries for the use of their members and servants are to be commended. The Sub-Committee's view was agreed to by the Conference.

48. The principle enunciated in paragraph 208 relating to special additional taxation for making primary education compulsory has the general approval of the Sub-Committee. It is decidedly of opinion that something must be done to simplify the present system, and the best results will be obtained by the suggestions of the Kale Committee. Otherwise Government should take it over directly but if it does not it should bear the whole cost. The proposal was agreed to by the Conference.

LOCAL SELF-GOVERNMENT INSTITUTE

(BOMBAY PRESIDENCY)

TWELFTH ANNUAL REPORT AND AUDITED STATEMENT OF ACCOUNTS FOR THE YEAR 1939-40.

I have the pleasure to submit to the Provincial Council of the Institute the twelfth annual report for the year ending 31st December 1939 and statement of accounts for the year 1938-39 audited by the Examiner, Local Funds and for the year 1939-40 audited by the Hon. Auditor Mr. R. N. Rajadnya.

PROVINCIAL COUNCIL

During the year the following persons acted as members of the Provincial Council, which was elected at the Triennial General Meeting held in June 1938.

1. *President* : L. M. Patil, Esq., B.A., LL.B., M.L.A.
2. *Vice-President* : G. D. Vartak, Esq., B.A., M.L.A.
3. *Hon. Secretary & Treasurer* : S. S. Naik, Esq., B.A. (Bom.),
B.Sc. (Edin.), L.C.E. (Bom.)
4. T. V. Kirad, Esq.
5. G. T. Saraiya, Esq., M.A., B.Sc., LL.B.
6. Durlabhji P. Desai, Esq., B.A.
7. Chaturbhai N. Patel, Esq.
8. A. V. Lawate, Esq., B.A., LL.B.
9. D. W. Raut, Esq., M.L.A.
10. V. N. Khodke, Esq., B.A., LL.B.
11. S. S. More, Esq., B.A., LL.B.
12. Sardar Shivrao Bhawanrao Thorat.
13. R. S. Patil, Esq., B.A., LL.B.
14. M. B. Hurlikuppi, Esq., B.A., LL.B.
15. R. V. Parulekar, Esq., M.A., M.Ed., T.D.
16. Sardar Rao Bahadur Bhimbhai R. Naik.
17. Prof. S. G. Dabholkar, B.A., LL.B.
18. Khan Saheb G. B. Khan.

Changes

I am sorry to report that R.B. Dr. V. V. Mulay and Mr. Bhailal Sarabhai Patel who were active members of the Council expired during the course of the year. Dr. T. J. Lalvani and Messrs. K. V. Joshi and Dingomal H. Advani ceased to be members of the Council on

account of Sind having established an Institute of its own and Local Bodies which they represented having consequently ceased to be the members of this Institute. Messrs. M. M. Hansi and R. K. Powar ceased to be members of their respective local bodies and consequently of the Provincial Council.

OFFICE-BEARERS

The following office-bearers continued in office during the year under report :—

President : L. M. Patil, Esq., B.A., LL.B., M.L.A.

Vice-President : G. D. Vartak, Esq., B.A., M.L.A.

Hon. Secretary & Treasurer : S. S. Naik, Esq., B.A., B.Sc., L.C.E.

Jt. Hon. Secretary : R. V. Parulekar, Esq., M.A., M.Ed., T.D.

Hon. Auditor : R. N. Rajadnya, Esq.

The following members served on the Executive Committee during the year :—

1. *President* : L. M. Patil, Esq., B.A., LL.B., M.L.A.

2. *Vice-President* : G. D. Vartak, Esq., B.A., M.L.A.

3. *Hon. Secretary & Treasurer* : S. S. Naik, Esq., B.A., B.Sc., L.C.E.

4. *Jt. Hon. Secretary* : R. V. Parulekar, Esq., M.A., M.Ed., T.D.

5. S. S. More, Esq., B.A., LL.B.

6. Prof. S. G. Dabholkar, B.A., LL.B.

7. R. S. Patil, Esq., B.A., LL.B.

8. Khansaheb G. B. Khan.

MEMBERSHIP

Membership subscriptions were received during the year 1939-40 from the following local bodies as compared with the previous year :—

Body.	1938-39.	1939-40.
Special Municipalities	5	5
Borough Municipalities	18	18
District Municipalities	67	77
District Local Boards	21	23
Village Panchayats	21	22
Village Authorities	7	9
Individuals	22	16

It will be seen that the membership has remained steady. The total subscription collected during the year under report is Rs. 8,519-4-0

as against Rs. 8,540-4-0 during the previous year. It was pointed out last year that the membership was likely to go down because of the separation of Sind. The above figures include 1 Special Municipality, 1 Borough Municipality, 2 District Municipalities and 3 District Local Boards from Sind who paid their subscription during the year 1939-40 but ceased to be members from the current year on account of the establishment of a separate Institute for the Province. The year 1940-41 will therefore show a decrease in subscriptions to the extent of the subscriptions received from these local bodies. It will be further seen that the decrease of the income from Sind has been practically made up by the increase in the membership of District Municipalities within our Province and by recovery of some arrears. The total amount of subscriptions received from Sind including arrears came to Rs. 900/- which will have to be made up during the next year. A portion of this amount is expected to be covered by subscriptions from new Gram Panchayats which are expected to join the Institute. Between April 1940 and July 1940 as many as 65 new Gram Panchayats have been enlisted as members. After November 1940 when a large number of Village Panchayats will be established under the new Act, a further increase of membership is anticipated.

Separation of Sind

It has been mentioned above that Sind local bodies have formed a separate Institute of their own. Our Institute gave all possible assistance to the Organisers of Sind Institute in the formative period. We wish the new Institute prosperity and a very useful future. We trust that the higher scale of membership fees fixed by that Institute will bring them sufficient funds to conduct the affairs of the Institute efficiently. We will continue to offer our active co-operation in the fulfilment of our common aim to promote the cause of Local Self-Government. We place on record our deep appreciation of the great assistance which our old Sind members of the Provincial Council rendered to the Institute from time to time at great inconvenience to them.

Local Self-Government Committee, 1939

The greatest event in the domain of Local Self-Government in our Province since 1915 when the Lawrence Committee submitted its report, is the appointment of the Local Self-Government Committee by the Government of Bombay. It will be recollected that for several years past Conferences of local bodies organised by our Institute had been requesting Government to appoint a Committee to examine the constitutional, financial and administrative functions of local bodies and their relation

with the Provincial Government and to make recommendations with a view to rehabilitate local bodies and to put them in a sound financial and administrative position. It was after years of persistent agitation that Government yielded and appointed this Committee to examine and report on the affairs of local bodies in the mofussil with a view to improve their efficiency and on a number of other cognate subjects.

It is a matter of great satisfaction for this Institute that two of the members of its Provincial Council, Mr. S. S. More and myself were appointed members of the said Committee and Mr. Barfivala, your Director, was appointed a member and the Secretary of the said Committee. These three persons gave all their time and energy to the work of the Committee. The office of the Institute rendered from day to day all possible co-operation to the Committee and its staff which was fortunately located in a room adjoining the Institute's office. The Institute's staff has in its turn acquired considerable experience and knowledge about the working of local bodies, and has come in closer contact with the Government on the one hand and local bodies and other officials on the other with the result that more effective service is rendered by the Institute to local bodies. The report is now before the public and the recommendations are before the Government whose orders are anxiously awaited. Government desired the Institute to obtain the views of local bodies on the recommendations of the Committee by holding their Conferences. Four Conferences were projected by the Institute in the Gujrat, Maharashtra, Karnatak and the Konkan Divisions. The proceedings of these Conferences will be published in the Quarterly Journals of the Institute.

As far as the activities of the Institute are concerned the following references are made in the Report of the Local Self-Government Committee 1939 :—

(1) "It is necessary that civic education of rate-payers and prospective Councillors should be taken in hand. This aspect of Local Self-Government has been so far neglected. We, therefore, recommend that this work should be immediately undertaken as a part of the adult education programme and may be carried out with the co-operation of the Local Self-Government Institute."

(2) "We understand that several local bodies give facilities to the staff for taking training in the classes run by the Local Self-Government Institute for the "L. S. G. D." Diploma. These facilities take the shape of a contribution to the Institute towards the fees of an employee,

travelling allowance to attend the class, leave for study or for examination or an additional increment on passing the examination. It will be in the interest of local bodies to extend these facilities to all their staff, particularly the members who belong to backward and intermediate classes."

(3) "Secretaries of minor District Municipalities should be at least matriculates, preference being given to those who hold the Local Self-Government Diploma."

(4) "We feel that co-operation among local bodies will facilitate at least transfers of officers from one body to another. We find that today a large number of superior posts are occupied by persons who have had previous experience in smaller local bodies. We understand that the Employment Bureau of the Local Self-Government Institute has facilitated the transfers of a number of officers, particularly of smaller local bodies."

(5) "There is considerable scope for favouritism and corruption in the purchase of municipal requirements. In order that local bodies should obtain the best value for the money they spend for the purchase of stores, it is necessary that proper and *bona fide* inquiries regarding the prices and qualities of the required materials should precede every purchase. Selection of articles is often made by persons who have a very limited knowledge of the different qualities available in the market. Quotations are invited without giving proper specifications regarding quality, size or measurement or maker. Sometimes inquiries are restricted to a few dealers and qualities are selected, not because they are suitable but because other available qualities are not known or worse still, because some favoured merchants are stocking them. Comparisons of quotations so received are not of much use. These quotations merely beguile the auditors or inquisitive members into the belief that tenders were invited, that the lowest tenders were accepted and that everything was overboard.

"In order to remedy this state of things, we would support the recommendations of the Examiner of Local Funds, who in his oral evidence before the Committee, approved of the practice of inviting tenders through the Local Self-Government Institute in respect of all municipal requirements. We understand that big municipalities like those of Ahmedabad and Poona as well as very small local bodies have found by experience that the services of the Institute in this respect are very valuable. We recommend this practice for the favourable consideration of all local bodies."

(6) "We find that almost all local bodies have been insuring their properties and vehicles against risk from fire and accident through the Local Self-Government Institute. The Institute, we are given to understand, was able to obtain for them the highest percentage of rebate. The rebate system however has ceased with the passing of the new Insurance Act. In this behalf we support the suggestion made by Sardar Vallabhbhai Patel at the Conference of Local Bodies held at Broach that a co-operative insurance scheme for local bodies should be prepared by the Institute and all local bodies should join it. We understand that such a scheme is in operation in England. We recommend the formation of such a scheme by the Local Self-Government Institute."

Copies of the correspondence between the Government and the Institute on the subject of these recommendations of the Committee are annexed to this report for the information of the Provincial Council.

Training Classes (L.S.G.D.)

The training Classes continue to be our most valued activity. The number of inquiries requiring the services of L.S.G.D.'s is steadily increasing. The Diploma has been considered as a necessary qualification by all efficient local bodies for initial recruitment of their staff without any statutory obligations on the part of local bodies to do so. This is a very satisfactory evidence of the fact that they appreciate the value of the tuition imparted at the Institute. The future trend is in the direction of Government making the diploma a compulsory qualification and of compulsory training of the present staff of local bodies. On the consummation of these events the training classes are expected to receive a considerable fillip.

The number of students that took training during the year under report was exceptionally large entailing greater burden of work on the Institute's office.

The Diploma continues to be recognised by about 40 Indian States with whom the Institute is maintaining correspondence. The Diploma-holders of the Institute have thus obtained a larger field of employment.

Practical post-diploma training is taken by several Diploma-holders in different local bodies, about 80 of whom have been, at the Institute's request, good enough to agree to engage them as unpaid apprentices.

Examination Results

The following figures will show the progress made by the training classes during the last seven years :—

1933-34	..	..	..	43	passed.
1934-35	..	..	..	65	"
1935-36	..	..	..	80	"
1936-37	..	..	..	89	"
1937-38	..	..	..	83	"
1938-39	..	..	..	79	"
1939-40	..	..	..	103	"

Quarterly Journals

We continue to publish four Quarterly Journals. The English Journal is edited by Mr. C. D. Barfivala, the Gujrati by Messrs. C. D. Barfivala and Durlabhji P. Desai, President, District Local Board, Surat, and the Kanarese by Mr. R. V. Jathar. I am editing the Marathi Journal.

In view of the fact that greater number of Gram Panchayats are becoming members of the Institute, and yet a greater number is expected to join hereafter, it is proposed that each of these three vernacular journals should now be published monthly instead of quarterly as at present and each local body subscribing Rs. 25 and over annually should get one vernacular journal in addition to the English for a year. This will create a better interest amongst vernacular knowing members of the Institute and reach a larger number of readers though it will entail some additional expenditure and increase the pressure of work on the staff.

Directory

During the year under report, the stupendous task of preparing the Directory was commenced with the help of a special staff sanctioned by the Provincial Council. With the actual commencement of the work enormous difficulties regarding compilation of facts were noticed. Paucity or rather the absence of published literature on the working of local bodies compelled the office to obtain first hand information from every local body. The information was sought for from these local bodies mostly in tabulated forms and in pre-arranged plan with a view to attain precision and uniformity. Many of the local bodies were very slow in furnishing the required information and some failed to supply answers to our queries. This was however fully anticipated and provision was made in the Budget by the Provincial Council for sending round travellers for obtaining information on the spot. Most of the information is now collected and by the time this report reaches the members of the Provincial Council, the printing of the Directory, it is

hoped, will have progressed well. It is expected that the whole Directory will be ready during October 1940 provided of course that the printing paper for which orders have been placed with the Mills is supplied in time.

Other Activities

Besides the principal activities mentioned above, the following main services were maintained efficiently :—

- (1) The Institute's Book Depot.
- (2) Information and advice on legal, administrative and technical matters.
- (3) Insurance of properties and vehicles of local bodies against fire and accident.
- (4) Purchase of Municipal requirements.
- (5) Propaganda for use of Swadeshi articles for Local Bodies.
- (6) Employment Bureau for L.S.G.D's.
- (7) Assistance to Research students.
- (8) Compilation and distribution of Index to Government Resolutions pertaining to Local Bodies.
- (9) Compilation of Local Government statistics.
- (10) Holding of Conferences of Local Bodies, etc., etc.

Finances of the Institute and Audited Statement of Accounts

The Statements of Accounts of the Institute for the year 1938-39 audited by Government and for the year 1939-40 audited by our Honorary Auditor are circulated along with this Report. These will furnish an adequate idea of the financial position of the Institute. The progressive improvement in the position will be evident from the following figures :—

Year	Receipts (incl. Opening Balance)	Payments	Closing Balance
	Rs. a. p.	Rs. a. p.	Rs. a. p.
1933-34	29,672 10 0	17,474 6 10	12,198 3 2
1934-35	34,379 10 2	18,192 9 3	16,187 0 11
1935-36	39,253 13 2	20,681 3 7	18,572 9 7
1936-37	39,476 15 1	19,102 3 11	20,374 11 2
1937-38	44,184 2 8	21,078 5 11	23,105 12 9*
1938-39	51,058 14 3	20,435 1 2	30,623 13 1†
1939-40	60,804 14 4	24,797 12 4	36,007 2 0‡

* This balance is inclusive of Government Securities to the face value of Rs. 10,000 purchased for Rs. 9,784-6-0.

† This balance is inclusive of Government Securities to the face value of Rs. 10,500 purchased for Rs. 10,279-0-6.

‡ This balance is inclusive of Government Securities to the face value of Rs. 16,500 purchased for Rs. 15,634-0-6.

Statement signed by the Hon. Auditor has been circulated to the members.

AUDITOR'S REMARKS

Copies of the remarks of the Hon. Auditor Mr. R. N. Rajadnya and Government Auditors are attached hereto for information. Extracts therefrom are reproduced hereinbelow :—

(1) Hon. Auditor's Remarks

"I have audited in details the accounts of the Local Self-Government Institute for the year 1939-40 and am glad to certify that they are kept in the same satisfactory manner as during the last seven years and that they are correct.

"The vouchers, bank balances, pass books, securities and all account books and registers are duly examined, checked and tallied. They present a true state of the finances of the Institute."

(2) Government Auditor's Remarks

"The Accounts were found to have been well maintained and call for no remarks."

THE STAFF OF THE INSTITUTE

I should like to add a word about the silent but stupendous work done by my very small and conscientious staff of the Institute's Office. The tremendous increase in the volume of work has entailed attendance for greater number of hours and ceaseless work throughout the day. Many of the holidays had also to be cut down. With the half-a-dozen men at my disposal, you will imagine what strain it must have been causing to conduct four journals in four languages on the subject of Local Self-Government—the English Journal alone is voluminous and weighty enough to take up the full time of a typist and a clerk apart from the editorial work ; to conduct L.S.G.D. Training Classes and Examinations at three Centres and to carry on correspondence in respect thereof and to carry on a huge correspondence in respect of conferences, opinions, supply of information, collection of statistical and other data, for purchase and sale of books and other literature and a host of other things is a work sufficiently terrifying for the staff. Add to these the much approved activity of the Institute in the shape of assistance to local bodies in the purchase of their numerous requirements. This activity alone entails a work of the magnitude which only those who are ordering out their requirements through the Institute can appreciate. The Examiner, Local Funds, in his evidence before the Kale Committee has testified to the usefulness of this service. For the coming year, I propose as recommended by the said Committee the enlargement of the work of the civic education by converting our three vernacular quarter-

lies each into monthlies and taking upon ourselves such further work as this new activity might require. I have no doubt that the Provincial Council will appreciate this service.

It is needless for me to add any remarks in appreciation of Mr. Barfivala's services. They are so well known to you.

S. S. Naik,
Hon. Secretary & Treasurer,
Local Self-Government Institute,
Bombay.

31st July 1940.

LOCAL SELF-GOVERNMENT INSTITUTE (BOMBAY PROVINCE)
Statement of Accounts for the year 1938-39

Particulars	Receipts	Expenditure	Expenditure classified by Sub-heads				Miscellaneous
			Establishment	Stationery & Printing	Postage	Dead stock	
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.
Opening Balance—							
Head Office	12,848 15 6						
Branches	472 7 3						
Subscriptions...	...	...	...	...	...	...	...
Government Grant	...	...	...	...	...	...	...
Public Education	...	3,911 2 0	...	3,460 9 0	450 9 0	...	...
General Administration	...	12,477 2 5	8,842 2 4	923 9 7	467 8 6	...	2,243 14 0
Library and Equipment	...	539 8 3	...	...	...	...	...
Conferences	...	460 0 9	...	...	...	...	...
Unpaid Bills	190 9 0*	...	...	...	...	...	...
Miscellaneous	990 14 9	533 1 3	...	...	...	...	...
Training Classes	9,672 0 0	2,101 11 6	...	...	196 6 6	...	1,905 5 0
Investments	...	5,494 10 6	...	...	...	...	...
Deposits	755 0 9	304 8 0	...	...	...	...	...
Advances	80 0 0	80 0 0	...	...	...	...	...
Publications	1,074 0 6	179 0 6	...	...	179 0 6	...	...
	41,425 9 9	26,080 13 2					
Closing Balance—							
Head Office	...	14,366 13 10					
Branches	...	977 14 9					
	41,425 9 9	41,425 9 9					

* This amount is adjusted against the expenditure heads as follows :—

T. C. Advertisement	Rs. a. p.
Publication	22 8 0
General Administration, Stationery and Printing	37 3 0
Library and Equipment	4 15 0
Unpaid Insurance Commission	45 0 0
	80 15 0
	190 9 0

† In addition the Institute held the following investments :—

General Fund—	Rs.
3½ per cent. Government Securities (face value)	...
Fixed Deposits	...
One share of the Poona Central Co-operative Bank (face value)	50
Provident Fund—	
3½ per cent. Government Securities (face value)	...
	500
	15,550

Verified and found correct.
R. D. BALVALLY,
Examiner, Local Fund Accounts, Bombay.

AUDIT NOTE ON THE ACCOUNTS OF THE LOCAL SELF-
GOVERNMENT INSTITUTE, BOMBAY PROVINCE,
BOMBAY, FOR THE YEAR 1938-39

No. L. 2/3-A—1704 of 1939-40.

OFFICE OF THE EXAMINER, LOCAL FUND ACCOUNTS :
Bombay, 9th October, 1939.

From

THE EXAMINER,

Local Fund Accounts, Bombay.

To

THE SECRETARY TO GOVERNMENT,

General Department, Bombay.

The accounts of the Local Self-Government Institute, Bombay Province, Bombay, for the year 1938-39, were audited between the 8th and 14th August 1939.

2. The accounts were found to have been well maintained and call for no remarks.

3. A statement of accounts of the Institute for the year 1938-39 prepared in the form approved by Government is appended to this note duly certified as correct.

R. D. BALVALLY,
Examiner.

No. L. 2/3-A—1705 of 1939-40.

Copy forwarded to—

The Honorary Secretary and Treasurer, Local Self-Government Institute, Bombay (with a spare copy).

The Senior Auditor, Bombay III Circle.

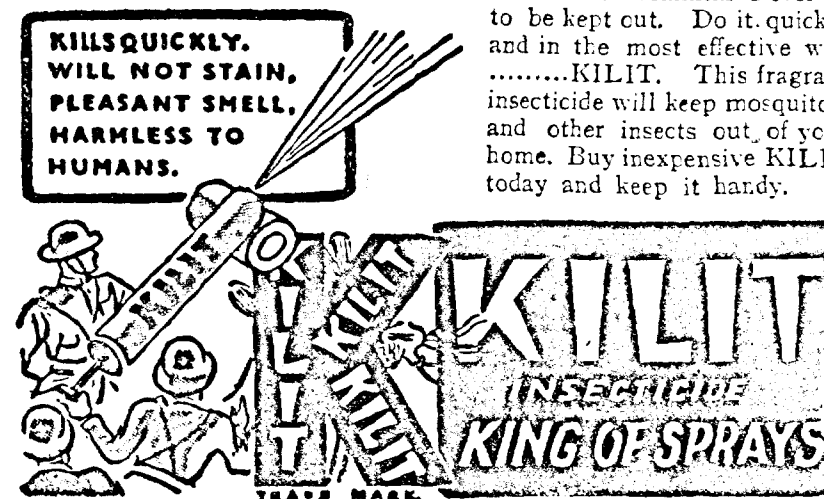
The Sub-Auditor, C. D. Sub-Circle (E. S. R.).

Examiner.

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Catalogues for the following articles are available for inspection at the Institute.

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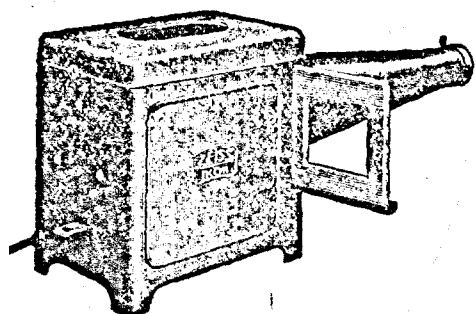
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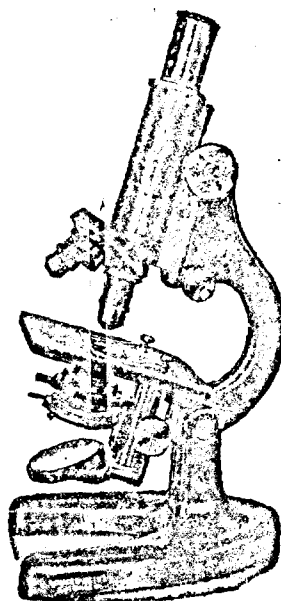
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GRANTS TO DISTRICT LOCAL BOARDS on account of PRIMARY EDUCATION

By J. P. NAIK, B.A.,

Member, Provincial Board of Primary Education, Dharwar.

HISTORICAL

In order to understand the existing financial relations between the Local Authorities and the Government, it is necessary to go back to the time when the present Primary Education Act was passed.

It was in 1922 that the then Minister for Education (Dr. R. P. Paranjape) introduced the Bill that later on became the Primary Education Act of 1923. Clause 13 of this Bill only stated that Government would bear two-thirds of the cost of Primary Education and that the Local Authorities will have to bear the remaining one-third. The Honourable Minister added the following comment on this clause in his introductory speech :—

“At the present moment, taking the Presidency as a whole, for Primary Education, the Local Boards spend only about 12 per cent and the Government spends 88 per cent. This Bill proposes that the grant to Local Boards will be two-thirds. If then we ask the Local Bodies to change their contribution to 33 1/3 per cent, all the new resources which are to be given to them according to the Local Boards Act would be eaten up and more than eaten up in finding the remaining 21 per cent. What is intended in fact is this, that the present grants that are being given to the District Local Boards are not to be reduced and the scale of two-thirds will be applied to the new expenditure that will have to be incurred in the expansion of education on an optional basis and the introduction of compulsory education.”—*Legislative Assembly Debates*, p. 395.

During the course of the debate, it was pointed out that the speech of a Minister is not a part of the statute and the House insisted that the assurances given by the Honourable Minister in his opening speech should be incorporated in the Act itself. Section 13 of the Act, as it stands now, was a result of this insistence.

At the time of the Second Reading of the Bill, there was a heated and a prolonged debate on the question whether Government should bear three-fourths of the additional cost or two-thirds. The following speech which the Honourable Minister made on the occasion is quoted here at length because it reveals the intentions of those who framed the Act. He observed :—

“It is only in very rare instances, Sir, that a legal financial liability has been undertaken by Government by means of sections of a statute, and in order to allay the fears of the public and of this Council that the Government might later on come and say that they will not give any money, we have put this legal liability on Government, and the Compulsory Education Committee and Government understand that legal liability does not mean the maximum liability. It means the minimum liability below which Government cannot go. The Compulsory Education Committee have said, and Government quite agree with it, that in certain cases in the case of very poor districts, it may be necessary to increase the scale of grant, and Government accept that position. For example, in the case of very poor districts with a very large population but very small income, especially from local fund cess, they will not be able to meet all the liability, the one-third liability....

A large number of members here talked about the reduction of grants. It has been mentioned over and over again that we contemplate no reduction whatever in the actual amounts of grants paid to the local bodies. What is being done is a reduction in the percentage of grants on the additional expenditure, which is a far different thing, and I hope that the legal members who are at present in this house will not confuse the issues in this matter. It seems that they are not satisfied with the assurance that I gave to them. That assurance has been made clear not only in my speech, but in the words of the clause, namely that the claims of the Local Boards to receive the grants which they at present get are not affected by the first clause in the Bill. I do not think anything more is required to make that position clearer. The percentages on the new expenditure have been guaranteed to them by statute, and, so far as I know, that is a liability which can be enforced in a court of law.”—*Legislative Assembly Debates*, pp. 1156-57.

Such, then, were the intentions of Government when the Act was passed and such were the assurances that were solemnly given to the public. Unfortunately, the policy pursued by Government afterwards was just the opposite of these utterances. The rules framed under the

Act were inconsistent with the spirit of this clause and these assurances, and tried to lessen the liability of Government. The several executive orders that were passed from time to time (now embodied in the Code of Orders Relating to Expenditure on Primary Education) also tended in the same direction. Every possible technicality was put up and every excuse was availed of to disallow expenditure for Government grant with the result that the statutory liability of two-thirds became the maximum, instead of the minimum liability and the actual Government contribution towards expenditure on Primary Education often fell far short of that. The following analysis of the present position is a fine commentary on the speeches of the Honourable Minister in 1922 :—

(1) According to Section 13(2) of the Act, Government is bound to pay to the Local Authorities a grant equal to the Datum-line, unless it is satisfied that the funds of the Local Authorities are likely to be abused. It would therefore, appear that the Local Authorities must get the Datum-line grant even if their expenditure is less than the Datum expenditure, provided that they used the savings in the interest of education. But Primary Education Rule 109(a) is clearly contradictory to the spirit of this section.

(2) From the debates and the speeches, it is clear that the intentions of those who framed the Act were that Government should bear two-thirds of all the additional expenditure. But the rules introduced the words “approved expenditure” for the first time. And all subsequent experience shows that this unhappy word ‘approved’ has been a powerful weapon in the hands of Government to evade its legitimate liabilities. No consideration was given to the fact that the expenditure was legitimate, urgent, or even absolutely necessary ; but it was disallowed on the only ground that it had not the sanction of Government. This policy was clearly in contradiction of the assurances of 1922.

(3) The legal position today stands as under :—

(i) Government is bound to pay two-thirds of the actual or estimated *additional* cost of a compulsory scheme sanctioned by them, whichever is less.

If for very natural and legitimate reasons, the actual expenditure on a Compulsory Scheme exceeds the estimates, Government is not bound to bear its full share of two-thirds of the actual expenditure unless the additional items also are specifically sanctioned by Government.

(ii) There is no statutory obligation on Government to bear its share of the cost on schemes of voluntary expansion.

(iii) The Honourable Minister had assured that the grants that were then paid to the Local Authorities were not to be reduced. But unhappily enough, Section 13(2) is negatively worded. It only states that the Act does not affect the existing claims of the Local Authorities. It has now been held that the Local Authorities had no *legal* claims to any grant before the Act was passed and that grants were purely discretionary. As Section 13(2) does not confer any new claim upon the Local Authorities, it is held that even Datum-grants are discretionary and can be reduced!

This is clearly not what we were assured in 1922.

(4) When the Act was passed, the general position was that Government was very keen to introduce compulsion all over the province in a period of about ten years. But it was feared that the Local Authorities were not so eager and would not co-operate fully with Government in this laudable object. It was therefore, provided in the Act [Section 10(3)] that each local authority was to prepare a complete programme of compulsory education within a period of ten years (Primary Education Rule 132). If it failed to do so, Government could call upon it to do so [*Vide* Section 10(2)]. If it did not prepare a scheme even after this, or if it failed to work out the scheme properly after it was sanctioned, Government was to appoint its own officers to prepare and execute the scheme and recover the share of the cost of the Local Authority by coercive measures (*Vide* Section 26). But the events that followed were precisely opposite to these pious resolutions. The Local Authorities came forward to bear their share of the cost. Local Authority after Local Authority submitted schemes of expansion and compulsion. But Government did not sanction them and even evaded to pay its share on several lacs of legitimate expenditure on Primary Education. The events have proved that the Local Authorities do not need the provisions of Sections 10 and 26; but it is absolutely necessary to bind down Government, in the most unambiguous terms, to its legitimate share of the cost of Primary Education and to sanction, within a prescribed time, schemes submitted by Local Authorities.

The foregoing discussion would have made it clear that the basic assumptions of the Primary Education Act of 1923, do not exist any more and that it is necessary to reconsider the whole position afresh if we are serious about the spread of education in our province.

2. Datum Grants.—Before coming to a detailed examination of the grounds on which a revision of the present system is necessary we would like to state the grants as they are given now.

At present, the Local Authorities get grant on the following basis :—

(i) A fixed grant, called the Datum-line grant, which is equal to the expenditure on Primary Education in 1924-25 *minus* 11/12ths of the local assets in that year (*Vide* Appendix I).

(ii) Two-thirds of all additional *approved* recurring expenditure.

(iii) Grants on non-recurring expenditure as per Primary Education Rule 114, *as funds become available*.

But it has to be remembered that a good deal of legitimate expenditure was being disallowed for grant on various technical grounds till 1940-41. Recently, Government have announced that they will admit all expenditure incurred up to 1938-39 for purposes of Government grant and accordingly a provision of Rs. 5,60,000 has been made for the purpose in the budget for 1941-42. This is really a very welcome step. But the disallowance of large amounts in the past has crippled the resources of many a Local Authority.

3. Revision of Datum-line grants is necessary.—After a very careful consideration of the question, we have come to the conclusion that a revision of the present basis of grants to Local Authorities is absolutely necessary. Our reasons for this conclusion are :—

(i) We would like to state at the outset that whatever basis is adopted for grants to Local Authorities it must be such that the achievement of universal compulsory elementary education must be realisable on it. This, in our opinion, is the most important condition that every basis should satisfy.

We can easily show that it will *never* be possible to realise the ideal of compulsory elementary education on the present basis.

In round figures, the total population to be served by the District School Boards of the province is 1,50,00,000 (Census of 1931). Taking the number of children at 15 per cent of the population, we find that the District School Boards will have to provide for 22,50,000 children. At present the cost of educating a child in primary schools comes to Rs. 13. But we shall assume that this cost will be reduced to Rs. 10 per head by adopting money-saving devices like the shift-system, aided schools, etc. Even at this low rate, the total cost of Primary Education will come to Rs. 2,25,00,000. Of this, an amount of Rs. 73,00,000 is fixed as the Datum-line and will be borne by Government. The remaining expenditure of Rs. 1,52,00,000 will have to be shared between the Government and Local Authorities and the contribution of the latter will have to be Rs. 44,00,000. Are they able to make it?

The Kale Committee have recommended that the Local Authorities should devote 10 pias of the cess to education. This recommendation

cannot be isolated from the others because the Local Authorities will not be able to do so unless Government also accepts the other recommendations. We shall assume for a moment that Government is going to accept all the recommendations of the Kale Committee. Even then the total contribution of the District Local Boards will come to Rs. 17,00,000 or so. How can the Local Authorities then meet their quota of Rs. 44,00,000?

It will, therefore, be seen that though the preamble of the Primary Education Act of 1923 stated that the object of the Act was to introduce Compulsory Primary Education at a very early date, it was practically nullified by its financial provisions. If, therefore, we are serious about the introduction of compulsory education, it is our first duty to revise the basis of grants to Local Authorities.

(ii) Secondly, in spite of its high-sounding preamble and sections, even the framers of the Act, it appears, did not aim at anything more than doubling the number of pupils in schools. In 1921-22 when the Act was passed, the number of pupils in schools was 8,00,000 (including Sind). The Compulsory Education Committee, on whose report the Act was mainly based, had chalked out a programme under which compulsion was to be enforced in the case of boys only in the first instance and the education of girls was to be expanded on a voluntary basis. They estimated that this would bring in five lakhs of boys and one lakh of girls i.e., double the number of pupils. Explaining the financial provisions of the Act, the Hon. Minister for Education has observed :—

“I assume in these figures, that by our extended programme, the number of new children that we shall bring into our schools will be approximately the same as we have at present at the end, at any rate, of six or seven years. I do not expect that our programme will do more than double the number of children in six or seven years. I look ahead as far as six or seven years, which is quite a long time to look forward to. Take, for instance, a district like Satara which my Hon'ble friend Mr. Jadhav mentioned. There are 22,114 children at school. Supposing we want to have an equal number of children once for all, the cost at Rs. 17 per head, which is the cost mentioned by the Compulsory Education Committee and which I accept as being suitable in the case of Local Board schools, the extra cost of educating these additional children, numbering 22,000 and odd, would be Rs. 5,45,922. Out of this the contribution of one-third by the Local Board as was contemplated in the original draft of the Bill, would be Rs. 1,81,974. Now, in this case the receipt to the Local Board from the additional anna cess would be Rs. 1,81,269 just barely sufficient, I therefore under-

stand that the Satara District could be on the border line. If they were to expend the whole income from the additional anna cess on educational purposes the Satara District will just be able to meet its liability.

Rao Bahadur R. R. Kale : For Boys ?

The Hon'ble Dr. R. P. Paranjape : For doubling the number of children. On the other hand, there is a large number of districts which are in a far better position than this. Take, for instance, a district like West Khandesh. There are at present 15,092 children at school. To double that number we require an additional cost of Rs. 2,56,068. One-third of this, which would be the cost that will have to be borne by the Local Board, will be Rs. 85,561, and the receipts from the one anna cess would be Rs. 1,56,000 and odd. Consequently, it is far less than two-thirds of this additional one anna cess. The main difficulty will arise not in carrying out the programme chalked out by the Compulsory Education Committee because that programme applies mainly to boys, and to a certain extent only in the case of girls. The main difficulty might arise when we want to extend the policy to the same extent in the case of girls, as it is proposed to extend it in the case of boys. The difficulty would arise after ten years, when Government would possibly take further measures to apply compulsion in case of girls also. The difficulty would arise then ; but I do not think that the Council would be well-advised in throwing out a measure which meets all the necessities of the case for the next six or seven years.”—*Legislative Assembly Debates*, pp. 1156-58 on 14-12-22.

In a way, the Act has served its purpose. In 1921-22 there were 5,52,461 boys and 1,40,116 girls in our province (excluding Sind). In 1938-39, there were 9,85,890 boys and 3,36,718 girls in our Primary schools. That is the total number of pupils has increased by 6,30,089—more than the number estimated by the Committee—and is nearly doubled. The number of girls has increased by nearly 230 per cent. In Satara there are now 94,501 pupils—four times the number in 1921-22 ; and in West Khandesh, the number of pupils has increased to 58,699—a rise of 293 per cent. The difficulty mentioned by the Hon. Minister has already arisen and the financial provisions of the Act have largely ceased to be helpful. To continue the same system even now is to put an end to all progress.

(iii) Thirdly, the various districts in the province get very unequal amounts under the Datum-line. Whatever the intentions of Government in fixing the grants on the present basis, an analysis of the figures

will show that some districts get an initial advantage over others. The grants have no relation to the needs and economic positions of the districts, and many of them feel—and we believe rightly—that they have received a step-motherly treatment at the hands of Government. Even as early as the first introduction of the Bill which later became the Primary Education Act, 1923, the Hon. Mr. B. V. Jadhav remarked :—

“Now, according to the scheme of the honourable mover, the sums that have been paid up till now will be continued, and only one-third of the portion that will be required to supplement the educational budget will be levied from the rural districts. I need not quote figures, Sir, because they are not available to me, but it is quite plain that where larger expenditure is incurred now, smaller expenditure will be required and only one-third of that required small expenditure will be levied by the Local Boards and two-thirds will be provided by Government ; (on the other hand) where small expenditure is incurred up till now, a larger amount will be required and one-third of that larger portion will have to be paid by the District Local Boards, which are poor and which are unable to pay. Is it a punishment, Sir ? Does the Honourable Minister want to levy higher taxation on the backward districts for remaining backward so long, and is he so very lenient to (other) districts because they are forward ? It is just like—

‘More shall be given unto him that hath,

And from him that hath not, will be taken away little he hath.’

I strongly protest, Sir, against that principle and I think it will be much better if the financial clauses of the Bill are revised. I would, therefore, request the Honourable Minister to withdraw the present Bill and to redraft it on sounder lines.”—*Legislative Assembly Debates*, pp. 483-484.

The feeling expressed in these lines has gained ground during recent years. That it is a legitimate complaint will be seen from column 8 of Appendix I. Considered on the basis of population—which is the most equitable basis—we find that grants vary from Re. 0-14-10 per head in Broach District to Re. 0-2-7 per head in the Bombay Suburban District. Such a wide discrepancy cannot be defended on any grounds.

(iv) Fourthly, we feel that the present basis is extremely arbitrary. A rational and equitable basis of grants will be that of population, supplemented by a consideration of the economic capacity of the districts, its population of backward classes, its natural handicaps, the cost of living and so on. But to select one particular year and to fix the expendi-

ture in that as the Datum-line for all time to come is a very arbitrary procedure. It is high time that we abandon such a basis for grants.

(v) Fifthly, the present basis does not take into consideration the economic, social and natural differences between a district and a district, but lays down that every district shall bear the same share of the additional cost of primary education. We shall compare here two districts from the Southern Division, viz., Dharwar and N. Kanara :—

	Dharwar.	N. Kanara.
Area under cultivation	67%	14%
Local Cess	Rs. 2,12,000	Rs. 51,000
Population to be served by the District		
School Board	9,32,439	4,17,835
Income per capita	Re. 0-3-8	Re. 0-1-11
Density of population	239	106
Average population per village	649	284
Other considerations		Forests, Malaria, Higher cost of life, etc.

It will easily be seen from the above analysis that N. Kanara has a large number of set-backs when compared with Dharwar. And yet we treat them as equal districts so far as grants are concerned and expect each of them to contribute the same percentage of the additional cost of Primary Education. In fact, we are actually giving a more favourable treatment to Dharwar than to N. Kanara. Is this not sheer injustice ? Should we not take into consideration the economic capacity of a District as, for example, they do in Punjab ? Such a contingency was envisaged in the speech of the Hon. Minister quoted above but nothing has been done to give effect to his assurances.

The following quotation from the report of the Hartog Committee will be found interesting in this connection :—

“The question of what that share should be is important. If Government aid is given to all districts in the same ratio to the amount raised locally, it follows inevitably that the richer districts or parts of districts will forge ahead, and obtain an ever increasing share of the resources of Government available for educational purposes, leaving the poorer districts behind. The contrast between rich and poor districts or parts of districts will be accentuated ; and the poorer districts, which have just as much need of educational facilities and more need of help, may find that, being last in the field, there is no money left to enable them to apply compulsion even when they are ready to do so. The

poorer districts or parts of districts should, therefore, be required to bear a smaller share of the cost of compulsion than the richer ones."

4. **How District Boards are financed in other provinces.**—Before taking up the discussion of an alternative basis for grants, we would like to give a brief analysis of the basis on which Local Authorities are financed in other provinces. The following note is based on the information received from the Directors of Public Instruction of other Provinces. Small comments of ours have been added where necessary.

1. *Bihar.*—As regards District Boards, the Districts are divided into three classes :—

- (i) those with a cess income of less than Rs. 150 per thousand of the population ;
- (ii) those with a cess income ranging from Rs. 150 to Rs. 250 per thousand of the population ;
- (iii) richer Boards.

Each class receives a fixed grant *per head of the population* calculated as under :—

- (a) Class (i) gets 2 annas per head ;
- (b) Class (ii) gets $1\frac{1}{2}$ annas per head ;
- (c) Class (iii) gets $1\frac{1}{4}$ annas per head ;

Secondly, Boards in Class (i) are normally required to spend on education 10 per cent of their cess income, Boards in Class (ii) $12\frac{1}{2}$ per cent, and Boards in Class (iii) 15 per cent.

The principle is that the richer Boards receive less from Government and are expected to spend more from their own funds.

2. *Orissa.*—The grant to the District Boards is paid at the rate of annas two *per head of the population*.

N.B.—The system in Bihar and Orissa is the same in essentials. Orissa has continued all the institutions and ideas of Bihar even after separation. Obviously, it will take some more time before it evolves a system of its own.

There are two good principles involved in this system : Firstly the grants are based on the population ; and secondly they also take into consideration the economical position of the Districts. The main defects of the system are its inelasticity and inadequacy. The grants were based on the census of 1921 and remain unchanged to this day. It is absolutely necessary that the amount should be revised every ten years

according to the growth of population. Secondly, the per capital grant is very low.

3. *Punjab.*—The districts are graded according to their economic resources. Each district has a grade between 50 to 100. The poorer the district the higher the grade.

The grant of the preceding year is considered as the basic grant for the next year and so on. The grant in any year is calculated on the following formula :—

$$\text{Grant due} = \text{Grant paid in the preceding year} + \frac{\text{grade of District}}{100} \times \text{increase in expenditure during the year.}$$

There are, of course, some upper limits to the increase allowed under the several items of expenditure.

It will be seen that no District gets less than half the increase in expenditure. Three Districts get *all* the increase as their grade is 100. Most of the Districts are graded between 60 and 70.

N.B.—The interesting feature of this system is its adjustability to the varying economic conditions of the Districts. Also the basic grant given varies from year to year.

4. *Bengal.*—At present, District School Boards are being established and control over Primary Education is being transferred to them from the District Boards.

Each School Board is given a fixed grant based on the average expenditure, in recent years, on Primary Education in the District. To this is added a further grant based on the population of the District.

N.B.—There are three notable features of this system.

- (i) The fixed grant is arbitrary as in Bombay.
- (ii) The additional grant is based on population.
- (iii) The system is not made elastic to suit the varying economic conditions of the Districts.

5. *Sind.*—The system is the same as in Bombay.

6. *Madras.*—The grants to Local Authorities in Madras are of 3 types :—

- (i) A fixed grant paid to each Local Authority on the basis of the average, of the grant paid in three years 1932-33 to 1934-35.

- (ii) A grant equal to the educational cess raised by the Local Body in the preceding year.
- (iii) A grant equal to half the cost of the Manual Training Classes opened with the approval of Government.

N.B.—The system in Madras has all the defects of the Bombay system and some more. Its basis is as arbitrary as in Bombay; it ignores, as in Bombay, the economic differences between a district and a district. And lastly, it gives a grant equal to the local income whereas Bombay gives twice the amount.

7. *North-Western Frontier.*—The system in N.-W.F. Province is peculiar and is a class in itself. The usual custom is that the Government gives a fixed grant and leaves the Local Authority to balance the budget. But in N.-W.F. this custom is reversed. The Local Authority pays 25 per cent of its cess and the Provincial Government gives a grant equal to difference between the total budgetted amount and the local cess plus educational income (fees, contributions, etc.).

8. *Central Provinces.*—Government gives block grants to Local Authorities but it is not possible to ascertain the basis on which these grants are based.

9. *Assam.*—The cost of Primary Education is a charge on the revenues of Municipalities or Local Boards. But Government gives them a grant when they are unable to meet the demand for a public school on condition that they do not reduce their expenditure on Primary Education and pay a minimum salary of Rs. 12 p.m. to the teachers.

5. *Different Types of Grant.*—It will be seen from the above analysis that the basis of grants to Local Authorities is generally of three types, viz. :—

- (i) Government gives a fixed block grant to a Local Authority.
- (ii) Government bears a fixed percentage of the total cost on Primary Education.
- (iii) Government makes a fixed grant and bears a fixed percentage of the additional expenditure.

In our province, we adopt the second basis for Municipalities, and the third for District Local Boards. Also block grants are given to both Municipalities and District Local Boards for certain items such as physical education, etc. Moreover the grant to the Bombay Municipality is a block grant of Rs. 8,95,000. Our system, therefore, is a strange combination of all the different types.

We shall now examine the pros and cons of each of these types of grants.

6. *The Block Grant.*—The simplest and apparently the most attractive form of grants is the block grant. It has two distinct advantages. The first is administrative simplicity. If this system is adopted, all the worry and trouble that we undergo at present in audit notes, replies to it, admissibility of expenditure, and the hundred allied questions will disappear at once. Secondly, both Government and Local Authorities will know their definite liabilities and shall be able to budget with far greater certainty than they can do at present. What happens very often is that either the Local Authorities spring a number of surprise claims against Government for which it cannot find money at short notice, or Government very often lets down the Local Authorities by not admitting their legitimate expenditure and thereby putting them in a very awkward corner. Neither of these unpleasant things can happen under a block grant system. The charge of iniquity that is so often levelled against the present system of grants will also disappear if we fix the block grants on the basis of the population of a District and its social and economic condition.

As against these advantages, the system has strong disadvantages also. Administrative simplicity or budgetary certainty are not the be-all and end-all of the Education Department. These might be very desirable things but it is our duty to look to the interests of education first. We are afraid that under a system of block grants, the interests of expansion will greatly suffer. Our reasons are :—

(i) Under a system of block grants, the share of Government becomes determinate and the whole responsibility of expansion is thrown upon the Local Authorities. The resources of the Local Authorities are so slender that in spite of all their desire to the contrary, they will not be able to achieve expansion on account of financial difficulties. To make them *entirely* responsible for expansion, even for a number of years, is therefore, not advisable in the interests of education.

(ii) If we want to introduce compulsion all over the province at an early date, we shall require an additional amount of a crore or two. To this end, we shall have to propose a scheme which shall provide for *increased* expenditure *every year*. For example the Punjab system is one of such a type. The system of block grants will, we fear, fail to achieve this most desired result.

(iii) There are two other important considerations. When a system of block grants is adopted, the grants are generally fixed more with

reference to the financial position of Government at the time of fixing them rather than with reference to the necessity of expansion in the particular district. Secondly, once the grants are fixed it is very difficult, if not impossible, to get them revised though it is understood that they require periodical revision. In Bihar and Orissa, for example, the grants were fixed in 1921 and remain unrevised to this day. Though these two factors do not arise in a theoretical discussion of the subject, they are the most formidable practical difficulties.

(iv) It is easy to fix block grants on the basis of present expenditure with due allowance for anticipated expansion. But this will simply perpetuate the inequalities we have pointed out. But difficulties arise as soon as we try to adopt a basis of equitable distribution. Either Government will have to provide *immediately* a very large additional amount or the progress in some districts will be completely stopped. The first alternative is as difficult as the second is undesirable.

(v) We would like to state here the experience of C. P. Government where a system of block grant prevails. As the responsibility for expansion mainly rests on the L. A.s and as they have no resources to expand, they generally resort to the following two methods to secure expansion :—

- (1) A percentage cut in the salaries of teachers.
- (2) Reducing the scales of salaries (These now vary from District to District).

Both these expedients are questionable and their evil effects are reported in the departmental report year after year.

Such experience must make us hesitate before we adopt such a basis in our province.

7. The Percentage Basis.—We adopt this basis in assessing grants to Municipalities. We are of opinion that this should be continued, and therefore we do not propose to discuss the subject at this stage.

8. The Datum Basis.—This brings us to the conclusion that the best basis for grants to District Boards is the following :—

(i) Government should make a fixed grant for each district. This should neither be arbitrary nor iniquitous. It should mainly be based on population ; but it should take due note of the economic position of each District, social factors like the population of backward classes, and natural handicaps like forests, low density of population, etc.

(ii) Secondly, Government should bear two-thirds of additional cost of Primary Education in the District. There should be definite rules regarding admissibility of expenditure and it should be obligatory on Government to bear its due share of the additional cost.

Such a basis, if adopted, will have the following advantages :—

(i) It will remove the inequalities of the existing system.

(ii) It will provide for an ever-increasing fund for educational expenditure. Because it will leave the initiative for expansion in the hands of L. A.s and make it *obligatory* on Government to bear their share according to rules. The system will therefore, be extremely suited for rapid expansion.

(iii) The most important defect of the present system, viz., the evasion by Government of its legitimate burden will be removed because the items and extent of admissibility of additional expenditure will be definitely laid down by rules.

(iv) Lastly, this basis will cause the minimum of administrative dislocation as it continues the existing arrangements minus their defects. It can be brought into effect even without amendment of the Act.

Of course we must admit that some complicity of administration will remain under this proposal. But we should be prepared to put up with it in view of its advantages.

9. General considerations.—Before coming to our proposals regarding the fixation of Datum-grant, we would like to discuss the general factors that affect the cost of education under a Local Authority. We divide them into three groups—economic, physical and social and proceed to their consideration seriatim.

Economic Factors.—We shall have to consider the economic capacity of each district as represented by the amount of the Local Rate collected in the area. This is the main source of the revenue of Local Authorities and on it will depend the capacity of the district to contribute towards the cost of Primary Education. The total Local cess in our province is Rs. 22.11 lakhs in round figures calculating it at the uniform rate of one anna in a rupee of Land Revenue (For purposes of comparison we have ignored differences in rates from district to district). This means a revenue of Re. 0-2-5 per capita. A scrutiny of the figures given in Appendix II will show that the following districts are below the provincial average :—

	Rs. a. p.
Ratnagiri	0 0 9
Panch Mahals	0 1 4
Poona	0 1 7
Satara	0 1 8
Sholapur	0 1 10
Bijapur	0 1 10
Thana	0 1 10
Nasik	0 2 1
Kolaba	0 2 0
Belgaum	0 2 2
Nagar	0 2 2

Physical Factors.—Among the physical factors that hamper the growth of Primary Education are (1) Low density of population, (2) small and scattered villages, and (3) forest areas. We propose that due consideration should be given to the Local Authorities for these handicaps while fixing the Datum-line grant. This is the only way in which the several Local Authorities can be put on an equal footing in their race for realising the goal of universal Primary Education.

Regarding (1) we find that the average density of population in our province is 232 persons per square mile. The following districts have a density smaller than this average :—

1. North Kanara	106
2. West Khandesh	121
3. Ahmednagar	149
4. Bijapur	152
5. Nasik	170
6. Sholapur	192
7. Broach	228

Regarding (2), we find that the number of villages and towns in our province is 21,668 and out of which 12,284 are below 500 and 9,384 are above 500—their relative percentages being 57 and 43 respectively. The population of the province is 18 millions of which 3 millions or 17 per cent is in villages below a population of 500. It is our experience that the cost of education is inversely proportional to the average size of villages. In North Kanara, for example, where there is the largest number of small and scattered villages, the cost of education is highest in the rural areas of our province. We have compared the several districts from this point of view and we find that the following districts are below the provincial average :—

District.	Percentage of villages below 500	Population in villages below 500
1	2	3
1. Broach	—	18
2. Panch Mahals	—	22
3. Thana	64	32
4. Ahmednagar	—	20
5. West Khandesh	69	27
6. Nasik	64	26
7. Bijapur	—	19
8. North Kanara	86	33
9. Kolaba	77	42

The figures for all the districts are given in Appendix IV.

Regarding (3) we find that the total area under forests in our province is 8.3 million acres, giving an average of .4 million acres per district. The following districts have forest areas in excess of this average :—

North Kanara	2.0 million acres.
West Khandesh	1.3 " "
Thana	0.8 " "
Nasik	0.8 " "

Social Factors.—Appendix V gives the population of each district classified under Advanced, Intermediate, and Backward. We propose that the population of the Backward Classes should be taken into consideration while fixing the Datum-grant of a district. As we have a special responsibility about the socially backward classes and as it is necessary to make special efforts to spread education amongst them, we feel that a Local Authority which has to provide for an unusually large number of Backward Class population should be given some special consideration. The total population of Backward Classes in our Province is 37,51,000 or 21 per cent. We need not, therefore, consider the case of districts where the percentage of Backward Class people is less than 21. The districts wherein the percentage is more than 21 are :—

1. Surat	47%
2. West Khandesh	45%
3. Thana	45%
4. Panch Mahals	37%
5. Nasik	31%
6. Broach	31%
7. Ahmednagar	27%
8. Sholapur	22%

9(5). The *consolidated* effect of all these factors is given in Appendix VI.

A careful study of these figures will show that the only districts that require special treatment are :—

N. Kanara.
Thana.
Nasik.
West Khandesh.
Ratnagiri.
Panch Mahals.

We, therefore, recommend that the basic grant should be fixed at Re. 0-9-0 per head in all districts except the above. For them we would recommend the following rates :—

<i>District.</i>	<i>Extra grant per capita.</i>
	Rs. a. p.
N. Kanara	0 2 0
Ratnagiri	0 2 0
Panch Mahals	0 2 0
Thana	0 1 0
Nasik	0 1 0
West Khandesh	0 3 0

At present, West Khandesh is already getting grant at Re. 0-12-0 per head. We, therefore, would recommend the continuance of the grant. We also find that the following four districts get a larger grant than what they would have under our proposals, viz. :—

Dharwar.
Kaira.
Surat.
Broach.
Ahmedabad.

We do not propose to cut down their grant but we would recommend that their present Datum-line grant should be continued. As will be seen later, the initial advantage that they have will disappear in a few years.

In Appendix VII we have worked out the financial aspect of our proposals. We find that the net increase in the Datum-grant would be Rs. 19,40,000. The total expenditure, in case our proposals are accepted, will be about Rs. 15 lakhs or so. But that expenditure is worth being incurred in view of the advantages that the proposal will involve.

We further recommend that this Datum-grant should be increased by Re. 0-1-0 per head every five years till it reaches Re. 0-12-0 per head in each District, it being understood that the districts which have handicaps will get the extra grant as recommended. On this basis which will be reached in 15 years, it will be possible to introduce Compulsory Primary Education all over the province.

We suggest that the grant of Surat and Broach should be reduced to Re. 0-12-0 per head in the course of next ten years.

10. *Admissibility of Expenditure for Government grant.*—We shall now turn to the consideration of the question of the admissibility of expenditure.

We have to remember that (1) admissibility of expenditure against the Primary Education Fund and (2) admissibility of expenditure for Government grant are quite distinct from each other. Items for purpose (1) are admitted in audit provided they are covered by Section 8-B of the Act and are sanctioned by competent authority under the Primary Education Rules. These restrictions are imposed with a view to obtain proper control over expenditure and to see that the funds are applied to Primary Education only. As such restrictions are obviously necessary and as there is no difficulty experienced in their working, we do not propose to make any recommendations in this connection.

But the greatest defect of the present system has been the question of admissibility of expenditure for Government grant. As the rules stand, all expenditure in excess of the Datum-line is not admissible for Government grant unless it has received a specific sanction from Government. As we have already pointed out, this has enabled Government to evade its own share of legitimate expenditure and embarrassed many a Local Authority. We are convinced that unless this arbitrary power is taken away from Government and unless it is bound to contribute its share of all legitimate increase in expenditure, the cause of education will not prosper and the day when compulsory education becomes Universal will never dawn. We have, therefore, given our careful consideration to all the available material on this subject, i.e., Section 13 of the Act, Chapters VIII and IX of Primary Education Rules, and Chapters III and IV, and V of the Code of Orders Regulating Expenditure on Primary Education. (This will hereinafter be referred to as the 'Code'). We also studied the audit notes of all Local Authorities for the last three years in order to acquaint ourselves of the general position. As a result of this careful perusal, we have come to the conclusion that a drastic reform of the present system is necessary on the lines that we shall suggest later on.

The following are the main points of differences between Government and the Local Authorities.

- (1) Expenditure on additional teachers necessary to cope with expansion of education ;
- (2) Expenditure on clerks entertained for the School Board Office ;
- (3) Expenditure on Rents of School Buildings ;
- (4) Expenditure on Physical Education ;
- (5) Special Teachers ;
- (6) Garden charges ; and
- (7) School contingencies.

These are the most important things. There are a number of other questions also which we shall consider in the course of this note but they are not so material to the progress of education as the items mentioned above.

We have kept the following three principles in view while determining the admissibility of an item of expenditure :—

- (1) All expenditure which is necessary to cope up with the expansion of education must be admitted for grant.
- (2) All reasonable expenditure incurred for the improvement of teaching and efficiency of a school must be admitted for grant.
- (3) All reasonable expenditure in connection with the teaching of subjects which are compulsorily included in the syllabus must be admitted for grant.

We shall now deal with the above items one by one.

Teaching Staff.—The most important question that we shall have to decide is that of admissibility or otherwise of expenditure on additional teachers entertained by a Local Authority.

Owing to the mass awakening in the country, the number of pupils has been going up by leaps and bounds every year. The demand for additional teachers is therefore very great. It is to be regretted, however, that Government have complained of some excuse or the other and refused to sanction the additional teachers entertained by Local Authorities. Until recently, Government had practically placed a ban on all expansion by refusing to sanction additional hands. It was obvious that far from encouraging expansion, Government were trying to control it as far as possible ; and so long as this policy continues there is no hope for the nation.

While we are thus anxious to see that Government policy is made more liberal, we also feel that it is desirable to control extravagance in this matter. We cannot ignore that on several occasions, considerations other than educational ones have weighed with Local Authorities while entertaining an additional teacher. We would also like to state that it should be the aim of our policy to increase the number of pupils per teacher in order to bring down the per capita cost of education and to make the maximum use of the available funds. We, therefore, recommend that, in future, Government policy in this matter should be based on the following principle :—

Government should admit for grant expenditure on as many teachers as are required by the Local Authority at 35 pupils per teacher, calculated on the monthly average number of pupils during the preceding year. This number should be raised to 45 if the shift system is made obligatory.

It should be clearly understood that a Local Authority has full power to entertain as many hands as it considers necessary and that Government grant *shall* be given on the above principles.

This policy, if adopted, will encourage expansion, put the finances of Local Authorities on sounder basis, and make the maximum use of our available funds.

Clerical Staff.—After a careful study of the strength of the clerical staff sanctioned to various local authorities in the province, we have come to the conclusion that the distribution of clerical staff is far from satisfactory.

The most important point to be decided is about the basis on which clerical staff should be sanctioned to a Local Authority. While we recognize the impossibility of working out a clear-cut formula and of securing absolute equality of treatment, we feel that there ought to be some rational basis for our policy and that we should do the utmost justice possible to the needs of the various Local Authorities.

The three possible alternatives for us are the number of schools, pupils, or teachers. We realise that these are all interdependent, but we wish to choose the most suitable one of these three. The work in a School Board Office does not depend upon the number of pupils. No work regarding pupils as such comes to the School Board, except the change in their birth-dates and these cases will always be few. A good deal of the work, i.e., Inspection Reports, Visitor's remarks, current and special repairs, Buildings and Playgrounds, rents, etc. depends upon the number of schools. But the largest amount of the work in the School Board Office will depend upon the number of teachers. Leave

accounts, service-books, pension papers, provident funds accounts, confidential reports, deputations to Training College, transfers and appointments, pay-bills, questions of disciplinary action, etc. are some of the matters that directly depend upon the number of teachers and it is these that form the lion's share of the work of a School Board Office. We, therefore, *recommend* that the number of clerks sanctioned should be based upon the number of teachers at the rate of one clerk for every hundred and fifty teachers. The case of the Bombay Suburban District will have to be considered on its own merits because it is a very small district. But in the case of the other districts, this basis will work quite satisfactorily. This excludes the clerk or clerks appointed for Provident Fund work.

Rents.—The next question that we shall consider is the admissibility of rents. At present, the expenditure of a Local Authority on rents for School buildings in any year is admissible to the extent to which it was admitted in the previous year *plus* an increase of 5 per cent over it, subject to the condition that amount of rents is certified by the Executive Engineer to be reasonable (Order 175 from the Code of Expenditure on Primary Education). It has generally happened that the increase in schools and pupils has been very rapid in recent years and consequently the rents have greatly increased. The tendency of Local Authorities to replace rent-free schools by rented ones—chiefly with a view to secure free admissions to Harijans—has also tended in the same direction. Today we find that a number of Local Authorities are made to suffer financially because the increase of rents under them has been more than five per cent. In 1938-39, for example, the total amount of rents disallowed for this reason alone is Rs. 1,24,522. We, therefore, feel that this practice is wrong and should be discontinued. We, therefore, *recommend* that—

“All the expenditure incurred by a Local Authority on rents should be admitted for grant provided that for all increase over the previous year the following two certificates are forthcoming :—

(i) A certificate by the Deputy Educational Inspector of the District to the effect that the additional accommodation rented was necessary ; and

(ii) A certificate by the Executive Engineer to the effect that the rent is reasonable.”

This recommendation, if adopted, will cause no hardship to Local Authorities, will effectively control extravagance in expenditure if any and will also provide for all legitimate increase in needs.

Expenditure on physical education.—The expenditure incurred by Local Authorities on physical education was not admitted for grant prior to 1938-39 and as the rules stand, it cannot be admitted even now. But for the last two years Government have begun to sanction a special grant to Local Authorities for physical education. The total amount of grant available is about a lakh and this is distributed by the Director of Public Instruction between the various Local Authorities on condition that they contribute half the amount from their own funds.

We do not approve of the idea of giving a special grant for physical education in this way. Government have now admitted the importance of physical education in primary schools, and as it forms a very important subject on the curriculum, we expect every Local Authority to spend a substantial amount for it. This will not be possible under the system of block grants. Secondly, the block grant may be reduced or withdrawn at any time and hence may upset the whole programme of development that may be chalked out by the Local Authorities. We, therefore suggest that expenditure on physical education should be admitted by Primary Education Rules.

The expenditure on physical education is generally of four types :—

- (1) Pay of special teachers.
- (2) Cost of refresher course.
- (3) Purchase of equipment.
- (4) Cost of Tournaments, prizes, etc.

Regarding (1) we want to suggest that the expenditure should *not* be admitted. The general policy should be to train up each primary teacher to give the necessary instruction. In big schools, a teacher with special aptitude and qualifications may be trained in a long-term course and asked to manage the physical education of the whole school with the help of the other teachers each of whom would have also received some training in physical education. In this way, the need of a special ‘drill’ teacher should be eliminated. But we recommend that should a Local Authority decide to appoint a drill teacher, it should be permitted to do so at its own cost, provided the teacher possesses the minimum qualifications laid down by Government.

Regarding (2) we suggest that the cost of such refresher courses should be admitted for grant provided that they have been opened with the previous approval of the Educational Inspector and are directly supervised by officers specially appointed by Government. We feel

that the existing teachers require such courses very badly. Many of them are untrained and many of the trained teachers also have not had any instruction in physical education during the period of training. In fact, we ought to call these short-term training classes rather than refresher courses. In view of these circumstances, we recommend that a liberal policy should be followed in granting permission for such courses or classes.

Regarding (3) we suggest that this item should be included under Primary Education Rule 112(c) by a suitable amendment of the rule. The upper limits given in this rule are so high that they can easily include this item also.

Regarding (4), we suggest that the expenditure should *not* be admitted for Government grant. Though tournaments, prizes, etc., are desirable, we feel that the cost of these should be borne by Local Authorities or should be met by donations and public contributions.

Special Teachers.—We have carefully considered the question of special teachers and we agree with Government that it is desirable to cut down expenditure on this item to a minimum. We, therefore, make the following recommendations :—

- (1) Drill : The case of special teachers for drill has already been considered.
- (2) Drawing : We do not consider that special teachers for drawing are necessary.
- (3) Music : Since this is an important subject for girls and since it is included in the syllabus for the Primary School Leaving Certificate, we recommend that the pay of a part-time Music Teacher may be approved for grant if at least 10 girls are attending the class.

Garden charges.—The present position is as under :—

INADMISSIBLE FOR GRANT

Order 224.—Expenditure on account of gardening charges in primary schools (in the case of Municipalities).

Order 225.—Expenditure incurred by Boards in planting trees in school compounds.

Order 305.—In the case of District Local Board Local Authorities expenditure on garden charges which comes within the Datum-line only is admissible for grant.

Order 306.—The expenditure on school gardens will be admitted for grant to the extent to which it was incurred in the Datum year irrespective of the fact whether the schools receiving garden grant in a particular year are or are not identical with those in receipt of garden charges in the Datum year.

To begin with, we would like to emphasize the great importance of nature-study in the syllabus of primary schools. We quote below from the report a Committee appointed by Director of Public Instruction, Madras to enquire into the question of a proper use of a school garden :—

“In the hands of a skilled teacher, there is no limit to the field which can be covered gradually and quite naturally—the value of school gardening as a subject of instruction in the higher standards of elementary schools needs no elaboration ; in its utilitarian vocational aspect, and in the interest it should inculcate in the pupil in regard to plant life and farming operations of the locality, it deserves recommendation as a staple subject of the curriculum.”

We therefore, feel that we should give all encouragement to school gardens. In rural areas these gardens are not costly and we suggest that the contingency of schools maintaining gardens should be suitably increased. We recommend a slightly higher rate to schools conducting upper primary classes, as the grown-up boys will do more gardening work than the younger children of Standards I to IV.

School Contingencies.—We feel that the existing scale of school contingencies is not adequate. We feel that there should be more practical instruction in schools and this is sure to require some petty contingent expenditure from month to month. We therefore, recommend that the scale of contingency to schools should be suitably revised. We also suggest that the rules should be elastic enough to permit the Local Authorities to incur a little higher expenditure in certain localities where living may be costly. We do not however, make any definite recommendations now as we feel that this question will have to be decided after consulting the Local Authorities.

These are the most important items that affect the progress and efficiency of education. And if the question of admissibility of expenditure on these items is settled in the manner we have suggested above, expansion will be very rapid and compulsory education may be realised within the next ten or fifteen years.

II. Conclusion.—We entirely agree with the recommendation of the Kale Committee that the liability of Government should be defined by statute in the most unambiguous terms. The history of the past

several years has shown that though the Local Bodies have come forward to bear their share of expenditure, Government have not fulfilled their obligation on more than one occasion. This evasion of its responsibility by Government embarrasses the Local Authorities, retards expansion, and reduces efficiency. Arbitrary and sudden cuts will naturally interfere with the smooth and efficient working of schools and we would like to see that this does not happen. We, therefore, recommend that—

(1) Section 13(1) of the Act should be amended so as to define the liability of Government for *all* additional expenditure in the light of our recommendation in para. 10 above—*both* for compulsory education and voluntary expansion.

Voluntary expansion is a necessary preliminary to the introduction of compulsion and it would be extremely undesirable to permit Government to evade its responsibility for it. Secondly, we feel that this distinction between compulsion and expansion on a voluntary basis does not work well in practice. Local Authorities get schemes sanctioned under the name of compulsion and as they do not enforce them in any rigid manner, they become schemes of voluntary expansion only. We, therefore, feel that schemes of compulsion and of voluntary expansion should be treated on the same basis.

(2) Section 13(2) of the Act should be amended to state positively that the Datum-grants on the lines recommended in para. 9 above shall be paid to the Local Authorities subject to the same proviso as stands today.

(3) The recommendations made by us in para. 10 above should be incorporated in Primary Education Rules.

APPENDIX I

No.	Name of the District	Population	Name of L. A. Municipality in the District	Population	Population of the District excluding the population of the L. A. Municipality	Datum-line grant for primary Education to the District	Grant per head of population	
							As.	Ps.
1	Bombay Suburban	1,79,524	Bandra	40,649	1,38,875	22,992	2	7
2	Thana	8,36,625	Nil	...	8,36,625	2,25,572	4	6
3	Nasik	10,00,018	Nasik	45,741	9,21,862	3,84,462	6	7
4	Ratnagiri	13,02,527	Malegaon	29,442	...	...	5	3
5	Kolaba	6,28,721	Nil	...	13,02,527	4,28,818	6	2
6	Ahmedabad	9,24,033	Nil	...	6,28,721	2,42,412	11	11
7	Kaira	7,41,650	Ahmedabad	3,82,757	5,41,276	3,91,534	11	1
8	Broach	3,34,170	Nadiad	31,581	7,07,066	4,90,129	14	10
9	Panch Mahals	4,54,526	Broach	31,276	2,99,894	2,79,296	6	9
10	Surat	6,93,613	Nil	...	4,51,526	1,92,633	14	4
11	Poona	11,69,798	Surat	1,63,210	5,30,103	4,81,155	7	6
12	Satara	11,79,712	Poona City	1,80,022	9,89,776	4,65,104	6	0
13	East Khandesh	12,06,035	Satara	24,927	11,55,685	4,78,118	7	10
14	West Khandesh	7,71,794	Jalgaon	34,391	11,48,240	5,67,914	12	0
15	Ahmednagar	9,88,206	Amalner	23,491	7,32,138	5,50,403	6	8
16	Sholapur	8,77,520	Dhulia	39,656	9,46,316	3,99,027	5	10
17	Dharwar	11,02,677	Ahmednagar	41,890	7,42,110	2,72,250	10	3
18	Belgaum	10,76,701	Sholapur	1,35,410	9,32,439	5,99,824	6	7
19	Bijapur	8,69,220	Hubli	83,491	...	...	8	2
20	North Kanara	4,17,835	Gadag	45,819	10,76,701	4,47,052	9	7
			Dharwar	40,901	8,29,467	4,22,347		
			Nil	39,753	4,17,835	2,51,215		
			Nil	...	...	...		

APPENDIX II

Economic Capacities of the Districts

Serial No.	District	Population in thousands	Cess in thousands	Amount of cess per capita
1	2	3	4	5
			Rs.	Rs. a. p.
1	Bombay Suburban	139	...	...
2	Thana	837	95	0 1 10
3	Nasik	925	118	0 2 1
4	Ratnagiri	1,303	61	0 0 9
5	Kolaba	629	77	0 2 0
6	Ahmedabad	541	151	0 4 6
7	Kaira	707	155	0 3 6
8	Broach	300	96	0 5 1
9	Panch Mahals	455	37	0 1 4
10	Surat	530	170	0 5 2
11	Poona	990	100	0 1 7
12	Satara	1,156	120	0 1 8
13	East Khandesh	1,148	200	0 2 9
14	West Khandesh	732	127	0 2 9
15	Nagar	946	127	0 2 2
16	Sholapur	742	84	0 1 10
17	Dharwar	932	189	0 3 3
18	Belgaum	1,077	146	0 2 2
19	Bijapur	829	95	0 1 10
20	North Kanara	418	63	0 2 5
		15,336	2,211	0 2 5 (Average)

APPENDIX III

Densities of Population

District	Density	District	Density
1. Ahmedabad	260	11. Poona	219
2. Broach	228	12. Satara	233
3. Kaira	458	13. Sholapur	192
4. Panch Mahals	283	14. Bombay Suburban	1,166
5. Surat	420	15. Belgaum	233
6. Thana	244	16. Bijapur	152
7. Ahmednagar	149	17. Dharwar	239
8. East Khandesh	285	18. Kanara	106
9. West Khandesh	121	19. Kolaba	290
10. Nasik	170	20. Ratnagiri	327

APPENDIX IV

Physical Factors Affecting cost of Education

Serial No.	District	No. of villages		Percentage of villages		Population in villages		Percentage of Population in villages	
		Below 500 Population	Above 500 Population	Below 500 Population	Above 500 Population	Below 500 Population	Above 500 Population	Below 500 Population	Above 500 Population
1	Ahmedabad	443	438	50	50	1,26,587	8,73,181	12.6	87.4
2	Broach	213	195	52	48	60,396	2,73,774	18.0	82.0
3	Kaira	183	337	32	68	56,547	6,85,103	7.6	92.4
4	Panch Mahals	370	283	57	43	98,022	3,56,504	21.5	78.5
5	Surat	400	285	51	49	1,04,538	5,89,075	15.0	85.0
6	Thana	1,001	551	64	36	2,65,932	5,70,633	31.7	68.3
7	Ahmednagar	705	652	52	48	1,98,897	7,89,309	20.2	79.8
8	East Khandesh	855	635	57	43	2,13,447	9,92,588	17.3	82.7
9	West Khandesh	1,038	454	69	31	2,10,288	5,61,506	27.2	72.8
10	Nasik	1,062	584	64	36	2,61,321	8,38,727	26.2	73.8
11	Poona	571	573	50	50	1,54,426	10,15,372	13.1	86.9
12	Satara	620	721	46	54	1,54,820	10,24,892	13.0	87.0
13	Sholapur	222	495	31	69	72,904	8,04,616	8.3	91.7
14	Bombay Suburban District	53	45	50	50	9,162	1,70,362	5.7	94.3
15	Belgaum	513	576	47	53	1,23,831	9,52,970	11.4	88.6
16	Bijapur	602	518	55	45	1,62,354	7,26,866	18.6	81.4
17	Dharwar	724	572	56	44	1,86,198	9,16,479	16.7	83.3
18	Kanara	1,059	174	86	14	1,40,304	2,77,531	33.4	66.6
19	Kolaba	1,130	346	77	23	2,64,888	3,63,833	42.1	57.9
20	Ratnagiri	423	888	32	68	1,23,146	11,79,381	9.4	90.6

APPENDIX V

Serial No.	Name of the District	POPULATION			Backward	Percentages according to population			Remarks
		Advanced	Intermediate	Total		Advanced	Intermediate	Backward	
		3	Hindus 4	Muslims 5	7	8	9	10	11
1	Poona	84,000	7,55,000	55,000	2,38,000	7	72	21	
2	Satara	50,000	8,62,000	43,000	2,03,000	4	78	18	
3	Nagar	44,000	5,90,000	51,000	2,53,000	4	69	27	
4	East Khandesh	77,000	7,45,000	1,27,000	2,43,000	7	73	20	
5	West Khandesh	36,000	3,35,000	39,000	3,74,000	5	49	45	
6	Sholapur	81,000	5,20,000	72,000	5,92,000	9	69	22	
7	Dharwar	68,000	6,64,000	1,58,000	1,93,000	7	75	18	
8	Bijapur	49,000	5,35,000	1,05,000	6,40,000	6	74	20	
9	Kanara	81,000	2,52,000	31,000	2,83,000	20	72	8	
10	Belgaum	53,000	6,83,000	93,000	1,91,000	5	78	19	
11	Bombay Suburban District	21,000	73,000	21,000	94,000	11	65	21	
12	Thana	60,000	3,71,000	38,000	4,12,000	8	47	45	
13	Nasik	50,000	5,66,000	56,000	6,22,000	5	62	31	
14	Ratnagiri	1,21,000	9,62,000	87,000	10,49,000	9	75	18	
15	Kolaba	46,000	4,36,000	31,000	4,67,000	7	75	18	
16	Surat	51,000	2,46,000	59,000	3,05,000	8	45	47	
17	Ahmedabad	67,000	5,73,000	1,16,000	6,89,000	8	76	16	
18	Broach	18,000	1,28,000	80,000	2,08,000	6	63	31	
19	Kaira	53,000	5,12,000	74,000	5,86,000	7	83	10	
20	Panch Mahals	20,000	2,24,000	35,000	2,59,000	5	58	37	

APPENDIX VI

Consolidated Statement.

Serial No.	District.	Local Cess income.	Density of population per sq. mile.	Percentage of villages below 500.	Percentage of Population in villages below 500.	Forest area (in million acres).	Percentage of Backward classes.
1	2	3	4	5	6	7	8
	Provincial Average.	0-2-5	232	57	17	.4	21
1	Ratnagiri	0-0-9	...	...	...	...	...
2	Thana	0-1-10	...	64	32	.8	45
3	Nasik	0-2-1	170	64	26	.8	31
4	Kolaba	0-2-0	...	77	42	...	...
5	Panch Mahals	0-1-4	...	...	22	...	37
6	Poona	0-1-7	...	...	...	...	...
7	Satara	0-1-8	...	...	...	...	...
8	Nagar	0-2-2	149	...	20	...	27
9	Sholapur	0-1-10	192	...	...	...	22
10	Belgaum	0-2-2	...	...	...	...	...
11	Bijapur	0-1-10	152	...	19	...	...
12	N. Kanara	...	106	86	33	2.0	...
13	W. Khandesh	...	121	69	27	1.3	45
14	Broach	...	22	...	18	...	31
15	Surat	...	...	...	...	...	47

APPENDIX VII

S. No.	District	Rate of grant	Population	Amount of grant recommended	Increase over the present grant
1	2	3	4	5	6
1	Bombay Suburban	0 9 0	1,38,875	78,117	55,125
2	Thana	0 10 0	8,36,625	5,22,890	2,97,318
3	Ratnagiri	0 11 0	13,02,527	8,95,417	3,66,669
4	Panch Mahals	0 11 0	4,54,526	3,12,487	1,19,854
5	Kanara	0 11 0	4,17,835	2,87,262	36,047
6	Kolaba	0 9 0	6,28,721	3,53,656	1,11,244
7	Satara	0 9 0	11,55,685	6,50,073	1,71,925
8	Sholapur	0 9 0	7,42,110	4,17,437	1,45,187
9	Belgaum	0 9 0	10,76,701	6,05,644	1,58,592
10	Nasik	0 10 0	9,24,862	5,15,539	1,31,077
11	Nagar	0 9 0	9,46,316	5,32,303	1,33,276
12	East Khandesh	0 9 0	11,48,240	6,45,885	77,941
13	Bijapur	0 9 0	8,29,467	4,66,575	41,228
14	Poona	0 9 0	9,89,776	5,56,749	91,645
				19,40,128	

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CHAPTER I

INTRODUCTION

WATER is a chemical compound of hydrogen and oxygen, H_2O . Pure water should be clear, transparent, tasteless, odourless and when viewed in small quantities it is perfectly colourless. When seen however in bulk, it possesses a greenish blue colour.

Necessity of Water for Life

Out of the total ingredients of the human body about 70 per cent is water. Each species of animals has a definite percentage of water in its composition. There may be some variation in different species and also a slight variation in the individuals of each species.

In his world-renowned researches, Sir Jagdish Chandra Bose has proved that even plants obey the same laws, impulses, etc., as animate life and the reaction to water is one of the main characteristics common to the two kinds of life.

The definite proportion of water in the body of animate life is reduced by the wear and tear inside the body and on account of the water required for chemical changes going on therein, from time to time, at all times. Exposure of the body to the sun's rays and atmosphere evaporates the water at the surface. All these deficiencies must be made good by supply of a fresh quantity of water. Without water, therefore, life can hardly exist. The body may go on for some time on the excess water it stores up within itself as a reserve. For some time more, it may go on by utilising water out of the high percentage in the body. But in this process the body withers and shrivels. We see how trees wither and gradually die for want of water.

But this process of utilising the reserve and constituent water is a very temporary measure, and if replenishment does not come early, death by a slow process is a certainty. The period of living without water is different in different kinds of life.

Thus we see that animal body cannot live without water for a long time. Water assists in building up the tissues, in elimination of the waste products from the body, and in regularising the temperature of the body which must be constant, during the varying temperatures of atmosphere. It maintains the temperature by means of surface evaporation and sweat when the temperature of the surrounding air is higher than that of the body. Large quantities of water must therefore be supplied to the body during the hot season to make good the loss due to perspiration, and hence there is a demand of more water in hot countries and hotter seasons for drinking and personal use.

Perspiration soaks in the clothes and they require frequent washing and more water for washing. The washing of the body also requires more water and must be done more frequently. Heat generated by the chemical action of substances in the body requires water during all seasons.

Besides this personal and purely domestic use, water is required for gardens and irrigation; and for all the raw products man needs for his food and clothing. Absence of good rain and plentiful supplies of water for crops and trees bring famines, wherein millions of men and animals die and the country side is laid desolate. Pestilence is the next stage after famine and follows as a matter of course and creates greater havoc. All this would have been prevented by good and timely rain. Besides these personal uses of water, which are elaborated later on (*vide* Chapter VII), there are many municipal, trade and commercial uses of water and we must realise that water holds the most important place both in personal and corporate life. The importance of water supply is very great in highly civilised towns in which water supplied by the municipality is the only supply available to the inhabitants.

The higher the civilisation advances, the greater is the need, care and consideration about the supply of water for all purposes required by the population.

In large villages and small towns water is obtained from sources such as rivers, streams, lakes, springs, or from small storage tanks, specially constructed, or from wells.

In all these cases, water obtained at the source has to be brought by everyone by his own exertions. In this country, work of fetching water is reserved for the ladies of the house. All the year round, in all parts of India, one can see ladies going with large polished brass or copper pots one, two or even more, balanced on their heads one over the other. One wonders how they can lift and balance all those pots when full and go unconcerned, laughing and gossiping. Sometimes they have to go long distances to get water, and in the hot season, when the sources dry up, they have to go still longer distances to the available sources, and get water from greater depth. Even in hot sun, when the ground is so hot that an ordinary man cannot bear the heat and has to use some sort of shoes, the women go for water with bare feet. In the rainy season when rain is drizzling, the road is muddy and slippery, and rivers and streams are in full floods, the difficulties are equally great.

During the nomadic period, wandering groups always settled near a source of water. When they moved on, they again selected for a similar place.

A study of the development of villages and towns reveals the fact that the nomadic instinct of settling near a source of water is followed. The first settlement in the village was near a good water source. More and more people desired to settle down in such convenient places, and the villages grew. Additional water sources had to be investigated because the original one was insufficient, or inconvenient to the addi-

tional population. A water source which was sufficient for a few huts could not be sufficient for many. As the settlement grew, the trees and vegetation round about had to be cleared and destroyed. This led to a proportional reduction in the rainfall, because rainfall has some relation to the presence of trees. So the demand was greater and the supply was less. The fear of dacoits, robbers, wild beasts, and the general desire of the company of fellow beings for safety, and the peculiar human partiality to the place of his birth or prolonged residence, prompted people to live in their village or *wadi* even in spite of the inconvenience caused by insufficiency of water and of the difficulty and trouble of obtaining it. At present there is not the same fear of robbers and dacoits, partly on account of the better policing, and partly because the householders in the village have been reduced almost to beggars because of ignorance, bad seasons and bad and extravagant habits which they try to ape from their so-called superior classes in towns. An acre of land that used formerly to feed one or two people has now to feed eight or ten, because of over-population, without any improvement in the methods of cultivation by the aid of science. Even under such conditions, we find the householders in the dirty and congested villages unwilling to shift to their own land in *wadis* half a mile away, where they could have a much better water supply for their exclusive use, and a better climate for living. The ignorance is great, the apathy is still greater.

All big rivers in this country have been worshipped as supernatural, and most of them are supposed to have religious sanctity in their waters. In the primitive stages of life when people came across these vast streams which gave unlimited supplies of good water, and sometimes when in floods assumed such vast proportions that they were awe-inspiring, no wonder they were considered supernatural. Mainly because their water never failed, the banks of these rivers became the settlement sites of most of the large towns and villages and even today we find most of the flourishing towns on the banks of such rivers.

Wealthy and generous-minded persons with philanthropic instincts saw the suffering of the poor who had settled down near sources of water which were either insufficient or overcrowded or exhausted, and provided new sources of water. The work of providing wells in villages and ghats on river banks, for the convenience of people, became necessary, and was considered a work of merit in almost all the religions of the East. Some of the great Emperors, Buddhist, Hindu and Moham-medan, made their names revered and immortal by providing such conveniences. The most memorable amongst these is that of Rani Ahilyabai Holkar of Indore who provided wells and ghats throughout India, from Benares in the North to Cape Comorin in the South. I was surprised to see a beautiful large step well in the interior of West Khandesh in a tract now inhabited by Bhills, about 90 miles from Dhulia among the foothills of the Satpura mountains. Many of these wells are now dry because the water supplies have dried up, many others are silted up, and many more have fallen in disrepair because the people who used them did not take the trouble to look after, maintain and repair

them. But the name of Rani Ahilyabai is revered and respected all throughout India.

The Romans in their vast Empire were famous for their efforts to supply water.

As progress and civilisation advances, the difficulty of obtaining water becomes greater, because the population of towns increases to such an extent that the existing sources of natural supplies mentioned above are neither within an easy reach of the majority of the public, nor are they sufficient. The requirements for municipal, trade, and manufacturing purposes grow considerably. It is neither feasible nor possible to bring the supply on headload. The sources mentioned above and wells get contaminated in the dry season, and are sources of danger. Cholera, dysentery, diarrhoea and typhoid are found in epidemic form. Women have not at their disposal the time required for bringing water on headload, as every working hour of every member of the family must be utilised for bread earning. Hence public water supply schemes which deliver the water needed, at the home of the man are demanded, and must be provided. Many towns had to be abandoned, and had to lose their prosperity because such schemes were not provided, and water was not available as and when needed.

The question of water supply, therefore, divides into two categories :

(1) *In primitive condition, where every individual householder gets his water from the nearest source available.*

(2) *In more civilised society, where water is made available to every individual householder at his own home, from a public water supply scheme.*

CHAPTER II

WATER OBTAINED BY MANUAL LABOUR

Where each individual family has to get its own supply on head load from the nearest source of water, the conditions are different than those where the supply is made available in the house by a distribution system. Personal exertions being needed, only that quantity as is absolutely necessary is brought. Bathing of most of the members, washing of clothes and watering of animals, is done at the source of water, in order to save the trouble of fetching water. No water is needed for municipal, commerce and trade purposes. There is demand for gardening and irrigation. The sources of water for gardening and cultivation are generally different from those for domestic supplies, because quantity and not quality of water is needed.

The demand is limited, being thus restricted purely to family requirements for drinking, cooking and for those operations which must be done in the house. As long as supply at the source is copious, calculations about individual requirements do not much matter. Four or five gallons per head per day are more than enough for village population.

The sources of supply fall in two categories :—

- (1) Natural sources.
- (2) Artificial sources.

(1) The natural sources can further be divided into :—

- (a) Perennial rivers and streams.
- (b) Natural lakes.
- (c) Springs.

Perennial Rivers and Streams

As regards water supply from rivers, those which have water all the year round would be most useful for supply to those villages and towns situated on their banks.

Large and deep rivers, which run millions of gallons of good sweet water to the sea, are no doubt the best suppliers of water. But in the case of these rivers there are difficulties in obtaining the water.

These large rivers are subject to very heavy floods, and people have to construct their houses much above the flood line, and consequently at a considerable distance from the banks, for fear of being swept away during floods. But, even in spite of these precautions, some of the houses are under water during extraordinary floods. The distance from the house to the source of water is great, causing great hardship in all seasons to the woman who fetches water. The road is hot and

blisters the feet in summer, and during winter the cold is intense. Water splashes on the clothes, and they get wet and a pinching wind blows on. The conditions are worst in the rainy season. The water is all muddy and the banks so slippery that unless proper and special precautions are taken the woman might slip in the swollen current, and might be carried away before she can be saved. The last menace is so great that ghats are constructed at all important places. The construction of such a ghat is a work of religious merit.

Rivers carrying enormous quantities of water during floods have very large cross section from one bank to the other. If the width is small, the depth is very great. Year after year owing to erosion and force of current, the depth becomes greater and greater, and deep chasms and canyons are formed. Some of these are really very deep like Indus and its tributaries flowing through Kashmir or the Colorado in the U. S. A. These valleys are so deep that fetching water from the top is almost impossible and is the greatest ordeal, and in spite of the volumes of water rushing past, people have to be content with a few jugfuls. Nearer to this province, the Tapti while flowing through Khandesh, the Krishna through the Districts of Belgaum and Bijapur, or the Mahi through Kaira District have got the same geographical configuration, and some of the villages on the banks have great trouble in obtaining water. Wells are not possible on the banks, because water in the wells would be so deep that it is impossible to construct such wells even if the villager can spare the money required. Boring can be and is availed of, but the present day arrangements for boring are not so upto date nor is the development of the science of boring so advanced in this country as to bring the work within the reach of ordinary people, much less within the reach of villagers.

The other type of perennial rivers are rivers which while flowing through a flat country find it easier to scoop out the sides, and are wider than deeper. The river Indus in the Punjab and Sind is a very good example of such rivers. The Indus is a very good perennial river, which has got enough water to give fertility to the lands in the two provinces of Punjab and Sind by vast irrigation schemes. It has got more than enough water for drinking and other purposes without causing any appreciable deficiency to the irrigation quota. The whole bed is sandy and hence the water is always pure, being filtered in the sand. But the width of the Indus from one bank to the other is very great, generally to be measured in miles, from one mile in some places to five miles or more in other places. Usually it is two to three miles. The dry weather current therefore does not fill the whole bed, but is confined to a small channel in the centre or side. After a large flood, there might be a shifting of the whole sandy bed by the force of the current, and the flow which was in the centre may shift to the other side or as a worst case, the flow which was on one side of the bed may shift to the other side, miles away. So that if the river used to give water supply to a village on one bank, the stream now is a few miles away. Imagine the horrors of going over the miles of sandy bed, hot like a furnace during the greater part of the day, for a potful of water! No doubt deep trenches like filtration galleries on the side nearest to the village

would give good and sufficient water. The villagers are neither able to construct such trenches nor in a position to maintain them. The problem of water supply in such rivers is very difficult.

The third type of rivers are those which have water for the greater part of the year, and when the beds are dry there is enough water under the sandy beds to afford a good supply to pits or wells sunk therein. Such rivers are very common and the supply is generally good. Some of the wells are of permanent construction and after rains, they are cleared of silt and act very well.

The two great disadvantages of rivers are :—

- (a) when they are in floods, and
- (b) when the flow is at its lowest.

During floods, rain water rushing over the surface of the catchment area, brings with it dust, leaves of trees and rotten vegetable and other impurities. The water in floods has a muddy, reddish colour and is so dirty in appearance that one hesitates to use it for ordinary domestic purposes.

The dirty appearance is due to suspended impurities which can easily be separated from the water. The resulting effluent is good, potable water. However, water of first flood after a spell of dry weather is not fit for use and should be run to waste because when it flows over the ground, it takes up all the harmful impurities collected on the ground. It is also likely that it takes into solution some of the harmful substances. But once these are washed away by the first freshets, the water is comparatively harmless when separated from the suspended matter. The best way to deal with muddy water is to store it in a pot and allow the sediment to settle down for a few hours and use the clear top portions which are comparatively purer and less harmful. In many cases where large quantities are to be dealt with and better results are needed, alum is used as a precipitant so that quicker and better results are obtained. Dissolved impurities in such water are really negligible, and owing to the large volume are so diluted as to be almost harmless. Both these points are dealt with later in this book (*vide* Chapter XVI).

But this trouble of muddy water has to be tolerated, only for a few days during the year, when rivers are in high floods. The river, after the floods, settles down to a steady current in late winter to about January or February. The current continues to fall in depth and volume at a very gradual rate till it is at its lowest by the end of May, just before the rains. It is during these dry months that the water is dangerous, because if any pollution gets access to it, it is not diluted and is carried by the current to all the down stream villages and towns.

Rivers and streams are somehow the recipients of all rubbish and refuse lying on the ground. It is washed during rains by the force of water flowing over the ground to the river bed. During fair weather villages and towns allow all the liquid wastes to go to the current of the river.

Nature provides a compensation, that while she washes the refuse down into the river water, she at least sends down a vast

volume to dilute the contamination, she generates a velocity in the large volume of flood water so that contamination is washed away fast, and last but not the least, she provides a repulsive appearance to the water, so that man is reluctant to use it.

Man allows all his drainage schemes to flow to the nearest river. The washing of clothes, pots, cattle, etc., is done in the river bed and all the dirt and refuse is allowed in the river water. The water therefore is much polluted.

The pollution is great, the flow is sluggish, so that there is ample time for the germs and bacteria to breed and increase. In case of drainage works let in the river, the effluent from the drainage forms a very large proportion of the total water available in the river. We have dealt with this subject in the second part of this book more fully.

In those places where a river passing through a town or village is used for water supply, necessary precautions must be taken, and arrangements must be made to protect water from contamination. The best way this can be done is by dividing the river into zones to which certain operations must be confined. This can be done as under :—

Starting from the place where the river enters the town, the first part or zone must be reserved only for taking water for domestic purposes. Water from this part must be taken away in pots and used in such a way that it does not flow back to the river after use. The next zone would be for people to bathe. The next one downstream should be reserved for people to wash clothes. Separate places should be allocated in both these zones for men and women with a screen or wall on both sides in each zone, so that women may use the zone with as little restraint as possible. The next zone would be for cattle, wherein the first part of the zone should be kept for the cattle to drink water, and the last part for washing them. This would be the most reasonable and most sanitary arrangement as far as the town is concerned.

There should be good ghats with efficient wide steps in each one of the zones for the use of the public. The ghats should be so arranged as assure safety from accidents to the public.

The public *must be forced* to restrict to the zones as arranged, and to use a particular zone for a particular work only. This is the greatest difficulty. General civic sense well developed, and the fear of prosecutions and fines, would be the two means I would suggest.

If any drainage work is to be discharged in the river it should be let in after the river leaves the town, so that the contamination which the drainage water brings may not affect the health of the town. As to what happens to the towns and villages downstream is another matter, which those in charge of the sanitation of the downstream villages have to think about.

We can give an illustration for this last point. The Ahmedabad Municipality lets out its drainage water, after a preliminary purification through sand beds, in the Sabarmati river away from the town on the downstream side. The river Sabarmati has a meagre flow in the dry season. The Ahmedabad District Local Board complained that the

village water downstream was polluted and the villagers suffered therefrom. The Municipality have now agreed to provide bore wells to tap water from below the impervious strata for fourteen villages at a considerable cost. Credit is due to the District Local Board for having taken up the matter on behalf of the residents of the villages, and to the Ahmedabad Municipality for having agreed to make provision of pure water for the villagers even though they are outside their jurisdiction. However in this case the sewage is filtered through sand beds and gets a purification upto 85% of the impurities and is then discharged into the sandy bed of the river where one might expect further natural purification.

The Mula Mutha river receives some of the crude sewage of Poona. The water is banded at Bund Garden probably for the benefit of the boat club, and towards the end of the dry season the water is almost concentrated sewage. What happens to the downstream villages is probably nobody's concern! And Poona is the seat of the Government for some months in the year!

We hope the Poona District Local Board would take up the matter of river pollution and the consequent disadvantages to the water supply of the poor villagers downstream. We hope the Poona Municipality and the Poona Suburban Municipality, respond to the appeal of the District Local Board in the same manner as the Ahmedabad Municipality has done.

The general subject of pollution of water is dealt with in Part II of this book. The usual pollutions which rivers are likely to get, besides those which are described above in some particular seasons under some particular conditions, are dealt with under contamination of running waters under Chapter III of Part II of this book.

There are some points to remember, under this head which are redeeming factors in the case of river waters.

The chief objections against vegetable and animal pollution are not the harmful effects of the impurities themselves, but the fact that water charged with these impurities is best suited for the growth and nourishment of micro-organisms which might find their way in the water. They thrive better in water charged with these impurities, though they might not live in pure water. It is from this point of view that polluted waters are dangerous.

SELF-CLEANSING PROPERTIES OF RIVER WATER

Running water in rivers has got some self-cleansing properties which are summarised below :—

(a) The growth of micro-organisms is much faster in stagnant water than in water with velocity. River water has got a velocity of current. The growth will not take place appreciably, till the water comes to rest in a pool or hollow in the bank. It has now been definitely proved that velocity of current has an adverse effect on the growth of micro-organisms. The current moves the micro-organisms up and down, and when any of these come in contact with the loose oxygen of the air, they are oxidized and destroyed. So there is some purification due to the

velocity and oxidization. When the depth of water is not much and the current is spread over a large area, the action of oxidization is better and faster, so that shallow waters are better than deep waters when all other conditions are the same.

(b) Sunlight also has similar properties.

(c) When the bed of a river is sandy, there is some sort of filtering action due to the passage of some portion of water through the sands and the consequent filtration. It is found that all other conditions being equal, water of river with sandy bed is much better than that of a river with a clay or earth and consequently a muddy bed. Muddy or clay beds grow water weeds which form the nucleus of attraction for many impurities.

(d) Some sorts of micro-organisms and chemicals found in water exert an action on the harmful micro-organisms. This action is illustrated best in the biological treatment of water. Fish, tortoise and some insects destroy an appreciable quantity of micro-organisms and organic impurities.

All the above attack the harmful micro-organisms and organic impurities and convert them into nitrates and nitrites. Another kind of bacilli attack these nitrates and nitrites and convert them into harmless gases, and water. There is thus a purifying process going on continually. Water, in which the breeding of harmful micro-organisms is faster than the destruction, is bad, and conversely, one in which the destruction is faster than the breeding, is good.

Looking to all these factors, it might be possible that the water in a river, when subjected to a certain amount of pollution, might exert the quality of 'self-purification' during its flow through a certain distance, say 10 or 20 miles. This, of course, will depend on the proportion of impurities, kinds of impurities, flow of water, rate of current, nature of bed and presence in water of chemicals and micro-organisms needed for the purification and all such factors. This is what was behind the idea of the sanctity of many Indian rivers, whose waters were supposed to be pure, and hence proof against any sort of pollution. The mistaken and exaggerated idea of the extent of the "self-purification" and sanctity of waters has been the cause of some of the cholera epidemics that raged over India.

One of the causes of the impurity and contamination of water and rivers and streams which renders it doubtful or dangerous for human use is the cultivation on the banks and sometimes in the beds of rivers. During the rainy season, the danger, though there is, is mitigated by the large volumes of water which flow in the streams, and which consequently dilute the contamination to such an extent as to make it almost harmless. Another reason why it is harmless, is that, there is a great velocity of current in the river which removes the contamination away from the place in as short a time as possible, and does not allow it to stagnate and to form a breeding place for bacteria.

The greatest danger of the cultivation is during the early winter or early summer crops. On the banks of many small streams rice fields which are irrigated by means of water raised in the beds of the streams

by temporary bandharas, are a great source of contamination. The fields are highly manured with vegetable or fish manures, and water flows in the fields by small channels, and stands in the fields and filters or slowly flows back to the streams. This water is highly charged with the putrid manure and pollutes the water flowing in the stream to a very great extent.

During summer, many of the sandy beds of rivers are leased by the Government to cultivators for cultivation of watermelons and such other fruit. The cultivation is done near the edge of water, so that the plants can be watered with facility when young, and can draw the water from the saturated sand by means of their roots when they are older. These crops are also very highly manured and the effluent from this manure and from the rotting leaves of the melon plants flows to the water in the stream. The slow-moving water has neither volume enough to dilute the ill-effects of the pollution, nor has it velocity strong enough to wash it down to some distance below the town or village, and undergo "self-purification" as described above. There are besides large pools where the water can and does stagnate. All these make the water dangerous for human use. Cultivation should, therefore, not be allowed in the bed of the river. The flow of water late in summer is very meagre, and therefore the percentage of pollution in the water is very great. If possible, the post-monsoon cultivation of rice and other crops on the banks should be stopped. But this is not as dangerous as the river bed cultivation, and cannot be prevented unless the whole area is acquired by Government, which is not a very feasible proposition. The river beds are Government property and the leasing out must be stopped in the interest of public health.

Water from Lakes

In this part of the Province, large natural lakes are very rare. There are a few lakes constructed by human agency, but the water of these is the property of the authority who construct them, and they are generally in uninhabited areas, or there are only small villages round about. There are a large number of small, and medium ponds which have some good water during and immediately after rains. But the water begins drying up as soon as the rains stop and most of them become dry in December and January and the water is not fit for any use except probably for growing vegetable and other crops. Mysore State abounds in such tanks which help the agriculturist with water for his Khariff crops for the few waterings his crops require when they are about to mature. Dharwar District and other places have some such tanks. But their value as water supply sources for human consumption is nil. They have water when the residents do not require it, and during the later part of winter and summer there is no water in the tanks. This is the time when water is most needed by the people.

There are however few lakes which give water enough for the supply of the large villages. And in these cases, all the remarks, above, for the water supply from river apply to the lakes. There is one very great drawback in the case of lakes. That, whereas river water flowing in a shallow stream in a sandy bed is subject to a certain purifying

action by the aeration and filtration through sands, water of the lakes is more subject to stagnation and the ill-effects thereof. This subject is elaborated to some length in the second part of the book under pollution of water.

Springs

The last of the natural sources are the "springs." Water comes out to the earth's surface and flows away or accumulates in a hollow. Where it accumulates in a hollow or in a pit, it comes under the category of a "well." This is generally the best water that one finds in the world. Because the water is free from almost all impurities and has got a slight percentage of salts, which when in solution impart health giving properties to the water.

Many of the mountain sides are full of springs during and immediately after rains. But within about a month after rains the springs dry up. Good genuine springs are few in this Province.

There are some springs which are charged with sulphur and other minerals which make the water hot. These springs are 'hot springs' and are much prized; because, places where these springs abound, are health resorts for treatment of some human disorders. These are not used for domestic purposes. We have the hot springs at Vajreshwari in the Thana District which are available to the Bombay public and sanitariums are springing up. There are five hot springs at Rajapur in the Ratnagiri District.

Near Karachi there are fine hot springs near the Manga Pir.

These sorts of springs are of no use at all for any water supply schemes.

Reliable springs which are found amongst the hills or at their bases can be used for water supply. We can give a good instance of a spring which is used for the water supply of Amboli in Savantvadi State in the Sahyadri Hills about forty miles from Belgaum. The place is a hill station. The water is harnessed for about 2,000 people and gives a very good supply. But, as said above, such cases are rare and hence we have made only a passing reference to these.

CHAPTER III

WELLS

Introduction

Wells are the only sources of water supply available to the majority of the people of this country. Some have the benefits of rivers, large streams or lakes as described in the last Chapter. Few are still more fortunate to have their water supplied at their own homes by pipe from water supply schemes. Even in those towns which have schemes for water supply actually working, a portion of the public, especially the poorer people who have no money to pay for the pipe water, have to depend upon the water they can get from wells. Nearly 80% to 85% of the people in this country have to depend upon wells.

Water in this Province, and in this country generally, is obtained from rains. Some of the rain water falling on the ground is evaporated by the heat of the sun, and due to the difference of temperature between the soil and the atmosphere. This process is continually going on, and water is being evaporated to form clouds for fresh showers of rain. This cycle is the best means of distribution of water on the earth's surface.

Some of the rain water runs down the surface to the nearest nalas, rivers or lakes or ponds. Some of this water flowing through rivers and streams, is also evaporated by solar heat, and some is stored up in natural or artificial lakes and the remaining runs to the sea. We shall consider that portion of water which can be stored up, later on in the Chapter about the storage of rain water (Chapter XI).

Ground Water

The remaining rain water soaks into the soil. We are concerned with this water in our present consideration about wells.

The absorption of water in the soil depends upon the nature of the soil and the intensity of rainfall.

Soils can be classified into three classes :—

- (a) *Pervious or porous soil* which is such that a large percentage of water falling on the surface has a tendency to sink into the soil. Sand or gravel is a very good instance of such a soil.
- (b) *Partially pervious soil* which is of various degrees of porosity. The majority of soils are a mixture of two or more ingredients, each having its own degree of porosity. The porosity of the mixture depends on the physical quality and the degree of compactness of the resultant mixture. Naturally, therefore, for the same sort of soil, the porosity at the surface where there is less pressure is much greater than that below, because the soil is subjected to increased pressure of the weight of the superincumbent soil.

- (c) *Impervious soil.* All water falling on such surfaces runs off and none soaks into the surface. Hard rock, for instance, is thoroughly impervious.

Really speaking, the porosity depends not so much upon the nature of the soil, but upon the pores and crevices between the particles forming it. Sand or silica in the form of hard sandstone like the Gwalior sandstone is almost as impervious as the granite rock of Mysore or the basaltic formations of Bombay or the Deccan trap. But granite or trap rock, broken into small bits of rubble or road metal and stacked, is as porous as sand or even more. Black soil when dry and cracked lets water through it. But some kinds of black soil when kneaded with water to a good pulp are water-proof to such an extent that they make an excellent puddle to stop the leakage of water from dams or reservoirs, and are found very efficient in the construction of cofferdams in foundations, where exclusion of water is desired.

Theory of Wells

The whole theory of wells depends upon the geological conditions of the earth's crust, the porosity of the various layers and the amount of water that is absorbed and stored in them. The surface consists of loose soil or disintegrated rock, sand or alluvial deposits, mixed with a good percentage of animal and vegetable remains, and refuse. All these are to a great extent porous. Below this there is the sub-soil of almost the same composition as the upper soil, but having a less percentage of organic matter. This lower part of the ground is more compact than the upper one, because it is subject to greater pressure and consequently its porosity is much less. Below this sub-soil we have the various kinds of rock formations, in one or more layers or strata, consisting of one of the following:—(1) The igneous rocks as in the Deccan trap, (2) the metamorphic rocks as in South India, (3) the weathered rocks such as laterite, (4) the Coastal area of tertiary rocks, (5) the sedimentary rocks as in Sind. These are found in the geographical formation of mountainous parts or in level plains or in valleys. The conditions and availability of water are different in each of these, both as regards the quality and quantity.

Some of these rocks are absolutely impervious, some slightly pervious. All these rocks have joints, fissures, veins, etc., due to unequal pressure, unequal settling and also due to the various internal and external forces working within them.

When water falls on the surface, some of it begins its downward journey through the porous soil. When it meets the lower harder strata, its journey is impeded, if not actually stopped, and water begins accumulating in the pores of the porous soil. It slowly fills the porous layers, joint planes and bedding planes. When it meets the impervious rock, it tends to collect on the floor of the rock and forms streams in the lowest grooves, or channels and travels down along these, because they form the line of least resistance. It collects at the lowest point in the rock formation. All the while, it is generally under considerable hydraulic pressure and travels through the enclosed channels just as in pipes. If

some of it comes up to the surface by the side of a hill, river or sea, it forms what is known as "spring."

Geological Maps to be Prepared

If it were possible to examine and trace all these courses of water during their journey below the surface of the earth, the geological map so obtained, delineating all channels and currents of water for any tract of the country, would be very useful for well engineering. Some such maps are available in many Western countries. In India where water supply is so scarce and where hundreds and thousands of wells which are constructed with a vast amount of labour and capital have to be abandoned, because they do not strike water or because the water supply so trapped is not perennial and not available especially in the season when water is most needed, such maps would be a great boon to the engineer. Would it not be possible for the Government to undertake this vital work and to make the information available to the public in reports and blue books? Dr. Pithawala, D.Sc., Professor of Geology, N. E. D. Engineering College of Karachi, is carrying on research work of this sort for the water-bearing strata in the lower Indus basin (Sind). This, probably, is the only work of its kind and is carried out by Dr. Pithawala at his own cost and on his own initiative. It is greatly desired that similar studies should be made in other regions in our country.

Thus we see that a theoretical design of wells depends on the knowledge of rainfall and on a study of the geological formation of the land round about.

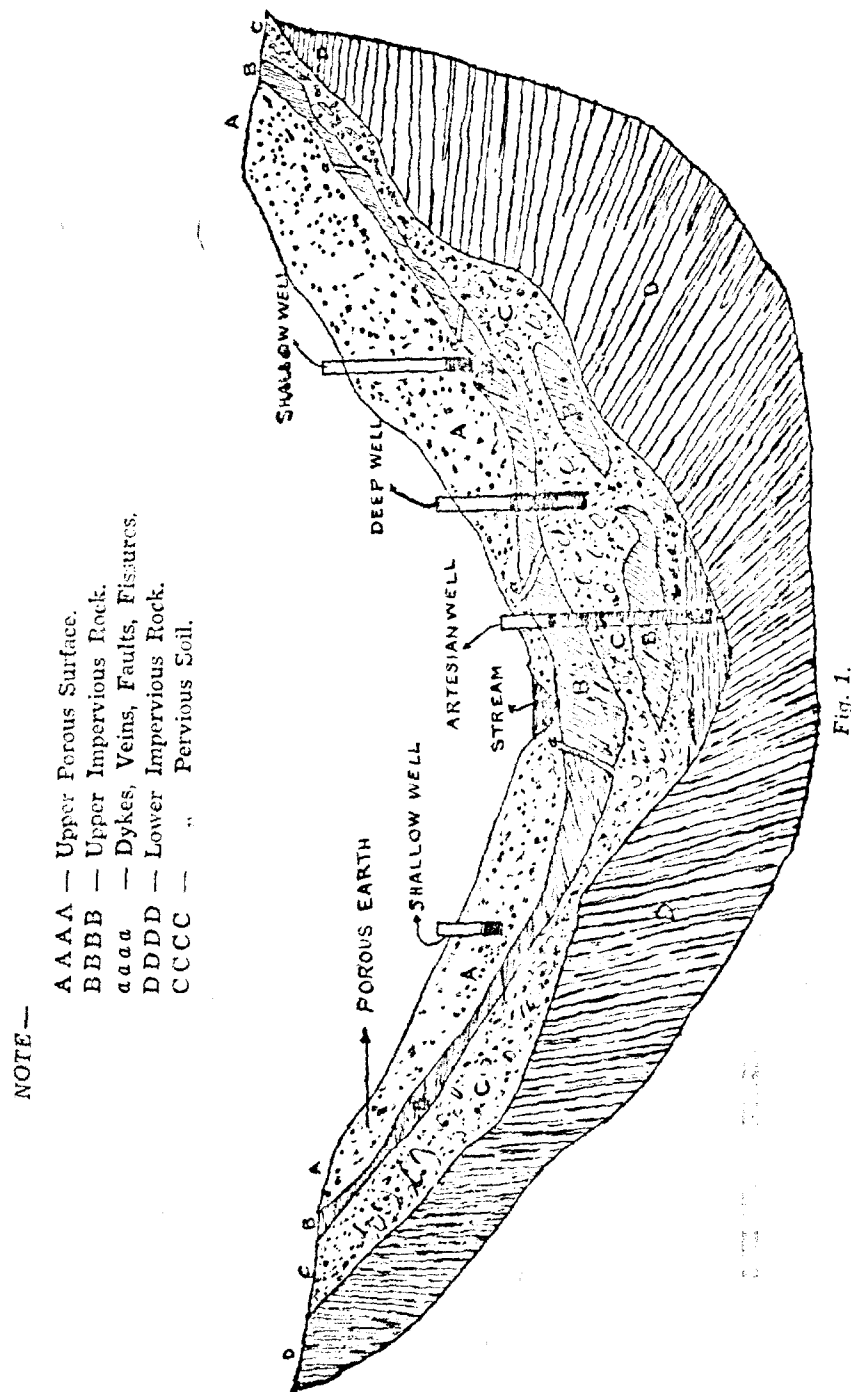
To illustrate the various geological terms we have given above and their bearing on wells, we have given a sketch on the next page with all the explanatory notes needed.

The subterranean supplies of water can be classified in three groups:—

(a) Water stored up in the cavities of the porous, loose upper alluvium (A, A, A, A in Fig. 1). Large areas of the country are charged with such water, and this can be obtained, where available, from what are called "shallow wells." In the large alluvial and sandy plains of Northern India and in deltas of large rivers formed by sedimentation process during thousands of centuries, the "upper alluvium" is the only available storing ground for water, because it is thousands of feet in thickness and the lower strata are not usually accessible.

(b) Water which flows in subterranean channels confined to well defined courses on the floor of the impervious surface supporting the upper alluvium. There are so many joints, cracks or fissures, dykes and veins (shown as a, a, a, a in Fig. 1) in this layer of rock, that much of the water escapes through these to the lower strata. Wells which reach up to this upper rock (shown as B, B, B in the sketch) are also classified as "shallow wells" but are more reliable both as regards quality and quantity.

(c) Water found in the region (shown as C, C, C) between the two or more impervious layers. This reaches these regions in two ways:



—(i) Water coming through the fissures, dykes, veins or faults of the upper impervious rock as described under (b) above; (ii) in some cases where the whole outcrop comes to the surface as at B C B A or A B C in Fig. 1, water which falls on the exposed portions sinks down to the lowest levels and charges the porous layers it comes in contact with.

This water is tapped by "deep wells."

Some of the water under (a), (b) or (c) above, comes out as "springs" under favourable conditions. These springs are dealt with in the foregoing Chapter.

Different Kinds of Wells

A well is an artificial pit or hole made in the ground for tapping water. Those that tap oil are also called wells, but primarily, a well indicates a source of water. Wells are of two kinds when classified from the geological point of view:—

- (A) Shallow wells; and
- (B) Deep wells.

(A) SHALLOW WELLS

A shallow well is a well that draws its water from the stores imprisoned in the pores of the porous upper strata or "alluvium" of the earth mentioned under classifications (a) and (b) above.

As we have said above, the upper strata are generally loose and porous and cavities in the loose earth are impregnated with rain water. After the rains are over, the soil is fully impregnated with water, which can be tapped easily by shallow wells at not very great depth at that season. The water level, however, goes down slowly both in the soil and in the well. This level of water in the water-laden soil is called the "Water-table." The rays of the sun evaporate the water from the top layers, and the water-table slowly sinks down. It is at the maximum depth in the month of May, just before the monsoon.

This depth of the water-table is always fluctuating owing to the capillary action of sand grains and sand hills. The seasons, the tides and ebbs, the pumping of water in the neighbourhood, the pressure of air, the temperature of air, the existence of dams, tanks, rivers and other sources or stores of water, affect the level of this water-table each in its own way.

There is also another force which drives the water level deep below the surface. When rain ceases, the water goes on sinking lower and lower by its own weight due to gravity, and the subterranean streams and channels continue draining the soil, and the water level goes slowly down. These two forces continue acting simultaneously and as said above, the result can be seen at its worst, the water-table being at its greatest depth, just before the rainy season, though not to the same extent every year. The depth varies with rainfall, the amount of heat received by the earth, etc. The results of the worst year ought to be considered while determining the least quantity of water available in a well.

The amount of water available in the well depends upon—

- (1) the extent of the water-bearing soil from which it would drain;
- (2) the amount of saturation of water in the soil;
- (3) the rate of filtration; and
- (4) the readiness of the soil to part with its water.

Cone of Filtration

As regards (1), the "cone of supply or of filtration" theory will give the volume of soil from which water will drain into the well.

When water is stored in the interspaces of the water-bearing soil and a hole is cut in the ground in the form of a pit or well, water from some portions of the soil surrounding the well tends to gravitate towards the sides and bottom of the well and to collect therein.

If water could move freely from the sub-soil to the well, *all the water* in the soil above the level of the bottom would be available and would rush in the well. But the flow of water in the interspaces is subjected to laws of friction similar to those in pipes (*vide* Chapter XXI) where friction depends upon the roughness of the passage, and upon the diameter or size of the passage. In the soil, both these factors increase the friction, because the small capillary channels of the interspaces of the sub-soil are very rough and very minute. In the layers at the top, where the channels are slightly larger the friction is a little less.

The flow of water in these channels therefore depends upon the "head" of water or the height of that particular drop of water above the bottom of the well. If the "head" is sufficient to overcome the friction during the passage through the channels, then only that drop of water can reach the well. Knowing therefore the height of any layer from the bottom of the well, and finding out the frictional loss, we can find out the furthest point from the side of the well from which water can flow in the well.

CONE OF SUPPLY OR FILTRATION.

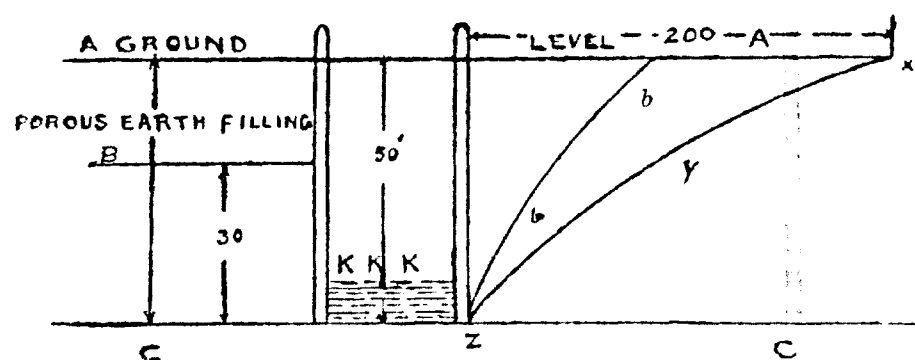


Fig. 2.

Taking the above sketch as a diagrammatic sketch of the conditions to illustrate the above remarks—

AA is the ground level,

CC is the bottom of the well 50 ft. below the ground level,

BB is a layer of soil 30 ft. above the bottom of the well.

Taking the average friction to passage of water from A to bottom of well as 0.25 and from B to the bottom as 0.33, we find that the furthest point from which water will come to the well from the level AA will be $50 \times 4 = 200$ ft. This we have called X.

Similar point in the level BB, will be $30 \times 3 = 90$ ft. This is called Y. If all such points are calculated and shown on the sketch, we get a curve XYZ which will indicate the outside boundary of the soil from which water will flow to the well, and *beyond which water has not energy enough to travel to the inside of the well*. The soil between the sides of the well and the boundary XYZ therefore give us the area from which water will be supplied to the well. Rotating this boundary round the vertical centre line of the well to complete a circle, we get an inverted frustrum of a cone, and all the soil inside this cone will contribute water to the well and is called the "cone of supply or of filtration." The area nearest to the sides of the well being easily drained, loses all its water first and the inner boundary of the cone of supply after some time in the season is the line Zbbb. Calculating the resistance and distance in each layer water has to travel against friction and the loss of head therefrom, and can rise to a certain height only in the well marked as KKK. As the season goes on advancing, the boundary BBB goes on receding and the level of water goes on falling, because the distance to travel being greater, the loss of head is greater, and the water can rise to a height less than KKK.

The only point in the above theoretical calculation is to determine the average co-efficient of friction at each height. This can best be done by experiment. Pour coloured water at X and take bore holes at every 10 or 15 feet distant between the line joining X to the nearest side of the well, and mark the depth at which the coloured water will appear in each of the bore holes. These experiments will determine the outside boundary of XYZ, and the average friction at each point can be mathematically calculated. Many trial experiments will be needed to get a reliable result.

All water from this volume has got a tendency to be drawn into the well. We here presume that the soil within this cone has got the same physical properties as regards storing and giving up of water. As a matter of fact, it is not so, and so the cone is an irregular one. The whole volume is not capable of contributing water to the well. In some of the upper portion water is forced down by heat and gravity as summer advances. The cone of supply on any day is given by the water-table at the top and by the bottom of well below. And in an inverted frustrum of a cone the largest volume is at the top and therefore with advance of the dry season the water-bearing portion of the cone becomes very much depleted.

In constructing a well, the most adverse circumstances must be considered, and if the well is capable of supplying enough water to meet

the demands at the driest season with the limited volume of soil to draw upon, then only the well is practicable and reliable. Many good wells constructed at a great cost fail after March or April and the amount spent on them is wasted and lost. Such wells give water for some time after the rains. The water is stored in the rains and as such is liable to all the contaminations of stored water in open wells.

Besides this cone of filtration from which the well would draw its water supply, there is some extra volume of soil immediately beyond the cone of filtration from which the well might get additional water supply. Water from the cone of filtration comes in the well only by gravity. The water from the volume of soil outside the cone of filtration might come into the well only if there is sufficient hydraulic pressure or extra "head" in this water over and above that due to its height above the bottom or more than what is called the "static head." The water runs in enclosed channels and has usually extra pressure. This extra volume from which water might be drawn into the well may be considerable, if the depth of the well is great and hence such a well will have a more plentiful water supply than what is represented by the cone of filtration.

Augmenting the Cone of Filtration

In some places, the cone of supply is permanently increased by putting a small dam on the upstream side in the nala running through the valley in which the well is situated. Dams get silted up after some time and the silt being very porous, holds up water at some depth below the surface so formed. The level of water is therefore raised and the quantity charged in the "cone of filtration" of wells downstream is much more. In Aundh, in Satara District, the water supply of the small town, the capital of the State, is much improved by such a dam. In the case of Nandurbar in West Khandesh, the condition as regards water supply was almost the worst we had seen in old days. A dam on a nala which is now filled with silt on account of the dam has given a good supply to a large population. Such a dam achieves three things, it increases the "cone of filtration," it prevents the "water-table" being driven too far down by the heat in the dry season, and it increases hydraulic pressure of water in the area and brings in some supply from beyond the cone of filtration.

Contamination of Wells

The "cone of supply or filtration" is important from another point of view. All contamination, dirt and waste water falling within this cone are sure to reach the well, if not immediately, at some time or other, and certainly during the rains when water from the whole cone of supply contributes its quota to the well. Therefore no waste, refuse or contamination should be allowed access within the cone of supply. Waste water from the well after it is used by men or animals must be led away by a watertight gutter outside the cone of supply. No cess-pool water, effluvia from manure pits, etc., should be allowed to come in the area of the cone. This is the most important aspect of the "cone of supply."

The radius of the cone of supply at the ground level is taken from experimental results to be about four times the depth of the well and hence no contamination should be allowed within this area at least.

According to this theory of shallow wells, they draw on the reserve of water stored up in the soil during the rains. The reserve, therefore, must be enough for supply during the whole of the fair season. Otherwise, at some time during this season, the whole reserve would be drawn upon and thereafter the well would be dry. This is what happens in many wells. A well completed in about May which is the best season for construction is found to give enough water during the remaining period of the first dry season. And it is hoped that there is enough reserve of water to supply the consumers. But in the next season the well is found to be dry much earlier in the dry season. The reason of this is, that, during the first season when the well began drawing water in May, there was the undrawn reserve in the soil, and the stock of water lasted for a month or so, till the rains came in to replenish it. But during the next dry season, the well starts drawing water from the beginning, and the stock stored up is not sufficient to last for 7 or 8 months without replenishment, which is not available and hence the well becomes dry much earlier in the season.

There are only two possibilities wherein the water would last till the end of the hot season, one of them is that the reserve in the soil within the cone of filtration is enough to last the whole season. This brings us to an estimate of the quantity of water stored up in the cone of filtration. The quantity of water would naturally depend on the interspaces in the soil and the looser the soil, the space available for storing would be greater and the quantity of water stored up would be greater. This can approximately be determined by an experiment of taking out a cubic foot of the soil in its natural dry condition, and pouring water on it and seeing how much it absorbs before water begins to flow out. There is, however, a danger that some soils may be rendered pasty when water gets access to them and may upset all calculations. Such experiments can be made and a rough estimate made. The rate at which water will flow in the well from the saturated soil can also be determined by experiments in a trial pit excavated at the side of the well. The above experiments presume that the whole of the soil in the cone is of the same quality and hardness. There are, as a matter of fact, many varieties of soil of different stages of compactness.

There is also a danger of the water from the soils having more voids, being drained away very soon as the friction to the flow of water is much less in this case and the flow is more copious.

The other possibility is that there might be water coming from outside though the fissures, joints, faults, etc., as we have pointed out at the beginning of this Chapter. There are so many small subterranean watercourses that there is every possibility of outside water coming into the cone of filtration. The possibilities are many more when the shallow well is sunk deep, almost to the top of an upper impervious strata, as many of such wells are. The water in such wells comes from springs from the intercepted subterranean streams. Though, of course,

from a point of view of supply of water, this condition is most desirable, as it ensures a plentiful and permanent supply, all the sources of contaminations are not known nor can they be watched. The proximity of nalas, ponds, lakes, etc., affects water in the well.

The contamination of water in wells is dealt with in the second part of this book. But as said above, from the point of view of good and permanent supply such outside replenishment is no doubt good and desirable. But when we consider a safe water supply free from any possible contamination, such a safety is not guaranteed in a shallow well. When we consider the village people or the poorer people in a town, deep wells are neither within their means, nor powers to construct and shallow wells only are available to them. Such wells are not so dangerous in the open country as in densely populated places. In municipal towns they should never be tolerated, because the whole sub-soil is saturated with effluents from septic tanks (if they are allowed), from stables, with the overflow from cess-pools, and with all the waste water from the houses and from heaps of filth. To add to these, some towns have got open gutters, running through the middle of the town. In an important town and a big railway junction to the north in Maharashtra, a large nala, carrying sullage water, flows through the middle of the town and shallow wells are the only means of water supply. Many of them are within 100 to 150 feet from the nala bank. The misery of the people can better be imagined than described. Cholera and typhoid are very virulent in that town. To add to this, the crude sewage of a colony of 10,000 railway workers is allowed to discharge in a large river flowing near the town. Downstream from this sewage outlet, there is a very busy causeway crossing of a very important road. People, carts, horses and other animals use this sewage mixed water within a mile or two of the sewage outlet, as the causeway furnishes a very good halting place with water very conveniently within reach.

It would be worthwhile studying the condition of well water in places with different stages of civilisation and congestion of population in illustration of the above remarks.

In Bombay, up to the first decade of this century, there were wells in many of the houses and people used water for all purposes except probably for drinking and cooking. The Health Department analysed the water of these wells and compelled the owners to close them. A well in Girgaum, water from which was only used for washing clothes and cleaning pots, was found to be so bad, that the owners were forced to close it in 1937. The campaign is still going on in the suburbs and people are now being prosecuted for not closing down their wells.

In Dharwar, there is a scarcity of water. There is a well called the "Distillery Well" which is supposed to give 50,000 gallons of water per day. The Municipality were thinking of harnessing this well for water supply of a part of the town. After analysis the water was found to be very bad. Drainage of a part of the town passes in an open unpaved nala within 30 or 40 feet from the well and contaminates the well.

In most of the large villages in the Districts away from the sea coast, the wells from which the whole village or large part of the village draws its water supply are situated in the middle of the village. There is no pavement round the well and even in the driest season, the soil round the well is semi-liquid mud. Water is thrown round the well by the people who wash clothes and their vessels, who even wash their cattle there in order to save for themselves the trouble of carrying the water to a distance. All the impurities in the filthy mud slowly soak in the well. The mud is carried in by the ropes and pots which must necessarily be kept in the filth before they are lowered in the well, for water. Most of the water-borne diseases, when once introduced in a village, spread in an epidemic form therein. It would be interesting to study what happens to this water which carries filth with it, while going from the surface soil to the well. The surface soil is mixed with vegetable and animal waste and decaying matter. When water carrying the germs of diseases comes in contact with this organic decaying matter, the best breeding ground is provided for the germs. When water reaches the well it is highly charged with the germs. The only question then is the amount of dilution provided by the quantity of water in the well, and purification by the rays of the sun. A sandy soil would be the only exception to this process of multiplication of germs while passing through the soil into the well, because some sort of biological action, like that in a filter bed, is likely to take place. This action however depends upon the nature of the sand on the percentage of organic matter present therein.

The sea coast villages have no such trouble because most of the people have their houses in their own gardens and there is a separate well for each house.

The conditions of large congested villages and small towns in this area are, however, very far from satisfactory. The wells are "shallow wells" and water being available at the surface, the depth is very little, about 20 to 30 ft. If the wells are cut in laterite rock, there is not much danger of pollution by contamination soaking through the soil. But if they are in sand and earth (as they usually are), the chances of pollution are infinite. Each house has a well in the backyard which is generally not very extensive, and the same courtyard has the bathing place, the place for washing clothes and vessels, the cattle shed for a cow or buffalo, and last but not the least the latrine which has an open basket system is one of the most filthy type. All these are within a few feet from the well. All the filth and effluents from all these "sanitary" conveniences soak in the well. The sand of the sub-soil is so much mixed with vegetable and organic matter that it is not able to do any biological purification of the filth that soaks through it. Coconut and other trees are planted in the courtyard and fish and other manure given to them pollute the well with most objectionable effluents therefrom.

Size of the Wells

From the above we see that a shallow well draws its water supply from the upper porous or previous layers of earth, and that the water supply is not very safe. Water is obtained by filtration from the "cone

of supply." The amount of water received will depend upon the quantity of water in the cone of filtration and upon the rate of filtration per square foot of area at the sides and bottom of the well. If the diameter or the dimensions of the well are large, the amount of water available will be large, though there is a danger of the cone of filtration being drained dry at a comparatively earlier date and the well becoming dry before or in summer. The size of the well and the water stored therein act also as a compensating reservoir. In spite of the rate of inflow which is uniform during the 24 hours, the varying demands of water during the busy hours of the day, much in excess of the average of filtration, are satisfied by drawing upon the store in the well. But in shallow wells, we cannot reduce the diameter or size of the well in order to save the cost of construction as in the case of deep wells, unless we proportionally reduce the supply of water or unless we meet with a very powerful spring.

As we see from all this, shallow wells are only a matter of compromise, looking to all the circumstances. In this country, for the water supply of rural tracts and semi-developed municipal towns, the number of shallow wells is so great that we are tempted to deal with them to some length in this Chapter.

CHAPTER IV

SHALLOW WELLS

*Tube or Bore Wells ; Wells in Dry Regions ; and
Estimate of Yield from Wells*

Referring to the sketch of the geological arrangement of the earth's crust, given in Chapter III, we find that we have presumed the existence of a hard impervious layer BBB at a reasonable depth from the ground level. In many places in alluvial tracts such as Gujarath, in many places in the Godavary and Krishna basins and in the basins of the other large rivers in this Province and in the basins of the Ganges and Indus and other provinces, the upper pervious strata is so great in depth that the lower impervious strata, if at all it exists, is not available for water supply by means of deep wells as considered in Chapter V later on.

The water is available only from the upper strata and these wells are technically "shallow wells." Such wells must be sunk deep to avoid pollution from the top surfaces, and to draw larger quantity by tapping subterranean springs or streams. The depth being great, the work of excavation, protection of the sides against falling in during construction, and of making watertight sides by masonry and cement lining is very costly. It is for these reasons that tube wells are now becoming more and more common. The supply of water is as uncertain in an ordinary well as in tube well. A tube well can be sunk much cheaper for the same depth and to a greater depth for the same cost.

A tube well of a small diameter can be sunk in a pervious bed. In an alluvial tract, containing sand and gravel in the bed or valley of a river, such a tube well is better than a large and wide open well. There are many advantages of such wells. The tube might range from 2" to 8". In the first place, drilling is much less costly than excavating a well for the same depth, though, of course, the initial cost of the drill machine is somewhat great. But when once a drill machine is purchased by a public body like a District Local Board, a Municipality or a branch of Government like the Agricultural Department and let out to people at a reasonable rate with no intention of making profit, borings can be done very cheaply. The work of making the sides watertight, so as to exclude water from the top porous soil, which is likely to contaminate the lower pure water supply, is also very easy. Galvanised iron, wrought iron or steel pipes can be used for this work and they are very much cheaper than masonry steining or walls for a well of the same depth, and are much more watertight or can "seal up" the impure water more efficiently. Water can be drawn up by a pump which can be easily fixed and easily worked. But the greatest advantage is that the well is not liable to any outside contamination as in the case of an open well, where even though the water is pure when it enters the well,

it is likely to get a good deal of contamination from outside as described later (*vide* Part two of this book). The whole construction of the well is very cheaper, and the work is easier and quicker.

It is for this reason that modern engineers recommend tube wells as a substitute for ordinary wells.

A short description of the details needed for the construction of such a well are given below.

Bore Wells with Pumps

There are two methods of sinking bore wells. One is by the percussion method, for which a Musto Patent Power or hand driven machine is used; the other is by means of a Rotary Drill, power driven.

In the percussion method, the bore hole is sunk by means of a jumper bit, which moves up and down in a vertical plane by the movement of a rope which is fixed at one end to the jumper bit, wound round a pulley fixed on a tripod stand and taken over the rim of a large eccentric wheel and then fastened to a drum. The eccentric wheel is moved by means of gears and belt from a power engine and the revolutions of the eccentric wheel give the vertical motion to the jumper bit. This is a short description of how the Musto Patent Power machine is worked, and is useful and convenient for depths up to 200 feet. Greater depths are possible particularly if the bore hole is through sand, earth, clay, murum or very soft rock.

For greater depths than 200 feet, particularly when the strata are solid rock and it is proposed to go below the solid rock to the underlying porous or soft rock strata, a Rotary Drill is useful. Such drilling machines are power driven and have a cutting tool which removes the core of the bore. One can easily place these cores end to end and examine carefully the geological strata of the ground through which the bore hole penetrates. Such drilling machines can bore great depths up to 1,000 feet or more according to their size and make.

The depth to which a bore well should be taken depends on several factors:—

- (a) The quality and sweetness of water met with;
- (b) The strength of the underground spring or current of water and the purpose for which the bore well is to serve;
- (c) Generally, after passing an impermeable stratum say, solid rock, one comes to a porous variety of soft rock which is saturated with water like a sponge. It is not economical to go beyond the depth of this porous rock. (*See Deep Wells in the next Chapter*).

After the desired depth for the bore well has been reached, the water, and powdered rock mixed with water (if a Musto Patent boring machine is used) is removed by means of a sand pump. A lining of galvanized iron or wrought iron pipe is fixed to a depth of say, 40 feet or more if there is a chance of sub-soil water coming in. Generally lining is provided up to rock level.

A pump either hand or power driven must be fixed. Meyer's, Deming's and Kirlosker's have several varieties of pumps to suit all purposes. A small masonry platform is usually built round the bore hole and the pump fixed.

In the Bombay Suburban District bore wells from 50 to 150 feet deep have been sunk with great success by the District Local Board, Bombay Suburban District. The cost of such a bore well complete, varies from Rs. 200 to Rs. 350 depending on the nature of strata encountered and the depth of bore found necessary in each case. A hand pump with lining, rods and internal pipe, etc., costs about Rs. 100 to Rs. 120.

In many rural tracts such wells would be very good means of getting water, particularly in large villages where the congestion of people is responsible for contamination of the surface soil. We saw a very good well near Palghar Railway Station in Thana District.

Wells in Dry Regions

The problem of water supply in dry regions, such as Sind or Rajputana, is invariably big and difficult to solve. It is here that civil engineers have to seek the help of geologists mostly. Wells are the chief sources of water in these parts, but they are not easy to be located and cut. Most of the water channels or springs are unstable and unsteady in such localities where rainfall is meagre and variable. A well dug in them may be very deep or very shallow, flowing in one season and dry in another, and yielding fresh water at one time and brackish in another. A well in the Thar desert may be as deep as 500 feet entirely in sand and may be at the same time unreliable. The water dissolves the rock materials to such an extent that it is too muddy and unsuitable. Kidney stone diseases are very common in some of the districts. To overcome these difficulties, it is necessary to know the nature and structure of the various rock formation through which wells are to be sunk. We are giving below a summary of the water supply efforts of Karachi for illustration of difficulties in such areas.

Professor Pithawala has spent some time in solving the problem of water supply of Karachi and parts of Sind. Aided by a knowledge of the geological conditions in the Lower Indus Basin, he has suggested some suitable means whereby the present supply can be augmented and improved by a dozen open wells all through the alluvium on the right bank of the Malir river which is dry all the year round except for a few days in the monsoon season. This water lies in the gravel on the banks and in the bed of the river at a depth of about 60 feet. In fact, there is a regular underground river of water which can be tapped from the surface at any convenient place. But these wells were unfortunately within a distance of about 10 miles and thus causing *interference*, as a result of which the wells, lower down the river, have gone dry. This supply had to be increased by means of longitudinal and cross stone galleries hanging in the alluvium at a convenient depth, say, 40 or 50 feet, and draining into the wells. The total supply so far has been about 8 to 9 million gallons per day. But this is not sufficient for such a rapidly growing city like Karachi. Water is allowed to escape

into the sea, not only through the alluvium of the river but also through the underlying limestone, of which the large part of the basin is composed. An experimental deep boring near Dumlotte has been carried some 600 feet, of alternate limestone and clay beds and yielding 30,000 gallons of potable water per day through very fine running sand in half a dozen suitable places. Salt water was struck at about 400 feet, but it has been sealed up. It is very likely that if the boring is carried to about 1,000 feet and upto the Nari sandstones of fluvial origin, underlying the Gaj beds, an artesian condition giving over a million gallons of good water per day will be secured. There are few chances for the salt water to enter such a flowing well at any time.

This is only one instance of how fresh water can be tapped by engineers with the help of geologists in drier parts of India, where people are suffering for want of enough water for drinking and irrigation purposes. There is much water in lower subterranean tracts, running waste, through joints, fissures, faults and other convenient water channels into the sea. In the limestone localities, as the stone is so soluble, there are chances also of water locked up in such subterranean caverns formed by running water at great depths to come up to the surface in gushing springs, which would be inexhaustible at all times. But all this needs research of a scientific character and not mere guess work or water divining or dowsing of any kind, and a change of heart is badly needed.

Estimation of the Yield from Wells

Wells are found to be very uncertain sources of water. If we can estimate the "safe yield" of water in a well, such an estimate would be of very great use in determining the available supply of water. The estimate will have to be made at a time when the yield is the least; and the best time for such an experiment is at the end of the dry season. Because, at that time the quantity is available under the most adverse circumstances, and would constitute the least or the "safe yield." The quantity we can supply per head for a known population in the locality catered by the well can be judged from the result of such an experiment.

It must be noted that if there are more wells in the same zone of supply, the drawing of water from one well will affect the supply of the others, so that the results of the experiments must be taken only when the supply to each well is stabilised; that is to say, when the draw of water from the well under observation is so regulated as not to affect the level of water in any other well. All such wells must form part of the whole scheme and must be considered altogether.

The best method of estimating the yield is by means of pumping operations. In small wells hand pumps can be used. But in wells which supply large quantities of water power pump would be the best. A very powerful pump which would pump the well dry in a short time would create some complications. The sand would be sucked in the well owing to the vacuum produced in the well, and also owing to the high hydraulic pressure of water at the sides and base of the well. The water would press against the particles of sand in its hurry to travel to the well to fill up the vacuum produced, and sand would also be driven with

the water. The pumping therefore must be so slow to generate in the water such velocity as would not disturb the sand. This is called the "critical velocity" of water.

The experiment must be continued from day to day for a long time until the level of the water in the well under observation and that of the wells in the same cone of supply reaches a steady height. For the first few days, there are likely to be excessive results, because water is stored in the upper layers. But after repeated pumpings, the water when left to itself for a long time after the pump stops, will reach a certain level which remains steady. This is the highest level to which water will reach for the time being in the well. The rate of flow can be calculated by noting the time taken for water to reach this highest level from the level to which it had sunk and the horizontal section of the well. This section $\times$ height of water between the two levels gives the volume of water coming during the time noted.

This method is called the "recuperation method" of testing the capacity of the yield of a well. There are mathematical formulae based on these observations, and these give the amount of water which will filter through a known surface of the sides and bottom of the well.

The other method, by which the rate of inflow of water can be judged by means of a pump, is to keep the pumping of water so low as to pump out just the quantity of water that comes in. This can be done by arranging the pumping in such a way as to keep the water level steady. That is to say, as much water as comes in the well is pumped out. The volume of the water pumped can be measured, and this gives us the rate of flow.

The manipulation of the constant level is however very difficult and requires some adjustment, but the results are more accurate as they denote the natural conditions.

Both these Chapters on wells were carefully read by Dr. Pithawala, D.Sc., Professor of Geology in the N. E. D. Engineering College, Karachi. He made many valuable suggestions. He is the author of many books on the subject.

Vide his *Karachi Water Supply* (1936), *Problems of Greater Karachi* (1939), *A Geographical Analysis of the Lower Indus Basin (Sind)* (1936).

CHAPTER V

DEEP WELLS

Shallow wells are supplied with water from the upper alluvium classified under sub-division (a) and (b) of the water-bearing strata considered in the last Chapter and are shown in sketch as AAAA (see sketch, Chapter III).

The next water-bearing strata are shown as CCC in the sketch referred to above. Below the top layer of porous soil AAAA, there is a layer of impervious rock shown as BBB, in the sketch. This has usually got many faults, dykes, fissures and veins which allow water to pass through to CCC. The layer in many places consists of a series of many laminae or thin layers of rocks with soil in between each layer. We have considered all these under the top impervious layer.

Below this top impervious layer of rock which is generally of not a very considerable thickness, there is in most places another layer of rock more impervious and of a considerable thickness. The space between these two layers of rock is of varying in depth from hardly any space at all to a very considerable space, hundreds of feet in depth. This is filled in some places with porous soil, in some places with some minerals which are hard enough to exclude water, in some places there are cavities in which water can and does accumulate, and in some places with spongy rock.

The soil stored in this space contains organic substances, as it is mostly made up of the products of decomposition of rocks. There are many soluble salts which the water dissolves while passing through, or if held up there.

The porous layer between the rocks forms the best filtering medium and water while passing through and stored in this layer loses all its suspended and organic impurities, and is stored up in a very pure state, under tolerably high pressure or head, but has inorganic salts in solution. Its usefulness depends, therefore on the quantity and kind of these salts in solution. If highly charged, it can be used as mineral water, and used in mineral springs or wells. A small proportion of salt in solution is always beneficial and the water is good, sparkling and healthy for ordinary human use. Deep wells tap this water and are therefore always safe, as there are no organic impurities. It is very good, palatable and healthy, as the dissolved salts are generally just in proportion needed or desired.

All these outcrops, as shown in the sketch, come to the surface on the sides of hills or on top of plateau where there is neither human habitation, nor vegetation, nor plantation. Rain water filtering through these outcrops is pure, as it does not take up any organic impurities. The filtering process removes those few which are found at the surface owing to its exposed position.

The enclosed porous layer and the cavities in such layers are therefore the best sources of water. These are tapped by the "deep wells."

It would thus appear that water available is safe or unsafe, palatable or tasteless according to place where it falls as rain water and the medium through which it travels before it is utilised by man. The Rivers Pollution Commission of England has by exhaustive inquiries classified the results as under:—

Wholesome	{	1. Spring water.	}	Very Palatable.
		2. Deep Well water.		
		3. Upland Surface water.		(might be hard water)
Suspicious	{	4. Stored Rain water.	}	Palatable.
		5. Surface water from cultivated land.		
Dangerous	{	6. Rain water to which sewage gains access.	}	Moderately Palatable.
		7. Shallow Well water.		
		8. Water from paddy fields.		

The same classification would certainly apply to India except that (6) Rivers to which sewage gets access would come last in the scale and could not be classed under even moderately palatable. Because, as we have said before, in England, the rainfall is distributed throughout the year and the level of water in a river does not go down very much. There is a considerable volume of water all through the year to dilute the sewage. In India rainfall being concentrated to about 90 days, the flow in hot season is very low and the percentage of sewage to good water exceeds the safe limits.

(B) DEEP WELLS

Deep wells are those which tap water from below the upper impervious strata. They would be successful only if they tap one of the large subterranean stores of porous soil or spongy rock charged with water, or permanent subterranean springs, or watercourses or water caverns described above. This water, coming as it does from areas uninhabited by men, is quite pure. During its passage through the underground channels it gets still more purified. However, it gets charged with dissolved impurities and becomes hard water, though not quite unfit for use. Some of these wells have high medical value. Tapping as it does, only the underground resources, a deep well must be constructed in such a way as to prevent all seepage from the upper strata of pervious soil. This can be prevented by constructing a watertight lining to the sides of the well and carrying it to some depth inside the impervious strata, so that there may be no leakage through the joint of the masonry lining with strata of rock.

Water is available from below the impervious strata only. The next question is how much water is available and whether there is any theory such as that of the "cone of filtration" which can guide us as to the quantity available. This is very difficult to answer and an estimate however rough it may be, is not possible. The availability of water will

depend on tapping a good, vast, reliable section of porous bed with a good storage of water, or a subterranean spring, stream or cavern. This is a question of possibilities and of probabilities. Sometimes a temporary spring or current is tapped and there is water for some time but it fails later on and the enormous expense of the construction is wasted. It might be possible that if the well is taken still lower down, good water may be available, but there is a danger that the supply of good water may be spoiled by a copious inflow of brackish water, or water highly charged with minerals. But as said above, it depends on sheer luck. Some people think that they are water diviners and can find out sources and currents of water by some superhuman methods. The Government of Bombay employed one Mr. Pogson on a very high salary and recognised the principle of water divining. But the results were not encouraging and a large amount of public money was lost.

The Agricultural Department have got a Boring Section, which has got boring tools and machinery and are supposed to help and advise the rural population about this matter. Some District Local Boards, the Bombay Suburban District Local Board for instance, have got their own boring machine for wells of small diameter and help the needy public with bores at cost price only.

In England, many places have very deep bore holes which give good and copious water supply. If we have help enough with machinery and advice, we may also have good schemes of water supply from deep wells.

From the above it is clear that a deep well must be sunk below the upper layer of rock and the construction is costly and depth is considerable. The cutting through rock is a very costly work and for all these reasons the best kind of construction suited to all these conditions would be "bore wells." The subject is fully considered in the last Chapter and some of the construction details relate to deep wells only. The water available being from a very good store, the question of area of sides and bottom does not come in. The "sealing up" of the upper impure layer is more reliable and cheaper in a tube well.

For all these reasons the bore or tube well is best fitted construction for a deep well.

Artesian Wells

When deep wells tap large subterranean reservoirs of water or streams where the water is under high hydraulic pressure, the water gushes out with great force and rises to almost the surface of the ground or might even overflow. Where such conditions obtain, the wells are called "Artesian Wells." The water of such wells is very plentiful, very pure and is available within a very easy distance from the surface, all these being very great advantages.

But such supplies are very few in Bombay-Deccan and not worth considering as the rocks are trap rocks, more or less horizontally laid. In other parts of India, where rocks are stratified and folded, good basins and catchment areas are available, the land is suitable and porous, water-bearing strata are sandwiched between non-porous beds, there are good chances of securing pure drinking water from artesian borings

made at various depths. In South India such wells are said to be as much as 2,000 feet deep.

While considering the problem of artesian wells, the history of the water supply of Khara Ghoda is very interesting. Khara Ghoda is a salt-producing place near Viramgam in Ahmedabad District at the entrance of Kathiawar. As usual with salt areas, water was very scarce and very brackish there. An artesian well was sunk as per dimensions and capacity given below :—

Depth of well	316 feet.
Diameter of well	8 inches.
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The Surat Borough Municipality

vs.

Hamiduddin Nasiruddin Sayed

(1) *The High Court can entertain a civil revision application to revise an order made by a Sessions Judge under section 111 of the Bombay Municipal Boroughs Act, 1925, revising an order passed by a Magistrate under section 110 of the Act. But the High Court will not interfere unless it appears that there has been some grave abuse of its power by the Sessions Court or the decision is manifestly erroneous or unjust.*

(2) *Section 82 of the Bombay Municipal Boroughs Act, covers an arithmetical as well as any other mistake.*

Hamiduddin and another owned houses in the City of Surat. The Surat Borough Municipality served a notice upon them to the effect that their properties were valued at Rs. 1,80,911 and assessed to house-tax at Rs. 185. The assessee then appealed to the Standing Committee who confirmed the valuation, whereupon they applied to the City Magistrate of Surat. The latter raised the value to Rs. 2,43,999. They then applied to the Court of Session and it was held by the Sessions Judge that the correct valuation was Rs. 1,10,366-3-0. The Municipality applied to the High Court for revision of the order of the Sessions Judge.

HELD, that the High Court could entertain the petition but in the circumstances of the case, would not interfere.

Section 111 is as follows:—

"111. (1) Every entry in the assessment list made under the provisions of this Act against which no objection is made as hereinbefore provided, and the amount of every sum claimed from any person under this Act on account of any tax, if no appeal therefrom is made as hereinbefore provided, and the decision of the Magistrate or Bench of Magistrates upon any appeal shall, at the instance

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of either party, be subject to revision by the Court to which appeals against his or their decisions ordinarily lie.

- (2) Effect shall be given by the Chief Officer to every decision of the said Magistrate or Bench of Magistrates on any appeal or any decision in revision on such appeal against any such entry or tax."

Norman, J.—(Extract). A preliminary objection is taken that no such application lies. (Previous attempts have been made to bring such matters before this Court on its criminal side. The first is reported in *In re Dalsukhram* (1907), 9 Bom. L.R. 1347, at which date there was nothing analogous to the present section 111, and as far as the Act was concerned the decision of the Magistrate was final. The Court held that the Magistrate hearing the appeal was merely an appellate authority having jurisdiction given by the Act to deal with the questions of a civil liability and was not "an inferior criminal court"; his decision therefore was not subject to revision on the criminal side. The matter again came before this Court in *Ahmedabad Municipality vs. Vadilal*, (1928) 30 Bom. L.R. 1084, the order sought to be revised being one made under section 111 of the Act. The Court, after referring to the earlier decision, again remarked that the matter related to a civil liability and held that it had no jurisdiction. The *ratio decidendi* appears to be that as the matter was a civil one, the Sessions Court was not a criminal court and its decision could not therefore be revised on the criminal side.

A revision application will lie on the civil side only from a court subordinate to a High Court and it is argued that the Courts which are subordinate to the High Court are enumerated in section 3 of the Civil Procedure Code. It has however been held in *Purshottam vs. Mahadu* (1912) 14 Bom. L.R. 947, that section 3 of the Civil Procedure Code is not exhaustive. That case arose out of an application to revise a decision made in revision by the Collector under the Mamlatdar's Courts Act. It was held that as the Collector by the Act is declared to be a Court, he was acting judicially, and as he was dealing with a civil matter, the application to the High Court did lie. That decision is, I think, much in point here. Section 111 shows that the revisional power is exercised by a Court and not by a *persona designata*, and it has been held in the decision on the criminal side to which I have already referred, that the matter is one of civil liability. The Sessions Court is therefore for the purposes of the Municipal Boroughs Act a Court dealing judicially with a civil liability and the fact that the Sessions Judge's functions are ordinarily criminal is no more material than the fact that the Collector's functions are ordinarily executive. It appears to me therefore that this application does lie.

At the same time, being a second application in revision, this Court will not interfere unless it appears that there has been some grave abuse of its power by the Sessions Court or the decision is manifestly erroneous or unjust. The main ground of this application is that the Sessions Judge though only a Court of revision acted as if he were a Court of Appeal. He held that the two lands were public places of worship whereas the Magistrate had held that they were private places of worship and he lowered the assessment of the superstructure. That he stretched his powers

of revision to the utmost may be admitted, but his discretion is wide, and I do not think that any further revision by this Court would be justified.

Section 82 of the Municipal Boroughs Act provides that the committee may at any time alter an entry in respect of any property, such entry having been erroneously made in the assessment list through mistake. That section, I think, covers an arithmetical as well as any other mistake. Instead of bringing the matter before the Magistrate, the Standing Committee should have acted under section 82 and heard any objection which might be brought by the assesses under that section. . . . The municipality not having adopted such procedure, I do not think it was open to the Magistrate to take the mistake into consideration.

In re Dalsukhram 9 Bom. L.R. 1347; *Ahmedabad Municipality vs. Vadilal* 30 Bom. L.R. 1084, referred to; *Purshottam vs. Mahadu* 14 Bom. L.R. 947 followed.]

[Approved in *Lokamanya Mills Ltd., vs. Municipal Borough, Barsi* I.L.R. (1939) Bom. 571 = 41 Bom. L.R. 937; Referred to in *M. S. Bhoshetti vs. B. V. Bhat* 42 Bom. L.R. 223; Distinguished in *The Vita Municipality vs. Gangaram Tatyaji Jadhav* 43 Bom. L.R. 333.]

40 Bom. L.R. 387
14th Sept. 1937.

Emperor

vs.

Dhirajlal Dalsukhram

(1) Where a proper notice has been given under section 123 of the Bombay Municipal Boroughs Act, 1925, and the proposed building including certain drains has been proceeded with properly under sub-section 5, the Municipality cannot subsequently require the drains to be removed under section 137.

(2) Section 123 of the Act does not require that the notice should be in a document separate from the plan.

On August 11, 1934, the accused submitted to the Ahmedabad Municipality the plan of a new building which he proposed to erect. On receiving no reply from the municipality, he began to construct the building. Thereafter, when the building was completed by the end of 1935, he sent, as required by section 124 of the Bombay Municipal Boroughs Act, a completion plan to the municipality, and also a plan of the proposed septic tank with the drainage which he wanted to add to the newly constructed building. This application was made on 6th January 1936. On 18th March 1936, he sent an application to the municipality with a further plan requesting the municipality to permit him to construct a septic tank and a water-closet. He then started to construct his new drainage in the month of April 1936, within less than a month after he had made the application of 18th March. He was convicted under section 137(b) of the Act. In revision the Additional Sessions Judge took the same view as the

Magistrate and confirmed the conviction and sentence. On a further application in revision to the High Court :

HELD (1) that the sending of the plan in January with the endorsement upon it saying that it was a plan as to the proposed drainage and septic tank, amounted to giving notice to the municipality as to the work proposed to be constructed, and that there was nothing in section 123 requiring that the notice should be in a document separate from the plan ;

(2) that as no action was taken for a month, the accused was entitled to proceed with his work under section 123(5) ; and as there was implied consent on the part of the municipality, the conviction of the accused was not maintainable.

The relevant sections are set out below :—

" 123. (1) Before beginning to construct any building, or to alter externally or add to any existing building, or to construct or reconstruct any projecting portion of a building in respect of which the Standing Committee is empowered by section 119 to enforce a removal or set-back, or to construct or reconstruct which the Chief Officer is empowered by section 118 to give permission, the person intending so to construct, alter, add or reconstruct shall give to the Chief Officer notice thereof in writing and shall furnish to him at the same time, if required by a by-law or by special order to do so, a plan showing the levels, at which the foundation and lowest floor of such building are proposed to be laid, by reference to some level known to the Chief Officer, and all information required by the by-laws or demanded by the Chief Officer regarding the limits, design, ventilation and materials of the proposed building, and the intended situation and construction of the drains, sewers, privies, water-closets, cess-pools, if any, to be used in connection therewith, and the location of the building with reference to any existing or projected streets, and the purpose for which the building will be used."

" (5) A work proposed in a notice given under sub-section (1) may be proceeded with in the manner specified in such notice, provided such manner is not inconsistent with any provision of this Act or of any by-law for the time being in force thereunder in the following cases, namely :

(a) in case the Chief Officer within one month from the receipt of the notice given under sub-section (1) has neither—

(i) passed orders under sub-section (2) and served notice thereof in respect of the intended work ; nor

(ii) issued under sub-section (4) any provisional order or any demand for further particulars ;

(b) in case the Chief Officer having issued such demand for and having received such further particulars, has issued no further orders within one month from the receipt of such particulars."

" 137. The Standing Committee may by written notice require that any sewer, drain, privy, water-closet, urinal, house-gully or cess-pool on any land within a municipal borough, constructed, rebuilt or unstopped—

(a) after such land became part of a municipal district or borough, and

(b) either without the consent or contrary to the orders, directions or general regulations or by-laws of the municipality, or contrary to the provisions of any enactment in force at the time when it was so constructed, rebuilt or unstopped, shall be demolished, amended or altered, as it may deem fit, by the person by whom it was so constructed, rebuilt or unstopped ; and every person so constructing, rebuilding or unstopping any such sewer, drain, privy, water-closet, urinal, house-gully or cess-pool, whether he does or does not receive such notice, or does or does not comply therewith, shall, in addition to any penalty to which he may be liable on account of such non-compliance, be punished with fine which may extend to twenty-five rupees."

Beaumont, C. J.—(Extract). The learned Sessions Judge expressed the view that section 123 was not concerned with the question of drainage because the later group of sections beginning with section 127, and including section 137, deals expressly with the subject of drainage, and therefore, he considered that where the standing committee required a drain to be demolished under section 137, it would be no answer to say that it had been constructed under a notice given under section 123 after the lapse of a month, no action having been taken by the Chief Officer. The learned Sessions Judge was of opinion that the provisions of section 123 did not apply and that if the drain had been constructed without the consent of the municipality, then a conviction could properly be recorded under section 137. I am not able to agree with that view of the learned Sessions Judge because section 123 does in terms deal with the drains and sewers of the proposed new building, and it would be impossible to supply an accurate plan of a proposed new building unless the drainage system (if there was to be any) was included. It seems to me impossible to hold that where a proper notice has been given under section 123 and the proposed building including the drains has been proceeded with properly under sub-section (5), nevertheless the municipality can require the drains to be removed under section 137. I think that in such cases the answer is that the consent of the municipality has been obtained by implication having regard to the provisions of section 123 sub-section (5). No doubt, there may be a good many cases which fall either under the provisions of section 123 or under the provisions of section 137, but primarily section 137 is designed to give to the municipality a power exercisable at any time merely by notice in writing to require the demolition of a drain constructed without proper consent or contrary to regulations, whereas the penalty under section 123 for breach of that section is primarily a fine, and demolition can only be ordered after conviction has been obtained under sub-section (7)(b).

Now, if that is the right construction of the two sections, the question here is whether on the facts a notice of the proposed new building and drainage system was given and no action taken by the Chief Officer within a month. [His Lordship stated the facts as set out above and proceeded]. Now, the lower Courts have both held that the sending of the plan in January 1936 without any formal application for leave to build and any formal notice, does not amount to the giving of a notice under sub-section (1) of section 123, though the learned Additional Sessions

Judge, as I have said, seems to consider that section 123 is irrelevant and the case turns entirely on section 137. In my opinion, the sending of the plan in January with the endorsement upon it saying that it was a plan as to the proposed drainage and septic tank does amount to the giving of notice to the Chief Officer as to the work proposed to be constructed, even apart from the letter to that effect which I find on the record. That plan was sent after the submission of the former plan, and I think the municipality must have understood from it that it was proposed to make the alteration shown in that plan to the building and drainage shown in the earlier plan. There is nothing in section 123 which requires that the notice should be in a document separate from the plan. I apprehend that the notice can be endorsed on the plan, and I think in the circumstances of this case the plan sent to the municipality was sufficient notice under sub-section (1) of section 123 apart from any covering letter asking for leave, and as no action was taken for a month, I think that the accused was entitled to proceed with his work under sub-section (5). That being so, there was implied consent on the part of the municipality which would prevent a conviction being recorded against him under section 137.

Divatia, J.—(Extract). I agree. Although I find a certain amount of difficulty in reconciling the provisions of sections 137 and 123 of the Bombay Municipal Boroughs Act, I am of opinion that the facts of the present case come under section 123. . . . The application which was made on 6th January 1936, was really a supplementary application to the original application of 1934 and would fall under section 123 of the Act. The present case would therefore be governed by sub-section (5) of section 123 and as the date of the application for constructing the septic tank is to be regarded as 6th January 1936, and not 18th March 1936, and the septic tank was constructed more than one month after the date of the first application, viz., 6th January 1936, to which the municipality did not reply, the petitioner was justified in constructing the septic tank without waiting for any order from the municipality. I therefore agree that the rule should be made absolute and the fine refunded.

40 Bom. L.R. 67
10th Nov. 1937.

Emperor
vs.

Trikamlal Keshavlal

Under section 129, Bombay Municipal Boroughs Act, it is the duty of the Chief Officer to give a notice specifying the drain which he requires, stating the size, material, level and fall and a notice which does not comply with these requirements is not a good notice within the section. It is for the Chief Officer to say what he requires to be done and not for the owner of the building to submit proposals.

The accused was the owner of a house which he had newly built in Ahmedabad. The Chief Officer of the Municipality issued a notice to him under section 129 of the Bombay Municipal Boroughs Act, 1925, Section 129, calling upon the accused to submit a plan for laying out a six inches

drain in his property and to get it passed by the Engineering Department and after laying out a six inches drainage line according to the passed plan and getting a connection only through the municipality to join it therewith within thirty days of the receipt of the notice. On failure of the accused to carry out the requisitions of the notice for thirty days, he was prosecuted for an offence punishable under section 193 of the Bombay Municipal Boroughs Act. The trying Magistrate acquitted the accused expressing the view that the notice was not a proper notice. The Government appealed to the High Court against the order of acquittal in four such cases.

Held (1) that the notice was not a proper notice under section 129 as the section gives no power to the Chief Officer to require the house-owner to submit a plan ;

(2) that as the notice did not specify all the particulars specified in the section, such as the materials, level and fall of the drain, it was an insufficient notice under the section.

Section 129 of the Act is as follows :—

- " 129. (1) If any building or land be at any time undrained or not drained to the satisfaction of the Chief Officer, the Chief Officer, subject to the control of the Standing Committee, may by written notice call upon the owner to construct or lay from such building or land a drain or pipe of such size and materials, at such level, and with such fall as he may think necessary for the drainage of such building or land into—
- (a) some drain or sewer, if there be a suitable drain or sewer within fifty feet of any part of such building or land, or
 - (b) a covered cess-pool to be provided by such owner and approved by the Chief Officer."

Beaumont, C. J.—(Extract). The accused were charged under section 193 of the Bombay Municipal Boroughs Act, 1925, with having committed a breach of section 129. (After setting out the provisions of section 129, his Lordship proceeded). The Chief Officer served notices on the accused, and the learned Magistrate held that they were not sufficient notices within section 129. It seems to me plain that the notices were not sufficient for reasons going beyond those specified by the learned Magistrate. The notices called upon the several accused to submit a plan for laying out a six inches drain in their property and to get it passed by the engineering department and after laying out a six inches drainage line according to the passed plan and getting a connection only through the municipality to join it therewith within thirty days of the receipt of the notice. So that what the notice did was to call upon the accused to submit a plan and then to lay a pipe in accordance with the plan which might be passed. But there is no power under section 129 to require the accused to submit a plan. Section 129 gives power to the Chief Officer to require something to be done and it is for him to say what he requires to be done and not for the owner of the house or buildings to submit proposals. As the only notice here was to submit a plan, and then lay a drain in accordance with the plan when passed, and as the plan has not been passed, it seems to me perfectly clear that there was no proper notice within section 129, and therefore the conviction is wrong.

The appeals were really intended to raise a rather more general point, with which I will deal. The learned Magistrate expressed the view that a notice requiring the owner of the house to construct a six inches drain would be an insufficient notice, because it did not specify the other matters referred to in section 129, namely the materials, level and fall. On the other hand, the municipality takes the view that the Chief Officer is not bound in his notice to give these details and that it may be assumed that in respect of any matter in which the Chief Officer does not formulate his requirements he has no definite views on the subject. But in my opinion the construction placed upon section 129 by the learned Magistrate is right. I think that the Chief Officer is bound in his notice to specify the size, materials, level and fall which he requires in respect of the drain which he is ordering. If the notice does not give the particulars referred to in the section, and the householder lays a drain of such size and material, at such level, and with such fall as he thinks necessary, but which the Chief Officer does not approve, it would be open to the Chief Officer, even if he could not prosecute for a failure to comply with the first notice, to deliver a fresh notice requiring the drain to be laid in accordance with his requirements. That, I think, cannot be the meaning of the section. I think that the householder is entitled to know in the first instance what he is required to do, and that the duty of the Chief Officer under section 129 is to give a notice specifying the drain which he requires, stating the size, material, level and fall, and that a notice which does not comply with those requirements is not a good notice within section 129. The appeals, therefore, will be dismissed.

(Referred to in *Emperor vs. Eugene Miranda*, 40 Bom. L.R. 320.)

40 Bom. L.R. 314
29th Nov. 1937.

Emperor

vs.

Eugene Miranda

The notice authorised by section 231 of the City of Bombay Municipal Act, 1888, is one requiring the owner or occupier to make a drain of the character therein specified, that is to say, of such material, size and description and so forth as may appear to the Commissioner necessary. Where it gives no particulars at all as to the character of the drain which the Commissioner thinks necessary, it does not comply with the section.

The accused was the owner of a house situated at Mazagaon in the City of Bombay. He was served with a notice by the Municipal Commissioner under section 231 of the City of Bombay Municipal Act, 1888, requiring him within fifteen days to connect the unconnected waste water of the nahanies and wasting places to the municipal storm water drain on Lady Jamshedji Road after obtaining necessary permit of the owners of the drain in Sorab Mill Lane. On non-compliance with this notice, the

accused was prosecuted for an offence under section 231 of the Act. The trying Magistrate convicted him of the offence whereupon he applied to the High Court in revision.

HELD, that the notice gave the accused no particulars at all as to the character of the drain which the Commissioner thought necessary and hence was not one complying with the section. Consequently, the conviction was not maintainable.

The material portion of section 231 is given below :—

"231. Where any premises are, in the opinion of the Commissioner, without sufficient means of effectual drainage and a municipal drain or some place legally set apart for the discharge of drainage is situated at a distance not exceeding one hundred feet from some part of the said premises, the Commissioner may, by written notice, require the owner or occupier of the said premises—

(a) to make a drain of such material, size and description and laid at such level and according to such alignment and with such fall and outlet as may appear to the Commissioner necessary, emptying into such municipal drain or place aforesaid :

Provided that, where any premises have already been drained under municipal rules and have to be re-drained, no such requisition shall be made without the previous sanction of the Standing Committee ; . . . "

Beaumont, C. J.—(Extract). The notice served upon the applicant by the Municipal Commissioner under section 231 requires him within fifteen days to connect the unconnected waste water of the nahanies and wasting places to the municipal storm water drain on Lady Jamshedji Road after obtaining necessary permit of the owners of the drain in Sorab Mill Lane. In my opinion that is not a sufficient notice to comply with section 231. [After quoting the section, his Lordship proceeded]. It is not disputed that the conditions necessary to bring section 231 into operation exist in this case, but the notice authorised by that section is one requiring the owner or occupier to make a drain of the character therein specified, that is to say, of such material, size and description, and so forth as may appear to the Commissioner necessary. Here all that the notice does is to require the owner or occupier to connect his drain with the municipal drain. It gives him no particulars at all as to the character of the drain which the Commissioner thinks necessary, and in my opinion that is not a notice complying with the section. We held in a recent case [*Emperor vs. Trikamlal Keshavlal* 40 Bom. L.R. 314] that a similar construction should be adopted in relation to section 129 of the Bombay Municipal Boroughs Act. On that ground I think that the application must succeed, and the conviction must be set aside.

[*Wassoodew, J.*, agreed with the above judgment.]

[*Emperor vs. Trikamlal Keshavlal* 40 Bom. L.R. 314 Referred to.]

40 Bom. L.R. 320
19th Jan. 1938.

Emperor

vs.

Ahmedalli Esufalli

The word 'timber' in Schedule M, Part III of the City of Bombay Municipal Act, 1888, does not include plywood, and a person cannot be convicted under section 394(1)(b) of the Act for keeping plywood in his shop for sale without a licence.

The accused kept plywood for sale in his shop at Abdul Rehman Street in the City of Bombay. He was prosecuted of keeping timber for sale without a licence from the Municipal Commissioner of Bombay, an offence punishable under section 394(1)(b) of the City of Bombay Municipal Act, 1888. The accused contended that he had only stored plywood, which was not timber within the meaning of the term as used in Part III of Schedule M to the Act. The trying Magistrate holding that plywood was timber, convicted the accused and sentenced him to a fine of Rs. 15. He applied to the High Court in revision.

HELD, that the word 'timber' in Part III of Schedule M did not include plywood and that the conviction was therefore wrong.

The material provisions of the Act are given below :—

"S. 394. (1) Except under and in conformity with the terms and conditions of a licence granted by the Commissioner no person shall—

- (a) keep, in or upon any premises, for any purpose whatever,
 - (i) any article specified in Part I of Schedule M, or
 - (ii) any article specified in Part II of Schedule M, in excess of the quantity therein prescribed as the maximum quantity of such article which may at any one time be kept in or upon the same premises without a licence;
- (b) keep, in or upon any premises, for sale or for other than domestic use, any article specified in Part III of Schedule M; . . ."

Schedule M, Part III gives a list of "Articles which shall not be kept without a licence, in or upon any premises, for sale or for other than domestic use." Timber is one of the articles so specified.

Beaumont, C. J.—(Extract). Part III of Schedule M contains a list of articles, and merely from reading the list it is difficult to see what object the Legislature had in mind in framing a list of such a heterogeneous character. The list includes firewood and also timber, and 'timber' is the material word for the purpose of this case. Looking to the nature of the articles in Part III, Schedule M, and to the terms of section 394, and particularly section 394(1)(d), which refers to carrying on of a trade or operation which in the opinion of the Commissioner is dangerous to life, health or property, or likely to create a nuisance, I think that one may conclude that the object of requiring a licence for the keeping of articles mentioned in Part III of Schedule M was to safeguard the public against nuisance or danger; and the inclusion of timber in the schedule would

clearly be, because of the risk of a stock of timber catching fire. But many inflammable articles are not included in the Schedule, so that the general purpose of the Legislature does not help much.

Now, the evidence is that the accused keeps in his shop for sale plywood; and the question we have to determine is, whether plywood is timber within the meaning of Part III of Sch. M. From an etymological standpoint plywood means wood in layers. Wood is a generic term considerably wider than timber. All timber is wood, but all wood is not timber. We have been referred to various definitions of timber. There is the common law meaning under which timber includes oak, ash, elm and other trees which are comprised in the expression by a local custom. I do not think the common law definition helps us in construing this schedule. Timber is not used in a technical sense in the Schedule. I have no doubt about that. Then there is the Oxford Dictionary definition of timber as "wood used for building or carpentry," and I think that is the meaning which is generally attributed to timber.

Now, according to the evidence of two experts who were called, plywood is a form of manufactured timber, that is to say, it is the original timber after being subjected to a considerable number of processes of manufacture . . . and the question which we really have to determine is, whether plywood has reached a stage at which it can no longer be properly described as timber. It comes midway between the two extremes. There can be no doubt that a tree of sufficient growth which has been newly felled is timber, and there can be no doubt that it remains timber after it has been cut up into logs for purposes of sale or transit. There can also be no doubt that at the other extreme, after timber has been manufactured into a finished article like a table or a chair or a boat, it ceases to be aptly described as timber. Then it can only be properly described by its distinctive name as a table or a chair or a boat. Plywood, as I said, comes between these two extremes. A considerable amount of manufacturing process has been employed upon it, but it has not reached a stage at which it has any use or purpose of its own; and that, to my mind, distinguishes it from the finished article. It is argued that plywood is still timber, because it is manufactured from timber and it is still to be used for building or carpentry, and, therefore, it is said it comes within the dictionary definition of timber as "wood used for building or carpentry," and that is the view which the learned Magistrate took, and I quite agree that there is a good deal to be said for that view. But, in my opinion, there is rather more to be said for the opposite view, namely, that plywood has reached a stage at which it has acquired a name of its own. After all, we are dealing with a question merely of nomenclature, we are not concerned with the nature of plywood, or how it is produced or what it is used for. The question is, has the timber in plywood reached a stage in its development at which it has acquired a distinctive name of its own so that it can no longer be properly described as timber; in my opinion, it has reached such a stage. I think that an order for timber could not properly be complied by supplying plywood, and that in ordinary parlance one could not refer to plywood as timber. The same view was taken by Mr. Justice Gentile in the case of *Ramanujiah vs. The Commissioner, Corporation of Madras (1937) I.M.L.J. 138*. I think he goes rather too far in

treating plywood as being on the same footing as a manufactured article like a chair or a table, since plywood has no purpose of its own, but I agree with his conclusion. In my opinion, therefore, the word 'timber' in Part III of Schedule M does not include plywood and the conviction must be set aside and the fine repaid.

[Wassoodew, J., agreed with the above judgment.]

[Ramanujiah vs. The Commissioner, Corporation of Madras (1937) I.M.L.G., 138, Approved.]

40 Bom. L.R. 322
20th Jan. 1938.

Vishwanath Sadashiv Natu (plff.) appellant
vs.

The Municipal Corporation of the City of Bombay (deft.) Respondent

The provisions of Section 527 of the City of Bombay Municipal Act, 1888, afford protection only to acts done in direct execution of the powers conferred by the Act. The protection afforded by the section does not cover acts done in pursuance of a contract which the Municipality is empowered to enter into, but is not required to enter into.

The plaintiffs V and G, and one N had certain municipal debentures issued in their names in 1929. In the beginning of July 1930, the City of Bombay Municipal Act, 1888, Section 527. the debentures were handed over by the holders to one Kelkar for collection of interest. Kelkar is in his turn gave them to one Acharya. N died on July 13, 1930. Although Acharya alleged that he had recovered the interest and paid the same to the plaintiffs he did not return the debentures. When asked, he stated that they were lying with his bankers and he would bring them in due course. After some months, four debentures, which were not the original ones but some others, were handed over by Acharya, through Kelkar to the plaintiffs. The remaining debentures were never returned to the plaintiffs. The plaintiffs alleged that in September 1932, they learnt that Acharya was arrested by the police for forgery and cheating, and thereupon they apprehended that their debentures may also have been involved. On enquiry they learnt that on their debentures there was N's endorsement and they had gone into the possession of the Bank of India, Ltd. The Bank had got them renewed and out of the renewed debentures, four had reached the plaintiffs back; the rest were withdrawn by Acharya. On August 11 1933, plaintiffs filed a suit against the municipality for a declaration that the endorsement of N on the eight debentures were forged and that the plaintiffs were the owners of the debentures. They also prayed that "the defendants may be ordered to transfer and hand over to the plaintiffs the said eight pieces of debentures or alternatively to pay to the plaintiffs the market value thereof together with all interest which has accrued due on the said debentures and which would become due until payment." The plaintiffs' contention

was that the defendant was not justified in accepting the debentures for renewal from the Bank of India, Ltd., that they were not justified in cancelling the old debentures, and that they were not justified in issuing new ones to the Bank, because all this was done without the consent of the plaintiffs, the rightful owners. The defendant municipality contended, *inter alia*, that by reason of section 527 of the City of Bombay Municipal Act, 1888, the suit was barred, not having been filed within six months of the accrual of the cause of action. Mr. Justice Kanja dismissed the suit whereupon the plaintiffs appealed:

HELD (i) that section 527 of the Act did not apply, as the wrongful action charged against the defendant municipality was not an action which was directly required by the statute.

(ii) that even if section 527 be assumed to apply, the suit was in time, having been instituted within six months of July 27, 1933, the date of the municipality's refusal to accede to the demand of the plaintiffs for the return of the debentures, from whence only the detention of the debentures by the municipality became unlawful.

Section 527, so far as is material, is as follows:—

- "527. (1) No suit shall be instituted against the Corporation or against the Commissioner, or a Deputy Commissioner, or against any Municipal Officer or servant, in respect of any act done in pursuance or execution or intended execution of this Act or in respect of any alleged neglect or default in the execution of this Act—
- (a) until the expiration of one month next after notice in writing has been, in the case of the Corporation, left at the Chief Municipal Office and, in the case of the Commissioner or of a Deputy Municipal Commissioner or of a Municipal Officer or servant delivered to him or left at his office or place of abode, stating with reasonable particularity the cause of action and the name and place of abode of the intending plaintiff and of his attorney or agent, if any, for the purposes of such suit; nor
- (b) unless it is commenced within six months next after the accrual of the cause of action."

Beaumont, C. J.—(Extract). Three points, I think, arise for consideration. First of all, what is the plaintiffs' cause of action? Secondly, does it fall within the terms of section 527? And, thirdly, if so, did the cause of action accrue more than six months before the suit was filed?

In my opinion the cause of action is clearly in tort. The declaration is really ancillary to the other relief asked for, and the other relief is in detinue for the return of the actual debentures, or alternatively in conversion. It was argued for the appellants that the cause of action was in contract, because the municipality as borrower would be bound to hand over the debentures to the true owner. No doubt it may have been part of the original contract on the issue of the debentures that the security should be handed over to the lender. But there is not, in my opinion, any contract on the part of the municipality that directly they get a debenture into their hands, they will hand it over to the true owner. They are bound under the general law to hand debentures over to the true owner,

but there is not, in my opinion, any contract by them to do so. I think, therefore, that the cause of action is clearly in tort and not in contract.

The next question is, does the cause of action fall within the terms of section 527, that is to say, was the wrongful act complained of done in execution or intended execution of the Act? Now, the House of Lords in *Bradford Corporation vs. Myers* (1916) I.A.C. 242, had to consider the true construction of section 1 of the Public Authorities Protection Act, 1893, which seems to me to be worded in substantially the same language as section 527 of the Bombay Act, and what the House of Lords decided was that the protection of the statute extended to acts done in direct execution of the powers conferred by the particular Act of the local authority, but that it did not cover acts which were done in pursuance of a contract which the local authority was empowered to enter into, but was not required to enter into, by its Act. I think that that principle applies to the construction of section 527 of the City of Bombay Municipal Act, and one has to see whether the act complained of was done pursuant to the direct requirements of the Act, or was done under some contract which the Corporation entered into under the powers conferred by the Act but which it was not compelled to enter into. . . . It seems to me that the case falls exactly within the principle of the decision of the House of Lords, and that the issue of a debenture containing an option of renewal, and the giving effect to that option were not acts done in direct execution of any power contained in the Act, but were acts done under a contract authorised, but not required by the Act. I am clearly of opinion that the wrongful action charged against the Corporation is not action which is directly required by the statute, and therefore section 527 has no application to the case.

[*Bradford Corporation vs. Myers* (1916) I.A.C. 242 followed.]

40 Bom. L.R. 685
17th March 1938.

Emperor

vs.

Dattatraya Ramchandra Naik

The owner of a building intended to be used for human habitation is not liable under Section 384-A of the City of Bombay Municipal Act, 1888, if his tenant keeps on the demised premises a goat although the owner has been served with a notice to discontinue the keeping of the goat on the premises.

The applicant Dattatraya was the owner of a chawl at Currey Road occupied by mill hands. One of the tenants of the chawl kept a goat without the permission of the Municipal Commissioner and the applicant as owner of the chawl was required by a notice from the municipality to discontinue the use of the chawl for keeping the goat. On his failure to comply with the notice he

was charged for the offence of disobeying the notice issued to him under section 384-A of the City of Bombay Municipal Act. The trying Magistrate convicted him of the offence charged and sentenced him to pay a fine of Rs. 25. Against his conviction the applicant applied to the High Court.

HELD that under section 384-A of the City of Bombay Municipal Act, 1888, the owner of a building used as a human habitation is not liable if his tenant keeps a goat on the premises.

Section 384-A is as follows :—

"384-A. Where a building or any portion thereof is used or intended to be used for human habitation and any portion of such building is used for any of the following purposes, namely,

- (a) for keeping any horse, cow, buffalo, bullock, goat or donkey, or
- (b) as a godown or place for the storage, in connection with wholesale trade, of grain seeds or groceries,

the Commissioner may, if it shall appear to him necessary for sanitary reasons to do so, by written notice require the owner or occupier of such building to discontinue the use of such building for any such purpose; provided that the Commissioner may permit such use subject to such conditions as he may think fit to prescribe."

Broomfield, J.—(Extract). The contention of the applicant that the owner is only liable under the language of the section if he himself is using the premises but not otherwise must be accepted. The language used is not appropriate to the case of the owner unless he is also the occupier and uses the premises. A person who is not in occupation cannot according to the ordinary use of the language discontinue the use of the premises for any of the purposes mentioned in the section. He might cause the use to be discontinued but that is not the same thing. "Discontinue" according to Webster is no doubt, "cause to cease," but to cause a thing to cease is not the same thing as to cause another person to discontinue it. It may not be in the power of the owner to cause the use of the premises for any particular purpose to be discontinued by his tenant. Apart from a special covenant he could have no authority over his tenants to prescribe the manner in which they should use the premises demised and he could comply with the section by evicting the tenants, which in many cases he may not be able to do.

From the mere use of the word "occupier" in section 385 we cannot infer that that the words "owner or occupier" will render the owner liable whether he is in occupation or not. The provision in question is a general provision and the section must be construed strictly. The legislature has not made its intention clear that in a case like this the owner is to be held liable when he is using the premises for any prohibited purpose. The conviction is set aside and fine ordered to be refunded.

41 Bom. L.R. 82
2nd Nov., 1938.

Emperor

vs.

Mohiddin Bawasahib Thakur

A District Local Board can levy octroi on goods imported into a notified area within the District for which it is constituted if it is duly empowered to do so by its Rules and Bye-laws.

The accused Mohiddin was the agent at Rajapur in the Ratnagiri

Bombay Local Boards Act, 1923
(Bom. VI of 1923), Section 4(1)
and (3).

Bom. District Municipal Act, 1901,
Ss. 187 and 188.

District of the Burma Shell Oil Distributing Company of India, for the purpose of sale of kerosene within the Rajapur Notified Area. Rajapur had its own municipality at first but it was abolished and the area of Rajapur was constituted into a Notified

Area by a notification published under section 187 of the Bombay District Municipal Act, 1901. The area was thereafter administered by the District Local Board of Ratnagiri under the provisions of the Bombay Local Boards Act, 1923. In exercise of the powers conferred by the Bombay Local Boards Act, the Board framed octroi rules which sanctioned a levy of octroi on every tin of kerosene oil imported into the limits of its district at the rate of one anna. The Board also made by-laws under section 62(1)(c) of the Act for recovering the octroi.

The accused obtained a shipment of two thousand tins of kerosene oil from Bombay. It was loaded on a boat and brought to Jaitapur, a town at the head of the creek leading to Rajapur. The customs duty on the tins was paid at Jaitapur. The nakadar of the District Local Board of Ratnagiri at Jaitapur demanded payment of octroi but it was not paid. The shipment was transferred in Jaitapur port to small country crafts and taken to Rajapur, another port nineteen miles up the creek. At Rajapur the shipment was unloaded and the accused took delivery of the tins consigned to him. He was called upon to pay Rs. 125 as octroi on the tins of kerosene imported by him. He did not, however, pay the amount. He was thereupon proceeded with under the octroi by-laws. The trying Magistrate convicted him of an offence under by-law No. 3 and imposed a fine of Rs. 50. The conviction and sentence were upheld by the Sessions Judge. The accused applied to the High Court in revision.

HELD that a District Local Board has power to levy octroi duty on goods imported into the district in respect of the whole of the district except such area thereof as is for the time being within the limits of a municipal district or cantonment.

The material portions of section of the Bombay Local Boards Act, 1923, and of the Bom. District Municipal Act, 1901, involved in this case run as follows:—

Bombay Local Boards Act

"4(1). The Government shall establish one district local board for each district as constituted from time to time under the Bombay Land Revenue Code, 1879, and may establish such

number of taluka local boards for such areas within the district as it shall deem fit.

- (3) A district local board and subject to the authority of the district local board, a taluka local board shall have authority for the purposes of this Act over the area for which it has been established, except such portion thereof as is for the time being within the limits of a municipal district or cantonment.

Bombay District Municipal Act

187. (1) The Governor in Council may by notification declare that with respect to some or all of the matters upon which a municipal fund may be expended under this Act, improved arrangements are required within a specified area, which, nevertheless, it is not expedient to constitute as a municipal district under section 7.
- (2) An area in regard to which a notification has been issued under sub-section (1) is hereinafter called a notified area.
- (3) No area shall be made a notified area unless it
- contains a town which is the headquarters of a taluka, or
 - is within a distance of one mile from a railway station: and no such area shall include two or more towns or villages which are separated by an extent of one or more than one mile of land unoccupied by houses.
188. (1) The Governor in Council may by notification—
- apply or adapt to any notified area the provisions of any section of this Act or part of any such section, or of any rules in force or which can be imposed in any municipal district under the provisions of this Act subject to such restrictions and modifications, if any, as he may think fit;
 - impose in any such area any tax, which might be imposed therein under the provisions of this Act if the said area were a municipal district;

By-laws made by the District Local Board under section 62(1)(c) of the Act were as follows:—

1. **Passing a toll-bar, without payment of toll, prohibited.**—No person shall pass or attempt to pass a toll-bar without payment to the toll-keeper of the toll legally payable by such person.
2. **Bringing animals or goods, without payment of octroi, prohibited.**—No person shall himself bring or cause or abet the bringing of any animal or goods upon which octroi is payable into the limits of the area subject to the authority of the District Local Board without having paid or tendered payment of the octroi legally payable.
3. **Penalty.**—Whoever commits a breach of by-law 1 or 2 shall be punishable with fine which may extend to fifty rupees.
4. **Limitations on prosecutions.**—No prosecution for a breach of by-law 1 or 2 shall be instituted except with the previous sanction of the Standing Committee or the President.

Broomfield, J.—(Extract). It is urged on behalf of the accused that Rajapur is a notified area under the Bombay District Municipal Act and that as such the District Local Board have no power to levy octroi on goods imported into a notified area. For this contention reliance is placed mainly on section 187 of the Bombay District Municipal Act and the other sections in Chapter XIV of the Act relating to notified areas. Under these provisions according to the accused, no taxes can be levied in a notified area except those which are provided for in section 186 and which are to be spent by the Notified Area Committee for the purposes of the notified area. It is urged on behalf of the accused that as stated in section 187(1), the object of constituting a notified area is that improved arrangements might be made within that area and that, therefore, no taxation for any other purpose is intended. But no such inference can be properly drawn. Because the inhabitants of a notified area may be taxed by the Governor in Council for the improvement of the area it does not follow that they may not also be taxed for the benefit of the district and if powers of taxation are given by another Act, for instance, the Local Boards Act, these powers cannot be taken away except by express words which are not to be found in Chapter XIV of the District Municipal Act.

Section 4(3) of the Bombay Local Boards Act provides that a District Local Board shall have authority for the purposes of the Act over the area for which it has been established, except such portion thereof as is for the time being within the limits of a municipal district or cantonment. No taxes can be imposed in a municipal district or in a cantonment. It cannot be accepted that the words "Municipal District" in this clause should be taken to include a notified area. The distinction between a municipal district and a notified area is made abundantly clear in the Municipal Act. Notified areas are constituted in cases when it is not expedient to constitute the area of a municipal district and under section 189 a notified area may be deemed to be a municipal district although it is not one, but only for the purposes of any section of the Municipal Act which may have been applied to it. Rajapur which was a municipal district was constituted a notified area and the Government notification relating there to said in so many words that from that date it was to cease to be a municipal district. *Prima facie* it is clear that when section 4(3) of the Bombay Local Boards Act refers to a municipal district it does not include a notified area. There is nothing in the Act to support the view that a notified area should be included, but there is on the contrary a provision recently introduced in section 46(1-A), in which reference is made both to municipalities and notified areas, showing that the distinction made in the District Municipal Act is recognised in the Local Boards Act also. The two Acts must be read together. It is said that this involves double taxation since the Notified Area Committee levies a terminal tax that however is a matter with which courts are not concerned. If any hardship is caused in this way it can be easily dealt with by the legislature. All that would be necessary would be to add the words "Notified Area" after "Municipal district" in section 4(3) of the Bombay Local Boards Act. Legislation, however, is not really necessary for under section 99 of the said Act. Government, if so, advised can make a rule that the District

Local Board is not to levy octroi in the case of goods imported into a notified area.

[*Emperor vs. Dema Mahadu* 38 Bom. L.R. 790 Referred to.]

41 Bom. L.R. 93
4th Nov., 1938.

Shankarlal Jadhavji Joshi

vs.

The Municipal Commissioner of Bombay

The mandatory provisions of Section 19, sub-sections (3) and (4) of the City of Bombay Municipal Act, 1888, do not prevent the grouping of voters in an alphabetical order according to communities and an electorate would remain joint even though its component members were grouped according to communities to which they respectively belonged.

The City of Bombay is divided into several wards for the purpose of elections and the applicant was enrolled as a voter in one of the wards of the City of Bombay Municipal Act, 1888 (Bom. III of 1888), Sections 19, 28, 32 and 34. In the municipal electoral roll for the city. He refrained from exercising his right as a voter at the general election of councillors held in Bombay on 7th February 1939. Before the result of the election was announced by the Municipal Commissioner under section 34 of the City of Bombay Municipal Act, he filed an application in the High Court that the ward lists were not prepared in accordance with the mandatory provisions of section 19(3) and (4) of the Act and that there was no proper electoral roll in operation at the date of the general election; that a properly prepared electoral roll being the basis of an election there was no basis for the elections held and that the applicant could not exercise his right to vote; and that the elections held under that roll were in law a nullity. He therefore, applied under section 45 of the Specific Relief Act, 1877, requiring the Municipal Commissioner to forbear from doing the following specific acts, namely:—

- (a) cause lists prescribed under clause (k) of section 28 of the Act to be prepared for each ward and made available for sale or inspection in the Municipal Commissioner's Office;
- (b) to declare the result of the general election of councillors under the provisions of section 32 of the Act;
- (c) to fix the requisite notice in respect of the result of the general election of councillors under the provisions of section 32.

(1) **HELD** that the provisions of sub-sections (3) and (4) of section 19 of the Act were mandatory but there was nothing in those sub-sections which would prevent the grouping of voters according to communities for the ward lists would still be in alphabetical order though the names of

voters appearing in alphabetical order were grouped according to the communities to which they belonged.

(2) that an electorate remained joint even though its component members were grouped according to the communities to which they respectively belonged.

(3) that there was no act or omission which could be said to have interfered with the applicant's franchise and therefore his franchise had not been injured within the meaning of proviso (1) to section 45 of the Specific Relief Act.

(4) that the applicant had no special interest of his own as a voter beyond what he had in common with other voters and there was no injury to his personal right.

(5) that under section 33(5) of the Act every election not called in question in accordance with sub-sections (1) to (3) was a good and valid election and it was incumbent upon the Municipal Commissioner to act under sections 28(k) and 32 of the Act.

(6) that the doing of the acts specified by the applicants did not constitute any infringement of his franchise or personal right and it was the doing of the acts specified by the applicant nor the forbearance to do them that was enjoined upon the Municipal Commissioner and the Municipal Commissioner could not be restrained from doing that which, until the election was set aside, was clearly incumbent upon them to do under the Act.

(7) that section 33 of the Act did not take away the applicant's right to go to the High Court under section 45 of the Specific Relief Act, even before the declaration of the result of an election was completed; but the remedy under section 33 was the more complete remedy and the applicant could not say that he had no other remedy whatsoever, though at the moment the application was filed he had technically no right under section 33 of the Act.

(8) that the electoral roll could have been challenged under the Act before the general election, but the applicant waited till after the election was over and the declaration of results was about to be completed and the order prayed for could not be, owing to this among other circumstances, consonant to right and justice and that as the applicant had not complied with the provisions of section 45 of the Specific Relief Act, his application was liable to be dismissed.

The material provisions of sections 19(3) and (4), 28(k), 32 and 33(1), (2) and (3) are as follows :—

"19. (1) On or before each first day of September the Commissioner shall prepare a list of persons appearing to be entitled to be enrolled in the municipal election roll as voters of wards.

(3) The list of voters of wards shall be made in separate lists, called ward lists one for each ward into which the city is

divided as hereinafter provided, containing the names of persons entitled to be enrolled as voters of that ward. The ward lists shall be arranged in alphabetical order and shall contain the addresses of persons who are entitled to be enrolled under the provisions of sub-section (2) of section 11.

(4) In preparing the ward lists the Commissioner shall enter therein the names of the persons who are entitled to be enrolled under the provisions of sub-section (2) of section 11, whether such persons be individuals, companies, firms, undivided families or other associations or bodies of individuals and shall also enter the names of persons who are entitled as aforesaid as the trustees of any building or land.

28. With respect to the contested ward elections the following provisions shall have effect, namely :—

(k) The Commissioner shall, as soon as may be, declare the result of the poll, specifying the total number of valid votes given for each candidate, and he shall, as soon as may be, hear and decide all objections, if any, to or regarding the poll, made to him in writing not later than 5 o'clock of the afternoon of the day after the poll and shall cause lists to be prepared for each ward, specifying the names of all candidates, and the number of valid and the number of rejected votes given to each candidate. In accordance with such rules as the Commissioner may frame for the purpose and on payment of such fee as may be prescribed by him a copy of such list shall be supplied to any candidate of the ward and shall be available for inspection to any voter of the ward."

32. (1) The result of every election shall be declared by fixing, as soon as may be after the election, in some conspicuous place on the chief municipal office, a notice certifying the names of the persons, if any, elected and, in the case of a contested election, the number of votes recorded for each candidate."

"33. (1) If the qualification of any person declared to be elected for being a councillor is disputed, or if the validity of any election is questioned whether by reason of the improper rejection by the Commissioner of a nomination or of the improper reception or refusal of a vote, or for any other cause, any person enrolled in the municipal election roll may, at any time, within fifteen days from the date on which the list prescribed under clause (k) of section 28 was available for sale or inspection in the Commissioner's office apply to the Chief Judge of the Small Causes Court. If the application is for a declaration that any particular candidate shall be deemed to have been elected the applicant shall make parties to his application all candidates who, although not declared elected, have, according to the results declared by the Commissioner under section 32, a greater number of votes than the said candidate, and proceed against them in the same manner as against the said candidate.

(2) If the said Chief Judge, after making such inquiry as he deems necessary, finds that the election was a valid

election and that the person whose election is objected to is not disqualified, he shall confirm the declared list of the election. If he finds that the person whose election is objected to is disqualified for being a councillor he shall declare such person's election null and void. If he finds that the election is not a valid election he shall set it aside. In either case he shall direct that the candidate, if any, in whose favour the next highest number of valid votes is recorded after the said person or after all the persons who were returned as elected at the said election and against whose election no cause of objection is found, shall be deemed to have been elected.

(3) The said Chief Judge's order shall be conclusive.

(4) * * * *

(5) Every election not called in question is in accordance with the foregoing provisions shall be deemed to have been to all intents a good and valid election."

B. J. Wadia, J.—(Extract). The application is made under section 45 of the Specific Relief Act. Under that section the High Court of Bombay is empowered to make an order requiring any specific act to be done or forbore by a person holding a public office, subject to the conditions contained in provisos (a) to (e). Under the provisos the applicant must be a person whose property, franchise or personal right would be injured by the forbearing or doing (as the case may be) of the specific act, the party against whom the order may be made must be amongst others a person holding a public office upon whom the doing of or forbearing to do the act is, under any law for the time being in force clearly incumbent. The applicant must also establish that he has no other specific and adequate legal remedy and that the remedy given by the order applied for will be complete. Further, in the opinion of the Court the doing of or forbearing to do the act must be consonant to right and justice. The conditions laid down in these provisos are cumulative, so that all of them must be fulfilled before the order applied for is made. The order is discretionary. The Court's jurisdiction has to be exercised for the protection of the rights of the public but it must be exercised with caution as the remedy is of a summary nature and coercive in its character. Section 45 enables the Court to make an order requiring any specific act or acts to be done or forbore from being done and nothing else.

The applicant must show that his franchise or personal right would be injured by the doing of the acts he wants the Municipal Commissioner to forbear from doing.

The words "shall be made", "shall be arranged", "shall enter" in section 19(3) (4) of the Act, are mandatory words but they do not prevent the voters being grouped together according to communities, for the ward lists would still be in alphabetical order, though literally the names of the voters appearing in alphabetical order would be grouped according to the communities to which they belong. In preparing the ward lists there was no material deviation from those sub-sections. Even if the ward lists are not literally prepared in accordance with the provisions of section 19(3) and (4), substantially they are so prepared and no injustice has resulted

to anyone on that account. Even assuming that the ward lists have not been strictly prepared according to those sub-sections, the applicant must still satisfy the Court before invoking its extraordinary jurisdiction that the ward lists and the electoral roll based upon them would have injured his franchise or personal right. A man's franchise is his right to vote at an election and the qualifications upon which that right is based. It does not appear that the roll as prepared injured the applicant in exercising his franchise in the manner contended by him. In fact there was nothing to prevent him from voting. There was nothing to prevent him from signing the nomination paper of a candidate as proposer or seconder, if at all he had entertained the intention to do so. There is really no act or omission which can be said to have really interfered with his franchise and his franchise has not therefore been injured with the meaning of the first proviso to section 45.

The applicant's personal right has also not been injured as contended by him. A personal right is not a right which every member of a civilised society possesses independently of any act of his own. The applicant must show that he had some special definite individual right of his own in the matter complained of irrespective of his right as a member of the community at large. No special circumstances have been shown indicating such a personal right. The applicant had therefore no special interest of his own as a voter beyond what he had in common with other voters. There is therefore no injury to his property as contemplated by the section.

The duty sought to be enforced on the Municipal Commissioner must be clear and obligatory and the forbearing to do the acts he wants to do must be clearly incumbent upon him. What is incumbent is not discretionary. There has been a *de facto* election, and what remained for the Municipal Commissioner to do was to complete the result by the final declaration under section 32 of the Act. The first specific act which the applicant wants the Municipal Commissioner to forbear from doing is to cause lists prescribed under section 28(k) to be prepared and made available for sale in his office. The words of section 28(k) are mandatory and they require the Commissioner to declare the result of the poll as stated therein and cause lists to be prepared for each ward with the details mentioned in sub-clause (k). The result of every election has to be declared and the said notice has to be signed by him. These words are equally mandatory under section 33 (5) every election not called in question in accordance with the foregoing provisions shall be deemed to have been to all intents a good and valid election. The Municipal Commissioner cannot forbear to act under section 28(k) and section 32 when the election has not been called in question under the provisions of section 33. It is the doing of these acts which is incumbent upon him by the clear terms of the statute. The jurisdiction of this Court is limited to cases where there is a clear breach of duty to do or forbear from doing as the case may be. The Municipal Commissioner could only forbear to do the acts complained of if the election was declared invalid. An applicant under section 45 of the Specific Relief Act cannot ask for such a declaration nor can the Court make it, as a relief by way of declaration is neither contemplated by nor directed under the section. The Municipal

Commissioner cannot be restrained from doing that which until the election is set aside is clearly incumbent upon him to do under the Act.

The rest of the judgment deals with the applicability of section 45 of the Specific Relief Act and is omitted as not being relevant to our purposes.

(Note.—An appeal preferred against the above decision was dismissed for want of prosecution by the appellant—Editor.)

41 Bom. L.R. 911
23rd Feb., 1939.

The Lokamanya Mills, Ltd., Barsi

vs.

The Municipal Borough of Barsi

An application in revision against an order in revision passed under Section 111 of the Bombay Municipal Boroughs Act, 1925, will be entertained by the High Court only in very proper and rare cases.

The Lokamanya Mills, Ltd., Barsi, owned certain properties within the municipal limits of the Barsi Municipal Borough and had paid Rs. 2 as the conservancy cess levied in respect of their properties by the municipality. The municipality, however, relieved Rs. 73 as the cess and this amount was also duly paid. An appeal was made to the First Class Magistrate by the Lokamanya Mills contending that the levy was illegal and claiming a refund. This application was dismissed. A revision application to the Court of the Additional Sessions Judge, Sholapur, was also dismissed. The Lokamanya Mills then applied to the High Court in revision under section 115 of the Civil Procedure Code.

HELD that the High Court has power under section 115 of the Civil Procedure Code to entertain an application for revision against an order in revision passed under section 111 of the Bombay Municipal Boroughs Act but such power should be very sparingly exercised and in proper cases.

[See Summary of 40 Bom. L.R. 337 for section 111.]

Beaumont, C. J.—(Extract). The question of liability to tax is a purely civil matter and the Magistrate hearing an appeal against a demand notice in a Criminal Court so that an appeal lies from him to the Sessions Court and not to the District Court. The Sessions Judge in a case of this sort exercises the powers of a Civil Court and not a Criminal Court (*Ahmedabad Municipality vs. Vadilal* (1928) 30 Bom. L.R. 1084) and therefore no revision application lay under the Criminal Procedure Code. Under the Civil Procedure Code, section 115, the High Court may call for the record of any case which has been decided by any Court subordinate to it and for the purposes of the Code, the District Court is subordinate to

the High Court (section 3). The Sessions Court is not subordinate to the High Court for the purposes of the Civil Procedure Code. But the High Court has entertained revision applications against orders of the Collector passed in revision under the Mamlatdars' Courts Act, though the Collector is not a Subordinate Court under section 3. Those cases show that the fact that revision is allowed to one Court by a statute does not necessarily exclude a further application in revision to the High Court. Although it is anomalous that the High Court should have jurisdiction to revise a civil order made by a District Judge and a criminal order made by a Sessions Judge (who is the same individual) it should not have power to revise a civil order made by a Sessions Judge sitting under a statute temporarily as a Civil Court. As held in *Surat Municipality vs. Hamiduddin* (40 Bom. L.R. 387) the High Court has jurisdiction under the Civil Procedure Code in a proper case to entertain an application in revision against an order in revision passed under section 111 of the Bombay Municipal Boroughs Act but that such application should be very sparingly entertained.

[*Surat Municipality vs. Hamiduddin* 40 Bom. L.R. 387 Approved; *Ahmedabad Municipality vs. Vadilal* 30 Bom. L.R. 1084 Not approved.]

[Referred to in *M. S. Bhopshetti vs. B. V. Bhat* 42 Bom. L.R. 223; *Borough Municipality of Ahmedabad vs. The Ahmedabad Manufacturing and Calico Printing Co. Ltd.*, 41 Bom. L.R. 1015.]

[1939] Bom. 571 = 41 Bom. L.R. 937
8th March 1939.

Muljee Sicka & Co.

vs.

The Municipal Commissioner of Bombay

The High Court has power to issue a writ of certiorari in respect of the order of subordinate Courts and of proceedings of any tribunal or officer who, though not a Court, is acting judicially in those proceedings. Before a writ can be issued, two conditions are necessary: The tribunal or officer whose act is complained of must be acting (1) judicially and (2) the act complained of must be without jurisdiction or in excess of its or his legal authority.

Messrs. Muljee Sicka & Co. were the owners of several buildings on the Vithalbhai Patel Road, Bombay, and they were liable to pay a certain percentage of their rateable values as property taxes under sections 139 and 140 of the City of Bombay Municipal Act. For this purpose the Municipal Commissioner had to fix the rateable value of each building assessable to property tax in accordance with the provisions of section 154 of the Act. The Municipal Commissioner fixed the rateable value of one of the buildings and the applicants preferred an appeal to the Chief Judge of the Small Causes Court, Bombay, under section 217 of the Act complaining that in fixing that value the Municipal Commissioner should have but had not excluded the value of the machinery, namely, three lifts and one pump

provided in the premises of the building. The then Chief Judge (Mr. Chitre) allowed the appeal and ordered the exclusion of the value of the lifts and the pump and appointed an expert as commissioner to assess their value. The rateable value of the applicant's other building was subsequently fixed by the Commissioner without excluding the value of the lifts and the pumps with which they were provided. The applicants again appealed to the Chief Judge but this time Mr. Indranarayan who had succeeded Mr. Chitre took a different view and held that although lifts and pumps might be "mainly or partly machinery," no deduction could be allowed from the annual rents of the buildings for the value or cost of the lifts and pumps under sub-section (2) of section 154 of the Act. He observed that in taking the rents reasonably expected to be received as the basis for assessment the cost of the lifts as such had nowhere been in fact included. He therefore rejected the appeal and against that order the applicants applied to the High Court in revision. After the application was admitted, they obtained permission and added a prayer for the issue of a writ of *certiorari*.

HELD that as the power to issue a writ of *certiorari* is vested in the High Court it cannot be taken away by the provisions of section 219 of the City of Bombay Municipal Act and if a proper case is made out the High Court will issue a writ of *certiorari*.

Held also that when the Chief Judge of the Small Causes Court, Bombay, acts as a *persona designata* under section 217 of the City of Bombay Municipal Act, the High Court has no jurisdiction to interfere with his decision under section 115 of the Civil Procedure Code.

Lokur, J.—(Extract). According to section 154 of the City of Bombay Municipal Act, 1888, the rateable value of a building or land is the amount of the annual rent for which such building or land might reasonably be expected to let from year to year, *minus* a sum equal to ten per centum of the said annual rent to be deducted in lieu of all allowances for repairs or on any other account whatever. Sub-section (2) of that section says "the value of any machinery contained or situate in or upon any building, or land shall not be included in the rateable value of such building or land."

The first question that arises is whether this Court has power to issue a writ of *certiorari*. No instance of any such writ having been issued by this Court has been shown but there are numerous cases in which such writs have been issued by other High Courts. The nature of this writ is thus described in Short and Mellor's Crown Practice:—

"The writ of *certiorari* is the process by which the King's Bench Division, in the exercise of its superintending power over inferior jurisdiction requires the Judges or Officers of such jurisdictions to certify or send proceedings before them into the King's Bench Division, whether for the purpose of examining into the legality of such proceedings or for giving fuller or more satisfactory effect to them than could be done by the Court below."

The writ of *certiorari* is of great antiquity in England, forming part of the powers by which the King's Courts restrained Courts of inferior jurisdiction from exceeding their powers.

It is true that the Chief Judge of the Small Causes Court, Bombay, is not a Court when hearing municipal appeals but acts as a *persona designata* as the wording of section 217 of the City of Bombay Municipal Act shows. It has been so held in *Ahmed Suleman vs. Municipal Commissioner, Bombay* (1929) *I.L.R. 54 Bom. 224* and the High Court is held to have no jurisdiction to interfere with his decision under section 115 of the Civil Procedure Code, 1908. The Court then proceeded to see whether the powers exercised by the King's Bench in England and continued by the Amended Letters Patent of the High Court were curtailed by subsequent legislation and came to the conclusion that the powers conferred upon the High Courts by the Letters Patent and the Charter Act were co-extensive with those of the King's Bench in England and the King's Bench has power to issue a writ of *certiorari* in respect not only of the orders of Subordinate Courts but also of the proceedings of any tribunal or officer, who though not a Court, is yet acting judicially in those proceedings.

Although the Chief Judge of the Small Causes Court, Bombay, hearing an appeal under section 217 of the City of Bombay Municipal Act be not a Court, his decision is a judicial act, and if he acts without jurisdiction or in excess of his legal authority, his act can be controlled by this Court by a writ of prohibition or *certiorari* as the case may be. It is true that sub-section (1) of section 219 of the Act provides that the decision of the Chief Judge upon any appeal under section 217 against any such value or tax shall be final. But that only means that there are no further appeals and it does not affect the power of the High Court to issue a writ of *certiorari*. "*Certiorari* can only be taken away by express negative words. It is not taken away by words which direct that certain matters shall be 'finally determined' in the inferior Court, nor by a proviso that 'no other Court shall inter-meddle' with regard to certain matters as to which jurisdiction is conferred on the inferior Court." (*Halsbury's Laws of England*, 2nd Edn., Vol. IX, p. 861, para. 1455).

It is thus clear that if the power to issue a writ of *certiorari* is vested in the High Court, then it is not and cannot be, taken away by section 219 of the City of Bombay Municipal Act. The High Court has, therefore, power to issue a writ of *certiorari* if a proper case is made out.

The next question that arises is whether the present case justifies the issue of such a writ. Two objections have been raised against the order of the Chief Judge of the Small Causes Court, Bombay; (1) that it is opposed to the principle of *res judicata* and (2) that the provisions of sub-section (2) of section 154 of the City of Bombay Municipal Act have been misconstrued. As regards the first objection even in an application for revision under section 115 of the Civil Procedure Code an erroneous decision on the question of *res judicata* is not regarded as sufficient to justify interference. Mr. Chitre was dealing with the rateable valuation of a different building and for a different year, and although the Chief Judge (Mr. Indranarayan) might have taken into consideration the reasons given

by Mr. Chitre in arriving at his conclusion, he was not bound to accept and follow his reasoning and his refusal to do so cannot be regarded as a ground for issuing a writ of *certiorari*. The limits within which such a writ can be issued are stated in *Rex vs. Electricity Commissioners : London Electricity Joint Committee Co.* [(1924) I.K.B. 171] as follows :—

“Wherever any body of persons having legal authority to determine questions affecting the rights of subjects and having the duty to act judicially, act in excess of their legal authority they are subject to the controlling jurisdiction of the King's Bench Division exercised in these writs.”

Then the two conditions which must be fulfilled before a writ of *certiorari* can be issued are (1) that the tribunal or officer whose act is complained of must be acting judicially, and (2) that the act complained of must be without jurisdiction or in excess of the legal authority of that tribunal or officer. An officer or tribunal having jurisdiction to decide a question cannot be said to have acted in excess of the legal authority if the decision happens to be wrong. The Chief Judge of the Small Causes Court in this case may have wrongly interpreted sub-section (2) of section 154 of the City of Bombay Municipal Act and arrived at an erroneous conclusion but in doing so, he was acting within his jurisdiction and not in excess of the powers conferred upon him by section 217 of the Act. The Chief Judge has interpreted the sub-section in question and fixed the rateable value of the petitioner's buildings according to the provisions of the Act in the light of his own interpretation. He had the power to interpret the sections of the Act and if his interpretation be not correct it does not justify the issue of a writ of *certiorari*. The Chief Judge has not acted beyond his legal authority in including the lifts and pumps in fixing the rateable value of the buildings. In the previous appeal Mr. Chitre had ordered the lifts and pumps to be separately valued and the value to be deducted from the rateable value of the buildings. The wording of the sub-section in question is unhappy and the word “value” used at the beginning of the sub-section seems to have been intended to mean the rateable value. Even then the sub-section does not require that such value of machinery should be deducted from the rateable value of the buildings. What the sub-section says is that the value of the machinery “shall not be included in the rateable value of such building or land.” Even assuming that the lifts and the pump are machinery attached to the building, it is difficult to see how their value is not to be included in the rateable value of the building or land, as they are amenities attached to the building for the convenience of the occupants. Sub-section (1) requires the Commissioner to find out the amount of the annual rent for which the building might be reasonably expected to let from year to year and it is difficult to see how the annual rent can be estimated if the lift is altogether left out of consideration. The Chief Judge says that no deduction can be allowed from the annual rent of the building under sub-section (2) as that sub-section does not provide for such a deduction; but he has specifically stated that in assessing the reasonable rent of the building the cost of the lift has not been included. He was therefore acting within his jurisdiction. This case is not therefore a fit case for the issue of a writ of *certiorari*.

The sub-section has given rise to fruitful litigation and different Chief Judges have come to different conclusions in the light of their own interpretation of the sub-section. The sub-section provides for the exclusion of “machinery” in fixing the rateable value of a building without making any such exception. If it is intended that the value of such machinery as lifts and pumps should not be excluded from consideration then the legislature must make it clear by suitably amending the sub-section and adding a schedule of exceptions as in the English Rating and Valuation Act of 1925.

Rex vs. Electricity Commissioners (1924) I.K.B. 171, *Rex vs. Nat Bell Liqueurs* (1922) A.C. 128, *Rex vs. Minister of Health : Davis, ex-parte* (1929) I.K.B. 619, *Frome United Breweries Co. vs. Bath Justices* (1926) A.C. 586, Relied on. In *re Mrs. Besant* I.L.R. 39 Mad. 1164, *Surendra Nath Banerjee vs. Chief Justice and Judges of the High Court of Bengal* 10 I.A. 171, *Ahmed Saleman vs. Municipal Commissioner, Bombay* I.L.R. 54 Bom. 224 Referred to.

41 Bom. L.R. 984
17th March 1939.

Chhotatal Panachand

vs.

The Borough Municipality of Nadiad

Definite proof of ownership of soil is necessary to prove that the soil of a public street belongs to the Municipality mere use of the public street as such being insufficient.

In 1916 the City Survey Enquiry Officer at Nadiad decided that a certain land (Khadki) was part of a public street. In 1929 the plaintiff, who owned a house abutting on the land built an *otla* and a privy on this land. The defendant municipality ordered their removal. All the residents who had their houses abutting on the land including the plaintiff thereupon made an application to the municipality that the land be declared to be of private ownership and not a public street. A resolution was passed at a general meeting of the municipality to the effect that the public street should be “made” a private street. The resolution was forwarded to the Collector who refused to sanction the conversion of the public street into a private street. In 1935 the plaintiff filed a suit against the municipality for a declaration of his title to the land under and in front of the khadki and an injunction restraining the municipality from interfering in his enjoyment of the land. The municipality contended that the plaintiff's suit was time-barred under section 50-A of the Bombay District Municipal Act as it was not filed within one year of the decision of the City Survey Enquiry Officer. The trial Court dismissed the suit. On appeal, the decree of the trial Court was confirmed. The plaintiff appealed to the High Court.

HELD that the suit was barred under sub-section (2) of section 50-A of the Bombay District Municipal Act, 1901, as it was not brought within one year from the decision of the City Survey Enquiry Officer.

Held also that the words "public streets" in section 50(2)(f) of the Act do not include the soil beneath the streets and definite proof must be brought by the municipality in order to claim the soil of the public street.

Lokur, J.—(Extract). It is contended by the plaintiff that he does not know if any formal inquiry was held by the City Survey Enquiry Officer, that he did not receive any notice of any such formal inquiry and that he did not receive any notice of the order passed by the City Survey Enquiry Officer as required by sub-section (3) of section 50-A of the Bombay District Municipal Act. But the extract from the survey register clearly shows that the owners of the houses in the khadki did appear and put forward their claim at least to a certain khadki chalta as the note in column 9 shows. The remarks made by the City Survey Enquiry Officer in Column 10 that no evidence was produced shows that he expected the said claimants to appear before him and adduce evidence in support of their contention. In the absence of evidence he came to his decision from surrounding circumstances and held that the chaltas in question were part of a public street. From these circumstances it may be presumed that a formal inquiry must have been held by the City Survey Enquiry Officer after giving due notices to the parties concerned as required by sub-section (1) of section 50-A of the Act. This could have been proved by direct evidence of the notices and other proceedings held by the City Survey Enquiry Officer but those proceedings have been destroyed and according to Illustration (e) to section 114 of the Indian Evidence Act, judicial and official acts may be presumed to have been regularly performed.

The defendant municipality objected to the construction of *otlas* in the khadki and the residents of the houses in the khadki made an application to the District Deputy Collector requesting that the khadki should be declared to be of their private ownership. That application was rejected as well as an appeal preferred to the Collector on the ground that the claim was time-barred. At least when this application and the appeal were presented, the plaintiff had come to know the order passed by the City Survey Enquiry Officer, and no suit was filed even within one year after that. Subsequently the plaintiff built an *otla* and a privy on a portion of the khadki and the defendant municipality ordered their removal. This suit was not filed even within one year after that. It is thus clear that the presumption that the procedure laid down in section 50-A of the Act must have been followed by the City Survey Enquiry Officer before deciding that the khadki in suit was a public street stands un rebutted. It is also to be presumed that the decision was communicated to the plaintiff and the plaintiff admittedly came to know of it at least in the year 1923; and if the plaintiff wants to have that decision set aside or asks for any relief which is inconsistent with that decision, then his claim is barred under sub-section (2) of section 50-A of the Bombay District Municipal Act.

The plaintiff is at liberty to ask for any relief in respect of that khadki but that relief must not be inconsistent with the decision of the

City Survey Enquiry Officer. The wording of that decision is "decided to be part of a public street" which does not mean that the soil of that street belonged to or was vested in the municipality. The expression "public street" is defined in section 3, clause (13) of the Act. It does not follow from that definition that the soil of every public street must necessarily be of the ownership of the municipality.

Section 50, sub-section (2)(f) of the Act says that all public streets and the pavements, stones and other materials thereof and also all trees, erections, materials, implements and things provided by such streets shall be vested in and belong to the municipality and shall be held and applied by them as trustees. [His Lordship referred with approval to *Chairman of the Naihati Municipality vs. Kishori Lal Goswami* 13 Cal. 171 and *Modhu Sudan Kundu vs. Promoda Nath Roy* 20 Cal. 732, and proceeded.] Unless therefore it is definitely proved that the soil of any public street belongs to the municipality it cannot be presumed to be of the ownership of the municipality merely on the ground that it is used as a public street. In fact section 90, sub-section (5) of the Bombay District Municipal Act, 1901, contemplates a private street being declared by the municipality as a public street, but thereby the soil of such street does not come to be of the ownership of the municipality. The only effect of such a declaration is that the suit is allowed to be used by the public and the public can claim a right of way over it as contemplated by section 3(13)(a) of the Act. This being so, the decision of the City Survey Enquiry Officer that the khadki was a public street did not declare that the municipality was the owner of the soil of the street. It may be at one time it was a private street under section 90(5). Even in that case the City Survey Enquiry Officer would be justified in holding the khadki to be a public street although the soil belonged to the owners of the adjoining houses. If the City Survey Enquiry Officer had decided that the soil belonged to the municipality and had been declared a public street then the plaintiff's claim in the present suit could have been inconsistent with that decision. By reason of the plaintiff's failure to file a suit within one year after the decision of the City Survey Enquiry Officer he is debarred from challenging the municipality's claim that the khadki is a public street but the plaintiff is not debarred from claiming that even though it is a public street, the soil of the street belongs to him.

After the plaintiff's appeal to the Collector was rejected as time-barred in 1924, the plaintiff put up an *otla* and a privy in 1929 and when they were ordered to be removed all the residents of the khadki made an application to the municipality requesting that the khadki be declared to be of the private ownership and not a public street. At a general meeting of the municipality it was resolved that the public street should be "made" a private street. A reply was accordingly given to the applicants. That resolution was forwarded to the Collector who refused to sanction the conversion of the public street into a private street. When this decision was communicated to the plaintiff, the present suit was filed. In exercise of the power conferred by section 90(1) of the Bombay District Municipal Act the defendant municipality passed a resolution discontinuing the use of the khadki in dispute as a "public street." Such discontinuance did not require the sanction of the Commissioner under section

40(2) of the Act. The question whether the soil of the khadki belongs to the owners of the adjacent houses or to the municipality has not been determined. If it belongs to the municipality the plaintiff has no claim over it and the suit is bound to be dismissed. If, on the other hand, it belongs to the plaintiff then the municipality can discontinue its use as a public street without the sanction of the Commissioner since thereby it does not part with any land belonging to it. Admittedly the municipality passed a resolution at its general meeting discontinuing the use of the khadki as "a public street" and the resolution was duly communicated to the owners of the houses in that locality. That resolution took effect immediately, unless it is held that it required the sanction of the Commissioner. Whether such sanction is required or not depends on the ownership of the municipality over the soil of the khadki. It is therefore necessary to raise an issue as to whether the land belongs to the plaintiff or to the municipality and this suit cannot be finally disposed of unless a finding is recorded on that issue.

Even if the decision of the City Survey Enquiry Officer cannot be challenged by the plaintiff he can still contend that by reason of the resolution of the municipality converting the public street into a private street, the land of the street reverts to him as he was its owner before it was declared to be a public street as held in *Modhu Sudan Kundu vs. Promoda Nath Roy (I.L.R. 20 Cal. 732)*. The appeal is, therefore, allowed and the suit remanded.

....[Chairman of the Naihati Municipality vs. Kishori Lal Goswami I.L.R. 13 Cal. 171 and *Modhu Sudan Kundu vs. Promoda Nath Roy I.L.R. 20 Cal. 732* Referred to.]

41 Bom. L.R. 1097
5th April 1939.

DECENNIAL INDEX TO THE QUARTERLY JOURNAL OF THE LOCAL SELF-GOVERNMENT INSTITUTE

From July 1930 to April 1940

(Vols. I to X)

A		Vol.	Issue No.	Page No.
Administration				
Of Local Bodies	...	1	1	1
Report of Local Bodies	...	2	7-8	102
Of the City Engineer's Department	...	5	19	105
Of Local Self-Government in Aundh State	...	8	32	399
Administrative Areas—The Problem of	...	5	17	43
Adult Education and Literacy in the City of Bombay	...	10	37	37
Aphorisms—Re: Municipal Taxation	...	1	4	34
Assam Municipalities	...	7	25	53
Atrocious enactment—Bombay Municipal Corporation Amendment Bill	...	3	10	11
Audit				
An amazing	...	6	21	1
Of accounts by Government of Ahmedabad Municipality	...	7	26	21
B				
Bengal				
District Municipal Act, 1932	...	3	10	1
Municipal Bill	...	3	10	15
Village Self-Government	...	5	17	33
Do. Do.	...	5	19	135
Bhagwat				
Mr. S. R. Retirement from the Institute—Editorial	...	1	4	1
Bombay				
Greater—Editorial	...	3	9	1
Greater	...	3	9	31
The Metamorphosis of Northern	...	9	36	441
Bombay Local Self-Government Committee's Report 1939	...	10	39	1-102
Bombay Corporation				
What it is and what it does	...	5	18	25
Bombay Municipality				
The Work of the Municipal Commissioner	...	5	18	39
How the City gets its water-supply	...	5	19	35
Do. food	...	5	19	41

	Vol.	Issue No.	Page No.
How the City gets its money ...	5	19	49
Health of the City ...	5	19	71
Fire-brigade ...	5	19	79
The City's gardens ...	5	19	85
City Engineer's Department ...	5	19	105
Hawkers ...	5	20	1
Our shade and ornamental trees ...	5	20	8
Taxes ...	7	25	1
Food supplies ...	7	27	89
The story of its origin and growth ...	8	30	116
Some thoughts on Municipal Problems ...	8	30	126
Disposal of waste water ...	3	9	59
Budget			
Some essentials of an efficient ...	1	2	49
By-laws			
Building ...	6	23	1
C			
Calcutta Municipal Amendment Bill ...	3	12	34
Cases			
Legal decisions and opinions ...	2	6	24
Bombay Municipality vs. Secretary of State ...	2	7-8	94
Legal Notes ...	3	9	64
All India Digest of L. S. G. Cases for 1933 ...	4	15	103
Selected Cases on Local Self-Government Acts ...	9	35	299
Do. ...	9	36	513
Do. ...	10	37	i to xxxii
Do. ...	10	38	i to xxxii
Cement—Indian			
Its Municipal Uses ...	4	14	1
C. P. and Berar			
Development of Panchayats ...	3	11	57
Government Report Village Panchayats ...	5	20	49
L. S. G. Committee Report ...	6	24	108
Chief Officer for Municipal Boroughs			
Non-graduates—Editorial ...	1	4	3
City Government in Tokyo ...	3	11	43
Cities—What some western cities are doing to educate their children ...	6	24	53
Cleanliness ...	5	19	127
Conference			
Of Chairmen of Bengal District Boards ...	1	2	36
Bombay Provincial Local Bodies, 1931 ...	2	5	3
Do. Editorial ...	2	5	68
Report about action taken ; 1930 ...	2	5	17
Andhra Municipal and Local Boards ...	2	5	20
Thana District Local Bodies, Collector's Address ...	2	6	35

	Vol.	Issue No.	Page No.
Provincial—of Local Bodies ...	3	12	69
Karnatak Local Bodies—Divisional ...	4	15	77
Of the International Union of Local Authorities at Lyons ...	5	18	66
Poona District Village Panchayats ...	5	19	121
First Punjab Local Self-Government ...	5	20	13
Municipalities of Baroda State ...	5	20	32
Local Bodies—Provincial (1935) ...	5	20	37
To consider Government Resolution of 25-2-1935 ...	5	20	49
Of Local Bodies in Dharwar District ...	6	22	17
C. P. and Berar Local Self-Government employees ...	6	22	31
Gujrat Divisional Conference of Local Bodies All Bengal Municipal	6	22	47
I Speech of Mr. B. C. Datta ...	6	24	8
II Opening Speech of Hon. Sir B. P. Roy ...	6	24	16
III Speech of Mr. Biren Roy ...	6	24	22
IV Resolutions ...	6	24	33
Bengal Municipal Employees ...	6	24	36
First All India Local Self-Government ...	6	24	43
Second Punjab Local Self-Government ...	7	25	19
Divisional Conference of Local Bodies			
Do. Sholapur ...	7	25	19
Do. Karnatak ...	7	27	57
Do. Resolutions ...	7	28	65
Kolhapur Local Self-Government ...	8	29	41
Nagpore Local Self-Government ...	8	31	249
Madras Provincial Village Panchayat Boards	8	32	263
Central India Rural Uplift ...	9	33	47
Provincial Local Bodies, Bombay 1938 ...	9	33	57
Do. Resolutions ...	9	33	61
Maharashtra Local Self-Government—Mr. Nariman's Speech ...	9	34	121
Local Bodies Divisional Conference Ahmednagar Resolutions ...	9	34	185
Congress of the Mayors of the Republic of France	3	9	73
Cooper, Khanbahaddur D. B.—An appreciation ...	4	14	44
Conservancy and Drainage Notes ...	10	38	221
Do. Do. ...	10	40	411
Council, Bombay Legislative, Proceedings	1	4	37
Do. Do. ...	2	5	49
Do. Do. ...	2	7-8	42
D			
Deccan Paper Mills—Samples of Paper ...	9	36	555
Development of the Suburbs ...	3	10	48
Diseases and the prevention ...	2	6	3

	Vol.	Issue No.	Page No.
Disinfection and public health ...	8	29	83
Disposal of waste water in the Bombay Suburbs ...	3	9	59
District Boards at work in the U. P. ...	3	12	40
District Local Boards in Bombay ...	1	2	33
Do. Statement showing Government grants ...	5	18	117
Do. Do. of Number and Constitution ...	5	18	118
District Municipal Act, 1932, Bengal ...	3	10	1
Drainage ...	6	23	26
Drainage and Conservancy—Notes ...	10	38	221
Do. Do. Do. ...	10	40	411
Dust Nuisance on Roads in towns ...	9	33	37
E			
Education			
National ...	1	3	1
In Liverpool ...	3	12	1
Mass—in India ...	4	14	49
Do. ...	4	15	1
Important Statistics in India—1932-33 ...	5	20	81
Elementary ...	7	28	58
In Russia ...	8	30	131
Adult Literacy in the City of Bombay ...	10	37	37
Educating the City's Children ...	5	19	23
English Local Government Corruption in ...	8	31	229
Executive in Local Government ...	3	11	1
F			
Finance			
Government and Local Board ...	1	1	3
State Supervision of Local ...	1	2	53
Municipal ...	8	31	277
Do. ...	8	32	325
Fire Protection ...	6	23	73
France			
Congress of the Mayors of the Republic ...	3	9	73
G			
Garbage and Refuse Collection and Disposal ...	2	6	5
Germany			
Example of Clean Cities ...	1	3	53
Burgomaster and City Manager—Comparison ...	4	14	25
Government and Local Board Finance ...	1	1	3
Do. and Local Bodies ...	1	1	38
Do. Do. ...	1	2	26
Do. Do. ...	1	4	9

	Vol.	Issue No.	Page No.
Government Grants and Loans to Local Bodies for Public Works in U.S.A. ...	4	13	19
Grants-in-Aid			
To Local Authorities for Primary Education ...	8	31	317
To Municipalities ...	5	18	112
Guinea Worm ...	6	21	49
Do. and its Eradication ...	7	25	91
H			
Health			
A Journey to Health Land ...	1	3	39
Talks with Mothers ...	1	3	41
I			
Improvement Department, Bombay, Work of the... Do. Trust and Municipalities ...	5	19	11
Instruction in Vocational Subjects ...	7	25	39
International Municipal Government Shanghai's ...	2	7-8	23
Do. Co-operation in Local Government ...	2	7-8	21
Do. Congress of Local Authorities ...	4	14	14
Do. Congress of Local Authorities ...	3	9	67
K			
Kale—Rao Bahadur R. R. Biographical Sketch ...	3	9	13
L			
Land Acquisition			
Principles of Compulsory ...	9	35	203
Do. ...	9	36	471
Lighting Problems of Towns in India ...	10	40	427
Literacy in the City of Bombay ...	9	33	43
Do. and Adult Education in Bombay ...	10	37	37
Liverpool			
Do. My Visit to ...	3	10	52
Do. Housing in ...	4	13	44
Do. Development of the port of ...	4	14	18
Do. Corporation Water Works ...	4	15	69
Local Authorities			
Union of—and Provincial Governments ...	7	26	50
Selection of books for ...	8	30	203
Local Autonomy—Problem ...	4	13	1
Local Board			
Finances and Government ...	1	1	3
Model Rules for establishment ...	1	3	42
Public Works Department Code ...	1	4	14

	Vol.	Issue No.	Page No.
Public Works Department Code	...	2	5
Do.	...	2	6
and Primary Education	...	2	6
in Bombay	...	2	6
Local Boards in Madras Presidency			
Do. Development	...	8	31
Do. Constitutional Do.	...	3	10
Do. State Control and Supervision	...	3	11
Do. Tax Revenues	...	8	30
Local Bodies			
Administration of	...	1	1
and Government	...	1	1
Do.	...	1	2
Do.	...	1	4
and Public Health Administration	...	1	2
and Thomas Reorganisation Committee	...	3	11
List of books for selection	...	7	26
and the Indian National Congress	...	9	35
and purchase of Swadeshi articles	...	3	9
Annual Reports of—Editorial	...	3	9
Local Finance	...	4	13
Do. State Supervision	...	1	2
Local Government			
Administrative systems of France, Germany,			
U.S.A. and England	...	1	2
Do.	...	1	3
Executive	...	3	11
In Indian States—Bombay Presidency	...	3	11
International Co-operation	...	4	14
English System	...	6	24
Some aspects of	...	7	25
Experts in	...	8	29
Corruption in English	...	8	31
and Local Self-Government	...	10	40
Local Self-Government			
In Bombay Presidency—A Review	...	1	4
In India and Simon Commission	...	1	1
The need...in villages	...	2	6
Dawn of...in Savantvadi State	...	2	7-8
In Kolhapur State	...	3	9
Unit of...	...	3	9
Some aspects of	...	3	12
In different countries	...	4	15
All India Digest of Cases 1933	...	4	15
All India Statistics	...	4	16
Lectures by G. Montagu Harris	...	5	17
The Organisation of...in capital towns	...	5	17

	Vol.	Issue No.	Page No.
Regional planning	...	5	17
Village...in Bengal	...	5	17
In Bengal	...	5	18
Report of the C. P. Committee	...	6	24
Our	...	6	24
Reconstruction of	...	8	32
Administration in Aundh State	...	8	32
Methods of training public for	...	9	34
In India—its future	...	9	35
Reorganisation of	...	9	36
Report of the Bombay Committee	...	10	39
Do. U. P. Do.	...	10	39
Do. Do. Do.	...	10	39
Do. C. P. Do.	...	6	24
Local Self-Government Institute			
Note relating to some aspects of the future			
work	...	1	1
Inaugural address—Ahmedabad Class	...	1	1
Institute's Page	...	1	2
Do.	...	1	4
What it is	...	2	5
Fourth Annual Report	...	2	7-8
General Body Meeting 21-2-32	...	2	7-8
Principles relating branches	...	2	7-8
Governor's Visit at the Office	...	4	14
VIII Annual Report	...	7	25
Answers to Questionnaire	...	8	30
IX Annual Report	...	8	30
An outspoken appreciation of its services by			
the Poona City Municipal Engineer	...	8	29
VI General Meeting	...	9	33
Constitution	...	9	33
Triennial Report	...	9	33
XI Annual Report	...	10	37
L. S. G. D. Examination Results	...	2	6
Do.	...	3	9
Do.	...	3	10
Do.	...	4	16
Do.	...	5	18
Do.	...	5	20
Do.	...	6	22
Do.	...	6	24
Do.	...	8	29
Do.	...	8	30
Do.	...	9	33
Do.	...	9	34

	Vol.	Issue No.	Page No.
L. S. G. D. Examination Results ...	10	37	xliii
Do. ...	10	38	245
M			
Madras Corporation and Boycott ...	1	2	18
Do. Constitutional Development of Local Boards ...	3	10	25
Markets—Utility and functions ...	5	18	1
Mass Education in India ...	4	14	49
Do. ...	4	15	1
Mayor			
Insignia of office ...	2	7-8	117
Job in Bombay ...	10	40	423
In many lands ...	4	13	53
As Chief Inspector ...	6	23	97
Medical Relief—Rural ...	4	13	57
Do. Aid Do. in Broach District ...	4	15	74
Mehta—Divan Bahadur N. D. ...	2	7-8	9
Metamorphosis of Northern Bombay ...	9	36	441
Milch cattle stables in the Bombay Sub. District ...	9	34	95
Do. Do. ...	9	35	287
Model Rules			
For Local Board establishment ...	1	3	42
Mosquitoes—New war on ...	5	21	47
Motor traffic and Roads ...	9	34	143
Municipal Officer's training ...	1	2	24
Do. Government in Japan ...	2	7-8	35
Do. Do. Germany, Recent changes ...	3	10	67
Do. Administration—Responsible Executive ...	9	36	417
Do. Do. —Ethics of ...	9	36	421
Do. Calcutta ...	10	37	53
Do. Do. ...	10	37	71
Do. Do. ...	10	38	205
Do. Enterprise in Banking in India ...	9	36	385
Do. Service—All-India ...	9	36	343
Do. Police in Bombay ...	2	6	7
Do. Amendment Bill, Calcutta ...	3	12	34
Do. Finance ...	8	31	277
Do. Do. ...	8	32	325
Do. Uses of Indian Cement ...	4	14	1
Do. Banking ...	6	24	80

	Vol.	Issue No.	Page No.
Municipalization of Public Utilities ...	1	2	9
Municipalities			
An Association of Indian ...	3	9	9
In Assam ...	7	25	53
Park, needs of ...	1	2	43
And Improvement Trust ...	7	25	39
In the Bombay Presidency ...	5	18	97
Government Grants to ...	5	18	112
N			
National Education ...	1	3	1
Notified Area Committees—Editorial ...	3	9	7
O			
Our letter from England ...	2	5	32
Our Sind Visit ...	8	32	413
P			
Panchayats in C. P. & Berar Development ...	3	11	57
Park needs of Municipalities ...	1	2	43
Patel, Sardar Vallabhbhai's Address ...	6	22	47
Patil, L. M.—Address at the Institute ...	8	30	93
Pay of Primary Teachers ...	9	34	181
Pay-roll—How it can be reduced ...	2	7-8	14
Petrol tax—Administration of ...	3	11	59
Population of India ...	1	4	31
Do. of districts ...	1	4	33
Pneumatic Tyres to the Rescue ...	6	22	53
Do. for Bullock Carts ...	6	22	63
Do. Do. ...	6	23	79
Do. Do. ...	6	24	91
Do. Do. ...	6	24	97
Portable Way-bridges ...	8	30	199
Primary Education Act, 1923			
Necessity of amending ...	1	1	7
And rules ...	7	26	1
Primary Education			
and Local Boards ...	2	6	3
In the Ratnagiri District: Progress ...	5	18	80
Statistics in the Bombay Presidency ...	5	18	86
Do. 1933-34 ...	6	21	1 to 13
Progress in Bihar and Orissa ...	7	28	47
Brief History of its growth in Bombay City ...	7	28	18A to 18K
Financing its growth in Bombay City ...	7	28	19
Free and compulsory Do. ...	8	29	53

	Vol.	Issue No.	Page No.
Some suggestions for financial and constitutional improvements ...	8	31	207
Grants-in-aid to Local Authorities ...	8	31	322
Primary Education Act, Bengal ...	2	7-8	117
Primary Schools			
Revised curriculum to reduce the length of course ...	6	23	85
Principles of Responsible executive in Municipal administration ...	9	36	417
Preservation of Perishable Foods in cold stores ...	8	31	245
Public Health			
Improvement of ...	1	1	45
Administration and Local Bodies ...	1	2	7
In Europe ...	1	2	12
Department—Retrenchment & centage charges ...	3	10	13
Programme of the Government of Bombay ...	7	28	1
and disinfection ...	8	29	83
Engineering ...	9	36	403
Public Utilities			
Municipalization of ...	1	2	9
Q			
Questionnaire of the Committee appointed by the Government of Bombay to examine and report on matters relating to Local Bodies in the Mofussil ...	9	35	286
R			
Rahimtoola, Hoosenally M. ...	2	7-8	8A
Railways vs. Motors and the Rail Road ...	3	12	47
Rating in England and India—Principles ...	3	9	5
Reorganisation of Local Self-Government ...	9	36	373
Report			
Village Panchayats in C. P. and Berar for the year ending 31-3-1934 ...	5	20	49
Local Self-Government Committee, C.P. ...	6	24	103
Do. Do. Bombay ...	10	39	1-102
Do. Do. U.P. ...	10	39	245
Do. Do. U.P. ...	10	39	371
Reviews			
Residential Buildings suited to India ...	3	10	83
Local Government in Many Lands by G. M. Harris ...	3	12	90
Principles of Rating in England and India ...	3	12	92
V Health Number of Calcutta Municipal Gazette ...	3	12	94
Report by Mr. R. Littlehails ...	5	17	54
City of Karachi Municipality Act ...	5	17	56
The Punjab Municipal Act ...	5	17	57

	Vol.	Issue No.	Page No.
The Reorganisation of Education in China ...	5	17	53
Hundred Days in Europe ...	6	21	43
Loans and Borrowing Powers of Local Authorities by J. H. Burton ...	6	21	46
Panchayats in India by J. G. Drummond ...	8	29	87
Finance in Pre-British Period ...	8	29	87
Better Villages ...	8	30	200
Development of Local Boards in Madras ...	8	31	322
Roads			
Development in India ...	1	1	15
Problems in India ...	1	1	19
Maintenance in India ...	1	2	40
Economic Transport and Low Cost ...	2	6	39
Concrete Road Construction ...	2	6	42
Roads ...	6	21	3
For Rural India ...	6	24	102
Roadside Gutters and Footpaths ...	7	28	37
Querry re: Dust-proof answered ...	6	24	133
and Motor Traffic ...	9	34	143
Concrete and Asphalt ...	9	34	153
Administration in England ...	9	36	426
Roads ...	10	37	115
Do. ...	10	38	157
Do. ...	10	39	293
Rules			
Model for Local Board Establishment ...	1	3	42
Rural Communications ...	10	37	15
Do. Medical Relief ...	4	13	57
Do. Reconstruction—My work of ...	8	29	23
S			
Salsette's Penelope's Web... ...	3	9	27
School and Literacy ...	9	35	251
Sewage—Disposal by Septic Tank system ...	7	25	97
Do. —Activated Sludge process of Purification ...	8	31	309
Shanghai—International Municipal Government ...	2	7-8	21
Shift system in Bombay Municipal Schools ...	3	12	57
Simon Commission			
on Local Self-Government in India ...	1	1	22
Slum areas—Remedies for the replanning of ...	8	29	76
State supervision of local finance ...	1	2	53
Statistics			
Re: Primary Education in Bombay Presidency 1933-34 ...	6	21	1 to 13
Re: Municipalities & Local Boards 1933-34 ...	6	21	14 to 41
All India Local Self-Government 1932-33 ...	6	21	42 to 114

	Vol.	Issue No.	Page No.		Vol.	Issue No.	Page No.
Re: Local Bodies in Bombay Presidency 1934-35 ...	7	25	107	V			
All India Local Self-Government 1933-34 ...	7	26	1 to 48	Vakil—Sir Rustom J. Life-sketch ...	2	7-8	1
Re: Local Bodies in Bombay Presidency 1936-37 ...	9	34	193	Village Panchayats ...	3	9	33
Showing mileage of extra Municipal motorable Roads as on 31-3-1935 ...	9	34	193	Do. ...	3	9	37
Street Lighting				Do. in C. P. and Berar ...	3	11	57
Modern ...	1	4	5	Do. their population and income ...	3	12	85
The problem ...	3	9	27	Do. in Mysore State ...	4	13	22
Street Lighting ...	6	22	1	Do. Scheme for the popularising ...	4	13	29
The programme of ...	9	35	273	Do. ...	5	17	49
Modern ...	10	37	29	Do. in the United Provinces ...	5	19	1
Submergible Bridges—A Study ...	8	30	154	Do. the place in Village Reconstruction ...	7	25	33
Sub-soil problem of Shikarpur ...	9	33	31	Do. List in C. D. ...	7	25	105
Supersession of Local Bodies ...	1	2	54	Do. entrusting of judicial powers ...	3	9	8
Surat Municipal Deadlock—Editorial ...	1	2	54	Village Panchayat Bill—Bombay ...	3	11	75
T				Do. Do. ...	3	11	97
Tax				Do. Do. (Review) ...	9	33	1
Aphorisms ...	1	4	34	Village Panchayat Act, Bombay ...	4	14	29
Organising Tax-payers ...	1	4	35	Do. Do. ...	6	22	89
A Poem by an American Poet ...	6	22	85	Do. and Rules ...	7	26	51
Tax Revenues of Local Boards in Madras ...	8	30	26	Village Improvement Week ...	10	38	147
Thomas Reorganisation Committee Report and Local Bodies ...	3	11	54	Do. Do. ...	9	34	133
Do. Do. ...	3	12	29	Do. Do. ...	10	37	1
Tokyo—City Government ...	3	11	43	Do. Uplift ...	7	25	75
Town-Planning ...	7	25	7	Do. planning or Gram Vidhan ...	9	36	452
Training Municipal Officers ...	1	2	24	Do. Government in India ...	8	29	1
Do. Class for Officers of Local Self-Government ...	4	13	59	Do. Self-Government in Bengal ...	5	17	33
U				Do. Do. ...	5	19	135
Unemployment and Local Bodies ...	7	25	11	Visit to Sangli and to Kumthe ...	9	32	53
Do. of the educated ...	8	30	142	Vote and its significance ...	3	12	18
U. P.				Do. for Women: How they use it ...	9	35	243
District Boards at work ...	3	12	40	W			
Village Panchayats ...	5	19	1	Water-Supply ...	6	23	67
Local Self-Government Committee Report ...	10	39	245	Do. ...	7	27	1
Do. Do. ...	10	39	371	Do. ...	9	34	159
U. S. A.				Do. ...	9	36	349
City Manager and German Burgomaster, a comparison ...	4	14	25				
Grants and Loans to Local Bodies for Public Works ...	4	13	19				

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L. S. G. D. Examination.

L. S. G. D. EXAMINATION

November 1940-March 1941 Session.

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L. R. Dharmadhikari	—	2	—	—	—	—
Narain Lal Tewari	1	2	—	—	—	6
R. M. Upadhyay	1	2	—	—	—	6
P. Venkateshwaran	1	2	—	—	5	6
Shaikh Abdul Saleem	—	—	—	—	—	6
B. G. Aradhye	1	2	—	—	5	6
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Shantilal D. Ghanchi	1	2	—	—	5	6
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Jabbarmiya T. Kazi	1	2	—	—	—	—
Pratapray M. Thakker	—	—	—	—	—	6

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WATER SUPPLY

By S. S. NAIK, B.A., B.Sc. (Edin.), L.C.E. (Bom.)

[Continued from Vol. XI, No. 4 from page 553]

CHAPTER VI

PUBLIC WATER SUPPLY SCHEMES

In all public water supply schemes, water necessary for the householder is supplied to him at his own home. In some of the older schemes, water was supplied at some central place in each street or lane and people had to take their water supply from the common distributing centres. In Poona, the old water works system, introduced by the Peshwas, was of this kind. It was distributed from Howds (हॉर्ड) in the corner of each Peth or street and people used to wash, bathe and clean vessels outside these Howds and take water required for their household use from these. Though this system was certainly better than the system of getting water from wells in an over-populated town like old Poona, it was not very desirable from a sanitary point of view. Because, the large open Howds were liable to all sorts of contaminations.

A public water supply scheme, as now understood, connotes a distribution of water by means of a pipe and tap, supplied at the home of the consumer. Such schemes being very costly, costing lakhs of rupees for small towns and crores of rupees for large towns, and being still more costlier in big cities, care must be taken to see that—

- They are foolproof, so that they supply the minimum requirements of the town under all circumstances and in all seasons;
- The water supplied must be pure water, so that the health of the town may not be in danger;
- The scheme, when designed and completed, must be able to supply water to the estimated increase in population and industry, according to the standards laid down; and
- The last but not the least, the scheme must be financially sound, so as not to tax the public out of proportion for the benefits derived.

The scheme will be feasible only if it satisfies all these requirements. In many towns today water supply schemes fail to supply enough water, and in some towns the schemes fail to supply any quantity in summer. If the scheme fails to satisfy the needs of the people in the hot season when water is most urgently needed in large quantities and when ordinary sources of water such as nallas, streams and wells are dry, the scheme has no justification for its being undertaken, as well as for public money being spent on it. For the matter of that, water is available in large quantities from the other sources during and immediately after the rainy season, and therefore, if people

have to shift for themselves as best as they can in the hot season, they need not pay taxes or rates for supply of water which is only available to them in the rains or immediately after the rains. The scheme must also be capable of supplying water to the town for its future expansion as dealt with in Chapter IX of this book.

A public water supply scheme consists of four parts each of which constitutes an engineering problem by itself.

- (1) Storage of water or availability at the source ;
- (2) Purification of water ;
- (3) Conveyance of water from the place where it is stored or available to the town ;
- (4) Distribution of water in the town.

Besides this, from a sanitary point of view, we must study

- (5) The safety of water supply and guard against the sources of contamination of water during all the stages till it is utilised by the consumer (*vide* Part II).

The most important problem, however, is the financial aspect of the water supply as suggested in (d) above. This therefore constitutes the last but the most important part of the scheme :

- (6) The financial aspect of the scheme (*vide* Part III).

A careful investigation of each of the above six sub-heads is needed before the scheme can be undertaken. They must be considered as parts of a complete co-related scheme.

Some of the terms used in the following parts require explanation :

Storage of Water or "Source".—This term indicates the capacity of the source to supply water. The two main criterions of the scheme would be the demand and supply. There must be enough supply to satisfy the demand and enough demand to utilise the supply.

Storage therefore indicates only a *sufficiency of supply*. A small stream with a flow of 10 cusecs during the hottest part of summer would be a sufficient "storage" or source for a scheme to supply a population of about 1,50,000 with 25 gallons per head per day.

The usual unit of water is a gallon.

1 Cubic Foot = 6.25 gallons.

1 Gallon = 10 lbs. weight of water.

A flow of 1 cusec = 1 Cubic Foot per second = $60 \times 60 \times 24 = 86,400$ C.ft. in 24 hours = 5,40,000 gallons in 24 hours.

"Demand" of Water.—This is denoted by the daily requirements of the whole town. This is in gallons, and the unit of time taken for the calculation is 24 hours. The calculations are made by finding out water required per head of the population. The demand therefore is indicated by the requirement per head per day. And before we examine any scheme as regards the success or feasibility of the water supply scheme, the demand of water per head per day will have to be investigated and fixed.

CHAPTER VII

DEMAND OF WATER PER HEAD PER DAY

In water supply schemes in which the supply is to be delivered to the householder at his own home, the most important point to consider is, how much water is required for the town for which the scheme is prepared. This is necessary to satisfy condition No. (a) given before (*vide* Chapter VI). And as the whole subject centres round the "minimum requirement", we have to determine this "minimum requirement". This is what we mean by the heading given above "supply of water per head per day".

When a householder has to bring his own water from the source of supply, the quantity he requires is regulated by his capacity to bring, provided water is available. As much trouble and expense must be undergone to fetch water, requirements are reduced to a minimum. The male part of the population usually wash and bathe at the source. The householder is also forced to forego his requirements for secondary purposes. In fact, he reduces his wants to a bare minimum for drinking, cooking, and bare household needs.

Water required for sanitary purposes of the town is very little, for, there are no drains to flush. Street watering is demanded in most places ; but for this purpose any water from any well, available near the road to be watered, can be used. Development in such a place being very primitive, no water is required for public purposes.

In a highly developed corporate life, demand of water is very urgent and very great. Private and civic sanitation, trade and commerce and, last but not the least, industry, demand large volumes of water. Non-availability even for twelve or twenty-four hours would dislocate the run of life in such cities, and make conditions chaotic and in point of sanitation give a taste of the so-called hell. Disregard of the purity of the supply would generate ill-health, disease and even pestilence. Carelessness and laxity on the part of the public and civic authorities would cause enormous waste and in most places the quantity wasted is greater than the quantity used for legitimate requirement. The facility with which water is available (you simply turn on the tap and you get water), the impersonal way of payment, leaky joints and fittings and want of civic and public sense, are causes which contribute to this appalling waste. As a remedy against waste, "intermittent system" is introduced and this system is one of the greatest curses of public water supplies.

It is very difficult to estimate the requirements of water in any town. Every country and climate has its own individual characteristics which influence the estimate. In the same country and in the same province each town or village has its own variations in the requirements of water. In the same town, the different parts would not demand water on the same scale. In these parts also, the different

communities and social grades would demand varying standards. In the same house the demand varies according to the season.

Climatic conditions, variation of temperature, religious and social customs, habits, geographical configuration, advance of municipal and other civilisation, industrial progress and general habits of people, are some of the factors that must be taken into account when we consider the demand for water.

Demand for water goes on increasing with its purity and the ease with which it is available. In many places where a pot of water used to cost four annas and people had to go miles out for it, when pipe water was made available even three or four gallons of water per head per day was considered a very good and liberal quota.

The above psychological aspect should not be forgotten. When the public have to get their supply on head load from the source, their requirements are limited. When the scheme for supply of water is completed and people begin getting water at home from the pipes, for the first few years, they are content and happy in the thought that they are saved the trouble and expense in getting water and are satisfied with the quantity they get. In time, when the water delivered at home is a *fait accompli*, the people forget their old difficulties and hanker after more and more water.

The old generation that had seen and experienced the trouble, difficulty and expense of getting even a gallon of water, has disappeared and the new generation knows nothing of the old conditions.

All these considerations, some of them pertinent and some of them extraneous from an engineer's point of view, make the determination of the per head per day requirement of water very difficult to estimate and all results and figures found out are mere approximations.

The table given opposite this page gives the various categories under which the requirements of water of a municipal town can be classified. Though we do not, and cannot, boast that it is exhaustive, yet we can say it is fairly representative in its character for all general purposes.

We will take each of the main heads of the demand for water and consider them.

(1) Water required for Domestic Purposes

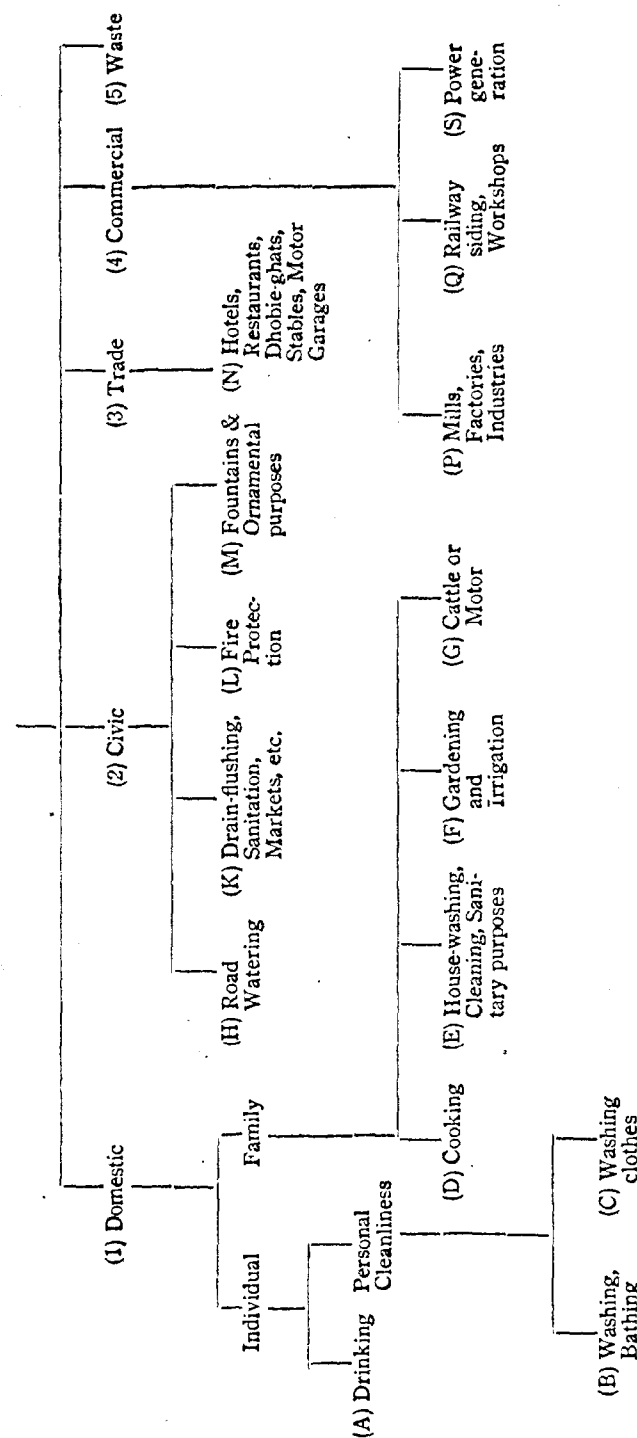
Further sub-divisions of this demand are—

- (i) for personal use;
- (ii) for family use.

Water for personal use can be divided into—

- (A) Water required for drinking and water required for personal cleanliness, that is for
- (B) bathing; and/or
- (C) washing clothes (personal).

DEMAND OF WATER



A, D, P require very pure water;
 N requires tolerable purity and good volume;
 H, K, L, M, P, Q, S require large volume at high pressure;
 E, C, E, F, G require volume, but neither much purity nor much pressure.

Water required for the family use can further be divided into that required—

- (D) for cooking;
- (E) (i) for washing clothes (family washing),
- (ii) for cleaning pots,
- (iii) for cleaning and washing the house—this includes water required for flushing latrines and moris.

In case of families having gardens and small plots for cultivation of vegetables, fruit trees, etc., for family use, water will be required for irrigation over and above that required for the family use. Though in some cases the waste water from "moris" and "nahanis" is used for irrigation but not for the gardens of flower and ornamental plants.

Taking the water required for domestic purposes, a safe estimate can be formed about only one item (A) water required for drinking. As we have seen in the introductory chapter, this water has to serve several purposes—food assimilation, blood formation, tissue building and other processes that are going on in the body; and lastly, it is necessary to keep the temperature steady. Naturally, the size of the body, the frequency of chemical processes within it and the seasons and climate, would affect the quantity needed. The shuddering tenant of the frigid zone would not drink any water but his body has to be satisfied with what it gets from the food. The resident of a place where the temperature is 118° in shade would crave for water as many times as possible in a day.

But, any way, this water required is 1 $\frac{1}{3}$ or $\frac{1}{2}$ gallon at the most generous estimate. This water must be a very pure water. Looking to the other demands, this demand is so meagre that it can almost be neglected when we think of ten or twenty gallons for each of the other purposes. As said above, *purity is the special feature of water needed for this purpose.*

Taking the second requirement for personal cleanliness, this can be sub-divided into two heads.

(B) WASHING AND BATHING

The water required for wash would depend upon the number of washes taken. Generally in this country we have a morning wash including the teeth cleansing, two washes at the two meals and an occasional wash at odd times, all four requiring about half a gallon each time or two gallons in all.

For bath, the amount required would depend upon the way of taking the bath, and period after which baths are taken. We assume that the usual custom in this country is to take one bath a day. Some very orthodox people take two or three baths a day, one each before each religious devotion. But such people are few and can be left out of calculation. In very cold countries, some people might take bath once a week, some once a month and some not at all. It is said that in Tibet people hardly ever take a bath. The usual quantity required for an Indian bath is three to four gallons. Many people are in the

habit of wasting too much water for bath. They put a bucket under the tap, open the tap full on, and go on pouring water on the head by a "lota," using 8 to 10 gallons in the process, though actually how much is utilised to clean the body and how much is wasted by overflow from the bucket and by spilling away over the body when poured on the head, is hard to say. I would estimate that more than three-fourth is wasted.

I have had the pleasure of discussing this matter with two great men of India, Mr. Jamshed Mehta and the Hon'ble Mr. G. V. Mavlankar, one a President of the Karachi Municipality and the other President of the Ahmedabad Municipality both for a long time, and both agree that water wasted in this way is very considerable. Not more than 2 or 3 gallons are needed for a bath. In the European system of tub bath, about 12 to 18 gallons of water are needed. But people accustomed to such baths being very few, they can be neglected. In Europe, bath is necessarily a tub bath, taken once or twice a week, and the average works up the same, 2 or 3 gallons per day.

(C) Water required for washing personal clothes such as underwear, towels, napkins of the rich, or all the clothes, dhoti, shirt and a small towel of the middle or poor class, would work to about 2 or 3 gallons. In large towns, washing of the other clothes is done by Dhobi and water required comes under (3) Trade purposes, given later on. In smaller towns all the washing is done at home. The poor do all their washing at home.

So then, for personal use 4 to 6 gallons are required.

Taking the next requirement of family use, this includes—

(D) Cooking including the washing of materials required for cooking purposes. About 1 gallon per head per day would be sufficient, though of course, everything depends on the habit and stage of advancement of the family. A family living on bread and onion would require much less. A family having a menu of 12 or 15 courses at a meal would require much more.

(E) WATER REQUIRED FOR HOUSEHOLD SANITARY PURPOSES

Sanitary purposes in a house are many. The floors must be washed, the "moris", "nahanis" and other places must also be scrubbed and washed from time to time. Clothes and utensils need washing. If there are flushing latrines, these also must have adequate supply of water. Such latrines must be provided with automatic flushes. There is no greater evil than a flushing latrine without water, because the whole theory and practice of drainage with flushing latrines is based on an ample supply of water.

As to how much water is required for these purposes for an average family of 5 persons depends upon their habits, customs, the number of clothes to be washed, the number of times the latrine must be flushed and all that. Figures given at the end of the next Chapter give a rough average.

The other two requirements are :—

(F) For Gardening and Irrigation; and (G) for Cattle.

These depend on the development of the town. In those towns in which the development is just above the village conditions, land for gardens and vegetable plots is easily available, and the cost of land being very moderate, people are not tempted to convert such plots into building plots. After development, when these plots are converted into building plots, the whole land being utilised for building, there is neither cultivation nor garden. The only gardens are found in the bungalows of the rich and in some cases in the new town planning areas.

As regards cattle, as the town develops, there is no scope for the grazing of the cattle and the care and maintenance of cattle becomes a very costly job. Individual owners of cattle therefore slowly disappear and commercial cattle stables come into existence. In still larger towns, the stables are shifted out to the suburbs and even beyond the suburbs. These stables are dealt with under the heading, "Water required for Trade Purposes" (*vide* next Chapter).

Therefore water for this purpose is only necessary in undeveloped or small towns. In such towns, there are wells in most of the houses and the water of these wells even though not used for other household purposes, is used for these two purposes. Therefore, there is practically no demand on the public water supply schemes due to these factors. In undeveloped areas the existing wells meet the demand and in developed and congested areas there are neither gardens nor cattle.

A large number of motor owners, who have their garages in their houses or in hired buildings in towns, require a good deal of water for washing and cleaning their cars. The average requirement of water for motor garages goes on increasing with the growth of civilisation and consequent development, because the number of motor cars per 100 population increases with the advance of civilisation. Once the wealth of the community was gauged by the number of cattle per 100 or 1,000 population. Now prosperity is gauged by the number of cars per thousand population. U. S. A., with its one car for every 4 or 5 people, must be the richest; England, Germany and other European countries, with their one car amongst 20 or 30 people would come next. India, with its one car for 400 or 600 people, would come a sorry last amongst civilised people. If 30 or 40 gallons of water are needed per car and a car is washed every day, the demand in U. S. A. would be 10 gallons per head, in England 2 gallons per head and in India 1/15 gallon per head or negligible. It all depends on how often the car is washed in a week.

If a census of cattle and motors in a town is taken, it may be assumed that each cattle requires 10 to 15 gallons of water daily and then the total requirement for cattle divided by the total population would give the water needed per head per day under this head. Similarly each car requires about 30 gallons of water per washing, and if cars are washed twice a week the calculation per head per day can be found out. In busy places where cars are used for great distances they might require washing every day.

(2) Water for Civic Purposes

Besides these requirements for domestic purposes, water is used for many other purposes which are outcome of corporate life. When people are clustered in large masses in towns, sanitation of the town becomes most important and good sanitation demands large quantities of water. The best and most efficient way to remove liquid wastes from houses and towns is to use water for flushing and carrying them away. It is therefore necessary to have large volumes of water for water carriages system of sewage, and for flushing of water-closets or latrines, "morris," "nahanis," drains and the appurtenances of drainage. This use of water becomes more and more important as civilisation advances and makes the congestion in towns greater. The volume and force required are necessarily great.

Dust nuisance on roads requires water, for sprinkling dusty roads so that dust may not be raised by traffic, specially by the rush of the fast-moving automobile traffic. Dust causes inconvenience and insanitation to the users of roads and to the inmates of the house. Even in case of dust-proof roads, periodical washing is required to remove the small amount of dust which accumulates there on account of animal and vegetable refuse accumulating on the roads. Large volumes of water are required for markets, slaughter-houses and for public urinals, if provided. All these must be under the control of the municipality so as to guard the health of the town. As to how much water is necessary would depend on the number and extent of each of the above in the town, very large volumes being needed in large cities.

This is the first part of the municipal uses of water. The next in order comes the use for fire-fighting and fire-extinction purposes, which are for the safety of the public, and, therefore, are one of the most important functions of the municipality. Though this requirement is not a day-to-day need as the other requirements are, yet in case of fire, the need is very great, very urgent, and takes precedence over all the other needs. A provision to meet this emergent need on a large scale is one of the difficulties of most of the municipal towns, and looking to the limited supply of water available the difficulty is very great. This is treated as a separate subject later on (*vide* Chapter XXIV).

The last requirement of water under this head is for the purpose of ornamentation and decoration for public lakes, ponds, fountains and other objects, all of which require enormous quantities of water. These serve to beautify the town and make it a centre of attraction to the residents and visitors alike. The value of this expenditure of water is only ornamental and decorative. The water is wasted without any direct advantage to the town. Lakes in parks or gardens are used for the purpose of recreation and sport such as boating, when they are large enough as in the case of Hyde Park in London or in the lakes near Rangoon. In some large parks such lakes are used as homes for aquatic birds for improving the knowledge of the public. But generally, the purpose is largely ornamental. The quantities required are very large, and the cost is very great. For the fountains in the garden of Versailles near Paris which amuse the public of Paris in the afternoon

of the last Sunday in the month, the cost is approximately 40,000 francs per Sunday they are running, and the gardens are crowded to their utmost capacity with both the natives and visitors. The fountain at Geneva which throws water to great height requires enormous quantities of water. Rome is the city of fountains, where every available and important square has got its own distinctive fountains, which attract visitors from all parts of the world. The Romans use the highest quantity of water per head per day in Europe. None can forget the silent and imposing masses of water between Berlin and Potsdam and the lovely scene just on the outskirts of Rangoon. The beautiful colour effects by cunningly concealed coloured electric globes in Bangalore and in the Brindaban at Krishnaraj Sagar near Mysore are a sight worth seeing at least one in lifetime. Near home, the Flora Fountain in Bombay gives a pleasant memory to those who saw it playing. It hardly ever plays now. But the conditions in Indian towns, where many of the towns are not able to supply enough water for many ordinary urgent needs, are so peculiar that they cannot think of this ornamental use at all.

Water required for all the above civic uses must be available at great pressure. Otherwise the purpose of flushing and fire-fighting and also of ornamentation is not served. So also large quantities are necessary. The quantity required per head per day would depend on the civic amenities provided.

Much of the insanitation and consequent diseases and deaths can be prevented by a good water supply in towns. But it must be remembered that, just as water can be of very good use to the town, there are many possibilities of its abuse by wanton carelessness and waste. Because, these uses being impersonal, it is not anybody's personal duty to check waste. Conscientious civic officers and office-bearers can alone see that such a waste does not occur. They should train civic sense among the public to avoid waste.

CHAPTER VIII

DEMAND OF WATER PER HEAD PER DAY—(Contd.)

(3) Water required for Trade and Business Purposes; and Waste of Water

Every town has got its own trade and commerce and a few small supplementary concerns to satisfy the needs of people who are congested together, and lead an inter-dependent life. The following are a few examples of such trades:—

- (a) Hotels, restaurants and eating-houses.
- (b) Dhobi ghats.
- (c) Motor garages.
- (d) Stables.
- (e) Dairies.

These must have a certain proportion to the population, the rate varying with the advance of civilisation and with the inter-dependence of the people on account of congestion.

For example, if in a small town a man would go home for a cup of tea or for a meal, in a city he would be forced to buy it at a restaurant, because of great distances between his home and place of work, and because of the higher value of time. And probably it is more fashionable and becomes a habit. In a village, a man *must* keep milch buffaloes or cows for his milk, in a small town he *might* keep such cattle, but in a city he must purchase his milk from a milkman or dairy, however bad or diluted it may be.

As we have said above, the number of such business places would depend upon the population. Therefore the requirements of water for this purpose would be proportional to the population. If it were possible to find a statistician who would carry on research about the proportion of such places to the population of a town at a certain stage of development, we could arrive at the formula expressing this proportion. From this, the amount of water per head per day could be determined.

Sanitation of these business premises must always be kept at a high standard, and unless a copious supply of water and very strict supervision is kept, they would be the means of spreading diseases (except the garages where the owner insists on using copious water to keep his car clean). In hotels and restaurants, for example, unless the used dishes, cups and saucers are well washed, and floors and walls cleaned and washed from time to time, the sanitation will be very bad and these places will be the centres for spread of diseases. T. B. and typhoid are spread partly from these places. Dhobi ghats require large amount of water. Ordinary stables require large amount of water.

Dairies and milch cattle stables are the most important places under this head as these must be kept at or above a certain standard of cleanliness. This cannot be achieved unless a copious supply of water is guaranteed and a very strict supervision enforced. Much of the ill-health, infantile mortality and serious diseases like typhoid and others, can partly be prevented if both copious supply of water and strict supervision are enforced in the milch cattle stables.

(4) Water required for Commercial Purposes

This includes water required for factories and other commercial enterprises. These might include:—

- (a) Factories and mills.
- (b) Power stations.
- (c) Railway yards, junctions, stations and sidings.
- (d) Docks, harbours and shipping yards and steamers.
- (e) Any other business concerns using large volumes of water.

Projects like big hydro-electric undertakings do not come under this heading, because they are not near large cities and they have got their own arrangements for the water they require.

As to how much water is required for every factory and for all the factories in the town would depend on the nature and size of factories, having no relation to the population of the town. Supposing we take the towns of Poona and Sholapur, even if both might have nearly the same population, whereas Sholapur has got so many mills, Poona has hardly any. Water required for Sholapur would be much more than that required for Poona. Taking again Karachi and Ahmedabad, even though the population may be about the same, Ahmedabad with its hundreds of mills will require much more water than Karachi with a cement factory and a few other concerns.

The modern system of Railways require very copious supply of water. In many places railways make their own arrangements for water. In places like Bombay and Karachi, this is not possible, and Railways have to draw on the public water supplies. The various sidings which require water for washing, etc., the engine sheds which require large quantities of water, have to be reckoned with. If there is a railway workshop the amount of water needed is very great. In the two examples quoted above, though Poona and Karachi are backward industrially, they have the junction and termini respectively of very important Railway systems, and the demand of water is enormous. The import and export trade of Karachi is the most important in India, and dock and railway sidings are very extensive. A very large allowance of water must be made in this case.

Thus we see that the manufacturing and commercial requirements of water depend upon the importance and extent of such activities. Increase in such manufacturing and commercial activities increases the population of the town very considerably. Many small towns, which would have continued their unimportant existence, have become very important towns owing to such activities. Jamshedpur or Tatanagar

owes its very existence to the iron and steel industry. Bhusawal owes its prosperity to the Railway junction and workshops, and more than one-third of its population is connected with railway. The railway own their water supply plant and the municipality is contemplating purchasing water from the Railway. Water required for such towns cannot therefore be judged by population. Each case will have to be investigated separately and a calculation of the total requirement made. Divide this by the average population and this will give the requirement per head per day.

(5) Waste of Water

We have considered so far water which is used by the community for useful and beneficial purposes. We will now consider that quantity of water which is lost to the community by loss and misuse, which we class under the general heading of "Waste".

Waste can be divided into two sub-heads:—

- (a) Losses due to unavoidable circumstances, and
- (b) Loss due to deliberate or careless use.

(a) Losses Due to Unavoidable Circumstances

These losses do not include losses of storage due to evaporation and leakage at the reservoir, which are mentioned in Chapter XIV, nor do they include losses in sedimentation tanks and filter beds, which are summarised at the end of Chapter XX.

The main losses under this head are those due to joints of pipes, valves, sluices and such other fittings, including the house connections. Much can be done to minimise these losses by selection of materials, careful adjustment and efficient supervision both in first construction and during working. Every joint, every sluice, every valve, every connection between the various works, is a source of such a loss, and no matter how efficiently the work is executed a certain amount of *minimum* loss is bound to occur. All proper care must be taken not to exceed this minimum.

Occasional bursts of pipes and mishaps are also sources of such losses. Old pipes are found to leak enormously. In a small water supply scheme of a hill station I examined, the loss due to old perforated galvanised iron pipes was so great as to reduce the quantity available to less than half. Such losses are however not considered here.

The greatest extent of loss occurs in the house connections which are at the householder's cost, and at the mercy of the plumber. Good materials and fittings and careful work would minimise the losses. Good inspection and supervision by proper municipal officers would further minimise such losses. All these must be enforced.

Thus we see that though a great portion of the loss due to fittings and joints can be prevented by supervision and public civic consciousness, some loss is bound to occur. The extent of such a loss is given at the end of this Chapter.

Enormous losses occur due to deliberate or careless habits. In some cases more water is wasted than used. Suppose a man wants to wash his hands. One-third of a gallon or even less would be sufficient for this purpose. A man goes to a pipe delivering water under a good pressure, opens the tap full on, washes his hands and while applying soap keeps the tap full on, thus wasting two or three gallons. This is a very minor operation in daily human routine, but is repeated 5 or 10 times a day and the waste of water is tremendous. Housewives want to fill their pots with water for cooking and other purposes. They open the taps, keep the pot below it and busy themselves with some other work till the pot is filled. Generally the pot is full and overflowing before they come again to take it away, and much water is wasted, enough to fill the pot many times over. Thus in every human operation there is a waste of water.

But the greatest waste is found to occur in those connections which are used in common by many families, such as those in chawls or public places. These once opened are hardly ever closed, and generally the fittings are so badly handled that even if one desires to close them they could not possibly be closed. In order to remedy this waste of water the intermittent system of supply is resorted to. The remedy, no doubt, stops some waste, but the disadvantages are so great, that it should be condemned outright. This is dealt with later on (*vide* Chapter XXV).

It may not be out of place here to consider the measures taken against waste of pipe water in the West.

The first precaution taken is to adopt fittings of a high class, so that they may prevent leakage of water through the joints.

The second precaution is to have the automatic machinery of cisterns and water-closets, etc., fitted with devices which prevent waste. There are many such patented devices on the market. The selection of the best apparatus, which really prevents waste, must be made and its use enforced.

The next method is to insist on the metering of water supply. This is dealt with at length in the third part of this book.

It is not always possible to get the people to agree to metering of their supply. The elected representatives are also unwilling to force the meters on the public, because they fear they would lose their seats at the next election.

In such cases, therefore, the method of the District meters is found to be very effective, particularly when used in conjunction with very efficient supervision. The town is divided into Districts, each having its own main. A meter is fixed on each main, so that all the water in the district passes through the meter. Special instruments fixed on the meters register the time and the water that passes through the meter. Knowing the quantity in a fixed time, the rate of flow can be known. In the District, the house connections are all closed at night and the rate of flow, if any, at such a time shows the wastage of water through the connections, joints, valves, sluices, etc.

Next, observations are taken on the house meters, and readings taken during the time in which the inmates of the house are not expected to take any water. If a flow is recorded at such a time, that is due to defective house fittings.

Both the defects are located by inspectors working at night, noted down and then put right the next day.

Much, certainly, can be done this way, but in case of actual deliberate waste, the only prevention is metering of household supply, civic consciousness and deterrent punishment in cases where deliberate waste is detected.

The variations in the demand of water during the day

We have given above the quantity of water required per head per day. It should not however be presumed, that the demand during all the 24 hours is steady, and that water is required at a uniform rate of 24th part of the demand per hour. The demand varies considerably hour to hour and is maximum during certain hours of the day. This depends on the conditions and habits of individuals, and of society which in the same town consists of many grades.

In that portion of the town which houses day labourers, these people get up early in the morning, at about 4-30 A.M. They want water required for bath, latrines, cooking and for most of their morning needs between 4-30 to 7 A.M. and then they go for their work. These people return at 6 P.M. and between that hour and almost upto 9 P.M. when they go to bed, they require the remaining amount of their quota.

The middle class people get up at about 6 A.M. and leave for their work and offices at 9-30 A.M., and their maximum demand is therefore at this time. They return at about 6-30 or 7 P.M. and then require water till about 10-30 P.M. when they go to bed. The women are, however, at home during the whole day and do their household work at some time late in the morning and also late in the afternoon. The demand is therefore heavy in the morning and almost steady thereafter to about 10-30 P.M.

The rich get up at about 7-30 A.M. or 8 A.M. Their demand is almost steady through the day with some variation in the morning when they require water for water-closets, baths, etc., and the household work is being done by the servants.

Of the Municipal requirements, the water for roads is needed in the morning and in the evening. The requirement for drain flushing can be adjusted so as to utilise water at a time when demand for other purposes (particularly for domestic purposes) is slack, and hence it does not lay strain on the supply. The demand for markets, etc., also could be adjusted at the slack times and will not strain the resources of the water supply.

The question of water needed for fire is important and is therefore dealt with later on (*vide* Chapter XXIV).

The demand for factories manufactures, etc., comes on in the busy hours of the day from about 7-30 A.M. to 7 P.M., and for those factories which work day and night, it continues throughout the 24 hours with

some variations. There are generally separate arrangements for these people by agreement between the owners and the municipalities.

Thus we see that the demand is not constant. Experience shows that generally the maximum daily requirement is about 1.5 times the average requirement and the maximum hourly requirement is about 1.5 times the maximum daily requirement and hence the arrangement must be capable of supplying about 2.25 times the average demand.

In hot weather much more water is needed than in cold weather, and as luck would have it, the supplies are very limited and sometimes have to be curtailed. In average hot months, 10 to 20% more is needed. In very hot weather, 30% more is needed, and on some exceptionally hot days, 50% more is demanded. In cold countries, the taps are left open and water is allowed to run to waste to prevent freezing in the pipes which is bad in two ways, (1) it stops the supply till the water is liquid again and (2) the greater danger is that the pipes may burst because of the formation of ice and consequent increase in bulk.

Unfortunately in this country there has been no research as to the requirement of water for various purposes. Figures given by Rao Bahadur K. C. Banerjee in his book are the nearest approximations to requirements in this country. We are reproducing them here:

For household purposes

Drink	..	..	0.50	gallons per head per day.
Cooking	..	..	1.00	" " "
Ablution	..	..	4.00	" " "
Utensils and house washing	..	..	3.00	" " "
Washing clothes	..	..	3.00	" " "
Water-closets	..	..	6.00	" " "
Gardening	..	..	.25	" per sq. yd. of garden.

Municipal purposes

Road watering	..	..	1.00	gallon per head per day.
Drain and sewer flushing	..	..	.50	" " "
Fire prevention	..	..	.20	" " "

(Vide note in Chapter VII "Ornamental Uses").

Rao Bahadur Banerjee, however, does not give figures for the remaining items.

For trade and commerce 3.00 gallons per head per day would be a good quota. For factories and industry, the requirement of water depends on the industries. Wastage as said above, is very uncertain, but generally 33% to 45% should be taken as a safe allowance.

Burton in his admirable book on water supply says that for domestic purposes 12 gallons per head per day is the mean supply, 20 to 25 gallons is sufficient and 30 gallons is ample.

For trade and manufacture, he gives 25% more than the average domestic supply and about 5 gallons in small towns.

The figures for some towns, Indian, European and American would be very useful:—

Town.	Gallons per head.	Town.	Gallons per head.
Calcutta	.. 36	Bombay (1931)	.. 70.79
Gaya ..	.. 15.5	Madras (1931)	.. 31.00
Agra ..	.. 24.5	Patna (1935)	.. 17.86
Allahabad	.. 22.5	Bangalore	
		City (1935)	.. 16.20
		Bangalore Can- tonment (1935)	11.70
Cawnpore (1931)	39.38	Delhi (1935)	.. 17.10
Lucknow	.. 18.25	Karachi (1931)	.. 28.40
Muttra ..	.. 25.33	Poona (1931)	.. 45.50
Burdwan	.. 11.41		
Munshigunje	.. 2.61	} Water for drinking and cooking only.	
Perojpur	.. 1.39		
Nawadwip	.. 1.47		
<i>Foreign Country</i>			
London ..	.. 37	Vienna ..	.. 22
Liverpool	.. 34	Edinburgh	.. 50
Manchester	.. 36	Dublin ..	.. 35
Glasgow ..	.. 56	Newcastle	.. 33
Paris ..	.. 44	Milan ..	.. 37.5
Berlin ..	.. 22	Rome ..	.. 220
New York	.. 84.5		

CHAPTER IX

DEMAND OF WATER PER DAY PER HEAD—(Contd.)

Population and Its Increase

An estimate of water required per head per day being made as explained in the previous Chapter, the next item to be determined is the number of people who would use the water. It appears a very easy proposition at first sight. If you look up the census figures, you can get the population of any town at the time the census was taken.

But these figures are apt to vary and would not give a correct index as population goes on increasing during the decade.

There are three sorts of towns:—

(1) Towns that have reached their maximum growth and the increase in population follows the average excess of birth rate over death rate.

(2) Those towns whose growth is phenomenal owing to certain reasons in addition to the increase due to birth rate and death rate ratio.

(3) Those towns whose decline in population is due to some extraneous reasons in spite of the increase due to birth and death ratio.

Generally in every country, birth rate exceeds the death rate and there is a steady growth of population. The two ratios are influenced by many reasons. Death rate depends upon the vitality of the people, the facilities for living, and sanitary surroundings of dwelling houses, the availability of medical aid or otherwise, the willingness and ability of the authorities including Government in control of sanitation and medical aid to give help to the needy in cases of disease and epidemics, and a host of other causes. In our country, we are surrounded by insanitation, by want of medical relief and by want of good water supply. We are liable to visitations of epidemics, such as, cholera, bubonic plague, typhoid and small-pox. Nature is also unkind enough to send us from time to time famines, in which people die like flies. Malaria is so rampant that it claims millions per year. Ignorance, and unwillingness to take advantage of the meagre facilities provided, and religious scruples add to this sad picture. The result is that our death rate is about 40 per 1,000 per year, as compared with 10 or 12 per 1,000 in some of the happier countries.

The birth rate is no doubt somewhat great. But infantile mortality is so great that one would desire that fewer children were born, and most of them were to live to a ripe old age.

Any way, we can get from the census figures statistics of the average growth of population during every ten years.

Now taking towns coming under (1) above, these towns will increase in their population only at this average rate. The trade, industry and commerce of these places being steady there is no reason for the popula-

tion to grow out of proportion to the general increase in the whole country.

Towns for instance like Bombay, Madras, Calcutta, Allahabad, Lucknow and many others have almost reached the highest point of their growth. For such towns, therefore, we might expect an increase of 40 to 50 per cent in 50 years to come.

(2) Towns which have a phenomenal growth.

There are a few towns of this nature. Generally their growth is due to the change of conditions in or near the towns. Supposing in one town the railway decide to have an important junction or to locate their workshop, the growth of this town will be phenomenal. If new facilities for docks were given to a sea-coast town, trade will be attracted to such a town. Vizagapatam in the Madras Province is the best instance of this.

All the above are instances of the development of new routes of communications, and hence generally wherever new routes develop and have their depots, stations, junctions, aerodromes or even new bus stands (where many bus routes join together) that city, town or village develops very fast.

As said above even an important bus junction increases the importance and population of towns. Many villages have developed into small towns along all the bus routes.

New centres of industry, of course, help the increase of population out of all proportion. The Jharia coal-fields, or the coal-fields in Berars, the Gold mining districts in Kolar Gold Fields (Mysore), the oil-fields of Persia and Burma have given rise to many large towns in places where there were deserts before. They have also given importance and prosperity and consequent increase in population to many ports and railway stations and junctions.

Large new industries such as iron and steel, cement, chemical works and salt works, new mills, paper or other factories, and sugar factories have been instrumental in raising towns in jungles or deserts where there was almost no human habitation before.

If all these combine together, the growth is beyond all bounds. The example of Karachi is worth noting. It gives very good dock and harbour facilities, and has attracted the whole trade of the Western Coast of India even to the detriment of an old established port like Bombay which had held a premier place for centuries. It is also the most important Railway terminus for Punjab and North India.

The air route has made Karachi very important and there is a rise of population due to this also.

The cement and other factories have contributed to the growth of Karachi over and above the other factors.

Forming a separate Province of Sind has also raised the status of Karachi. Naturally the headquarters of a Province would increase the population to some extent independently of other causes. In addition to all this the fertilising waters of the Indus which are harnessed by the Sukkur Barrage scheme, and which have brought new tracts under

cultivation and have given increased fertility to lands already under cultivations in the old schemes of Indus canals, have increased prosperity of Sind and that of Karachi and hence the increase of population is expected to go up very fast. All these combined have therefore increased the population of Karachi enormously. We give below the figures from census, and estimate for the future.

The figures of Lahore and Ahmedabad which also show a steady tendency to increase faster are given by the side for comparison :—

Year	Karachi		Lahore		Ahmedabad	
	Population	Increase %	Population	Increase %	Population	Increase %
1881 ...	73,560	33 %	1,38,778	16 %	1,34,187	6.70
1891 ...	98,193	33 %	1,59,597	16 %	1,55,405	16.00
1901 ...	1,08,644	10 %	1,86,884	16.5 %	1,95,494	25.80
1911 ...	1,48,394	37 %	2,10,271	14 %	2,30,000	16.70
1921 ...	2,01,691	36 %	2,57,295	24 %	2,70,775	17.70
1931 ...	2,31,058	23 %	4,00,675	55 %	3,82,757	41.40
1941 ...					5,91,643	54.60

The probable population of Karachi in 1981 is estimated at 8,40,000 if the increase is taken at 25% and 10,20,000 if the increase is taken at 33%.

The above three cases show that in every case special conditions give a different standard for increase and each town must be studied on its own merits.

(3) *Those towns whose decline in population is due to some extraneous reasons in spite of the increase in population due to birth and death ratio.*

In many of the older towns, the reverse process would be found, and the decline still continues. The old trade routes of Laman bullocks in old times, and of bullock carts of later period, have disappeared owing to the introduction of railways and motor lorries. Places like Khopoli and Chauk along the Bombay-Poona Road, are now almost dead. The old system of sea-borne trade in small country craft gave prosperity to places like Kharepatan, Rajapur and Dabhol which are now almost desolate, because trade is now carried by large steamers and because the creeks on which these stand are all silted up. The Bunder of Vengurla which was thriving port in the first days of cargo steamer communication is now ruined because Marmagoa has direct Railway communication and good docks, where the goods can be directly transhipped from the railway waggon to the steamer, and a customs treaty for sending goods direct is made with the Portuguese Government.

One is tempted to be very sceptic about the condition of Bombay owing to the rise of ports like Karachi, Okha, Cochin and Vizag which owing to their peculiar advantages and less costly administration and

working charges, have taken away and would take away a lot of sea-borne and consequently rail-borne trade. Ahmedabad mills are making their effect felt on Bombay cloth manufacture. This is mainly the reason why the population of Bombay does not show any tendency to keep up with the general rise of population in the country.

The general rise of population in India is about 10% per decade. There are no doubt famines and pestilences and such other factors which reduce this rate. But against this there is the general tendency to shift from the villages to town. Hence we can take it for granted that an increase of 10% per decade in towns is a correct estimate of the increase in population. The special cases are considered above.

A water supply scheme when once made must be sufficient to cope with the rise of population for about 50 years. Because by that time, the pipes and some of the other works which cannot be easily enlarged without high extra cost will be due for renewal and then the whole scheme can be reconsidered on a new basis due to the changes in conditions.

Water needed per head being estimated in the last Chapter, we have now got the total population of the town for whom the scheme is to be made. We can, therefore, get the total requirements of water per day, and hence during the year.

Thus if "A" gallons (say 40 gallons) per head per day are needed and if "B" (say 40,000) is the maximum population to be supplied as estimated in this Chapter, the water needed per day is :

$$A \times B = 40 \times 40,000 = 16,00,000 = 1.6 \text{ million gallons.}$$

$$\text{Water required per year} = 365 \times 1.6 = 584.0 \text{ million gallons.}$$

The scheme must be able to supply at least 584 million gallons per year.

CHAPTER X

SOURCES OF WATER

Natural

Having determined the water required per day, and the total requirements for the year, the next point to investigate is, a suitable place where this store is available. There are some conditions on which the suitability of this store is based.

(1) The water available must be reasonably pure and potable, and if there are impurities, they must be such as could be removed by an easy and cheap purification treatment. Both these matters are dealt with later on (*vide* Chapter XV).

(2) The minimum quantity available per day every day, after deducting all losses and waste, must at least be equal to the daily requirements as found out in the last Chapter. This must be available in all seasons. Because, man and specially man living a highly complex life in a city cannot live without water even for a day or two.

(3) The total quantity available during the year must not be less than the total requirement for the town. This relates only to those supplies where water is stored for use. The quantity needed must be available after deducting all the losses in the storage.

(4) The store must be available within a "reasonable distance" from the place where it is to be used. As to the standard of reasonableness, it depends on circumstances, cheap conveyance of water being the sole criterion. The idea of "reasonable distance" varies with the different condition. For Poona, a supply at a distance of 14 miles is just reasonable. For Bombay the supply comes from a distance of 64 miles. Karachi has a scheme for getting water from Kotri on the Indus at a distance of 106 miles. The question is purely one of the cost of conveyance. Large volumes of water are available in this country provided by nature in rivers and streams, which if harnessed would give enough water for the whole population of India. Taking Belgaum and Dharwar Districts in Karnatak, there is a great scarcity of water, and towns like Belgaum, Dharwar and Hubli among others have to suffer water scarcity for months together. Yet, the river Malprabha flowing through the heart of this tract has more than enough water to supply this tract, and runs it to waste in the Bay of Bengal. The Government of Bombay had a scheme to supply these tracts with good and plentiful water. But the cost of conveyance is so great that none of these places can think of this scheme.

Coming nearer Bombay, Kalyan, Dombivli, Thana and some parts in the Salsette like Bhaynder and Bassein Road are experiencing great difficulty of water. Water let out in the River Ulhas by the Tatas is so plentiful that it can supply 50 times the population of these places. The Development Department constructed headworks at Badlapur, only 10

to 15 miles from Kalyan, and spent over three-fourths of a crore on this scheme. Yet the water is running to waste through the headwork for the last 20 years and the people in the above area are experiencing the greatest difficulty for water. In this case it is the co-ordination that is wanting.

A "Storage" of water indicates a source which gives the necessary quantity of water satisfying all the above conditions.

These sources can be classified as under :—

(A) Natural sources. These are of three kinds :—

- (a) Rivers or streams.
- (b) Natural lakes.
- (c) Springs.

(B) Works specially constructed.

But of these (b) and (c) are hardly ever available in this Province, and hence we do not propose to consider these. Large natural lakes, if found, would certainly give the best water. Lake Katrine in Scotland gives a very good water supply to Glasgo, and the supply is supposed to be one of the best in the world. Springs also give very good water. We have referred to the water supply of Amboli Hill station in Sawant-wadi State in one of the preceding Chapters (*vide* Chapter II).

Considering rivers as sources of water supply, all the perennial rivers can be used as sources of water supply, and in Bengal, U. P. and the Punjab many of the supply schemes are based on rivers. In Bombay we have, coming from the North, the Sabarmati, Mahi, Narbada, Tapti, Godavari with its tributary Darna, Pravara and Mula, the Krishna and all its tributaries especially the Ghataprabha and the Malprabha in Karnatak and Bhima, Sina and others in the Deccan. All these would provide very large quantities of water, provided the rivers can be properly harnessed for water supply. The amount of water that we see flowing through the rivers is only a small part of the water available in these and other rivers which have large sandy beds. There are, flowing through the sands, large volumes of water probably much larger than those we see, and in many places these are tapped. In the case of the Sabarmati at Ahmedabad, and the various tributaries of the Indus in Sind, the sub-soil currents are tapped by filtration galleries and schemes of large cities like Ahmedabad and Karachi are based on these. There are, no doubt, difficulties in this work, but these difficulties are for the engineers to fight and overcome.

Fortunately the water of all the rivers in this Province is good water, generally pure, except in the rains. In many places drainage schemes which have not been considered from the point of view of river pollution, have vitiated the pure supply. A good deal of experimental work and legislation is necessary on this point, but this is the work of the Government. But the Government is not alive to this important aspect of public health as yet. We hope (futile hope as we think under the present conditions), that the Government will carry out this work and that public opinion will force the Government to take this work in hand. In Bengal all the rivers have got good water. The

towns are almost all situated on the banks of these rivers and water supply schemes are based on these rivers. The great cost of pumping is the main difficulty.

The only question, therefore, is of harnessing the rivers so as to supply the water necessary for a water supply scheme.

Most of the remarks about river water in Chapter II will apply to this supply also. The water is very muddy in the rains, and the task of purifying this muddy water is costly if not difficult. The currents change so often in sandy rivers and the levels of water in different seasons are so changing, that it is very difficult to locate the intake works. A construction of low pick-up weirs would certainly help a lot, but in large rivers, such pick-up weirs are themselves very difficult to construct and very costly. They silt up very soon.

A very ingenious method of taking water from the Indus at Hyderabad (Sind) was observed by us. The water was pumped from a raft. The pipes used had swivel joints. The raft could always be at the edge of the current on account of the swivel joints. This method can only be used where there is current enough to float the rafts in all the seasons, even during the driest season.

In some rivers along the sea coast, tides come up the rivers to some distance upstream from the mouth and estuaries are formed. The question of taking water above the limit of the tide is most important, because upto that point the water is saltish or brackish and unfit for use. Broach and Surat which are situated on the Tapti and Narbada respectively, have this difficulty. In smaller streams, a small weir put up a little above the point reached by tides serves to keep the upstream water pure and potable. But in large rivers this is not possible. Such a pick-up weir in a sandy river must be taken to a sure foundation which would mean a very high cost. In such cases therefore the intake will have to be located someway beyond the reach of the highest tide. Sometimes the distance from the town of this intake is great, and a long pipe line will be needed for conveyance of water, even though the river passes just near the town. Pumping is a very heavy item in all such cases.

Where water is taken from water-bearing sand or silt, and not from the river itself, an investigation of the general direction and magnitude of the underground currents of water in the sand will be of great use. They should be located, traced and mapped out. Water is collected by means of filtration galleries. The galleries are joined together by tunnels and water is led to a sump well from which it can be pumped. The sump well if properly constructed and protected can give good water even in floods, because all water in the well comes through the straining and filtering medium of sand.

In all these rivers water must be pumped once to the purification works, and again, purified water to the service reservoir, so that even if water is available as God's gift, pumping constitutes a heavy recurring expenditure (*vide* Chapter XIX).

The cost of purification and pumping is so great in many towns in Bengal that the quota of water per head per day is very small. The

average is only 7 to 10 gallons, when the Ganges and its mighty tributaries like the Shone and Brahmaputra, carry millions of gallons of water per second.

In case of small rivers which are not perennial, the only alternative is to construct storage reservoirs and to conserve the water which would have run to waste during rains. We are dealing with such cases under storage reservoirs.

(B) Works Specially Constructed

When natural storage and source is not available the only alternative left, is to have artificial supply works. These can be classified under two heads:

(a) Wells.

(b) Storage reservoirs.

When water from wells is utilised for a water supply scheme, the wells come under the same categories as wells in Chapters III, IV and V. The only difference is that the quantity required is very large and precautions must be taken to see that the required supply is guaranteed. The construction, theory of supply and the principles of gauging of the wells are those given before (*vide* Chapters III, IV and V). In all cases pumping is necessary.

CHAPTER XI

STORAGE OF WATER

Water from rivers is available for supply schemes in those Provinces of India which are served by the two mighty rivers, the Indus and the Ganges with their large tributaries. These derive their waters mainly from the permanent Himalayan snows which are inexhaustible sources provided by benevolent nature. The heat of summer melts the snow and the level of water in these rivers continues much steadier than in the rivers in the other parts, and the variations in summer and winter continue within reasonable bounds, thus making the work of the intake of water easier. The exceptional rise of water during floods and the consequent difficulties are still there, and must be faced and provided for. Most of the large cities are situated on the banks of these rivers. The land being flat and sandy or alluvial, storage reservoirs are neither possible nor practicable. The Punjab, Sind, United Provinces, Bihar and Bengal are Provinces which depend on these rivers for their supplies. In some places deep wells are used. In some cases the subterranean watercourses flowing through sands are trapped, as in Karachi.

As we have said before there are large rivers, but their water is available only to the few cities which are on their banks. Owing to unevenness of surface and to the presence of hills and dales, the conveyance of this water from such rivers to distant towns presents engineering difficulties and entails heavy cost. The rich city of Liverpool in England could afford to take the water of the Vrynwy dam from a long distance by means of very costly works. The premier city of India, Bombay, cannot afford to finance the Vaitarna scheme to augment the water supply of Tansa Lake, even though the scheme is being discussed for the last forty years or more. And within 50 or 60 miles from Bombay there are hills which have a rainfall of 200 to 300 inches per year, and run millions of million gallons of water to waste in the Western Sea. There is enough scope to generate electric power for the whole country-side, yet the Tatas are the only financiers who have got a few schemes. Want of initiative, want of capital, want of confidence of the capitalists in the engineering and other technicians, in fact, all the drawbacks of an alien domination are the causes of this. The State of Mysore which is almost like the other Kannada territories has undertaken, financed and completed programmes for utilising the natural resources afforded by rain water. Mysore Engineers have made a name for themselves in India. The result is that when Kannada-speaking people of the adjoining provinces are troubled by a famine, the Mysore cultivator can get enough water for his crops. As to drinking water he has almost no scarcity. Nizam's Dominions also have extensive projects under construction.

In all other provinces and particularly in the tableland of India, the only available sources are "storage reservoirs." The construction of a storage reservoir depends mainly on the selection of a good site which has to satisfy four main conditions:—

- (i) That there is enough water available to satisfy the demand in all seasons;
- (ii) That the water is good potable water in its natural condition; or if purification is needed, it is an inexpensive one;
- (iii) That it is possible to construct the works needed so as to ensure enough storage (days, months or years supply);
- (iv) That the distance of the site from the town is within the scope of practicability for conveyance of water; and
- (v) That the whole scheme is financially feasible, and within the means of the town or towns concerned.

Condition (ii) is discussed in Part II, (iv) is considered under Conveyance of Water, and (v) under financial aspect (see Part III).

We therefore consider here (i) and (iii) only.

(i) Water Available at the Site

Under this heading, we include the total quantity of water that would flow to the site selected for the storage reservoir during the year. This depends on three factors:—

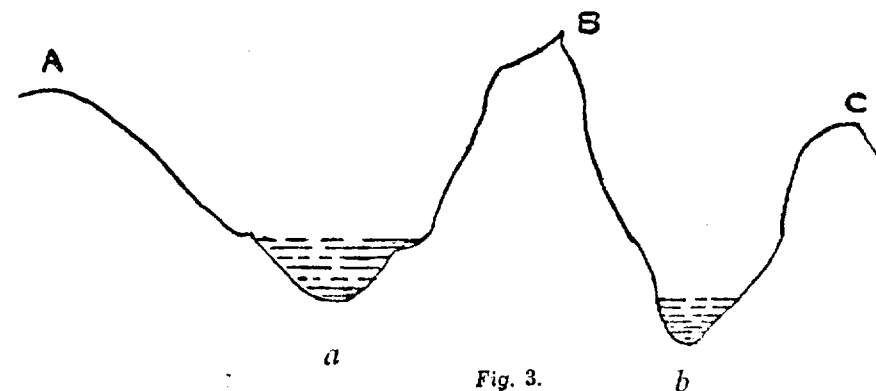
- (a) Catchment area at the site;
- (b) Rainfall in the Catchment;
- (c) Run off from the Catchment.

All these can be calculated mathematically or determined experimentally or otherwise and can be expressed in units.

(a) Catchment Area

The surface of the earth is not a level plane but is very uneven. Roughly speaking, it is divided into ridges and valleys, the general slope falling from the ridge to the valley. Thus, if we take any particular cross section at right angles to the valley, the appearance is like very irregular corrugations of a corrugated iron sheet. (See Fig. 3 below).

SKETCH SHOWING RIDGES & VALLEYS IN A CATCHMENT AREA



If we take any of the ridges A, B or C and try to trace the highest points in the ridge and join them by a line, this line will constitute what is called a "water-shed". If we trace the line passing through the lowest points such as *a* or *b*, joining the lowest points in any valley, this will constitute the watercourse, nala or stream. If we examine the longitudinal section, or the levels along the beds of watercourses or nalas, we will find they have got a definite fall in one direction. Rain water falling at any point along the surface from A to B will tend to run to the nala bed and then down the nala. Many such nalas join together and form a larger nala, many larger nalas join in their flow and form a river. Many rivers join and form the large rivers. All these run to large inland lakes or to the sea. All water falling at any place, however remote, has thus a tendency to flow to the sea. The distance it may have to flow before reaching the sea may be a few miles in a small nala near the sea coast, or two or three thousand miles, in the Nile or the Brahmaputra.

All these ridges and valleys can be marked on a map and a comprehensive plan can be drawn, showing all the subsidiary watercourses, nalas and rivers forming a network to the sea.

Thus if we take any point in the bed of a stream or river, we find that all rain water falling on a certain definite area upstream will always drain to that point. This area is called the "catchment area" of that point on the watercourse, nala or river. The area, if it is small, can be actually measured on the ground, and if large can be calculated from the maps if they are available, and the valleys and ridges are marked on them. Government of India Topo Sheets give such details.

Thus, if we want to have a storage reservoir at any place, the available maps will show its catchment area, or in other words the land from which all rain water will tend to flow to that point. The catchment area may be a few acres for small watercourses, a few square miles for nalas, hundreds of square miles for large streams and thousands or hundreds of thousands or millions of square miles for large rivers. The Missouri-Mississippi, the Nile, the Ganges, the Indus, the Krishna and the Nerbada drain continents or sub-continents. But storage reservoirs on such large rivers may not be necessary. What is needed is only some arrangement to raise the water level so as to facilitate the intake of water. The Sukkur Barrage is an arrangement of this kind on the river Indus, and is a work of huge magnitude.

(b) Rainfall

The unit of rainfall is an 'inch'. One inch of rainfall if confined to the area on which it falls would cover the area with water to a depth of one inch.

Rainfall is measured by means of a rain-gauge. This consists of a cylindrical bottle which has got a funnel at its top to catch the rain water falling on the area of the bottle. The bottle is kept on a raised stand, away from trees in an open space. A glass is kept to measure the rain water. The glass is calibrated to give inches and cents.

Such rain-gauges are kept in dispensaries, and in the Mamlatdars, Katcheris where there are no dispensaries. The reading is taken every day at 8 A.M. and recorded in a book. There are records of 50 or 70 years in some places. In all projects it becomes necessary to have rain-gauges in most of the important places in the catchment.

From the daily record, the annual rainfall is found out by adding all the entries for the year. When we speak of the rainfall of a place, we mean the annual rainfall. The figures of annual rainfall of different places vary considerably. In this Province the rainfall near the coast is 80 to 100 inches per year. In the Ghats which lie between the coast and the Deccan and Karnatak tablelands, the rainfall is 150 to 250 inches as clouds going from the sea to the tableland are intercepted by the Ghats and robbed of their contents. Beyond the Ghats, the rainfall goes on becoming less. Poona has 25 to 30 inches. Ahmednagar, Sholapur, Pandharpur, Bijapur have about 15 to 18 inches. Dharwar has about the same. Belgaum is a little better. The Gujrat Districts have 20 to 30 inches. The highest figure is at Cherapunji, where the rainfall is 450 to 500 inches. In some places in the Western Ghats, at Castlerock on Goa Frontier, the average is 250 inches.

There is also a very great variation in the amount of rainfall during different years in the same place. Taking Ahmednagar, if the rainfall during one year is 6 inches, during the next it may be 24 inches—a variation of 300% more. All the records for 50 years are scrutinised and added and an average found out. This is called the "Average rainfall". The averages are marked on some maps. Lines are drawn connecting places with the same average. These are called the "Isohyetal lines". If you want to find the rainfall of any place it is easily found from the isohyetal line which passes through this place.

The chief difficulty in a water-supply project is the absence of accurate information about rainfall. We have said above that in Ahmednagar, one year the rainfall is 6 inches and next year it is 24 inches. If, therefore, our calculations are based on 6 inches the project is too pessimistic, if based on 24 inches it is too optimistic.

Attempts are made by many statisticians to find out formulae to determine the variations in the minimum and maximum rainfall figures from the averages.

Burton gives two postulates:

(1) It is found that the minimum rainfall for a year is 33% less than the average and the maximum is 33% more than the average. So that if Poona has an average of 24 inches, the driest year will have 16 inches and the wettest 32 inches, the maximum being twice the minimum.

(2) There may be expected to occur at considerable intervals, a set of three consecutive years during which the average yearly rainfall is only 80% of the total average.

A scrutiny and analysis of the figures of the maxima and minima of the rainfalls of various places show us that the rules mentioned above do not apply to places in this country and particularly to the dry tracts

both in the Deccan and Karnatak plateau. The same is true of the Sind area and probably the Marwar areas.

The figures for Karachi are very instructive. The average rainfall for about 80 years 1856 to 1937 is 7.6 inches.

The wettest year was 1869 with 28 inches.

The driest was only two years later, 1871, with a rainfall of 0.48 inches. So the driest was only 7% of the average and the wettest 400%. The variation was 5,500%.

The figures for Belgaum :—

Average 1913-1935	..	51.17 inches per year.
Rainfall (minimum) 1899	..	28.63 inches.
" (maximum) 1914	..	86.41 (three times the minimum).

The rainfall figures for the various Districts in the Province for 1939 are given below :—

RAINFALL IN BOMBAY PROVINCE, 1939

Gujarat				Inches during the Year
District				
(1)	Ahmedabad	..	..	16
(2)	Kaira	..	..	18
(3)	Panch Mahals	..	..	22
(4)	Broach	..	..	25
(5)	Surat (North)	..	..	30
	„ (South)	..	..	45
Maharashtra				
(6)	West Khandesh	..	..	20
	„ Hills (Navapur)	..	..	40
(7)	East Khandesh	..	..	22
(8)	Nasik Plains	..	..	20
	„ Middle Portion	..	..	70
	„ Hills (Igatpuri)	..	..	110
(9)	Ahmednagar	..	..	16
(10)	Poona (Plains)	..	..	17
	„ Maval (Middle)	..	..	45
	„ Hills (Lonavala)	..	..	162
(11)	Sholapur	..	..	16
(12)	Satara (Plains)	..	..	22
	„ (Middle portion)	..	..	45
	„ (Mahableshwar)	..	..	225
Karnatak				
(13)	Belgaum (Plains)	..	..	25
	„ (Middle)	..	..	60
	„ (Ghats)	..	..	160
(14)	Dharwar	..	..	25
(15)	Bijapur	..	..	20

Konkan or Seacoast

(16)	Karwar	..	..	..	120
(17)	Ratnagiri	..	..	..	125
(18)	Kolaba	..	..	..	80
	" (Matheran)	..	..	..	175
(19)	Thana	..	..	..	80

Statisticians have also tried to work out a cycle of years after which rainfall conditions are being repeated. In India old statisticians work out a cycle of 60 years. In some other places a cycle of 35 years was calculated. So that the figures would go on repeating themselves consequently after the end of the cycle.

It must be noted that conditions in this country are changing fast. For instance, if we consider a place in Belgaum District, where the rainfall was 45 inches in 1895, such a place was thickly wooded then. In 1940 most of the wood would be cut for fuel or timber, and there is nothing to attract rain, and the rainfall figure of 1940 could in no way compare with that of 1895. Or if we consider the areas which have canal systems and consequent vegetation, both these serve to attract rain, so that after the canals start functioning, rainfall is bound to improve considerably in the canal area.

Season, Concentration and Nature of Rainfall

The character and the concentration of rainy season to a small period during the year has also much to do with all the calculations of water-supply projects. In England and the West, rainfall is almost regularly spread over the whole year. Thus in England, there is rainfall in all the months of the year, though the frequency and intensity is greater in winter than in summer. As far as water-supply projects are concerned, this fact has very far-reaching and advantageous results. Let us take river water supply. This supply depends on the flow of water in the river, and on the levels of water in the river (*vide* Chapter II). In England replenishment to the river flow being frequent, so many times in a month, the current does not fall below a certain level and there is always a good flow of water in the river. The variation between the maximum flow in floods and the minimum flow during the driest spell, though considerable, is not so marked as in India. The recuperation to tanks and storage reservoirs, being so frequent, their levels are within more reasonable bounds of variation than here. This is dealt with at greater length under the storage in terms of days' supply (*vide* Chapter XIV).

In India, in this part of the country, there is only one season of rainfall, the monsoon, which is induced by the south-west monsoon currents. There are a few stray showers of early rains late in May. But these are very uncertain. Then between the 15th June to end of August there is the usual rainfall. There are showers in September, frequent but uncertain. A few late showers in October called the late rains are usual, but generally they fail, and the crops fail. These

showers are more anxiously awaited for crops than for supply of water. But even for water supply, their effects are found to be very beneficial. Rains are thus concentrated to about 60 days in the year, and even during this period there are dry spells.

The character of the showers is different. Whereas, in England and other countries in the West the rains are mostly a fine drizzle, in this country we have very brisk showers and heavy downpours. In Bombay, out of a total rainfall of about 100 inches in an year, 10 or 12 inches in a day are not unknown. In Hyderabad (Deccan) with a total of 35 to 40 inches, there had been 13 inches of rain in a day. With a drizzle, water slowly soaks in the soil, and the sub-soil is very well charged, and the water can reappear as well water, and would be available for use. With a downpour, there is not enough time for soaking, and the maximum quality of water runs off to the watercourse, making the "run off" very effective. A downpour of rains, therefore, is bad for supply to wells, but better for swelling the currents in watercourses.

These facts can be best observed in the broad sandy rivers of the plateau of Hindustan. A river which is a mighty, angry and swirling torrent, filling the whole of its wide bed and spreading even beyond it carrying ruin and destruction in July or August, has hardly a current as early as in November, and is stone dry in February and thereafter. The mighty rivers, the Narbada, Krishna, Godaveri, Tapi, and others, spreading for miles in width in the heavy floods, have a small stream in the dry season in a corner of their bed. The difference in heights of water in the highest floods and during the dry weather current is 40 to 60 feet, making it difficult or almost impossible for the intake of water-supply schemes. In England the proportion of the lowest to the highest discharge is much greater than in India. If in England the minimum flow in a river does not go below 7 to 10% of the maximum flood, in this country in the dry sandy rivers it is in the proportion of zero to infinity or in large rivers may be 1 to 10,000, really a great variation!

We have treated this subject at some length, because rain is the basis of all water-supply schemes, and in order to realise the importance of the various aspects of water supplies, both village and town, it is necessary to study the nature and character of the rainfall. Our students and designers must bear in mind, that calculations and empirical formulae, however patiently worked out with thousands of experiments in England and America, will not hold here, because the basis of the whole calculation, the rainfall, is different in nature, character, and the period during which it is spread. All Hawksley's, Burton's and other formulae may not apply here even to a degree of approximation.

Run off

The "run off" from a catchment is the proportion of the water running to the watercourses out of the total water falling in the area of the catchment.

As we have said before (*vide* Chapter III), rain water falling on any area, is divided into three portions. One portion soaks in the soil,

and some of it is utilised for supply to wells or springs or feeds some rivers or streams by subterranean flows. We have dealt with this portion in details. The second portion is evaporated after it reaches the soil. As to how much is evaporated, is extremely difficult to estimate as it would depend upon the temperatures of the soil and of the air, and upon so many other complex circumstances. In those areas which are flat, studded with pits or roots of trees where water can neither soak nor flow off, water stagnates and is evaporated after some time. In marshes, it stagnates for a long time.

The third part of the rain water flows off from catchment area in the form of a flood in the watercourses. As to how much flows off in this way is extremely difficult to estimate. It depends upon:—

- (1) The degrees of porosity of the soil of the catchment area.
- (2) The slope of catchment area. On a flat slope the run off is less than on a steep one, all other conditions being the same.
- (3) Hindrances to flow in the area, such as roots of trees, or other obstacles.
- (4) The amount of evaporation as treated above. It must be noted that if a shower of rain comes after a long dry spell, both absorption and evaporation are much more than if the shower comes after a recent shower.
- (5) The character of the rainfall. In a drizzle, the run off is much less than in a downpour. It is found that if the rainfall is only 25 or 50 cents in a day, there is no run off at all. If two inches were to fall in two hours, the run off would be more than the same two inches spread over 24 hours.
- (6) Lastly it depends on the amount of rainfall in the catchment. This is one of the most important and most indefinite items. In a small catchment of a few acres, it is just possible that the whole catchment would have the same shower at the same time. In the case of a small river taking its rise in Poona District on that side of the watershed which runs to the Western sea, the catchment in the beginning is falling ground of friable black soil mixed with sand, and the rainfall is 60 to 80 inches in the year. The next tract is the Western Ghat with a steep slope of the rocky soil, giving 100% run off, with a rainfall of 200 inches. The next is the Konkan territory at the foot of the Ghats, thickly wooded with a slope not very steep, with a rainfall of 120 inches or so. The last is flat rice land near the sea with its 100 inches of rain. When it rains in the Ghats, there may be brilliant sunshine near the sea coast. All the conditions on which the run off depends are different in different zones in the catchment. In the Khandesh, Nasik and Ahmednagar Districts, where large nalas come from the mountainous parts, on a bright day in the rainy season, the nala is dry. People camping in such nalas with their bullock carts for a short respite during a long journey to the nearest bazar, are overtaken by sudden floods and are washed away with their carts and bullocks and their dead bodies are recovered far downstream.

In the case of large rivers like the Godavari or Krishna, which rise in the Eastern watershed about 100 miles or so from the Western sea, and traverse the whole continent to join the Eastern sea in the Bay of Bengal, the conditions differ in thousands of ways in all thousands of miles of their meandering course. The run off is therefore extremely difficult to determine.

To recapitulate, the run off from any catchment must be determined from the three above factors and is one of the most difficult things to determine.

(1) Out of these three, the catchment area can be determined pretty accurately as it is a well defined tract of country, and can be measured mathematically.

(2) The next item of rainfall is uncertain. It is very difficult to foretell what the rainfall of a certain area will be, because it is very uncertain, and as we have seen in the case of Karachi, varies between 7% and 400% of the average, which is a very great variation, indeed. Out of the total rainfall the quantity between June and October is the only one that serves to give any appreciable run off, because the stray showers during the other months are either all absorbed by the hot and parched soil, or are evaporated. Fortunately, the maximum percentage of rainfall is concentrated in the rainy months. In large catchment, rainfall is different for each different locality and the whole thing is extremely indefinite.

(3) The run off, as said above, is very indefinite. In the case of small catchments, in the drier districts of Ahmednagar, Sholapur, Bijapur and Dharwar, the rains are so uncertain that all water-supply schemes are always in danger of failing. The history of Dharwar water supply is interesting from this point of view. Water is not available in the pipes for months. A total failure of a scheme based on a small catchment is always a possibility. In a large catchment, however, once the run off is determined by the river-gauging method described later on, the run off available may vary somewhat, but will not fail totally as in a small catchment.

We have a few large irrigation and water-supply schemes in this country. But looking to the uncertainty of the rainfalls and the small period during which rains are concentrated, it is necessary to conserve all possible water for use on "dry days". Famines, failure of crops, scarcity of drinking water, and diseases propagated by bad water supply, all combine to destroy valuable human life. Stores of good and reliable water are the only remedies to counteract these calamities. Yet no attempt, except a few spasmodic efforts, are made to collect information. Rain-gauges and river-gauges must be established in all likely places and the result of all observations and experiments must be published.

At present, information about the run off from catchments is very scanty. Rao Bahadur Banerjee estimates from his observations and experiments in Behar and Orissa, that run off in catchments in those Provinces is about 35% of the rainfall in the months of June to October taking the average of the three driest years. The run off from the Tansa

catchment in 1939 was found to be 53.6%. In some of the drier districts it would be only 10 or 15%.

Good deal of experimental research work is done in England and the West. The results are not of much use to us here, because the conditions are totally different. As remarked before, in England rain drizzles, and here it generally pours.

In England the land is almost always saturated with water because of the rainfall spread out during all the twelve months. Here the land is thirsting for water owing to heat and rain is concentrated in 60 to 90 days. Naturally therefore the run off would be very different.

More research work is done by Scientists and Engineers on the subject of the maximum floods from catchments. The results are given in cubic feet of water passing per second through a section of a river at a site selected. The formulae with their authors are given below:—

Col. Dickens	..	..	C.M. 3/4
Col. Ryves	..	..	C.M. 2/3
Mr. Fanning	..	..	C.M. 5/6

In these C = a constant determined by experiments.
M = Catchment area in square miles.

Constant experiments are in progress for determination of C in all possible cases under all possible conditions.

These results will be useful for bridge construction where the determination of the highest flood is most important. If the height and duration of the highest flood and of the other minor floods were available, almost the whole amount of storage could be calculated, as it depends on the floods.

In the case of storage reservoirs needed for water-supply schemes in Khandesh, Ahmednagar, Sholapur, Bijapur and Dharwar Districts, and probably those in Panch Mahals, the catchment areas are generally hilly. The run off on such areas may be about 20% of the rainfall in the period between June and October, that is in the monsoon season. A catchment of less than 25 or 20 square miles is very uncertain and should not be accepted if possible in these dry areas. When the areas are flat as on tablelands, they are most unreliable as the run off would be only 10% or even less in dry years.

CHAPTER XII

RIVER GAUGING

Water available from the catchment, as found from rainfall and run off calculations is thus at best a mere approximation. This approximation can be checked by independent observations and calculations, by means of river gauging.

River Gauging

River gauging consists in ascertaining the quantity of water that flows at any point of the river by observations about the height of water and cross section of the river. The total quantity flowing through during the year can then be calculated.

The site to be selected for gauging a river must be the site selected for the reservoir dam or as near it as possible. A straight level stretch of the river, not having any deep ponds or gulleys where water accumulates, should be selected. All the water in that section *must be flowing*. A survey of the site is made. Cross section of the river at the point selected is taken with a level determining the levels of points in the bed of the river at every five or ten feet, and their levels are entered on the plan. The plan is then ready, and when the height of water is observed and recorded, a horizontal line drawn through the point representing this height, cutting the river bank on both sides is drawn, and this shows the section through which water flows. This area of cross section of the current can then be found from the plan. If we know the velocity of the current, we can find out the volume of water flowing through the section per second. (See Fig. 4).

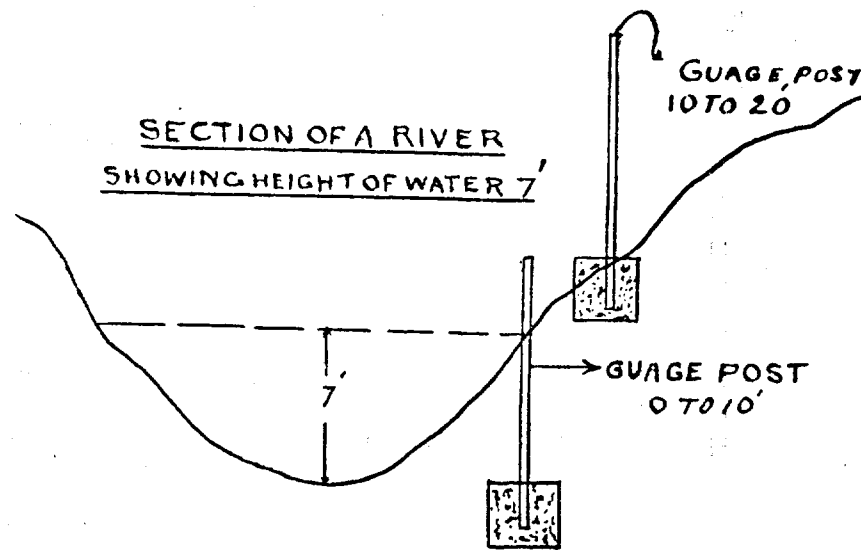


Fig. 4.

Taking an example :—

Cross section 450 sq. ft.

Velocity of current 5 ft. per second.

Total water passing through this section per second = $450 \times 5 = 2,250$ cub. ft.

Supposing this flood lasted for 14 hours, total water flowing during 14 hours $14 \times 60 \times 60 \times 2,250 = 113$ million cub. ft.

Thus we see that in order to determine the quantity of water flowing through any section, we require three items :—

- (1) Area of the cross section. We have seen how this can be ascertained when we know the height of water in the nala.
- (2) The velocity of current.
- (3) The time of flow.

(1) The height of water can be found out by means of river gauge posts (see Sketch). At the site selected strong wooden or iron posts are fixed, imbedded in very good strong concrete base in very convenient and safe places, where they would not be affected or washed away by floods. Each post has got a good enamelled gauge plate, firmly secured to it in such a way that the zero point of the plate coincides with the zero point in the bed. The best position for such posts is a rocky part of the bed which cannot be scooped out and a new channel formed. Each gauge plate is 10 ft. in height, and feet and decimals are marked on it as on a levelling staff. When the flood is more than 10 ft. this plate will be insufficient. Another post carrying 10 ft. to 20 ft. gauge plate is fixed in the same way carefully levelling the bottom of this gauge plate with the top of the other plate (see Fig. 4). So gauge plates are added till the expected height of the highest flood can be measured.

When these river gauges are fixed, the gauge Karkun has simply to take the reading of the gauge every morning at 8 A.M., record it in his book, and send a weekly report of the record to the office. In case of floods, and sudden changes in levels of water, more readings are taken, noting the time at which each reading is taken so that the duration of each flood can be marked.

All the results can be plotted in the office and cross sections can be found out.

(2) Velocity of current

In the case of rivers or streams, velocity of current is different in different portions in the streams. Starting at the bank, the velocity near the bank is very little and goes on increasing till it is maximum in the centre and goes on falling again to the other bank. In the bottom of the stream, even in the centre, the velocity of the stream is much less. It goes on increasing till it reaches a maximum just below the surface of water. So from these different velocities, the mean velocity can be calculated.

The mean velocity of water in a stream or river can be determined by observations by floating rods or current meters. Surface velocity at any point can be determined by marking a run of 100 or 200 ft. length on the river bank, and sending vividly marked velocity floats, in the water. As the float goes past the starting point of the run, a stop watch is used and the time taken to reach the end of 100 or 200 ft. run is marked and noted, this will give the velocity of the water at that point. After a number of results are taken, the average velocity can be calculated by a formula.

Before the gauging starts, the results of the float experiments must be tabulated and a table of velocities for every foot and decimal of height of water entered in a table. Many tables and formulae are used for finding the average velocity from results of float experiments, but this is a work for engineers. In any stream the velocity is the same when water is at the same height above the bed. So that, as soon as the height is known from the gauge Karkun's return, the velocity can be known from the tables in the office.

The heights of water in the stream are usually observed once every 24 hours except in exceptional floods, when frequent observations of heights rising or falling are taken and the time marked.

Thus we have all the three items required. The gauge book when completed in the office gives the water flowing throughout the year.

This is compared with the results obtained by the catchment, rainfall and run off observations. The results of the river gauges are however the more accurate of the two, because we actually calculate the water flowing through.

Before a site for a storage reservoir is selected, river gauging must be carried out in many places including the site selected, to compare the results and to select the best site. The work must be done for a period of many years, before the final selection is made.

In gauging small streams, what is called the "Notch method", is followed. A dam is put in the bed of the nala and all the water is trained to flow through an opening kept in the dam. If the flow is very meagre, the opening is a triangular one, with its apex below and the base horizontal at the top. The best method is to take a stout plank of wood and to cut a notch as shown below and to fix it in the dam. If the flow is considerable, the opening kept is rectangular in a metal plate fixed in the dam or as a rectangular opening in the masonry of the dam. Knowing, by means of a gauge fixed in the notch, the height of flow through the notch and the dimensions of the notch, the rest is a mere calculation by hydraulics. A table of flows for every height of water in feet and decimals can be prepared, so that if the height is known the result can be obtained from the table. (See Figures 5 and 6).

NOTCH METHOD OF GAUGING STREAMS

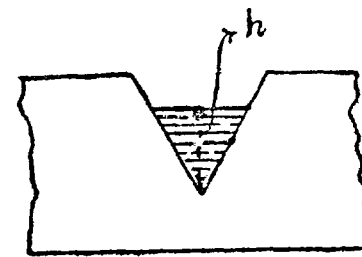


Fig. 5.

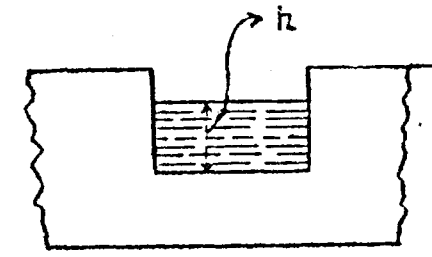


Fig. 6.

This method would, however, fail to record the flow when it is so heavy that it cannot be confined to the notch. During floods, water overtops the notch very considerably, and no calculations and observations are possible. The discharge in such cases must be found out from the heights of floods using the ordinary river-gauging method.

This notch method is useful for those streams which though small have got perennial waters. The only point to be determined in these is to make sure that the quantity of water available on the driest day of the season is enough to supply the needs of the people. So the gauging is done only to determine the minimum discharge on the worst day. If the results for many years are obtained and tabulated, the lowest figure during these years will give an indication of the minimum quantity of water available. The flow being continuous throughout the year, the average requirements per day are satisfied, if the lowest discharge satisfied the needs. There are only two precautions to be taken, namely, (1) to meet the inequalities of the demand during the different hours of the day, and (2) to have a small store of water in the case of eventualities. Both these purposes are served by putting a small dam which acts as a compensating reservoir. The dam also raises the level of the water in the bed so as to facilitate the drawing off for the water-supply scheme and to feed pipes fixed at a certain level, in spite of the changing level of the water in the stream.

We can give an instance. In the small sea coast town of Ratnagiri with a population of 15,000, people will be satisfied with 12 to 15 gallons of water per head per day. The total quantity of water needed is therefore $15,000 \times 15 = 2,25,000$ gallons = $\frac{2,25,000}{6.25}$ cub. ft. = 36,000 cub. ft. in 24 hours = $\frac{1}{2}$ cub. ft. per second.

There is a stream about 8 miles from the town which gives about 1 cub. ft. of water per second on the driest day and hence this supply is all that is needed.

Having so far investigated the possibilities under condition No. (i) in Chapter XI as regards the availability of water, we will next investigate the feasibility of storing it as required in condition (iii), and see if it is possible to construct works so as to ensure enough storage.

Such works are called "storage reservoirs".

CHAPTER XIII

STORAGE RESERVOIRS

Having estimated the quantity of water available at a convenient point in the valley, the next item for investigation is to determine *how much* of the estimated water could be impounded in a reservoir that would be constructed at that site.

This investigation is both important and difficult, because it requires a good deal of technical knowledge. The importance lies in the fact that we must have beforehand a very accurate idea of what quantity of storage there would be and how far it will suit the requirements. The success of the scheme would depend upon the fulfilment of the requirements.

Geographical and Geological Conditions

The investigation of the suitability of the selected site from the point of view of geographical and geological details falls under the following heads:—

- (1) The valley or gorge must be narrow enough so as to require a dam as short as possible.
- (2) The sides or flanks of the dam, where they join the sides of the valley must have a watertight junction with the sides of the valley.
- (3) There must be a suitable site for the construction of the waste weir and for the disposal of the waste (surplus) water.
- (4) There must be enough space for the location of the subsidiary works such as outlet arrangement, pumping plant, purification works and all similar works needed at the site of the dam.
- (5) The geographical position of the site should be such as to give as large a storage as possible. For example, if a dam 40 feet in height is constructed and the valley rises steeply from the dam or has no 'spread', the storage would be very small than in the case of a flat valley.
- (6) If possible, water should be available to the town by gravity. Otherwise pumping is necessary. It would pay to have a little longer distance from the town, than to be saddled with the cost of pumping which means a heavy initial and a very heavy recurring charge.
- (7) Last but the most important of all, very good foundations must be available at the site for the dam.

These points, as we said above, are very important. We will consider each of them in as short a space as possible.

(1) *The Width of the Valley*

If the site has got a cross section that is almost flat, a dam cannot be constructed except at a very great cost. Because, for a given height of dam, its length would be much longer in a valley with a flat cross section than with a steep one. (See Figures 7 and 8).

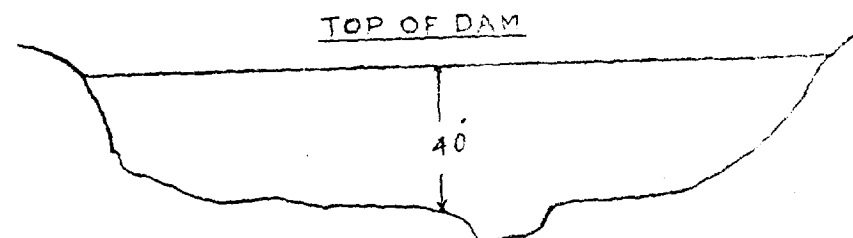


Fig. 7.

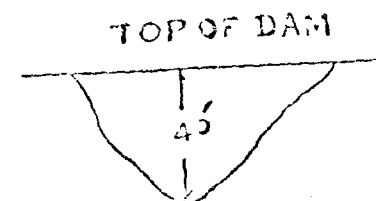


Fig. 8.

Taking the two figures given above, if we want to construct a dam 40 feet in height and the valley is flat as shown in Fig. 7, the dam would be very long, say, $2\frac{1}{2}$ miles, whereas if the valley is steep as shown in Fig. 8 the dam would be a short one, say, 1,500 ft. The cost depends on the length. When all other conditions are the same, a shorter length is more desirable, provided the storage is good.

(2) *Watertight sides or flanks*

The remarks given below about watertight junction of foundation (item No. 7) apply to the junctions of the sides, though of course the pressure is not so great as at the foundation. These joints, however, are alternately dry and wet and this must also be considered.

(3) *Design for a convenient waste weir*

After the reservoir is full, the excess water from the catchment is bound to spill away. In the investigation of the water available (*vide* Chapter XI) we have calculated the minimum quantity that can be obtained from the run off in the catchment (*vide* Chapter XI). There is much more water than we can impound. This water must be allowed to escape so as not to cause any damage to the works and to the surrounding land during the escape. The location, design and construction of waste weir is a problem by itself.

(4) *Space required for the works near the dam*

There are many works needed, which must be located near the head work. The outlet arrangement, for instance, is a part and parcel of the head works. The pumping machinery installation, if needed, must be located there. Ordinary purification in two stages, pre-filtration and filtration must be carried out near the dam for reasons given later (*vide* Chapters XVI and XVII). There must therefore be enough space for all these works.

(5) *Relation between the height of the dam and the storage capacity*

The reservoir would be successful only if the storage capacity would be good. This is afforded by a valley with a flat longitudinal section and many other equally flat valleys joining it. The "spread" of the water must be good. In the case of the Darna dam near Asawali in Nasik District, the spread is over 20 or 30 miles. Water impounded by the dam can be seen near Igatpuri Railway Station coming all the way round the hills. The "spread" in this case is very good. Figures 9, 10, 11 and 12 illustrate this point.

PLAN OF VALLEY SHOWING THE DAM AND SPREAD OF WATER

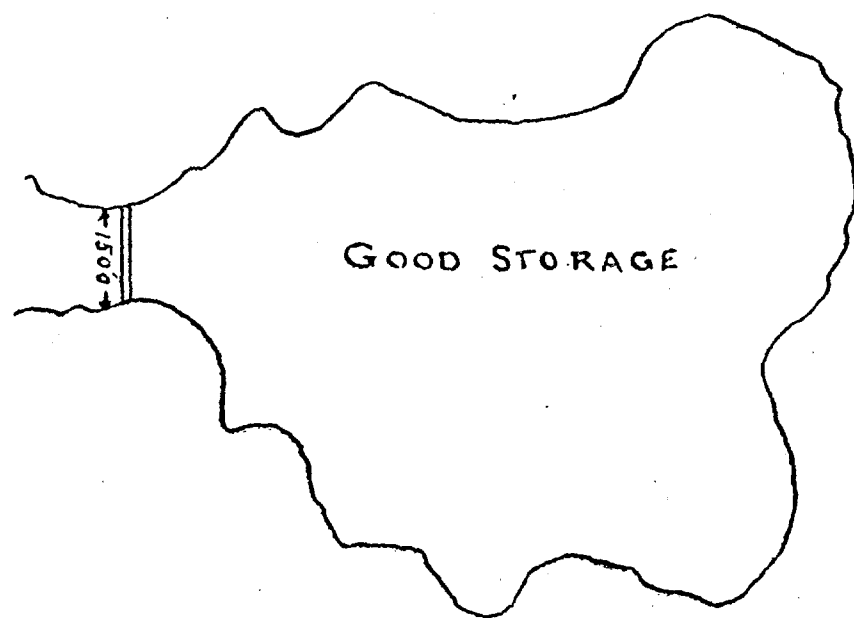


Fig. 9.

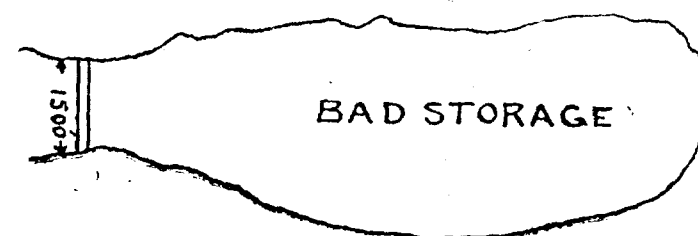


Fig. 10.

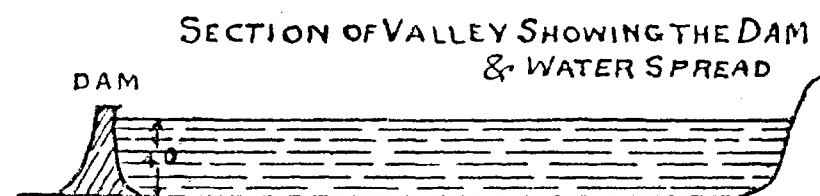


Fig. 11.

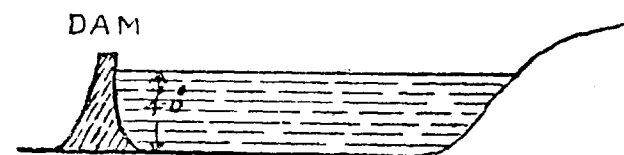


Fig. 12.

Thus if we take forty feet height of the dam, the "spread" in Fig. 9 is very great. In Fig. 10 it is very meagre. In Fig. 11 (which shows a longitudinal section of the valley in Fig. 9) where the fall of the valley is flat, the storage would be much better than in Fig. 12, where the valley has a steep fall. The storage capacity being the sole object of the dam, these considerations are very important. The estimate of "storage capacity" at any height and also per foot of the height are obtained by taking contours or points at the same level of the land to be submerged, and measuring the areas, and calculating by the "prismoidal formula" the volumes of water that would be stored. It is a pure mathematical calculation. (See later in this Chapter under "height of dam").

(6) *Water available by gravity*

This would depend upon the relative position of the town and the reservoir. A gravity supply as said above saves great capital cost and very great recurring charges of pumping machinery.

(7) *Foundations of the Dam*

The foundation of the dam is the most important item of consideration. It must satisfy two conditions:—(A) It must be watertight so as not to allow the water stored in the dam to escape from the storage.

(B) The foundation must be satisfactory from the engineering point of view so that the foundations themselves and the work in the dam must be safe under all conditions.

(A) WATERTIGHT FOUNDATIONS

There must be no leakage of water through the foundation; that is, through the joint of the dam with the substratum on which the dam stands, or through the substratum itself.

The following condition must be satisfied:—

“That the substratum of the foundation must be watertight both in its natural state and when disturbed for the work of the dam.”

The work of the dam itself can be made watertight so as to prevent leakage of water through the dam. The base as well as the sides of the dam, must have a watertight joint with the ground there, so that water, which is at a great pressure at the bottom, should not leak through these joints. The material at the foundation must be such that it should not deteriorate by constant pressure and presence of water. Hard rock would be the best. If, however, hard rock is available only at a very great depth, the cost of constructing the foundation would be very great and prohibitive. The rock must be solid and without veins, dykes, faults and fissures. Even supposing these are filled with substances deposited therein by aqueous agency during the past so many centuries, the action of water under pressure is bound to have the effect of opening up the fissures and dissolving some of the substances. Sometimes unseen fissures open up, and the leakage is very great. In a dam constructed near Hubli, fissures in the foundation cause a leakage of more water per day than the water used. Very costly investigation by trial pits, borings and other observations are needed, and even after the most careful investigation some unknown factor develops as mentioned above at Hubli and dislocates all calculations.

The geological formation of the rocks which constitute the solid substratum of the foundation is the most important point for consideration. Rocks which weather or deteriorate under water or pressure are of no use for foundations. Rocks which have their laminae sloping downstream, are not good for foundations, because water under pressure will creep through the joints or beds of the strata and there will be leakage.

In all cases of reservoirs geological experts must be consulted and their favourable report about the foundations is the best criterion of the suitability of the foundations from the point of view of safety, from a geological point of view.

Water inside the dam, resting as it does on the surface of the soil, has a tendency to penetrate down to the surface of the impervious strata, and thence to travel down the valley along that surface. If leakage of this water from the reservoir is to be stopped, the dam must present a watertight obstruction to its flow throughout the whole length of the dam, and to its full supply level height. The dam therefore must be carried to some depth in the impervious strata of the

foundation, otherwise there will be leakage and also slipping of the dam along the top of the impervious bed. The junction of the dam and the impervious bed must also be filled in with cement in the case of masonry and with puddle in earthen dams.

In all cases the arrangement must be such as to satisfy the condition given in the beginning:—

“That the foundation must be watertight both in their natural state and also when disturbed for the work of the dam.”

Engineering Requirements

(B) THE SAFETY OF THE FOUNDATIONS

When considered from an engineering point of view, the foundations must be able to resist the stresses that are produced thereon by the weight of the dam and by the hydraulic pressure of water on the dam and on the foundations. These depend mainly on the height and type of the dam. We will take the height of the dam first.

The Height of the Dam

The height of the dam is the most essential feature to be settled. The higher the dam, the greater is the storage capacity of the reservoir. If the nature of the bed of the reservoir is studied from the contours, it will be found that the capacity to store water is very much more per foot height at the top than at the bottom. The difference is out of all proportion. Thus if the storage capacity of the first ten feet is 1, the storage capacity of the next ten feet would be 30 and for the last ten would be 100 or 200. So that the storage capacity for every foot of extra height would comparatively be very great. And if during the construction of the work, a foot or two extra height can be added without changing any other item, it would be a decided advantage. In the case of Tansa dam, 20 feet height above the outlet gives a storage of 18,500 million gallons. An increase of 15 feet gave an additional storage of 17,000 million gallons.

Height of the dam is limited by many circumstances. There are other valleys joining the valley which is to form the storage basin. As long as all the other valleys slope towards the dam and the watershed is not crossed by the stored water, it is all right. In case the water rises in such a way that it overtops the watershed or the ridge where the reverse slope of land begins, water will run off that way. This, then, is the limit of height of the dam. A portion of the top soil on the ridge is porous, and water would leak this way out of the valley and be lost.

The construction of the dam puts undue stresses on the bed of the valley in two ways:—

The weight of the material of the dam puts a great strain on the foundations; and

The pressure of the accumulated water also puts a strain on the bottom.

The two most important conditions which the materials in the foundations have to satisfy are that:—

(i) They must be strong enough to bear all the stresses caused by the weight of the dam and by the other forces on the dam wall including the head of water.

(ii) The materials of the foundations must not deteriorate in future on account of constant contact with water.

The stresses that come on the foundation can be calculated by an engineer and as mentioned above, the material of the foundation must be able to withstand and resist these stresses in all conditions when the dam is full of water, when it is only partially full and lastly, when it is empty.

Engineering science tells us that the effects of the stresses set up by the dam tend to induce four main reactions, and dam must be so designed and constructed as to have sufficient strength to counteract all these reactions.

This sufficiency falls under the following four heads:—

(a) It must not have tendency to overturn about the outer toe at any point in the length of the dam, either when the dam is full or empty.

(b) It must not slide as a whole along the foundation or along any plane in its height.

(c) It must not develop any stresses which will cause it to crush the foundations or any part of the masonry in foundation at any point in the height.

(d) It must not fail by rupture of any of the joints of masonry.

The condition of being watertight is, of course, presumed, when we are considering the dam.

All the above engineering problems and details of calculations are for experts to work out. For laymen, the following tests if satisfied will ensure the safety of the dam:—

(x) The resultant stress at any horizontal plane must lie in the middle third of the cross section of the dam under all possible conditions of loading. This will satisfy conditions (a) and (b) above.

(y) At the base, friction alone must be able to prevent sliding action in condition (b) above. The cohesion between the layers of masonry well constructed is able to satisfy this condition in the portion above the foundation.

(z) The total crushing stress at any point must be less than the resistance to crushing of the material where this stress comes. That is why the foundations of such dams are to be taken to good, hard and sound rock. This satisfies condition (c) above.

Thus we see that even if the geographical conditions may allow the height of the dam to be taken indefinitely high, engineering requirements for safety put a limit on the height, because all the stresses and reactions increase *very much* with additional height. The greater the

height of the dam, much greater is the overturning moment round the base and the greater is the tendency to slide along the base. Engineering skill and precautions can help much. But after all there is a limit to these things, and you cannot rely on the safety of calculations beyond a certain limit of height. In no case can you exceed the stresses which the base can safely withstand. If the overturning moment, for instance, produces a stress on the foundation which is not compensated by the resistance to crushing at the place where the stress is maximum, the base will be crushed and the dam would topple over. The work costs lacs or millions of rupees and must be *absolutely safe*.

Height depends on the kind of materials used for the dam. If the dam is an earthen dam, the height would be limited to 40 or 50 feet only. For masonry dams, the height in this country is taken up to about 275 feet; but such dams are for an irrigation system. Nira Valley dam at Bhatgar in Poona District, Pravara dam at Bhandardara in the Nagar District are instances of large dams with a very good height. Modern reinforced concrete construction dams may be made higher.

For water supply schemes, such high dams are neither needed nor constructed. The dam at Tansa for the Bombay water supply is not a high dam, only 120 feet to 125 feet at its deepest point.

As said above, there are two kinds of construction of dams:—

- (1) Earthen dams; and
- (2) Masonry or Cement Concrete dams.

In the case of masonry dams, the foundations must necessarily be carried to very hard, sound and good rock, without any fault or fissure. If there is such a fault or fissure, it will have to be detected and sufficiently plugged, if possible, with cement. The best is a foundation on solid rock.

For earthen dams, the foundations may consist of a sufficient thickness of good watertight clay. The property of such clay is that as long as it is under water and wet, it is watertight. But if it were to dry up for some reason, it might develop cracks. Clay in the foundation of a dam is always under water and, as such, has no opportunity to dry and crack. As to what should be the nature and thickness of such clay is a matter for the geologist and the engineer to settle consistent with all the requirements given above.

The geologist will have to examine the soil and other materials brought out by trial bore holes, from the site of the dam, and to analyse the stuff and base his conclusions thereon. There are rocks which though very hard and sound when first disturbed, deteriorate very fast under water. Such a rock cannot be used for the foundation of a dam.

(1) Earthen Dams

These dams are small dams and the reservoirs they form are also comparatively smaller. The maximum height of the dam does not exceed 50 to 60 feet.

The dams are constructed of earth, and three kinds of earths are necessary for the dam. The middle core, which is taken to solid foundation, and some way down in the solid foundations consists of which is called "puddle clay." This clay, or mixture of different kinds of clay, is a material which when mixed with water, kneaded properly and formed into a wall, is watertight when moist, and does not generally crack when dry. The mixture is determined by experiments, so that when made into bricks and dried, it does not crack and has the necessary quality of being watertight.

On both sides of the puddle clay, there is what is called "selected material"—earth which does not allow water to pass through. This earth is free from stones, roots of trees or any rubbish. This selected material is laid in layers of 8" and consolidated down to 6" by rolling or by other means of consolidation. Beyond the selected material is heavy earth which is used to form a slope of 2 to 1 on the outside and 3 to 1 on the inside. The heavy material adds to the weight of the dam and prevents it from sliding along the foundations when water is stored. The inside is protected by heavy stone pitching to withstand the action of waves produced in the reservoir by the force of wind. Turfing well watered and fully grown on the outer slope of the earth of the dam protects the outside from the action of rain water falling on the slope.

The top of the dam is about 12 feet in width, so as to afford a passage for the public to pass. The foundation of such a dam, except for the puddle wall, is very simple. The top layer of 4 or 5 feet of the soil which contains roots of trees, shrubs, vegetables and animal waste, all of which are liable to rot under water when the tank is full and to produce cavities, is taken out and replaced by good selected earth in layers well rammed or rolled. Good and efficient steps are cut along the length of the dam so as to prevent it sliding bodily along the foundation. These steps are an additional precaution but are not taken into account in calculating the resistance to the sliding action of the dam.

A section of the dam showing all these details is shown on the opposite page. The whole work must be a compact mass not allowing any water to creep through. Because, if there is the slightest leakage, the hole or crack becomes bigger with the passage of water and there is a breach in the dam and the whole work is washed out and money wasted. The disastrous results of a breach of such tanks are given elsewhere.

In such dams, the "waste weir" is kept in a channel well cut and protected against erosion and carried to a considerable distance behind the outer edge of the dam. If all these precautions are not taken the erosion will extend to the outer edge of the dam and the whole work will be washed out and the dam will collapse. Water coming out of the waste weir during a heavy flood comes with great force and in very large volume.

[To be Continued]

LOCAL SELF-GOVERNMENT COMMITTEE 1939

AND

THE DECISIONS TAKEN BY GOVERNMENT ON THEIR RECOMMENDATIONS

A brief Summary of the Recommendations of the Local Self-Government Committee, Bombay, 1939 and the decisions taken by the Government thereon.

[The paragraphs mentioned in the following pages refer to the paragraphs of the Report of the Local Self-Government Committee, Bombay, 1939].

I. FINANCIAL RECOMMENDATIONS

Paragraph 42: House Tax:—

Government should take steps to enhance the existing rate of the house tax under Section 74 of the Bombay District Municipal Act, 1901, or Section 103 of the Bombay Municipal Boroughs Act, 1925, wherever it may be found that a municipality has neglected to raise the rate.

Government Decision: G.R.G.D. No. 4046/33, dated 16-5-41:—

"The recommendation of the Committee should be brought to the notice of the Collectors and they should be asked to advise those local bodies which levy house tax or tax on buildings at very low rates to increase the rate. The Collectors should on the merits of each case, consider the desirability of making proposals to Government for increasing the tax under section 103 of the Bombay Municipal Boroughs Act, 1925, or section 74 of the Bombay District Municipal Act, 1901, whenever the balances of Municipal Funds are found to be insufficient for the purposes mentioned in those sections."

Paragraphs 43 to 46: Terminal Taxes and Octroi Duties:—

Local bodies levying terminal tax within their areas should revise the schedules and increase the present rates on several items and introduce a regular system of refunds; those local bodies which have not been levying (either the terminal tax or) octroi duty should consider the advisability of levying octroi as early as possible; in the case of goods in rapid transit by roads, the terminal tax should be abolished but the present octroi rates should be substantially increased and a system of refunds introduced; and by-laws should be made for granting refund in case of goods in rapid transit by roads when taken out of municipal limits within a prescribed period.

Government Decision: G.R.G.D. No. 4110/33, dated 1-10-40:—

"The attention of the officers and local bodies concerned is invited to the recommendations made in paragraphs 43 to 46 of the

Report of the Local Self-Government Committee in regard to the levy of octroi and terminal taxes by local bodies. The Conference of local bodies held at Poona on the 16th and 17th August 1940 was of opinion that local bodies should consider whether it is to their advantage to substitute octroi for terminal tax.

2. It is true that terminal tax is easier to collect and that the change over to octroi involves payment of refunds and opens up the possibility of leakage in collection and consequently involves higher collection charges. On the other hand the terminal tax levies a burden on the rural areas for the benefit of municipal areas which command the communications to the rural areas, and although this burden is not so heavy, yet when the goods have to pass through two or three municipalities levying terminal tax, the cumulative burden on the rural areas is likely to be considerable. In the opinion of Government the difficulties in the way of the levy of octroi dues are not insurmountable. Moreover, the existing levy of terminal tax by municipalities has been temporarily regularised until provision to the contrary is made by the Federal Legislature. The local bodies concerned are, therefore, advised that on account of the legal position created by the Government of India Act, 1935, in regard to the levy of terminal tax, it is in their interests that they should prepare beforehand for the contingency of the abolition by the Government of India of the present levy of terminal tax by local bodies by taking steps to substitute octroi for the terminal tax."

Paragraphs 47, 48, 49, 50, 64, 99, 107 and 111: Primary Education Cess:—

(1) Government should take early steps to amend Section 59 of the Bombay District Municipal Act, 1901, on the lines of Section 73 of the Bombay Municipal Boroughs Act, 1925, with a view to make the levy of primary education cess compulsory.

(2) The primary education cess should be made a direct tax along with property tax at a certain percentage on the annual letting value or the capital value as the case may be.

(3) The liability of Government to pay its share should be fixed on a contract basis under the Bombay Primary Education Act, 1923, by amendment of the Act, if necessary.

(4) Government should insist upon local bodies that 10 pies in the rupee must be ear-marked for primary education from the local fund cess, the rate of which should be increased.

(5) Government should adjust its Provincial Budget with a view to provide funds sufficient to bear its own share of expenditure on compulsory primary education.

(6) Richer municipalities should shoulder a little higher proportion of expenses for the benefit of backward areas.

(7) Government should levy the local fund cess at 1½ annas as the minimum rate and 2½ annas as the maximum and a statutory provision should be made in the Bombay Local Boards Act, 1923, to the effect that

out of the 18 pies of the minimum rate 10 pies should be ear-marked for primary education.

(8) Government should amend the Bombay Primary Education Act, 1923, with a view to define in the most unambiguous terms the legal liability of Government and that a proportion of 66⅔ per cent in the case of local boards and 50 per cent in the case of municipalities should be laid down for voluntary and compulsory expansion schemes.

(9) Inasmuch as the powers of local authorities under the Bom. P. E. Act have been resumed by Government the expenses incurred so far by Local Boards in the matter of school board elections should hereafter be borne by Government.

Government Decision: G.R.E.D. No. 7278, dated 20-5-41:—

"Government has considered the recommendations made in paragraphs, 48, 49, 50, 64, 99, 107 and 111 of the Report of the Local Self-Government Committee, 1939, and is pleased to pass the following orders:—

2. *Paragraphs 48, 49 and 64 of the Report.*—The suggestion made in these paragraphs is that statutory provision should be made for ear-marking ten pies for primary education out of the proposed minimum rate of local fund cess of 18 pies in the rupee. Government has already decided in Government Resolution, General Department, No. 9560, dated the 26th November 1940, not to raise, for the present, the minimum compulsory rate of local fund cess to 1½ annas, and it is not therefore possible to accept the suggestion contained in paragraphs 48, 49 and 64 of the Report. It should be considered when Government decides to amend the Bombay Local Boards Act with a view to raising the minimum rate to 1½ annas.

3. *Paragraphs 50, 99 and 111 of the Report.*—The Committee observes that the Bombay Primary Education Act, 1923, is not sufficiently explicit in defining Government's obligation in respect of schemes of voluntary expansion of primary education, with the result that Government does not always bear its due share of ⅓ or 2/3rd, as the case may be, on such expansion, on the plea that grants on voluntary schemes are discretionary. The Committee accordingly suggests that the Bombay Primary Education Act should be amended so as to determine the legal liability of Government on both compulsory and voluntary schemes in the most unambiguous terms at 2/3rds and ⅓ of the expenditure, respectively, for local boards and municipalities.

As regards the criticism that the Primary Education Act does not define in clear terms the liability of Government in respect of compulsory schemes, there is nothing in any recent legal decisions to necessitate an amendment of the Act. The position is that Government is bound, under section 13 (1) of the Act, to contribute a specified share of the additional expenditure on any scheme of compulsory education it approves. As regards voluntary grants, it is true that, in all cases not covered by section 13 (1) of the Primary Education Act, the grants made by Government are merely voluntary. It should, however, be remembered that Government is in fact

bearing over 80 per cent of the total admitted expenditure of all local boards taken together as a whole on primary education. Government is fully alive to the necessity of expansion of primary education, but the amount of grant it can make for this purpose must depend on its financial resources and the other demands on those resources. While Government will consider sympathetically all proposals for Government grant on voluntary expansion schemes, it must be free to decide, having regard to its resources and the other demands on those resources, to what extent such proposals should be sanctioned for purposes of Government grant. Government is not in a position to undertake unlimited liability for all future expansion schemes, however desirable they may be. Government, therefore, considers that an amendment of the Primary Education Act on the lines suggested by the Committee is not necessary.

4. *Paragraph 107 of the Report.*—The Committee recommends that, as Government has now resumed the powers of the local authorities, the expenditure on school board elections, which now falls on the local boards, should be borne by Government. There seems to be considerable misunderstanding in this regard. The amended Primary Education Act has not materially changed the situation, particularly in regard to local authorities. Only the power to appoint the Administrative Officers and Supervisors has been taken over by Government and, in the case of school boards, certain powers in regard to the appointment and transfers of teachers have been transferred to the Administrative Officer from the School Board. This cannot be accepted as a sufficient argument for the proposal that Government should bear the cost on account of school board elections. Government is unable, therefore, to accept the recommendation of the Committee in this respect.

Paragraph 51: Tax on Professions :—

Government should instruct their Revenue Officers to advise municipalities to levy tax on such professions as may be fit to be levied in each area inasmuch as professional classes should be made to pay their share of the expenses of local administration.

No action taken by Government.

Paragraphs 52 & 53: Tax on Transfer of Properties :—

Government should give municipalities a share in stamp duties and registration fees on transfer of immovable properties by adding a percentage on the stamp duty for the benefit of local bodies within whose area the properties transferred are situated and by levying a special fee when transfer documents are presented for registration or by allowing local bodies to levy fees on transfer documents presented to them for registration in the records of local bodies, this being made compulsory and the rate of such fees being from $\frac{1}{2}\%$ to 1% on value of property transferred or alternately, Government should assign to local bodies concerned 25% of the stamp duty recovered on transfers of property.

Rejected by Government.

Paragraph 54: Non-Agricultural Assessment :—

Government should reduce non-agricultural assessment on building plots within municipal limits or hand over to municipalities the whole or a substantial portion to the extent of 75% of the non-agricultural assessment recovered by them and that local boards should get 10% more on what they are at present getting on that assessment.

No action taken by Government.

Paragraphs 55 & 56: Taxes on Marriages, Adoptions and Feasts :—

In case of municipalities and district local boards a flat rate should be levied on all marriages and feasts except in the case of those bodies which can devise a suitable machinery for assessing expenditure on marriages and financial status of the parties concerned, and that a flat rate of Rs. 50 on every adoption should be levied.

Local bodies should maintain a register of marriages and adoptions as they do in the case of births and deaths.

Government Decision: G.R.G.D. No. 4046/33, dated 16-5-41 :—

"Government has carefully considered the recommendations of the Kale Committee in regard to the taxation of marriages, feasts and adoption with a view to the realisation of additional revenue. Although Government sees no objection in principle to such types of taxation, it considers that the assessment and collection of taxes on feasts will present a formidable obstacle inasmuch as they will be difficult to assess, easy to evade, will not produce regular and substantial return and will also be exceptionally irritating in municipal areas. Government is of the view that it is not desirable that municipalities should introduce such taxation. These objections do not hold to the same extent in the case of taxes on marriages and adoptions, and if a municipality wishes to levy these taxes, Government will be prepared to consider the case on its merits."

Paragraphs 57: Entertainment Tax :—

The whole of the entertainment and betting tax should be transferred by Government to local bodies.

Rejected by Government.

Paragraph 58: Surcharge on Electricity :—

Government should pay to each local body 50% of the revenue derived by them from the net proceeds of the duty on the consumption of electric energy as the demand of local bodies to such income has also been held to be sound.

Rejected by Government.

Paragraphs 59, 60 & 61: Petrol Tax :—

Government should distribute the receipts from petrol tax on an equitable basis between the Government and local bodies.

(i) Powers of taxation conferred on them by statutes should be availed of by municipalities to the fullest extent and thereby make most of the services expected of them self-supporting and show their capacity to render useful services to the people; and

(ii) Government should in their turn cause inquiries to be made at the hands of experts and withhold grants to municipalities which may be found remiss in the discharge of their duty in this behalf.

Rejected by Government.

Paragraphs 62, 63, 64 & 65: Local Fund Cess:—

Government should levy the local fund cess at $1\frac{1}{2}$ annas as the minimum rate and $2\frac{1}{2}$ annas as the maximum and a statutory provision should be made in the Bombay Local Boards Act, 1923, to the effect that out of the 18 pies of the minimum rate 10 pies should be ear-marked for primary education; and that a graduated tax on agricultural income should be levied by Government and a part of it assigned to local bodies.

Government Decision: G.R.G.D. No. 9560, dated 26-11-40:—

"Government has considered the recommendation relating to the increase of the local fund cess contained in paragraphs 62-65 of the Report of the Local Self-Government Committee, 1939, in the light of views expressed at the Conference of Local Bodies held in Poona on the 16th and 17th August 1940. As the recommendation in question requires an amendment of section 93 of the Bombay Local Boards Act, 1923, which does not seem to be emergent, its consideration has been deferred till the legislature resumes its functions. In the meanwhile, such local boards as levy a local fund cess below $1\frac{1}{2}$ anna should voluntarily take action to raise it to that level and should earnestly consider whether the rate of Local Fund Cess should not be raised to the maximum of 2 annas permissible under the Act.

2. Government has decided not to undertake legislation for the imposition of a tax on agricultural income for the present. Hence the question of assigning a portion of that income to local bodies, as proposed by the Committee, does not arise.

3. The orders of Government on the Committee's recommendation, viz., to make statutory provision to ear-mark 10 pies of the Local Fund Cess for primary education will be issued separately."

Paragraphs 66 & 67: Cess on Village Sites and Lands in Alienated Villages:—

Lands in village sites which are being held free of land revenue and therefore of local fund cess should continue to be so held but Government should see that alienated lands used for building purposes which pay only one-eighth of the non-agricultural assessment should be made to pay the full amount of the non-agricultural assessment.

Government Decision: G.R.G.D. No. 7395, dated 2-12-40:—

"Government has considered the recommendations in paragraphs 66-67 of the Report of the Local Self-Government Committee,

1939, regarding levy of local fund cess on non-agricultural assessment in respect of village sites and alienated lands and is pleased to direct that as the recommendations in question involve an amendment of the Bombay Local Boards Act and as the proposed legislation is not emergent, further consideration of these recommendations should be deferred till the legislature has resumed its functions. In the meanwhile the question of devising some means to levy such a cess from non-agriculturists, who, while getting most of the advantages a local board confers, are practically free from local taxation, is separately under consideration."

Paragraphs 68, 69, 70 & 71: Quarries in Inam Villages:—

Government should explore the possibilities of obtaining greater benefit for local boards than a mere levy of local fund cess and, if necessary, examine the legal rights of inamdars in the matter or carry on negotiations with them with a view to induce them to part with a share of their income from quarry fees which should be subjected to local fund cess by amending the Bombay Local Boards Act, 1923.

Government Decision: G.R.G.D. No. 2341/33, dated 9-12-40:—

"Government has considered the recommendations in paragraphs 68-71 and 129 of the Report of the Local Self-Government Committee, 1939, regarding levying of local fund cess on fees collected by Inamdars in respect of the quarries in Inam villages and giving a statutory right to the District Local Boards to receive quarry fees from unalienated lands and has come to the conclusion that the recommendations in question require special legislation involving the amendment of the Bombay Local Boards Act, 1923. As such legislation is not emergent, Government is pleased to direct that the further consideration of these recommendations should be deferred till the legislature has resumed its functions.

2. In the meanwhile Government has directed that the system of giving grants-in-aid to District Local Boards equal to the quarry fees which they were receiving under clause (i) of section 75 of the Bombay Local Boards Act, 1923, but which are now credited to Government owing to the deletion of the above clause by the Government of India (Adaptation of Indian Laws) Order, 1937, read with the India and Burma (Transitory Provisions) Order, 1937, should be allowed to continue."

Paragraphs 72 & 73: Cess on Forest Revenue:—

Government should levy cess at the rate of one and a half anna on forest revenue derived from fees on major forest produce like timber, bamboos, sandalwood, etc., and minor valuable products like myrobalans, lac, cinnamon, etc.

Government Decision: G.R.R.D. No. 3711/39, dated 28-10-40:—

"In paragraphs 72 and 73 of its Report, the Local Self-Government Committee, Bombay, recommends that a cess of one and half annas per rupee should be levied on major forest produce like

timber, bamboos, sandalwood, etc., and minor but valuable products like myrobalans, lac, cinnamon, etc., which should be distributed to the local boards as they render useful service in the provision of roads, bridges and culverts to carry the forest products. The Conference of local bodies which met in Poona on 16th and 17th August 1940 recorded its view in favour of acceptance of the recommendation. As local boards render no service to Government for the conservation of forests and the flora and fauna found in them, Government is unable to accept the Committee's recommendation."

Paragraphs 74 to 81: Assignment of Land Revenue :—

Government should assign, as in other countries, if not the whole at least ten per cent of the land revenue collected in each district to district local board.

Under consideration of Revenue Department.

Paragraphs 82 to 89: Tax on Professions :—

Persons who carry on non-agricultural professions, e.g., legal practitioners, medical practitioners, engineers, contractors, brokers, architects, auctioneers, insurance agents, photographers, owners of printing presses, stamp-vendors, petition writers, gold and silversmiths, carpenters, blacksmiths, tailors, barbers and all others exercising a profession should be made to share the burden of taxes with others and the amount payable by them may be fixed at a rate consistent with their paying capacity.

Government Decision: G.R.G.D. No. 288/33, dated 5-2-41 :—

"Government has considered—

(i) the remarks made by the Local Self-Government Committee, 1939, on the question regarding the levy of taxes on professions in the local bodies' areas and the agency to collect such taxes, and

(ii) the views of the Conference of the local bodies in the matter. Government agrees with the view expressed at the Conference that the profession tax levied by municipalities should be collected through their own agency. Government, however, cannot agree that in local board areas, the tax should be collected through Government agency. The responsibility for collection of this tax must vest in the District Local Boards. With suitable amendments in the Village Panchayats Act and the District Local Boards Act, the tax could be collected through the agency of the Village Panchayats, and obstinate arrears could be made recoverable through the revenue department as an arrear of land revenue on a certificate to that effect from the Collector. The grant of these facilities will, however, necessitate legislation which must await the restoration of parliamentary Government.

The question whether the levy of the profession tax should be made compulsory is controversial, raises wide issues and will require amendment of the Acts. Government considers that this question should be postponed till the legislature resumes its functions.

Paragraphs 95 & 96: Grants on account of Salaries etc. :—

Government should pay 2/3rds of the whole expenditure of the Health Department and Section 119 of the Bombay Local Boards Act, 1923, should be so amended as to include 'leave allowances' in the term 'salary' occurring in the said Section.

Government Decision: G.R.G.D. No. 4068/33, dated 17-10-40 :—

"In paragraph 96 of the Report of the Local Self-Government Committee, 1939, it has been suggested that the orders in Government Resolution, General Department, No. 259/33, dated the 24th February 1934, regarding the non-payment of subsidy in respect of 'leave allowance' payable to a Chief Officer, Engineer or Health Officer whose appointment has been approved by Government under section 119 (2) of the Bombay Local Boards Act, 1923, may be revised so as to include leave allowance in the subsidy payable to District Local Boards in this behalf. In Government Resolution, General Department, No. 259/33, dated the 20th February 1940, Government has directed that the orders contained in Government Resolution, General Department, No. 259/33, dated the 24th February 1934, do not prevent Government from paying a subsidy on account of salaries of such officers as have been appointed to these posts temporarily during leave vacancies, provided their appointment has been approved by Government under section 119 (2). Government considers that no further concession is necessary in this respect."

Paragraphs 97, 98 and 112: Grants to compensate for Abolition of Tolls :—

The present arrangement of restricting the grant to compensate local boards for abolition of tolls under Section 9 (1) of the Motor Vehicles Tax Act to 10% increase only is not suitable as it deprives local bodies of an ever-increasing source of revenue and that a statutory arrangement should be made for providing an increase in grants proportionate to the increase in provincial revenue.

Government Decision: G.R.H.D. No. 4702/4, dated 8-5-41 :—

"Government has carefully considered the recommendations relating to the distribution of the surplus proceeds from the motor vehicles tax among the local bodies in proportion to the grants which they are now receiving under the same head, contained in paragraphs 97-98 and 112 of the Report of the Local Self-Government Committee, Bombay, 1939, in the light of the decision arrived at in the conference of local bodies held at Poona in August last and has come to the conclusion that no change in the present system of distribution as laid down in section 9 (3) of the Bombay Motor Vehicles Tax Act, 1939, is necessary. Government will continue to allot in its discretion, as it is already doing, some part of the surplus proceeds from the motor vehicles tax to Local Bodies but it is unable to agree that the full surplus should go to Local Bodies."

Paragraphs 100 to 103: Non-Statutory Grants for Local Public Works :—

Grants for Local Public Works should no longer be left to the discretion of the Commissioners but a certain amount of certainty and continuity of these grants should be fixed, due consideration being given to the efforts made by local bodies towards developing their financial position; and that these grants should be fixed on the consideration of not only original works or special repairs but also of ordinary repairs inasmuch as the latter increase annually while the Board's finances remain more or less steady.

Government Decision: G.R.G.D. No. S. 218, dated 4-11-40 :—

"In paragraphs 100-103 of the Report of the Local Self-Government Committee, 1939, the following observations and suggestions have been made :—

(i) The principles laid down in Government Resolution, General Department, No. 9447, dated the 23rd May 1938, regarding distribution, supervision, etc., in connection with the grants for local public works are impracticable of application and the Commissioners are given too wide a discretion. The method of distribution should be to give preference to those bodies which adequately tax themselves and there should be certainty and continuity in the annual sums allotted.

(ii) The orders that no alteration in the programme of local public works should be made without the Commissioners' sanction cause inconvenience as the local boards have no indication as to the amount of grants they may expect for three years.

(iii) The distinction between (1) original works, (2) special and current repairs works, and (3) ordinary repairs leads to difficulties.

As no grants are paid for ordinary repairs, the Boards have to meet this expenditure from their own finances, which are steady, while the mileage of roads increase year by year. The result is that ordinary repairs are neglected for want of funds.

2. Government has carefully considered these suggestions in the light of the views of the Local Self-Government Conference held at Poona on the 16th and 17th August 1940 and have decided as follows :—

(i) From the principles governing the grant for local public works it is clear that those District Local Boards whose income is more and who spend more from their own funds towards the local public works get a larger share of the local public works grant from the Commissioners than Boards who spend less. It is, therefore, for the Boards to adequately tax themselves and to spend more from their funds for local public works in order to get a larger grant. In the case of incomplete works, if, for valid reasons, no grant is allotted by the Commissioners in the next year, it is the obligatory duty of the Boards under section 50 (a) of the Bombay Local Boards Act, 1923, to provide funds for such works. The principles governing the distribution, supervision,

etc., of the grant are sound and as the grant is non-statutory the Commissioners must have proper control and discretion in the matter. Similar control is necessary on the local fund spent for the purpose. The supervision of local public works by Public Works Department officers is also necessary. As regards the certainty and continuity of the grant it may be pointed out that for the last three years the provision, viz., Rs. 7,96,000 has remained the same. The question of grant for future years depends upon the financial condition of Government.

(ii) In order to ensure (1) control over money spent by the District Boards, (2) careful preparation by Boards of programmes of works before they are submitted, and (3) avoidance of administrative and audit difficulties, it is necessary that alterations in programmes of works should be subject to the Commissioner's approval.

(iii) Government has already issued instructions to the Commissioners to the effect that, in case where they are satisfied that the Boards concerned are unable, for valid reasons, to meet the whole expenditure in respect of ordinary repairs from their own funds, they should allow any portion of the local public works grant to be utilised for the necessary repairs. No further action is therefore necessary in this respect."

Paragraphs 104 & 105: Dispensary Grants :—

Government should fix the dispensary grants in the proportion of 50-50 in the case of dispensaries in rural areas and 40-60 in the case of those in urban areas.

Rejected by Government.

Paragraph 106: Expenses of Local Board Elections :—

The District Local Board elections should be conducted by the Collector as hitherto under Sections 11, 13 and 14 of the Bombay Local Boards Act, and their expenses should be borne by Government, and if these election expenses are to be treated as grants they should be statutory and not subject to the mere discretion of Government.

Government Decision: G.R.G.D. No. 2277, dated 20-10-40 :—

"Government has considered the recommendation relating to the expenses of District Local Board elections contained in paragraph 106 of the Report of the Local Self-Government Committee, 1939, in the light of the views expressed in the Conference of Local Bodies held in Poona on the 16th and 17th August 1940. It has been suggested to Government that the time has now come for transferring the work of conducting the elections to the District Local Boards and for making them liable to bear the cost of these elections. This suggestion, however, involves an amendment of the Bombay Local Boards Act, 1923, which does not seem to be emergent. In the circumstances Government has decided to accept the recommendation of the Committee and to maintain the present position for the time being."

Paragraph 108: Veterinary Grants :—

The present amounts of grants allotted to veterinary dispensaries are very meagre and inadequate and should be substantially increased and placed on a statutory basis.

Government Decision: G.R.R.D. No. 3711-A/39, dated 3-5-40 :—

"Though in some cases the local bodies may require enhanced grants-in-aid for extending the facilities for veterinary aid in their districts, it has not been found possible, owing to financial stringency, to consider the question of making any increase in the grants at present."

Paragraph 110: Establishment Grants to Local Boards :—

Government should not abolish the establishment grants to local boards on the ground that certain local boards have failed to develop their resources but should reconsider their proposal and instead of doing so they should lay down conditions for the maintenance of an adequate and qualified staff.

Government Decision: G.R.G.D. No. 2391/33, dated 2-10-40 :—

"Government has considered the recommendation relating to the restoration of grants for clerical establishment of local boards contained in paragraph 110 of the Report of the Local Self-Government Committee, 1939, in the light of the decision arrived at in the Conference of local bodies recently held in Poona and it has come to the conclusion that on principle there is no justification for the restoration of these grants. For this reason and in view of the present financial situation Government is unable to accept the recommendation of the Committee in this respect."

Paragraphs 109 and 114 to 117: Public Health Schemes and Government Charges :—

Government should alter the percentage charges, etc., in the matter of Public Health Schemes which in some cases are prohibitive and they may be replaced by a scale of charges depending upon the estimated cost of the scheme. The maximum charges should for very small schemes not exceed two per cent and the scale might be progressively reduced and brought down to $\frac{1}{2}$ per cent for schemes costing 7 lakhs of rupees.

Under consideration of the P. W. D.

Paragraphs 118-119: Public Utility Concerns :—

Many municipalities will not be found capable of running important utility concerns. But services like buses and trams may not be found difficult. Water supply should be owned and managed by local bodies.

Government Decision: G.R.G.D. No. 4084/33, dated 6-2-41 :—

"Government is pleased to accept in principle the recommendation made by the Local Self-Government Committee, in paragraph 118 of its Report regarding the municipalization of public utility

concerns such as buses and trams. But as observed by the Committee, many local bodies will not be capable of running such commercial undertakings efficiently or economically. Government will consider carefully on merits proposals in this connection submitted by any of the larger municipalities with a view to ascertaining whether they are likely to be of definite public advantage and whether the local body is likely to run the concern efficiently.

As regards the recommendation that whenever contracts are entered into by local bodies with private concerns for the supply of utility services like electricity, trams, etc., they should reserve to themselves the right to purchase the concern at the end of a stipulated period of years, Government does not consider any action is necessary in view of the provisions of section 7 of the Indian Electricity Act, 1910, and section 22 of the Indian Tramways Act, 1886.

As regards the giving of free technical advice, Government will give such help as is possible having due regard to the nature of advice required and the availability of experts in Government service.

Legal advice can be made available to local bodies only in accordance with the Law Officers' Rules."

Paragraphs 120 to 125: Loans to Local Bodies :—

Government should adopt a certain procedure in the matter of sanctioning loans to local bodies as it is most likely to induce municipalities to raise loans for their capital expenditure and to discourage their pay-as-you-go habit of meeting the expenditure of any capital works undertaken by them from current revenues.

Under consideration.

Paragraphs 127 to 129: Fines and Fees imposed and collected under the Local Self-Government Acts :—

Fines and fees realised under the Local Self-Government Acts by Government should be continued to be paid to local bodies and that they should be made a charge on the provincial revenues of the Government by passing the necessary legislation and pending such legislation they should be paid on the basis of statutory grants, the cost of collection being deducted on the percentage basis in the case of fines but not so in the case of fees.

Consideration postponed (Vide G.R.G.D. No. 2341/33, dated 9-12-40).

II. ADMINISTRATIVE RECOMMENDATIONS**Paragraphs 131-132: Adult Franchise :—**

Adult franchise in the election of local bodies rural as well as urban should be introduced.

Government Decision: G.R.G.D. No. 2174/33, dated 28-9-40 :—

"Government has considered the recommendation relating to adult franchise contained in paragraphs 131-32 of the Report of the

Local Self-Government Committee, 1939, in the light of the decision arrived at in the Conference of Local Bodies held in Poona on the 16th and 17th August 1940 and is pleased to direct that as the recommendation in question requires amendments of the Local Boards and Municipal Acts, which do not seem to be emergent or non-controversial, its consideration should be deferred for the present."

Paragraphs 133-134: Qualifications of Members and Office-bearers :—

Government should lay down certain minimum educational qualifications for members of local bodies and office-bearers.

Government Decision: G.R.G.D. No. 4143/33, dated 15-10-40 :—

"Government has considered the recommendation relating to the qualifications of members and office-bearers of the Local Bodies contained in paragraphs 133-134 of the Report of the Local Self-Government Committee, 1939, in the light of the views expressed by a majority of representatives at the Conference of Local Bodies held in Poona on the 16th and 17th August 1940 and notes that the question is of a controversial nature. Government is of the view that a strong case has not been made out for prescribing educational qualifications for membership or for office in a local body. The provision of educational facilities in the Province has not been on a uniform scale and has had to be restricted on financial and other grounds. There is still a fairly large number of villages without schools and consequently the residents of such villages who cannot satisfy the educational qualification would be debarred from membership of local bodies. The proposed restriction would also operate harshly on backward classes and might be objected to by them on the ground that advanced classes would secure an advantage over them in this matter. Neither can it be definitely stated that educational qualifications are essential for the intelligent performance of the duties of a member or office-bearer of a local body. In the circumstances, Government proposes to maintain the *status quo* and cannot therefore accept the recommendation of the Local Self-Government Committee or the Conference."

Paragraphs 135 to 138: Elections :—

Government should take over the conduct of election from the municipalities and Collectors should be made responsible for them. Appeals against acceptances of nominations should be provided. Appeals should be provided against the decision of the judge who hears and decides election petitions.

Government Decision: G.R.G.D. No. S. 130, dated 18-11-40 :—

"Government has considered the recommendations in paragraphs 135-138 of the Report of the Local Self-Government Committee, 1939, regarding elections and electoral rolls of local bodies and has come to the conclusion that they are not feasible. Government is unable, therefore, to accept them."

Paragraphs 139-140: Voting :—

The distributive system of voting should be made compulsory, as it will induce the voter to take interest to examine the merits of all the candidates and then select from the right type of members.

Government Decision: G.R.G.D. No. 4175/33, dated 9-10-40 :—

"Government has carefully considered the recommendation relating to the system of voting in the elections of local bodies contained in paragraphs 139-140 of the Report of the Local Self-Government Committee, Bombay, 1939, in the light of the decision arrived at in the Conference of local bodies held at Poona in August last and it has come to the conclusion that the system of multiple seated constituencies with a cumulative system of voting for elections which is in vogue in the local bodies is suitable to present day conditions. For this reason and as no case is made out that the substitution of the distributive system for the cumulative system of voting is necessary in the interests of efficiency of local bodies, Government is unable to accept the recommendation of the Committee in this respect."

Paragraph 141: Compulsory Voting :—

Voting should be made compulsory at least in the case of municipal elections and failure to vote by a voter penalised.

Rejected.

Paragraph 142: Partial Retirement of Members Every Year :—

The present method of holding triennial general elections should be continued and the partial retirement of a proportion of members of local bodies annually need not be introduced.

Agreed.

Paragraph 143: Alderman :—

The English system of co-opting a certain proportion of outsiders need not be introduced as it has failed where it was adopted, namely, in the Bombay Corporation.

Agreed.

Paragraph 144: Period of Membership :—

The period of membership need not be raised from 3 to 5 years as a shorter term of office gives greater control of voters over the members.

Government Decision: G.R.G.D. No. S. 130, dated 18-11-40 :—

"Government concurs in the view expressed in paragraph 144 of the Report of the Local Self-Government Committee, 1939, that the term of local boards and municipalities should not be extended from 3 to 5 years."

Paragraph 145 : Number of Members of Local Bodies :—

The present strength of the municipal and district local boards is sufficient and need not be disturbed.

No action taken.

Paragraph 146 : Joint or Separate Electorates :—

Joint electorates are preferable to separate electorates but seats should be reserved for Mahomedans, Harijans and women for the time being.

No action necessary.

Paragraph 147 : Committees :—

Government should abolish as early as possible the practice of appointing several Committees with executive powers, all executive work being made to concentrate in one Committee to be known as the Standing Committee.

Government Decision : G.R.G.D. No. 4177/33, dated 7-10-40 :—

"In paragraph 147 of its Report the Local Self-Government Committee, Bombay, recommends that all executive work of the local bodies should be concentrated in one committee which should be styled the "Standing Committee" in the Municipal and Local Boards Acts. The Conference of local bodies which met in Poona on 16th and 17th August 1940 recorded its view against the acceptance of the recommendation on the ground that the concentration of power in the Standing Committee will deprive several members of the Board (who may work on other Committees) of valuable opportunity of training in Local Self Government matters. In the opinion of Government also the discretion at present vested in the local bodies in regard to the appointment of such committees should continue. The recommendation of the Committee in this respect cannot, therefore, be accepted."

Paragraphs 148 to 150 :

The number of members of the Standing Committee need not be increased as it should be a small and compact body and no communal and regional consideration should be permitted in the appointment and that cumulative voting is not necessary in the composition of sub-committees.

Government Decision : G.R.G.D. No. 7830, dated 4-11-40 :—

"Government has considered the remarks made by the Kale Committee in paragraphs 148-150 of its Report on the following two questions relating to the constitution of Standing Committees of District Local Boards :—

(i) whether it is advisable to introduce the method of cumulative voting in the election of sub-committees of all local bodies, and

(ii) whether it is advisable to increase the number of members of the Standing Committee of District Local Boards to one-third of the total number of members.

As regards (i) Government accepts the view taken by the Committee that it is not desirable to introduce the method of cumulative voting in the election of sub-committees of local bodies. As regards (ii) in the opinion of Government there is some ground for increasing the number of members of the Standing Committee, especially in view of the fact that in very large districts small Standing Committee may lack first hand knowledge of the conditions throughout the district. However, the maximum strength of the Standing Committee cannot be revised except by amending section 36 (I) of the Bombay Local Boards Act, 1923, and as the need for this reform is not emergent Government is pleased to direct that the consideration of this question should be postponed till the legislature resumes its functions."

Paragraphs 151 to 155 : Nepotism and Favouritism :—

Government should help local bodies to implement their efforts to give publicity to their work by embodying in their annual reviews greater details of their work in their Administration Reports which should not be discontinued.

Local bodies should undertake civic education of ratepayers and prospective councillors as a part of the adult education programme and to carry it out with the co-operation of the Local Self-Government Institute.

Government Decision : G.R.G.D. No. 4179/33, dated 7-10-40 :—

"With reference to the recommendation made in paragraph 153 of the Local Self-Government Committee's Report in regard to proper publicity of the work of local bodies, Government agrees with the unanimous view of the Conference of Local Bodies that the local bodies themselves should be responsible for their own publicity and should be encouraged to spend funds for such purposes, it being of course understood that such expenditure will be reasonable."

Paragraphs 156 to 158 : Local Government Areas and their Adjustment :

Government should take early steps to amalgamate contiguous areas whose administration can be run more economically and efficiently if unified.

Accepted.

Government should examine the position of small uneconomic municipalities and if there are no possibilities of increasing their income they should be abolished and constituted into village panchayats.

Accepted.

Government should abolish notified area committees and sanitary committees and replace them by Gram Panchayats.

Accepted.

Paragraphs 159-160: Appointment, Punishment and Removal of Principal Officers and their Formation into a Cadre :—

(i) Chief officers of district local boards and borough municipalities and secretaries of important district municipalities which employ engineers must be graduates in law ;

(ii) the qualifications of a chief officer of a district local board should not be below those mentioned in the rule framed under Section 113 (h) of the Bombay Local Boards Act, 1923 ;

(iii) that the proviso 2 to Section 33 (1) of the Bombay Municipal Borough Act should be deleted and a non-graduate should not be allowed to be appointed to the post of the Chief Officer ; and

(iv) that secretaries of minor district municipalities should be at least matriculates holding the L. S. G. Diploma.

Government Decision : G.R.G.D. No. 4086/33, dated 9-12-40 :—

"The Local Self-Government Committee, 1939, in paragraph 159 of its Report, recommends that the provisions relating to appointment, punishment and removal of principal officers of local bodies should be extended to Chief Accountants and full paid Auditors of District Local Boards and Borough Municipalities and Secretaries of District Municipalities.

2. Government considers that there is no necessity to exercise control over the appointment and removal of the Chief Accountant, who is not an executive officer and works generally under the Chief Officer. Government is unable, therefore, to accept the recommendation of the Committee in this respect.

3. Government is pleased to accept the recommendation of the Committee that the full paid auditors of local boards should enjoy the same protection as is afforded to Chief Officers, Engineers and Health Officers. The question of amending the rules in this respect will be taken up separately.

4. The rest of the recommendations of the Committee which pertain to the Secretaries and Auditors of Municipalities require the amendment of the Municipal Acts. As the proposed legislation is not emergent, Government is pleased to direct that the further consideration of these recommendations should be postponed till the re-establishment of the parliamentary Government."

Government Decision : G.R.G.D. No. 417/33, dated 21-10-41 :—

"Government has considered the recommendation of the Local Self-Government Committee, 1939, in paragraph 160 of its Report that Chief Officers of Local Boards should preferably be graduates in law and has come to the conclusion that legal qualifications are not necessary for the proper performance of the duties of this post. The Committee's recommendation in this respect cannot, therefore, be accepted.

2. As regards the suggestion to amend Rule 19 of the Rules, framed by Government under section 133 (h) of the Bombay Local

Boards Act, 1923, with a view to empowering a District Local Board to appoint to the post of the Chief Officer a person who does not possess the qualifications prescribed in the Rule but has passed Local Fund Accountant's Examination and has served the Board for a number of years, Government agrees with the Committee that qualifications required to make an efficient Chief Officer are altogether different from those that make a competent accountant and that the experience gained in accounts work cannot be an adequate substitute for the breadth of view and administrative ability which are essential for a Chief Officer.

3. Government is, therefore, pleased to direct that the present position regarding the appointment and qualifications of Chief Officers of District Local Boards should continue."

Paragraph 161 : Salaries :—

Salaries at present paid to Engineers and Health Officers may be suitably reduced but that the salaries paid to some Secretaries of district municipalities may be increased so as to attract better qualified persons.

Government Decision : G.R.G.D. No. 2352/33, dated 22-10-40 :—

"Government has carefully considered the recommendations made by the Local Self-Government Committee, 1939, in paragraph 161 of its report, regarding the salaries of the principal officers of local bodies. District and borough municipalities have the power to make rules with the approval of Government or the Commissioner as the case may be, to determine the staff of officers and servants to be employed by them and the salaries and allowances of such officers and servants. If the number of persons who are employed by a municipality as officers or servants or the remuneration assigned by the municipality to those persons is excessive, the Commissioner has the power to require the municipality to reduce the staff or the remuneration paid to it. No definite scales have been laid down by Government for municipal servants except in the case of Health Officers and Sanitary Inspectors to be employed by municipalities and towards whose salaries Government grants are given. The scales of pay of Health Officers and Sanitary Inspectors were revised in 1939. On the other hand some second and third class town municipalities have complained to Government that they are not getting suitable persons to serve on the revised pay scales sanctioned in 1939. In the circumstances Government does not consider it necessary to reduce the scales still further. The scales of salaries of municipal officers and servants in each municipality vary according to the circumstances and the size of each municipality.

2. Government has laid down the revised scales of pay in the case of new appointments of Chief Officers and Engineers made by district local boards after 1st October 1936 and approved by Government under section 119 (2) of the Bombay Local Boards Act. Government has not, however, laid down any revised scales for Health Officers, as there are only two Health Officers appointed by the District Local Boards of Satara and Dharwar. Under section 121

of the Bombay Local Boards Act the Commissioner is authorised to prevent extravagance in the local board establishments and in their salaries.

3. In the circumstances stated above, Government does not propose to take any action on the Committee's recommendation in question."

Paragraph 162 : Control over Appointments :—

There should be no control of Government over appointments except that of laying down the qualifications of the principal posts but where Government pay a grant they should have a voice in the selection of the person to be appointed.

Government may have the power of vetoing appointments of the officers made by local bodies as distinguishable from the power of vetoing continuance in office if Government think that the persons appointed are incompetent to hold these posts, which power must be exercised by Government within three months of the notice of appointment given by the local body concerned.

Under consideration in the G. D.

Paragraphs 163 to 167 : Removal and Punishment :—

Government should give effect as early as possible to the recommendations of the Thomas Reorganisation Committee with the modifications suggested below and the existing provisions on the subject of removal and punishment of officers in the Local Self-Government Acts should be so amended as to provide for the following matters, namely :—

(i) a proposal for the removal including cases of termination of service due to retrenchment or punishment of officers including that of suspending, reducing, fining, censuring, withholding increments or for inflicting punishment in any other form should be passed by a majority of the total number of members at a special general meeting called for the purpose after giving the officer concerned a reasonable opportunity of explaining the allegations made against him ;

(ii) the proceedings of the meetings should be forwarded to the Government through the Collector of the district within seven days of the passing of the resolution ;

(iii) if the post was one for which the local body had elected to receive a grant from Government, approval of Government to the resolution was necessary ;

(iv) in other cases when no grant was received in respect of the post, Government should be empowered to exercise the right of vetoing the appointment ; and

(v) the decision of Government disapproving or vetoing the resolution as the case may be should be communicated to the local body within three months from the date on which the resolution was communicated to the Collector along with the reasons for such decision. In case such decision is not communicated as stated above the resolution of the

local body should be made final and no appeal should be made to lie against it.

Under consideration in the G. D.

Paragraphs 168-176 & 178-180 : Cadre schemes for officers :—

In the first scheme the officers of local bodies will be completely provincialised and their salaries, allowances and provident fund contributions will be paid out of provincial funds. A modification of this scheme is that of the formation of a Provincial Board of non-officials to be presided over by the Minister of Local Self-Government or a Revenue Commissioner, to control the appointments, promotions, transfers, punishments, etc. of principal officers. The scheme simply replaces the Provincial Government in the first scheme by a non-official board.

Government Decision : G.R.G.D. No. 2174/33, dated 4-11-40 :—

"Government has considered the observation relating to the formation of a cadre for officers of Local Bodies made in paragraphs 168-176 and 178-180 of the Report of the Local Self-Government Committee, 1939, in the light of the views expressed at the conference of Local Bodies held in Poona on the 16th and 17th August 1940 and is of opinion that although the scheme is likely to afford security of tenure and independence of action to the executive officers of the local bodies, it offends against the basic principle of Local Self-Government and would prevent local bodies from serving as training centres for development of a sense of responsibility in the sphere allotted to local self-government. The scheme of a provincial board nominated by Government for controlling the cadre of these officers would amount to bureaucratisation of local board services. There would be occasions of conflict between the local bodies and the provincial board, a weakening of the sense of responsibility on the part of the local bodies and constant and petty friction between the local bodies and the executive officers.

A Provincial or Divisional board formed by election among the nominees of the local bodies would afford no guarantee of impartial treatment and present all the features of irresponsibility of the nominated board.

In addition, the formation of these cadres would present innumerable difficulties in actual working as the local bodies vary so largely in size and importance. Knowledge of the regional language will be essential with the result that these cadres as in the case of mamlatdars will tend to be divided on linguistic basis and by narrowing the field of selection, transfer and promotion will present additional difficulties in actual working.

The object of forming these cadres is to secure recruitment of efficient personnel, and fair dealing, reasonable promotion and security of tenure, subject to good conduct, for the executive officers of local bodies. It appears that under the Municipal and Local Boards Acts and the rules thereunder these objectives can be secured without the elaborate and complicated structure of a cadre and without

offending against the prestige, dignity and freedom of local bodies. In the circumstances Government has decided that the cadre scheme should not be pursued."

Paragraph 177: Transfers of officers :—

Transfers of principal officers from one local body to another through the Employment Bureau of the Local Self-Government Institute should be facilitated. We also recommend that provident fund rules of local bodies should be so revised that when an employee is transferred from one local body to another, his accumulated funds could be transferred to that body and that his service in the latter should be considered as a continuation of service he may have put in the former, so as to enable the employee to get the benefit of contributions payable by both local bodies.

Rejected.

Paragraph 181: Composition and Recruitment of Staff :—

It is necessary to prescribe minimum qualifications required for the various posts on the establishment of the local bodies and to constitute an impartial committee of selection whose guiding principles should be considerations of quality and fitness in the candidates.

Government Decision :

The suggestion should be brought to the notice of the District Local Boards and municipalities.

Paragraph 182: Facilities for Training of Staff :—

We recommend that local bodies should give facilities to the staff for taking training in the classes run by the Local Self-Government Institute for the "L. S. G. D." Diploma.

Government Decision : G.R.G.D. No. 4086/33, dated 1-10-40 :—

"The recommendation relating to the grant of facilities to the staff of local bodies for getting themselves trained at the Local Self-Government Institute, Bombay, contained in paragraph 182 of the Report of the Local Self-Government Committee, 1939, is one entirely for the local bodies to consider. Government is, however, pleased to direct that the attention of all the District Local Boards and Municipalities should be invited to the recommendation referred to above and they should be advised about the desirability of having their staff trained at the Local Self-Government Institute, by the extension of the necessary facilities."

Paragraph 183: Assessment and Recovery of Taxes :—

(1) Assessment of Properties :—

Government should so amend Section 78 of the Bombay Municipal Boroughs Act, 1925, as to enable Borough Municipalities, if they consider

it necessary to do so, to engage the services of an independent officer in place of the Chief Officer for the purpose of preparing assessment list and inspect buildings or lands or buildings and lands in the municipal borough.

(2) Reports regarding Progress :—

Government should ask the Collector to insist on each municipality to submit a progress report on the dates mentioned in G. R. (G.D.) No. 975-33, dated the 17th November 1936, that he should at every stage carefully watch the proceedings and draw the attention of the municipality concerned to the delays or neglect whenever they may be discovered.

(3) Quadrennial Revision :—

The revision of every part of assessment lists which has been prescribed under Section 67 of the Bombay District Municipal Act, 1901, and Section 84 of the Bombay Municipal Boroughs Act, 1925, is being neglected by municipalities to the detriment of municipal revenue and Government should call upon the Collectors to draw the attention of every municipality in the beginning of every third year that it should take steps to revise its assessment list for the fourth year and that on default by the municipality the Collector should proceed to appoint an officer to revise the assessment list and the excess amount spent on that account should be recovered from the municipality concerned.

(4) Notice Fees :—

Failure to recover notice fees should be treated on a par with the writing off arrears and rules framed under Section 43 (j) of the District Municipal Act and Section 58 (k) of the Municipal Boroughs Act should be strictly followed by municipalities and irregularities in the matter should be visited by a surcharge under the Local Fund Audit Act.

(5) Warrants :—

Government should amend Section 33 of the Bombay District Municipal Act on the lines of Section 105 of the Bombay Municipal Boroughs Act, 1925, so as to clearly provide that minor municipalities have a right to deliver possession of immovable property attached and sold by it to auction purchasers.

(6) Recovery by Revenue Process :—

Government should amend the Local Self-Government Acts with a view to provide that at the end of two years all arrears of municipal rates should be made recoverable as if they were land revenue through the Collector who should be empowered to act either on the application of the local body concerned or on his own initiative.

(7) Recovery of Tolls, Terminal Taxes and Octroi :—

Government should make applicable all the provisions of Chapter VIII of the Bombay District Municipal Act and the Bombay Municipal Boroughs Acts including the remedy of a civil suit to cases of recovery of tolls, terminal taxes and octroi duties by amendments of the Acts.

(8) *Disqualification of Members in Arrears* :—

The Councillors who withhold payment of municipal dues should be made to vacate their seats without the necessity of a special notice being issued by making them automatically disqualified if the taxes remain unpaid during the year in which they are payable but in the case of other dues the disqualification should operate after three months of the intimation given to the members about the amount due and Government should amend the necessary provisions of the Acts accordingly.

(9) *Return by Owner or Occupiers* :—

Returns by owners or occupiers of dimensions of land, annual letting value and estimate of value of land or building as provided under Section 63 of the Bombay District Municipal Act and Section 78 (3) of the Bombay Municipal Boroughs Act should be insisted upon by municipalities and action should be taken against persons who omit to supply information by taking proceedings for breaches of by-laws framed on the subject.

(10) *Transfer of Properties to be Brought on Record* :—

Government should amend the Bombay District Municipal Act on the lines of Section 87 of the Bombay Municipal Boroughs Act and a penalty for failure to give notice by a transferee should be presented; and they should direct the Government Registration Department to give information of every transfer of property to the municipality within its jurisdiction.

Government Decision : G.R.G.D. No. 4104/33, dated 12-11-40 :—

"Government is pleased to pass the following orders on the recommendation contained in paragraph 183 of the Report of the Local Self-Government Committee :—

Paragraph 183 (1)—Assessment of Properties.—Government considers that the statutory responsibility of the Chief Officers of borough municipalities in respect of preparation of assessment lists should continue and that an amendment of the Act is not necessary.

Paragraph 183 (2)—Reports regarding Progress.—Government considers that this recommendation will involve unnecessary and frequent interference with the internal management of local bodies and that it will increase the work of the Collectors. The recommendation is, therefore, not acceptable.

Paragraph 183 (3)—Quadrennial Revision.—The recommendation of the Committee will increase the responsibility of the Collectors as they will have to maintain information about all municipalities so as to warn them in time about prompt preparation of assessment register lists. This recommendation is, therefore, not acceptable.

Paragraph 183 (5)—Warrants.—Government is pleased to accept this recommendation. The question of amending in due course section 83 of the Bombay District Municipal Act on the lines

of section 105 of the Bombay Municipal Boroughs Act, 1925, is under consideration.

Paragraph 183 (6)—Recovery by Revenue Process.—Government considers that if arrears of taxes of two years standing are made recoverable as arrears of land revenue, the local bodies will show indifference in their collection. This recommendation is, therefore, not acceptable.

Paragraph 183 (8)—Disqualification of Members in Arrears.—Government considers that though it is undesirable that councillors should remain in arrears, sometimes arrears are due to oversight and automatic disqualification without even a notice will impose unnecessary hardship in cases of oversight and neglect. The provisions of section 28 (1) (e) of the Bombay Municipal Boroughs Act, 1925, and section 15 (2) (f) of the Bombay District Municipal Act, 1901, are reasonable and adequate. Government does not, therefore, accept the recommendation.

Paragraph 183 (9)—Returns by Owners or Occupiers.—Government is pleased to accept the Committee's recommendation in this respect. The Commissioners of Divisions are accordingly requested to advise the municipalities in their respective divisions to follow the salutary advice given by the Committee.

Paragraph 183 (10)—Transfer of Properties to be brought on Record.—The recommendation of the Committee will involve heavy work on the Sub-Registrars without proportionate advantages to the local bodies. Government has, however, in view the amendment of the District Municipal Act, by the introduction of a provision therein on the lines of section 87 of the Bombay Municipal Boroughs Act, 1925.

Orders as regards paragraphs 183 (4) and 183 (7), will be issued separately."

Government Decision :

Paragraph 183 (4)—Notice Fees.—Under the existing provisions of the Bombay Local Fund Audit and the Municipal Acts, an irregular write off of notice fees is liable to be surcharged. No action therefore is necessary.

Government Decision :

Paragraph 183 (7)—Recovery of Tolls, Terminal Taxes & Octroi.—Adequate provisions exist in the Municipal Acts. No special legislation is necessary. The local bodies should apply the existing provisions under the Municipal Acts more rigorously.

Paragraph 184: Agency for Collection of Taxes :—(1) *Terminal Tax and Octroi* :—

Railway Authorities should continue to collect the terminal tax and octroi wherever practicable.

(2) *Tax on Transfer of Properties :—*

Government should collect the tax on transfer of properties by the method of additional stamp duty or by an additional registration fee collected through the Registration Department.

(3) *Wheel Tax :—*

Wheel tax—

(i) in the case of public conveyances should be collected along with the licence fees by the police authorities;

(ii) in the case of private conveyances the tax should be collected by municipalities;

(iii) that generally local bodies collecting the taxes should have wider powers similar to those in the case of land revenue, and that the police should help local bodies when distress warrants are executed; and

(iv) that a system of rebate for prompt payment of taxes should be introduced.

No action taken by Government.

Paragraph 185: *By-laws and Rules :—*

No by-laws are framed by municipalities in matters affecting public health and for regulating dangerous diseases and Government should call upon local bodies to submit by-laws within a fixed time-limit and remind them from time to time and on their failure Government should make model by-laws applicable to the districts; and Government should frame model by-laws on all important subjects, and ask local bodies to adopt them with alterations to suit local conditions.

Government Decision: G.R.G.D. No. S. 91, dated 5-11-40:—

"Government has carefully considered the recommendations made by the Local Self-Government Committee in paragraph 185 of its report and is pleased to make the following observations thereon.

There are already model rules and by-laws framed by Divan Bahadur Mehta and Mr. Orr which cover almost all important subjects and which can be used by the Borough and District Municipalities as models on which to base their rules and by-laws. Government does not, therefore, consider it necessary to frame new model rules and by-laws in this respect.

As regards the Committee's recommendation that in case a municipality does not submit within a prescribed time rules and by-laws to be applied to its area, Government should be empowered to make rules and by-laws applicable to that area, Government considers such rules and by-laws would remain a dead letter unless they are properly enforced. In the case of rules and by-laws relating to matters of public health and regulations for dangerous diseases, however, Government considers that it is necessary that such rules and by-laws are framed early and properly enforced by all municipalities. The Commissioners of Divisions are accordingly requested to see that all the municipalities in their respective Divisions take early

steps to frame such rules and by-laws under the provisions of the Bombay District Municipal Act, 1901 and the Bombay Municipal Boroughs Act, 1925. There are already model rules and by-laws prepared by Mr. Orr and Divan Bahadur Mehta for the guidance of municipalities."

Paragraph 186: *Purchase of Municipal Requirements :—*

Local bodies should try to consult the L. S. G. Institute before making their purchases of municipal requirements and that they should invite tenders in sealed covers.

No action taken by Government.

Paragraph 187: *Insurance of Municipal Properties :—*

The Local Self-Government Institute should be invited to prepare at an early date a co-operative insurance scheme on the lines of the scheme operating at present in England for local bodies and all bodies should join when it is ready.

Scheme is under preparation.

Paragraph 188: *Municipal Accounts Code :—*

Government should complete and publish as early as possible the Code for Municipal Accounts and procedure which is reported to be under their preparation as such a Code will be an authoritative guide and is likely to add to the efficiency of the administration of local bodies.

Draft Municipal Account Code published in Bombay Government Gazette dated 12-6-41 (Part IV B, Pages 375 to 541).

III. RECOMMENDATIONS REGARDING FUNCTIONS**Paragraphs 189 to 205: *Transfer of P. W. D. Roads and Buildings to Local Bodies :—***

We recommend that the Government should take early steps in effecting a complete transfer of the class III roads and maintenance of buildings in charge of P. W. D. to local authorities. They should be fully vested in them with the allocation of adequate funds. As regards the trunk roads coming in class I which are of inter-provincial and inter-divisional importance and the class II roads of inter-district importance the local authorities should merely act as agents of Government who would decide how the money available should be spent.

Government Decision: G.R.P.W.D. No. 1994/36, dated 31-1-41:—

"In paragraphs 189 to 199 of Chapter VII of their Report, the Local Self-Government Committee, 1939, have recommended a complete transfer of Class III roads (i.e., roads which are of importance only to the Districts in which they are situated) to the local bodies concerned with the allocation of adequate funds. As regards the trunk roads coming in Class I which are of inter-provincial and inter-divisional importance, and the roads coming in Class II which are of

inter-district importance, the Committee suggest that the local authorities should merely act as the agents of Government who would decide how the money available should be spent. In paragraphs 200 and 201 of the Report the Committee also recommend that the responsibility for the maintenance of residential and non-residential Government buildings should be transferred to the local authorities with adequate allotment for expenditure in this behalf. Government has carefully considered the above recommendations of the Committee and is unable to accept them both in the interests of the works and on financial grounds."

Paragraph 206: Minor Irrigation Works:—

We recommend that the management of minor irrigation works scattered over in the province should be transferred to local bodies within whose jurisdiction they fall.

Government Decision: G.R.R.D. No. 7950/33, dated 4-1-41:—

"Government has had under its consideration the question of the transfer of minor irrigation works to District Local Boards for management, maintenance and repairs. Government has also carefully considered the recommendation in paragraph 206 of the Report of the Local Self-Government Committee, 1939, in this respect and has come to the conclusion that the existing arrangement of keeping minor irrigation works under the control of the Revenue Department should continue."

Paragraph 207: Village Water Supply:—

We recommend that pending such transfers of public works, all Village Water Supply Works should be entrusted to Local Boards. In respect of works costing more than Rs. 5,000, the work of estimating planning as well as of construction should be entrusted to those local bodies who entertain the services of approved Engineers.

No action taken.

Paragraphs 203 & 209: Primary Education:—

Government should restore the powers taken over by Government by overhauling the Bombay Primary Education Act to local boards if Government expect local bodies to contribute towards the expansion of primary education.

No action taken.

Paragraphs 210 to 213: Public Health:—

Government should compel all borough municipalities to engage Health Officers by making a statutory provision in this behalf as in the case of Chief Officer and that Government should pay 50% of the approved expenditure on Health Officer's establishment in the case of district municipalities and 2/3rds in the case of district local boards.

Government should frame model rules prescribing duties and powers of the sanitary staff.

Government need not retain control over the staff but may make their approval of the personnel and the expenditure for which a grant is made compulsory.

Government Decision: G.R.G.D. No. 2225/33, dated 18-6-41:—

"In paragraphs 211 and 213 of its Report, the Local Self-Government Committee, 1939, had *inter alia* made the following recommendations:—

"(1) We, however, feel that all Borough Municipalities should be compelled to engage Health Officers by making a statutory provision in this behalf, as in the case of the Chief Officer.

(2) We recommend that Government should pay 50 per cent of the approved expenditure on the Health Officers' establishment in the case of the District Municipalities and 3/4rds in the case of District Local Boards.

(3) We do not think that it would be feasible to prescribe a general percentage of expenditure to be incurred by municipalities or local boards on public health. Such a uniform percentage would be arbitrary because conditions vary considerably.

(4) We do not recommend any Government control of the staff (i.e. Public Health staff) beyond their approval of the personnel and the expenditure for which a grant is given."

2. (i) The proposal to compel Borough Municipalities to employ Health Officers will involve an amendment of the Bombay Municipal Boroughs Act. A number of Borough Municipalities have already appointed such officers. Government does not consider the legislation to be of an emergent nature. Those Borough Municipalities which have not yet appointed Health Officers should however be advised to appoint such officers as soon as possible.

(ii) As regards the recommendation of the Committee that Government should pay a grant equal to 1/2 and 2/3rds of the expenditure on the *establishment* of Health Officers of Municipalities and District Local Boards respectively, Government has decided to postpone consideration of this question, pending the result of the experiment which is to be tried shortly of appointing in a few selected Districts, District Health Officers and their subordinate staff entirely at Government expense.

(iii) As regards the Committee's recommendation No. (3), Government agrees that it is not feasible to prescribe a general percentage of expenditure to be incurred by Municipalities and Local Boards on public health. Government however expects local bodies to adopt all necessary public health measures. The Commissioners are requested to see that this is done and in case of default by any local body, to report the matter to Government.

(iv) Government is unable to accept the recommendation that Government control of public health staff of local bodies should not extend beyond approval of the personnel and expenditure for which grant is given. Where Government pays any grant on account of such staff, while the general control over the staff may rest with the local body, Government must retain some control over the appointment, punishment and dismissal of the staff."

Paragraph 214: Epidemics :—

(i) The responsibility of dealing with epidemics should rest with Government and local bodies may lend the services of their staff of dispensaries under their control as well as their public health department staff; and

(ii) in the case of Borough Municipalities the cost incurred should be borne by them and Government should give the assistance of their Health Department staff and supply vaccines free of cost.

No action taken.

Paragraph 215: Vaccination :—

Vaccination should be transferred entirely to those local bodies who maintain a Health Officer.

No action taken.

Paragraphs 216 to 218: Slum Clearance :—

The powers in respect of overcrowded areas mentioned in Section 149 of the Bombay District Municipal Act, 1901, and of Section 184 of the Bombay Municipal Boroughs Act, 1925, should be specially conferred on those local bodies which entertain Health Officers; and that in the case of district municipalities, provision should be made for the following matters :—

- (i) regular inspection for detection of slum clearance;
- (ii) periodical report to Government regarding result of such inspection;
- (iii) closure of unhealthy houses;
- (iv) demolition of premises;
- (v) appeals to special tribunals against closure and demolition orders; and
- (vi) municipalities should not be made to pay compensation for closure or demolition.

Under consideration.

Paragraph 219: Rehousing Schemes :—

For rehousing schemes some area will have to be acquired but the provisions regarding acquisition in the Land Acquisition Act, 1894, do not seem to be suitable; that persons whose property increases in value should be made to pay 33% of betterment value and not 50% as suggested

by the Consulting Surveyor to Government and that too to be paid in instalments spread over a number of years if they so desire.

Under consideration.

Paragraph 220: Rehousing of the Poor :—

Municipalities should make provision to rehouse those who may be dislodged at a reasonable rent.

Under consideration.

Paragraph 221: Financial Burden of the Scheme and Rehousing the Poor :—

In the matter of slum clearance and rehousing the poor, Government should help Municipalities very liberally; that loans at substantially lower rates and sanitary grants must be given; that lands for building houses for the poor wherever they are available should be given to municipalities free of cost or at nominal rates; and a grant of 50% of the deficit in housing schemes should be given.

Under consideration.

Paragraph 222: Housing of the Harijan Employees of Municipalities :—

- (i) The housing of the Harijan employees of Municipalities must be made a compulsory duty of Municipalities by amendment of the Acts;
- (ii) that Government should lease their lands for long periods at nominal rents; and
- (iii) that Municipalities should be called upon by Government to prepare schemes and carry them out by means of (a) free gifts of Government land, (b) Government loans at a low rate of interest and (c) special grants.

Under consideration.

Paragraph 223: Houses Unfit for Human Habitation :—

- (i) The existing statutory provisions regarding houses unfit for human habitation are inadequate and Government should amend the Bombay District Municipal Act, 1901, by insertion of section therein on the lines of Section 163 (1) of the Bombay Municipal Boroughs Act, 1925, the said amendment being made applicable to those Municipalities which engage a Health Officer;
- (ii) that the powers exercisable by the Standing Committee should be made exercisable by the President of the District Municipality; and
- (iii) that appeals should be provided in both the Acts against closing or demolition orders to special tribunal.

Under consideration.

Paragraph 224: Regulation of Huts :—

A suitable definition of the term 'hut' is necessary in the Acts and Government should amend Section 97 of the Bombay District Municipal

Act and Section 12 (5) of the Bombay Municipal Boroughs Act, 1925, making the permission of the Chief Officer necessary before erecting a hut; that the Municipal Acts should be amended with a view to make landlords responsible for keeping the premises in sanitary and habitable conditions; and that the Chief Officers should more frequently use the powers given to them under Section 162 of the Bombay Municipal Boroughs Act or Section 131 of the Bombay District Municipal Act, 1901.

Under consideration.

Paragraph 225: (1) Agriculture and Local Industries:—

The provisions of Section 50 (j) of the Local Boards Act have been neglected by local boards and Government Agricultural Department should make greater efforts to come into closer contacts with local boards by giving them the necessary help in the matter and by utilising the local boards agency for all their work in connection with agricultural improvements and by giving them grants-in-aid to encourage local boards to take interest in the activities of the Government Agricultural Department.

Government Decision: G.R.R.D. No. 3711-A/39, dated 23-5-40:—

"The undersigned presents compliments to the Secretary to Government, General Department, and, with reference to that Department memorandum, No. 2583/33-C, dated 12th March 1940, is directed to state in connection with paragraph 225 (1) of the Report of the Local Self-Government Committee, Bombay, 1939 that as in the past the Agricultural Department is fully prepared to give expert advice to Local Boards in all matters relating to the improvement and development of agriculture and animal husbandry within their jurisdiction. The work of spreading agricultural improvements in villages has now been transferred to the Rural Development Department and the Local Boards may, therefore, be advised to approach that Department in the matter.

2. The Committee's suggestion to utilise local board agency for all work in connection with agricultural improvement is not considered feasible nor is it considered advisable to make grants-in-aid to Local Boards in order to stimulate their interests in the activities of the Agricultural Department. The District Local Boards may bring to the notice of the officers of the Agricultural Department any difficulties and problems demanding scientific investigation and research; all schemes of agricultural improvement or development to be sponsored by the Boards should be referred to the Director of Agriculture for technical examination in the first instance before work is commenced thereon."

Paragraph 225: (2) Improvement of Local Industries:—

The Village Industries Association should guide local boards in research work and Government should give adequate financial assistance.

No action taken.

Paragraph 226: Cattle Pounds:—

Local bodies are unable to exercise adequate control over the Patils who are keepers of the pounds and who are not responsible to local bodies and that these cattle-pounds should be retransferred to Government who should after defraying the cost of management pay over to the local bodies the net proceeds from fines and fees and the method of payment should be by charging the net proceeds to the provincial revenues and not by way of grants.

Government Decision awaited.

Paragraph 227: Modern Museums:—

Bigger municipalities should set up and finance museums and that Government should give grants towards their maintenance.

Government Decision: G.R.G.D. No. 4213/33, dated 9-10-40:—

"Government, after due consideration, agrees generally with the view expressed by the Local Self-Government Committee in paragraph 227 of its report on the suggestion to make the provisions of museums an obligatory duty of Municipalities. As regards the Committee's recommendation that special legislation for museums should be enacted, Government sees no urgency about it. It should be deferred for the present. Meantime the Commissioners of Divisions should advise the bigger municipalities in their divisions to draw up their proposals in this respect, if funds permit."

Paragraphs 228 & 229: Libraries:—

Every local body should have a suitable collection of books on matters relating to Municipal Law and Administration and for this purpose a small amount should be provided in the annual budget by every local body. Every municipality should run public libraries or assist the existing ones within their jurisdiction.

Government Decision: G.R.G.D. No. 4212/33, dated 9-10-40:—

"Government is pleased to accept in principle the recommendations made by the Local Self-Government Committee in paragraphs 228-229 of its report. Action as suggested therein must necessarily be dependent on funds being available with the local bodies. In the present circumstances no compulsion can be brought upon them by undertaking the necessary legislation for the purpose. The Commissioners of Divisions are, however, requested to advise the local bodies in their respective divisions to give effect to the Committee's recommendations as far as their financial conditions permit."

Paragraphs 230 to 232: Joint Administration of Certain Functions:—

Local bodies should investigate further possibilities of joint action in certain cases of services and Government should assist local bodies by bringing to their notice such possibilities as would be advantageous. But local bodies should as far as possible leave the day-to-day administration

to the major local body which should have the sole control over the staff pertaining to such service, a separate *ad hoc* body being inconvenient.

Government Decision : G.R.G.D. No. 4208/33, dated 28-10-40:—

"In paragraphs 230 to 232 of the Report of the Local Self-Government Committee, 1939, it has been suggested that some of the services of local bodies may be jointly administered by one or more bodies with advantage to the combining units. The Committee has made necessary recommendations in paragraph 232 of its Report for investigating further possibilities of such joint action, preliminary surveys, assistance of Government, etc. The question of joint administration of services of local bodies is mainly a matter for initiative by the local bodies concerned. If local bodies have any schemes which require joint action by other local bodies, Government is prepared to lend the assistance of its technical officers for advice as to how far the schemes are feasible."

INDEX

OF THE

Recommendations of the Local Self-Government Committee, 1939 and the decisions taken by Government thereon

Paragraphs of the Committee's Report.	Subject of the Recommendation (or Subject-matter.)	Decision of the Government.	Page No.
I. Financial Recommendations			
42	House Tax	G.R.G.D. No. 4046/33, dated 16-5-41	49
43 to 46	Terminal Tax and Octroi Duties	—No. 4110/33, dated 1-10-40	49
47, 48, 49, 50, 64, 99, 107 and 111	Primary Education Cess	—No. 7278, dated 20-5-41	50 to 52
51	Tax on Professions	No action	52
52 and 53	Tax on Transfer of Propertie	Rejected	52
54	Non-Agricultural Assessment	No action	53
55 and 56	Taxes on Marriages, Adoptions and Feasts	G.R.G.D. No. 4046/33, dated 16-5-41	53
57	Entertainment Tax	Rejected	53
58	Surcharge on Electricity	Rejected	53
59, 60 and 61	Petrol Tax	Rejected	53-54
62, 63, 64 and 65	Local Fund Cess	G.R.G.D. No. 9560, dated 26-11-40	54
66 and 67	Cess on Village Sites and Lands in Alie- nated Villages	—No. 7395, dated 2-12-40	54-55
68 to 71	Quarries in Inam Villages	—No. 2341/33, dated 9-12-40	55
72 and 73	Cess on Forest Revenue	—No. 3711/39, dated 28-10-40	55-56
74 to 81	Assignment of Land Revenue	Under consideration	56
82 to 89	Tax on Professions	G.R.G.D. No. 288/33, dated 5-2-41	56
95 and 96	Grants on account of Salaries	—No. 4068/33, dated 17-10-40	57
97, 98 and 112	Grants to compensate for Abolition of Tolls	G.R.H.D. No. 4702/4, dated 8-5-41	57
100 to 103	Non-Statutory Grants for Local Public Works	G.R.G.D. No. S. 218, dated 4-11-40	58-59
106	Dispensary Grants	—No. 2277, dated 20-10-40	59
108	Veterinary Grants	G.R.R.D. No. 3711-A/39, dated 3-5-40	60
110	Establishment Grants to Local Boards	G.R.G.D. No. 2391/33, dated 2-10-40	60
109 and 114 to 117	Public Health Schemes and Government Charges	Under consideration	60
118-119	Public Utility Concerns	G.R.G.D. No. 4084/33, dated 6-2-41	60-61
120 to 125	Loans to Local Bodies	Under consideration	61
127 to 129	Fines and Fees imposed and collected under the L. S. G. Acts	Consideration postponed	61
II. Administrative Recommendations			
131-132	Adult Franchise	G.R.G.D. No. 2174/33, dated 28-9-40	61-62
133-134	Qualifications of Members and Office- bearers	—No. 4143/33, dated 15-10-40	62
135 to 138	Elections	G.R.G.D. No. S. 130, dated 18-11-40	62
139-140	Voting	—No. 4175/33, dated 9-10-40	63
141	Compulsory Voting	Rejected	63
142	Partial Retirement of Members Every Year	Agreed	63

Paragraphs of the Committee's Report.	Subject of the Recommendation (or Subject-matter.)	Decision of the Government.	Page No.
143	Alderman	Agreed	63
144	Period of Membership	G.R.G.D. No. S. 130, dated 18-11-40	63
145	Number of Members of Local Bodies	No action	64
146	Joint or Separate Electorates	No action	64
147	Committees	G.R.G.D. No. 4177/33, dated 7-10-40	64
148 to 150	Constitution of Standing Committees	—No. 7830, dated 4-11-40	64-65
151 to 155	Nepotism and Favouritism	—No. 4179/33, dated 7-10-40	65
156 to 158	Local Government Areas and their Adjustments	Accepted	65
159-60	Appointment, Punishment and Removal of Principal Officers and their Formation into a Cadre	G.R.G.D. No. 4088/33, dated 9-12-40 & —No. 417/33, dated 21-10-41	66-67
161	Salaries	—No. 2352/33, dated 22-10-40	67-68
162	Control over Appointments	Under consideration	68
163 to 167	Removal and Punishment	Under consideration	68-69
168-176 and 178-180	Cadre Schemes for Officers	G.R.G.D. No. 2174/33, dated 4-11-40	69-70
177	Transfers of Officers	Rejected	70
181	Composition and Recruitment of Staff	No decision	70
182	Facilities for Training of Staff	G.R.G.D. No. 4086/33, dated 1-10-40	70
183	Assessment and Recovery of Taxes	—No. 4104/33, dated 12-11-40	70 to 73
184	Agency for Collection of Taxes	No action	73-74
185	By-laws and Rules	G.R.G.D. No. S. 91, dated 5-11-40	74-75
186	Purchase of Municipal Requirements	No action	75
187	Insurance of Municipal Properties	Under preparation	75
188	Municipal Accounts Code	Draft published in the Gazette	75

III. Recommendations Regarding Functions

189 to 205	Transfer of P.W.D. Roads and Buildings to Local Bodies	G.R.P.W.D. No. 1994/36, dated 31-1-41	75-76
206	Minor Irrigation Works	G.R.R.D. No. 7950/33, dated 4-1-41	76
207	Village Water Supply	No action	76
208-209	Primary Education	No action	76
210 to 213	Public Health	G.R.G.D. No. 2225/33, dated 18-6-41	76 to 78
214	Epidemics	No action	78
215	Vaccination	No action	78
216 to 218	Slum Clearance	Under consideration	78
219	Rehousing Schemes	Under consideration	78-79
220	Rehousing of the Poor	Under consideration	79
221	Financial Burden of the Scheme and Re-housing the Poor	Under consideration	79
222	Housing of the Harijan Employees of Municipalities	Under consideration	79
223	Houses Unfit for Human Habitation	Under consideration	79
224	Regulation of Huts	Under consideration	79-80
225 (1)	Agriculture and Local Industries	G.R.R.D. No. 3711-A/39, dated 23-5-40	80
225 (2)	Improvement of Local Industries	No action	80
226	Cattle Pounds	Decision awaited	81
227	Modern Museums	G.R.G.D. No. 4213/33, dated 9-10-40	81
228-229	Libraries	—No. 4212/33, dated 9-10-40	81
230 to 232	Joint Administration of Certain Functions	—No. 4208/33, dated 28-10-40	81-82

SELECTED CASES ON LOCAL SELF-GOVERNMENT ACTS*

(Bombay Series)

By CHUNILAL D. BARFIVALA, M.A., LL.B.

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[Continued from page 586, Vol. XI, No. 4, April 1941.]

The Borough Municipality of Ahmedabad

vs.

The Ahmedabad Manufacturing and Calico Printing Co. Ltd.

The provisions of Clause (b) (i) of sub-section (2) of Section 110 of the Bombay Municipal Boroughs Act, 1925, apply not merely to a rate on buildings or lands but also to a water-rate imposed in the form of a rate assessed on buildings or lands inasmuch as the expression "a rate on buildings or lands" in that clause includes a tax in the form of a rate on buildings or lands.

The Ahmedabad municipality made valuation of the land and buildings of the Ahmedabad Manufacturing and Calico Printing Co., Ltd., for the purpose of assessing water-rate for the year 1936-37. The Company did not submit to the Standing Committee of the municipality objection to the valuation within the period prescribed in the public notice issued under section 81 of the Bom-

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bay Municipal Boroughs Act. The opponent Co., however, filed an appeal against the notice of demand to the Court of the Special First Class Magistrate, Ahmedabad. It was dismissed by the Magistrate holding that section 110(2)(b)(i) of the Act applied and the Company having failed to apply to the Standing Committee as required by sections 81 and 82 of the Act, he had no jurisdiction to entertain the appeal. The Company then applied in revision to the Additional Sessions Judge, Ahmedabad, who reversed the order of the Special Magistrate and sent back the proceedings for disposal on merits. The municipality thereupon applied in revision to the High Court.

HELD that the expression "a rate on buildings or lands" in section 110, sub-section (2), clause (b)(i) of the Bombay Municipal Boroughs Act, 1925, includes a tax in the form of a rate on buildings or lands and that therefore the provisions of clause (b)(i) apply not merely to a rate on buildings or lands but also to a water-rate imposed in the form of a rate assessed on buildings or lands.

Held also that where an application as required by section 110(2)(b)(i) of the Act is not made to the Standing Committee of a municipality within the time prescribed in a public notice under section 81 or section 82 of the Act for payment of the water-rate, no appeal lies to a Magistrate.

Section 110 runs as follows:—

- "110. (1) Appeals against any notice of demand issued under sub-section (3) of section 104 may be made to any Magistrate or Bench of Magistrates by whom under the directions of the District Magistrates such class of cases is to be tried.
- (2) No such appeal shall be heard and determined unless—
- (a) the appeal is brought within fifteen days next after service of the notice of demand complained of; and
 - (b) an application in writing stating the grounds on which the claim of the municipality is disputed, has been made to the Standing Committee as follows:—
 - (i) in the case of a rate on buildings or lands or both within the time fixed in the notice given under section 81 or 82 of the assessment or alteration thereof according to which the bill is prepared;
 - (ii) in the case of any other claim for which a bill has been presented under sub-section (1) of section 104 within fifteen days next after the presentation of such bill; and
 - (c) the amount claimed from the appellant has been deposited by him in the municipal office."

Beaumont, C. J.—(Extract). Under section 73 of the Act it is provided that a municipality may impose under sub-para (i) a rate on buildings or lands or both situate within the municipal borough and under sub-para (x), a general water-rate or a special water-rate or both for water supplied by the municipality which may be imposed in the form of a rate assessed on buildings and lands or in any other form. It is admitted that in the case of the Ahmedabad municipality the water-rate has been imposed in the form of a rate assessed on buildings and lands. The question really is whether the provisions of section 110(2)(b)(i) apply not

merely to a rate on buildings or lands, but also to a water-rate imposed in the form of a rate assessed on buildings or lands and the question involves the consideration whether those two expressions as used in the Act have a different significance. *Prima facie* when two different expressions are used in an Act of Parliament the Court ought to assume that they are intended to bear distinct meanings but it appears from the context that the two expressions are used interchangeably and are not intended to have different meaning. In this Act the two expressions are used in different sections. In section 73 it is provided that when a rate on buildings or lands or both is imposed, the Chief Officer has to prepare an assessment list. Then in section 81 it is provided that the Chief Officer shall, at the time of the publication of the assessment list, give public notice of a date before which objections to the valuation or assessment in such list shall be made and then in sub-section (2) it is provided that objections to the valuation or assessment of any property in such list shall be made to the Standing Committee before the time fixed in the aforesaid public notice and that is the procedure referred to in section 110(2)(b)(i). Then section 83 deals with the case of a building liable to the payment of a rate on buildings or lands or both being demolished and in section 85 the other expression "a tax imposed in the form of a rate on buildings or lands or both" is used for the first time. That section provides that a tax imposed in the form of a rate on buildings shall be leviable primarily from the actual occupier. That is the only section which deals with liability for the tax, and if that section only applies to a rate levied under section 73(x) in the form of a rate assessed on buildings and lands there is no section imposing liability in the case of a rate on buildings or lands and such an omission cannot be supposed to have been within the intention of the legislature. The argument that the two expressions have a different meaning is completely disposed of by a reference to sections 89 and 112. Section 89 deals with the case covered by the earlier sections of a transfer of property subject to tax and provides under sub-section (1) that the liability for payment of rate on buildings or lands or both shall continue in the absence of any notice of transfer and sub-section (2) provides that "But nothing in this section shall be held to diminish the liability of the transferee for the said rate or to affect the prior claim of the municipality on the said buildings and lands conferred by section 112, for the recovery of the rate on the lands or buildings or both." So there is a reference to the prior claim of the municipality conferred by section 112 for the recovery of the rate on the lands or buildings or both but section 112 makes the tax a charge on the building or land and refers only to a tax imposed in the form of a rate on lands or buildings or both. The two sections make it perfectly plain that the draftsman of the Act was not seeking to convey a different meaning by the two expressions which he chose to use but was only endeavouring to provide a little variety for anyone whose duty or pleasure it might be to read his work. The expression "a rate on buildings or lands" in section 110(2)(b)(i) includes tax in the form of a rate on buildings or lands and in consequence the appeals to the Magistrate were not competent.

It has been argued that I ought not to interfere in this case in second revision, and I should not have done so but for the fact that the question involved is one of construction of a general Act, and is of considerable

importance to municipalities and ratepayers in the province. The right of this Court to interfere under the Act in second revision was established by a recent ruling of a bench of this Court (*Lokmanya Mills Ltd. vs. Municipal Borough, Barsi*, 41 Bom. L.R. 939), although that bench laid down that cases of interference should be rare,—a view with which I entirely agree.

[*Lokmanya Mills Ltd. vs. Municipal Borough, Barsi* (41 Bom. L.R. 939) Relied on.]

41 Bom. L.R. 1015 = [1939] Bom. 701
13th April 1939.

Chunilal Jethalal

vs.

Ahmedabad Borough Municipality

(1) A vehicle kept outside the municipal limits but used occasionally within the borough cannot be said to be "kept for use within the borough" within the meaning of those words in Section 73 (ii) of the Bombay Municipal Boroughs Act, 1925, since the word "use" means "normal use."

(2) A vehicle used in the Presidency as well as within the municipal borough is liable to be taxed both under the Bombay Motor Vehicles Tax Act, 1935, and the Bombay Municipal Boroughs Act, 1925.

One Jethalal (father of Chunilal and others, plaintiffs), owned two motor lorries which were garaged in a kiln outside the limits of the Ahmedabad Borough Municipality. The lorries were used for carrying bricks from the kiln to customers who lived outside the limits of the municipality. Whenever the lorries went into the above limits they paid toll tax. After the Bombay Motor Vehicles Act came into operation the municipality demanded payment of wheel tax for the lorries. The tax was paid under protest. Jethalal filed a suit to recover the wheel tax paid. The Small Cause Court, Ahmedabad, dismissed the suit. In the meantime, Jethalal died and his sons filed a revisional application in the High Court.

HELD that the expression "kept for use within the borough" as used in section 73(2) of the Bombay Municipal Boroughs Act, 1925, means kept for normal use within the borough.

Held also that a vehicle which is both used in the presidency and is also used within the borough is subject to taxation by two taxing bodies under the Bombay Motor Vehicles Tax Act, 1935, and the Bombay Municipal Boroughs Act, 1925.

Section 73(ii) of the Bombay Municipal Boroughs Act runs as follows :—

Subject to any general or special orders which the Provincial Government may make in this behalf and to the provisions of sections 75 and 76, a municipality may impose for the purposes of this Act any of the following taxes, namely—

- (ii) a tax on all vehicles, boats or animals used for riding, drought or burden and kept for use within the said borough, whether they are actually kept within or outside the borough.

Beaumont, C. J.—(Extract). The applicants' first contention that the vehicles in respect of which he has been taxed were not kept for use within the borough is not maintainable. The words "kept for use within the borough" mean kept for normal use within the borough and where a vehicle is kept for normal use outside the borough, an occasional user within the borough can be rejected on the principle of *de minimus non curat lex*. The dictum in the case of *Bandra Municipality vs. Burmah Shell & Co.* (40 Bom. L.R. 111) does not apply in this case since the reference to "main user" involves comparison between one method of user and another. It is possible to suppose a case in which a motor lorry might be kept for normal and regular use on two or three days in a week within the borough and for regular use for the rest of the week outside the borough and it would be difficult to say in such a case that the lorry was not kept for use within the borough, because it was kept for more extensive use outside the borough.

The applicants also contend that they are not liable for the tax since they are liable to a tax under the Bombay Motor Vehicles Tax Act. Section 3 of that Act states that a tax at the rate fixed by the Provincial Government is to be levied on all motor vehicles used or kept for use in the Presidency. The applicants are no doubt subjected to double taxation but there is nothing in either of the Acts which suggests that that position was not intended. The municipal tax is levied by a municipality on vehicles kept for use within the borough and the tax under the Bombay Motor Vehicles Tax Act is a tax levied by the Provincial Government on vehicles used in the Presidency. A vehicle which is both used in the Presidency and is also used within the borough may be the subject of taxation by two taxing bodies.

[*Bandra Municipality vs. Burmah Shell & Co.*, 40 Bom. L.R. 111 Not applied.]

41 Bom. L.R. 1249
28th July 1939.

Emperor

vs.

R. K. Naik

The preparation of a travelling allowance bill by an Administrative Officer of a District Local Board is not a duty imposed upon him by the Bombay Local Boards Act and no previous notice is required to be given to the officer under Section 136 of the Act before prosecuting him for submitting a false travelling allowance bill to the Board.

The accused was appointed Administrative Officer of the District Local Board, Dharwar, and it was part of his duty to inspect schools under the Local Board. He was entitled to draw travelling allowance under the Bombay Civil Service Regulations and if in his travels he hired

Bombay Local Boards Act, 1923,
Section 136.

a motor car he was entitled to draw travelling allowance at the rate of four annas a mile but if on the other hand he used his own car the rate was only three annas a mile. The accused preferred his bill for travelling allowance to the Board claiming allowance at the rate of four annas a mile that is in effect representing that he had travelled in a hired car, whereas in fact he had travelled in his own car. He was prosecuted for the offence of cheating punishable under section 420 of the Indian Penal Code for submitting false travelling allowance bills. It was contended on his behalf that the prosecution was bad for want of notice as required by section 136 of the Bombay Local Boards Act, 1923. His contention was overruled by the trying Magistrate. The accused applied to the Sessions Judge to revise the order but the Sessions Judge confirmed it. Against this order the accused applied in revision to the High Court.

HELD that an Administrative Officer of a District Local Board can be prosecuted for an offence punishable under section 420 of the Indian Penal Code for submitting a false travelling allowance bill to the Board without previous notice given under section 136 of the Bombay Local Boards Act, 1923, inasmuch as the delivery of his travelling allowance bill is not a duty imposed upon him by the Act.

The provisions of section 136, so far as they are material, are as follows :—

- "136. (1) No suit, prosecution or other legal proceeding shall be against any member, officer or servant of a local board or any person acting under the order of a local board in respect of anything which is, in good faith, done or intended to be done under this Act or under any other law for the time being in force, which entitles or requires a member, officer, servant as such, or other person so acting to exercise any powers or perform any duties.
- (2) No suit, prosecution or other legal proceeding shall be commenced against any local board or against any member, officer or servant of a local board, or any person acting under the orders of a local board, for anything done or purporting to have been done, in pursuance of this Act, or any other law for the time being in force which entitles or requires a local board, member, officer, servant as such or other person so acting to exercise any powers or perform any duties without giving to such local board, member, officer, servant or person one month's previous notice in writing of the intended action and of the cause thereof, nor after three months from the date of the act complained of."

* * * * *

Beaumont, C. J.—(Extract). Looking at the matter apart from authority, I must confess that I should have thought that it was impossible to say that an officer of the Board delivering a false bill deliberately was acting or purporting to act in pursuance of the Act. His duty under the Act would be at the highest to deliver a true bill and when he proceeded to deliver a false bill he was not acting under the Act. These protective clauses which are commonly inserted in Acts conferring powers on public

authorities or their officers were never intended to protect a dishonest rascal from the consequences of his rascality. They are only intended to protect people who from excess of zeal, or negligence, or other cause exceed their powers. (*Ranchordas Morarji vs. The Municipal Commissioner for the City of Bombay*, I.L.R. 25 Bom. 387). Every case of this nature must, however, ultimately turn upon the construction of the particular Act by which the protection is given.

The decision of the Federal Court in *Hari Ram Singh vs. Emperor* [(1939) A.I.R.F.C. 43] does not govern the present case. It was held in that case that a deliberate falsification of accounts was an act done in purported execution of a statutory duty. The Court was there dealing with section 270 of the Government of India Act whereas this case arises under section 136 of the Bombay Local Boards Act and the charges in that case were not under section 420, Indian Penal Code. Moreover, the accused was not bound to claim any travelling allowance at all. If he did claim a travelling allowance he was bound to put in a bill, but any public servant who chooses to do so can use his own car for official work without claiming to the paid for so doing. On this point the applicant relies on rule 31(2) of the Bombay Primary Education Rules, 1924, which provides

"At the first meeting of the School Board in each month, there shall be placed before the meeting for its approval, statements of the movements on duty of the Chairman and of members who have performed journeys on duty under the orders of the School Board and the official diary of the Administrative Officer with their travelling allowance bills. . . ."

This rule does not make it compulsory upon the Administrative Officer to deliver a travelling allowance bill. The rule only means that the travelling allowance bill must be delivered if travelling allowance is being claimed. There is nothing in the rules which compels the Administrative Officer to claim travelling allowance if he does not desire to do so. Therefore the delivery of his travelling allowance bill was not a duty imposed upon him by the Act. In the second place it is clear that the charge of cheating by suppression of the fact that the accused owned a car involves an act outside the accused's official duties. He was not under any statutory duty to refrain from stating to the Board that he possessed and used his own car. The charge is more analogous to a charge under section 409 than to a charge under section 477-A, because a part of the ingredients of the charge is not in any way concerned with the official duties of the officer.

[*Ranchordas Morarji vs. The Municipal Commissioner for the City of Bombay*, I.L.R. 25 Bom. 387 Referred to; *Hari Ram Singh vs. Emperor* (1939) A.I.R.F.C. 43 Distinguished.]

[Explained in *Emperor vs. Vishnu Tatyaba Naik* 42 Bom. L.R. 1193].

41 Bom. L.R. 1227
4th Aug. 1939.

M. S. Bhopshetti (plff.) appellant

vs.

B. V. Bhat (deft.) respondent

An order passed by a Magistrate under Sections 110 and 111 of the Bombay Municipal Boroughs Act is a judicial and not a quasi-judicial or an executive order.

A Civil Court has jurisdiction to entertain a suit with regard to any liability to municipal taxation and such a suit is an independent suit and is not to be instituted after exhausting the other remedies provided in Sections 110 and 111 of the Bombay Municipal Boroughs Act.

The plaintiff was the Chief Officer of the Dhulia Municipality and the defendant the Honorary Secretary of an institution called Rajwade Sanshodhan Mandal at Dhulia which owned two buildings in Dhulia city.

According to the plaintiff municipality those two buildings were liable to the municipal house-tax and bills were sent for the two years 1931-32 and 1932-33. The defendant's case was that they were not liable as they belonged to a public institution. He therefore appealed to the Bench Magistrates under section 110 of the Bombay Municipal Boroughs Act. They had on April 29, 1933, that the buildings were not liable to house-tax and directed a refund of the amount. Thereupon the plaintiff filed a suit on November 27, 1934, for a declaration that the decision of the Magistrate's Court was null and void and that the property was liable to house-tax and for consequential reliefs. The defendant's pleas in addition to exemption from liability to taxation, were that the Civil Court had no jurisdiction to hear the suit as the decision of the Bench Magistrates was final, and that the suit was barred by time on the ground that the suit ought to have been filed within one year from the date of the Magistrate's decision. The trial Court decreed the suit. On appeal the District Judge agreed with the trial Court that the buildings were not exempt from taxation but dismissed the suit on the ground that it was barred by limitation under Article 14 of the Limitation Act. Plaintiff appealed to the High Court:

HELD that the order passed by the Bench Magistrates was a summary order which did not prevent a suit being filed even without preferring an appeal to the Magistrates against the notice of demand and Article 14 did not apply to the order. Consequently the suit was not governed by Article 14 and hence not time-barred.

The material portions of sections 110 and 111 are reproduced below:—

- "110. (1) Appeals against any notice of demand issued under subsection (3) of section 102 may be made to any Magistrate or Bench of Magistrates by whom under the directions of the District Magistrate such class of cases is to be tried."
- "111. (1) Every entry in the assessment list made under the provisions of this Act against which no objection is made as hereinbefore provided, and the amount of every sum claimed from any person under this Act on

account of any tax, if no appeal therefrom is made as hereinbefore provided, and the decision of the Magistrate or Bench of Magistrates upon any appeal shall, at the instance of either party, be subject to revision by the Court to which appeals against his or their decisions ordinarily lie.

- (2) Effect shall be given by the Chief Officer to every decision of the said Magistrate or Bench of Magistrates on any appeal or any decision in revision on such appeal against any such entry or tax."

Divatia, J.—(Extract). The question is whether under these two sections (sections 110 and 111) the order passed by the Bench Magistrates is to be regarded as final in the sense that unless it was set aside by a regular suit no Civil Court can grant a declaration inconsistent with that order. It is conceded before me that the jurisdiction of the Civil Court is not barred because of the order passed by the Bench Magistrates and that a civil suit does lie. It has recently been held by our Court in *Kanhadas vs. Keshav* 37 Bom. L.R. 235, that the words in section 111 of this Act that the decision passed on appeal by the Magistrate was, at the instance of either party, subject to revision by the Court to which appeals would ordinarily lie, are not mandatory in the sense that it was incumbent on either party to adopt the remedy provided in the section, and that the Civil Court had jurisdiction to entertain a regular suit. A previous decision of our High Court in *Hari vs. Belgaum Municipality* 31 Bom. L.R. 1249 is quoted in the judgment in this case, and it was held that there was nothing to prevent a suit being filed by an assessee even though he might not have followed in its entirety the procedure for appealing to the Magistrate laid down in section 110 of the Act. It is further held in *Kanhadas vs. Keshav* that quite apart from the Municipal Act, the Civil Court has jurisdiction to deal with a civil right such as liability to taxation. The effect of this decision is that not only has the Civil Court jurisdiction to entertain a suit with regard to any liability to municipal taxation but that also such a suit is an independent suit and is not to be filed after exhausting the other remedies provided in sections 110 and 111 of the Bombay Municipal Boroughs Act. Section 111 does not say that the decision of the Magistrate or any other order passed in revision of that decision is final till it is set aside in a regular suit, and that result in my opinion follows as a corollary from the decision in *Hari vs. Belgaum Municipality*, that there was nothing to prevent a suit being filed even though an assessee might not have followed in its entirety the procedure for appealing to the Magistrate. Article 14 would apply only to those orders which require to be set aside in a regular suit before any relief inconsistent with the order could be obtained. But the order of the Bench Magistrate being not such an order, Article 14 in my opinion can have no application to the present case.....

Moreover, the order of the Bench Magistrates was a judicial and not a quasi-judicial or an executive order. It can be revised by the Sessions Court and it has been recently held that the order of the Sessions Court in revision is again open to revision by the High Court: *Surat Municipality vs. Hamiduddin* 40 Bom. L.R. 387 and *Lokamanya Mills Ltd. vs. Municipal Borough, Barsi* 41 Bom. L.R. 937. For this reason also, the present suit does not fall under Article 14.

[*Hari vs. Belgaum Municipality* 31 Bom. L.R. 1249, *Kanhardas vs. Keshav* 37 Bom. L.R. 235 Followed, *Surat Municipality vs. Hamiduddin* 40 Bom. L.R. 387, *Lokamanya Mills Ltd. vs. Municipal Borough, Barsi* 41 Bom. L.R. 937 Referred to.]

42 Bom. L.R. 223
13th Oct. 1939.

The Brahmin Mitra Mandal Co-operative Housing Society, Ltd.
(plffs.) appellants

vs.

The Municipality of Ahmedabad, Ahmedabad (deft.) respondents

The true construction of Section 73 (x) of the Bombay Municipal Boroughs Act, 1925, is that the Municipality can charge a water rate if they supply water to the Borough. The words "water supplied by the Municipality" in Section 73 (x) mean water supplied for general public purposes, and are not limited in their application to water connected up with particular premises.

The plaintiffs owned an estate on the western border of the defendant municipality's district and they were developing that estate for building purposes. None of the houses or lands forming part of the estate was supplied directly with water by the municipality. The municipality imposed on the buildings of the plaintiffs a general water-rate, whereupon the plaintiffs filed a suit for an injunction to restrain the municipality from recovering the general rate from the plaintiffs or the members of the plaintiffs' society, alleging that they were not liable to be assessed to a water-rate, unless water was connected to their premises or at any rate made available for use in their premises. The plaintiffs also alleged that Rs. 326, framed by the municipality, in so far as it did not make the levying of the rate dependent on the supply of water, was repugnant to and inconsistent with section 73 of the Act. The defendant municipality contended *inter alia* that rule 326 was not *ultra vires*. The Trial Judge dismissed the suit and this decree was confirmed on appeal. Plaintiffs appealed to the High Court.

HELD that the mere fact that the municipality's water system had not been extended to the district in which the appellants' premises were situate so as to enable those premises to be connected up, did not show that the municipality had not supplied water within the meaning of section 73 of the Bombay Municipal Boroughs Act.

Section 73 so far as is material, runs as follows :—

"73. Subject to any general or special orders which the Provincial Government may make in this behalf and to the provisions

of sections 75 and 76, a municipality may impose for the purposes of this Act any of the following taxes, namely—

- * * * *
- (x) A general water-rate or a special water-rate or both for water supplied by the municipality, which may be imposed in the form of a rate assessed on buildings and lands or in any other form, including that of charges for such supply, fixed in such mode or modes as shall be best adapted to the varying circumstances of any class of cases or of any individual case;....."

Beaumont, C. J.—(Extract). The argument of the appellants is that under section 73 (x) of the Act a rate can only be levied for water supplied by the municipality, and the first contention is that "supplied by the municipality" means supplied to a particular tenement by the municipality, in other words, connected up by the municipality with their water supply. If that construction is adopted, it would involve holding that the scheme of the Act and rules, imposing a general water-rate, and a special water-rate for buildings and lands connected up with the water supply of the municipality is *ultra vires*, because no rate could be levied unless such connections had been formed. It would, I think, be very difficult to adopt that argument.

In my opinion the words "water supplied by the municipality" in section 73(x) must either mean supplied to, that is connected up with particular premises, or supplied for general public purposes, and I have no doubt that the latter is the true meaning. It is noticeable that section 73(x) does not refer to supply in any particular tenement, and the rates which may be levied are not assignable to the particular purposes in respect of which they are levied. There is no provision that money raised by a water-rate is to be spent only on providing water, or that a lighting rate is only to be spent on providing lights, whilst the provisions for consolidation are against the suggestion that the water-rate is concerned with particular tenements. I think the true construction of section 73(x) is that the municipality can charge a water-rate if they supply water to the borough. No doubt, the question whether they do so supply is one of fact. It might very well be that a municipality had made such an inadequate attempt to provide a proper system of water supply that they could not be said to have afforded a supply of water for the borough, although they had supplied some water but there is no suggestion of that sort here. It is in evidence that the Municipality of Ahmedabad have spent large sums on providing a water supply, and the mere fact that their system has not yet been extended to the district in which the appellants' premises are situate so as to enable those premises to be connected up, does not, in my opinion, show that they have not supplied water within the meaning of the section.

42 Bom. L.R. 587 = [1940] Bom. 667.
14th Feb. 1940.

Emperor

vs.

Najmuddin Ibrahim Saheb Bobade

The opening of markets in municipal areas is governed both by the Municipal Act and the Bombay Markets and Fairs Act, 1862 (Bom. IV of 1862.)

Najmuddin, a resident of Bhiwandi, had established a cattle market on his private land without obtaining a licence from the District Magistrate. He was therefore prosecuted under section 1 of the Bombay Markets and Fairs Act, 1862. He pleaded not guilty on the ground that he had not established a cattle-market within four miles of the existing markets and that he was holding the same on his private land. He was convicted and sentenced to pay a fine. He then applied to the Sessions Court, Thana, but his application was summarily dismissed. He then applied to the High Court contending that the provisions of the Bombay Markets and Fairs Act, 1862, were in conflict with section 139 of the Bombay District Municipal Act and that the provisions of the latter Act which was a special Act must override the provisions of the former Act, a general Act.

HELD that there was nothing in the language of the Bombay Markets and Fairs Act which prevents the application of it to municipal areas.

N. J. Wadia, J.—(Extract). Section 1 of the Bombay Markets and Fairs Act, 1862, provides that no person shall establish a new market or fair without permission in writing from the Magistrate of the District, and that if any person attempts to establish a new market or fair without such licence, he shall on conviction be subject to a certain fine. The preamble to the Act explains that it was introduced because the establishment of new markets or fairs in the neighbourhood of places where markets or fairs have been previously established leads to disputes between the owners of the lands on which such new and previously established markets or fairs are held and such disputes not unfrequently occasion breaches of peace and serious inconvenience to the frequenters of such markets and fairs. Section 139 of the Bombay District Municipal Act, gives the municipality power to direct that no place shall be used as a market for the sale of animals, meat, fish, etc., excepting the public markets as may have been licenced in writing by the municipality who may at their discretion from time to time grant, suspend, withhold or withdraw such licences; and subsection (3) of the section provides a penalty for any person who without the licence of the municipality sells animals or commodities within municipal limits.

It is contended that there is a conflict between the two Acts. Under the Markets and Fairs Act the District Magistrate has the power to allow or refuse the opening of a market while under the District Municipal Act the same power is given to the municipality. Section 66 of the Bombay District Municipal Act of 1873, contained provisions similar to section 139 of the Bombay District Municipal Act of 1901, and although the Bombay

Markets and Fairs Act of 1862 has been amended three times since the passing of the Bombay District Municipal Act of 1873, there has been no amendment or repeal of the provisions of the Bombay Markets and Fairs Act so far as municipal areas are concerned. There is nothing in the language of the Bombay Markets and Fairs Act which prevents the application of it to municipal areas and the presumption therefore is that the legislature intended that the opening of markets even in municipal areas should be governed both by the Municipal Act and also by the Bombay Markets and Fairs Act and there must be good reasons why this should be so. The considerations on which a municipality may grant or refuse permission to open a market within a municipal area would not necessarily be the same as those which govern the action of the District Magistrate in granting or refusing permission for opening new markets under the Bombay Markets and Fairs Act. It may well happen that where two different municipal areas are adjacent to each other the opening of a market in one area, though perfectly unobjectionable from the point of view of that municipality may nevertheless be open to serious objection from the point of view of the District Magistrate as likely to cause inconvenience to the inhabitants of the adjacent municipal area, or as likely to occasion a breach of the peace because of the new market being too near a market in the adjacent municipal area. There may thus be very good reasons of retaining the control of both authorities as regards the opening of markets even within municipal limits.

(1940) Bom. 522
11th March 1940.

Narottamdas Harjivandas & Co. (plff.) appellant

vs.

The Bulsar Town Municipality (deflt.) respondent

Section 59 (xa) of the Bombay District Municipal Act is itself sufficient authority to enable a Municipality to impose a terminal tax. The word 'may' in that clause means no more than 'can' or 'could be' and does not mean 'has been'.*

Terminal tax is leviable on all goods entering municipal limits whether they are intended for consumption within the city or whether they are merely in transit through the city to some other place.

The Municipality of Bulsar is not entitled to demand a terminal tax for goods not brought within its limits on the near side of the river Auranga but remaining below the line of medium high water mark.

M. C. & Co., ordered out fifty bags of sugar from Bhavanagar through the firm of N. H. & C., who were doing business as commission agents in Bulsar. The goods arrived at Bulsar Port by a boat which anchored at a certain place in the bed of the river Auranga. When the

* The Clause was omitted by the Adaptation of Indian Laws Order in Council.

goods were being taken out of the boat, the defendant municipality demanded a terminal tax on them. This being refused, the defendant seized and removed six bags of sugar. M. C. & Co. and N. H. & Co., then filed a suit for recovery of the price of sugar illegally attached and for damages. N. H. & Co. filed a separate suit against the defendant municipality for a declaration that the defendant was not entitled to demand terminal tax or any other tax for goods not brought within its limits, or in the alternative, for a permanent injunction restraining the defendant from demanding or levying any terminal tax for goods landed at the Auranga river. The trial Court dismissed the suit and on appeal, the District Judge confirmed the trial Court's judgment. Plaintiff appealed to the High Court. It was contended *inter alia* that the Bulsar Municipality had no power to levy terminal tax at all, and that even so the place where the terminal tax was demanded and the goods seized was not within the municipal limits.

Held that the municipality had sufficient authority to impose the terminal tax, but as the place where the boat was standing and the place where the goods were attached were both below the line of medium high-water mark, which was the boundary of the municipal jurisdiction, the municipality was not entitled to levy terminal tax on them.

Section 59 so far as is material is as given below :—

"59. Subject to any general or special orders which the Provincial Government may make in this behalf, any municipality

- (a) after observing the preliminary procedure required by section 60, and
- (b) with the sanction of the Provincial Government in the case of City Municipalities and in other cases, of the Commissioner, and subject to such modifications or conditions as under section 61 the Provincial Government or the Commissioner, respectively, in according such sanction, deems fit,

may impose, for the purpose of this Act, any of the following taxes : that is to say,

- (xa) any other tax which under rules made under clause (a) of section 80-A, sub-section (3) of the Government of India Act, a local authority may be authorized to impose by any law made by the local legislature without the previous sanction of the Governor-General."

N. J. Wadia, J.—(Extract). The first contention urged before us is that the Bulsar Municipality had no power to levy terminal tax at all. [His Lordship summarised the material provisions of section 59 and proceeded]. The contention of the defendant municipality is that clause (xa) itself is sufficient authority to enable the municipality to impose the tax and it has imposed the tax as required by the section with the sanction of the Commissioner.....We are unable to accept the contention of the appellants that the municipality could not impose a terminal tax unless it was authorized to do so by a special Act of the local Legislature. The language of clause (xa) of section 59, in our opinion, shows that it was not the intention of the Legislature to provide that the municipality should not levy any other tax which under the rules made under clause (a) of

section 80-A, sub-section (3) of the Government of India Act, a local authority could impose unless it had been actually authorized to impose it by a law made by the local Legislature..... The word 'may' used in clause (xa) seems to us to mean no more than 'can' or 'could be.' It does not mean 'has been.' The use of the words "without the previous sanction of the Governor-General" seems to suggest that clause (xa) was intended merely to indicate that the other taxes which a local authority could impose were such as were mentioned in Schedule II of the Scheduled Taxes Rules, which specified the taxes which a local authority could be authorized by any law made by the local Legislature without the previous sanction of the Governor-General. That being so, in our opinion, the view taken by the trial Court and the learned District Judge that section 59 (xa) of the Bombay District Municipal Act is itself sufficient authority to enable the municipality to impose a terminal tax is correct.

It is contended that the municipality had no power to impose a terminal tax on goods in transit which are not meant for consumption within the limits of the municipality. In our opinion there is no force in this contention. The Municipal Rules and By-laws dealing with the terminal tax define it as "an octroi levied on the import into the said municipality of goods specified in the Terminal Tax Schedule, such octroi not being liable to be refunded." "Import" is defined in the rules as meaning "conveying goods by railway or by ship or otherwise into municipal limits." It is clear therefore that the tax is leviable on all goods entering municipal limits whether they are intended for consumption within the city or whether they are merely in transit through the city to some other place.

The next contention of the appellants is that the place where the terminal tax was demanded and the goods were seized by the municipality for non-payment of the tax, was not within the municipal limits at all.

[On this point his Lordship discussed the authorities and concluded as follows.] In our opinion the bed of the Auranga river vests in the Crown and not in the municipality, and as the place where the ship was standing and the place where the goods were attached were both below the line of medium high water mark, which is the boundary of the municipal jurisdiction, the municipality was not entitled to levy terminal tax on the goods which were seized from plaintiff No. 2.....

42 Bom. L.R. 1034
28th June 1940.

Emperor
vs.
Hasan Mamad

Section 152 (1) (a), Bombay Municipal Boroughs Act, 1925, is directed against a person who has a shop or house in the street, and who encroaches upon the street by making some sort of addition to his house or shop.

The words 'or any other thing' in Section 152 (1) (b) must be read ejusdem generis as the words 'box, bale, package or merchandise'. A motor

car or a motor lorry or a horse-drawn or hand-propelled vehicle, though containing merchandise and left standing in a street, cannot be said to come within the section.

The accused were convicted under section 152 of the Bombay Municipal Boroughs Act, 1925, their offences consisting of having allowed hand-driven lorries containing fruit to remain for more than half an hour on a public street in Ahmedabad. The accused applied in revision to the Sessions Judge who being of opinion that the offence did not fall within section 152 made a reference to the High Court.

HELD that the Sessions Judge was right in the view he took that a vehicle does not fall within the mischief of section 152.

Section 152 so far as is material is as follows :—

- "152. (1) Whoever in any area after it has become a municipal district, or borough
- (a) shall have built or set up, or shall build or set up, any wall or any fence, rail, post, stall, verandah, platform, plinth, step or any projecting structure or thing, or other encroachment or obstruction, or
 - (b) shall deposit or cause to be placed or deposited any box, bale, package or merchandise or any other thing,
- in any public place or street or in or over or upon any open drain, gutter, sewer, or aqueduct in such place or street shall be punished with fine which may extend to twenty-five rupees, and with further fine which may extend to five rupees for every day on which such projection, encroachment, obstruction or deposit continues after the date of first conviction for such offence."

Beaumont, C. J.—(Extract). The question is whether the hand-cart, which the accused had kept in the street, fell within the prohibition contained in section 152, sub-section (1) of the Bombay Municipal Boroughs Act. It was conceded in the lower Court that the case did not fall within sub-section (1)(a) of that section. But the Counsel for the municipality says that the act of the accused amounted to setting up a stall. No doubt you may have a stall on wheels, but I am clearly of opinion that introducing into a street a lorry on wheels with goods for sale upon it does not amount to setting up a stall within section 152(1)(a). In my opinion, that sub-section deals with making some form of addition or annexe, more or less permanent, to a building in the street. It is directed against the man who has a shop or house in the street, and who encroaches upon the street by making some sort of addition to his house or shop.

I think the real question is whether the case can be brought within section 152, sub-section (1)(b). In my opinion the words "or any other thing" must be read *ejusdem generis* as the words "box, bale, package or merchandise." Those words seem to cover merchandise and things in which merchandise can be packed, and any other thing must be of the same kind or genus and does not include a vehicle. In my view a motor car or a motor lorry or a horse-drawn or hand-propelled vehicle, though

containing merchandise and left standing in a street, cannot be said to come within the section. The hand lorry of the accused clearly falls within the definition of vehicle contained in section 3, sub-section (2) of the Bombay Municipal Boroughs Act. The control of vehicles in streets is dealt with by the Bombay District Police Act. Whatever the powers of the police may be under that Act, I am of opinion that the learned Sessions Judge was right in the view he took that a vehicle does not fall within the mischief of section 152.

(1940) Bom. 774 = 42 Bom. L.R. 785
25th June 1940.

The Surat Borough Municipality

vs.

Sarifa Karunnissa

A Municipality can recover time-barred taxes by notice of demand and distress warrants as provided in Sections 104 and 105 of the Bombay Municipal Boroughs Act, 1925, and such powers are not governed by the Indian Limitation Act, 1908.

The plaintiff Sarifa, owned a house within the limits of the Surat Borough Municipality. Her husband also owned another house within the municipal limits. The municipality sent a bill to plaintiff's husband on 6th August 1934 in respect of municipal taxes and also a certain sum of arrears from the year 1924. The plaintiff was also sent a bill calling upon her to pay certain arrears from the year 1923 and the balance of taxes for 1934-35. The plaintiff and her husband protested but the municipality issued distress warrants against them for recovering the amount due out of their movable properties. The amounts were paid under protest and both of them filed separate suits to recover that part of the amounts which was in excess of the amounts due for six years prior to the bill on the ground that the same was time-barred and that they had no right to recover them by distress warrants. The municipality contended that it was entitled to recover its dues even though time-barred. The trial Court held that in the case of the house-tax the period of limitation was twelve years and in the case of the other taxes it was only six years and so decreed the suits so far as the claims were not time-barred. The District Judge, on appeal confirmed the decrees of the trial Court holding that in the absence of any specific provision that the municipal dues shall not be subject to limitation, the implication is that it could only recover legally recoverable or not time-barred debts. The municipality thereupon appealed to the High Court.

HELD that the right of the municipality after presenting a bill for taxes to issue a notice of demand and then recover the amount by a distress warrant under sections 104 and 105 of the Bombay Municipal Boroughs Act, 1925, is not lost by lapse of time as the powers of the municipality under those sections of the Act are not governed by the Indian Limitation Act.

Held also that even where the municipality has a remedy to recover the amounts due by filing a suit under section 203 of the Act, the municipality is not prevented from exercising the special powers conferred by section 105 of the Act.

Lokur, J.—(Extract). The only question to be decided in this case is whether the municipality had no power to recover the amount of taxes, which were time-barred under the Limitation Act by issuing distress warrants under section 105 of the Act. A part of the claim of the municipality would be time-barred if the municipality wanted to file a suit to recover it in a Civil Court. But the municipality is given special powers under section 105 to recover its dues by issuing distress warrants. Section 105 does not in any way limit the power of the Chief Officer to recover the amounts of the taxes in respect of which bills and notices of demand have been issued under section 104 except that before issuing a warrant he should consult the President. Both the lower Courts seem to think that as section 203 of the Act enables the municipality to file a suit to recover such taxes and as such taxes are governed by the provisions of the Indian Limitation Act it must be presumed that even the remedy by way of distress warrants under section 105 is similarly limited. Section 203 only provides an alternative procedure for the recovery of taxes, as is clear from the marginal notes. The section itself says that in lieu of any process of recovery allowed by or under the Act or in case of failure to realise by such process the whole or any part of any amount recoverable by the municipality, it shall be lawful for the municipality to sue in any competent Court the person liable to pay the same. The reason for providing this remedy is obvious. No distress warrant can be issued under section 105 of the Act unless a bill and a notice of demand are served under section 104. Sub-section (1) of section 104 requires that the bill should be presented to the person concerned with the least practicable delay after the amount has become due. If for any reason such bill is not presented the Chief Officer cannot present a bill after a long delay and pursue the remedies provided by sections 104 and 105 of the Act. In such a case it will be necessary for the municipality to have recourse to the alternative remedy of filing a suit in a Civil Court as provided by section 203. Once a bill is presented with "the last practicable delay" as required by section 104(1), the right to issue a notice of demand and then to recover the amount by a distress warrant under section 105 accrues to the municipality, and that right is not lost by lapse of time. Section 105 does not prescribe any period of limitation, nor does it say, like section 104 that the distress warrant should be issued with the least practicable delay. The periods of limitation prescribed for filing a suit under the Indian Limitation Act govern the procedure in a Court of Law and the powers of the municipality acting under the provisions of sections 104 and 105 are not governed by the Indian Limitation Act. The fact that the remedy of the municipality to recover the amount by filing a suit in a Civil Court is time-barred cannot prevent it from exercising the special powers conferred upon it by the Bombay Municipal Boroughs Act. The rule of limitation is a rule of procedure, a branch of the adjective law, and does not either create or extinguish rights, except in the case of acquisition of title to immovable property by prescription under section 28 of the Indian Limita-

tion Act. It is only a remedy by way of a suit that is barred; but the right itself continues to exist; and if there is some other remedy by which that right can be enforced, the Indian Limitation Act cannot come in the way. Thus, where the recovery of a debt is barred by lapse of time, the right to the debt is not extinguished, and if the debtor without being aware of the bar of time pays up he cannot sue the creditor to refund the money to him on the ground that his claim to the recovery of the debt has become time-barred. Section 28 of the Indian Limitation Act however, extinguishes only the right to immovable property if the claim to it is not enforced within the period of limitation, but it does not affect the right to movable property. As the defendant municipality issued the bills in time with the least practicable delay and the recovery was postponed by reason of the application made by the plaintiffs themselves from time to time, the right of the municipality to recover the amounts of the bills by distress warrants under section 105 of the Act is not lost or time-barred. The amounts due were really due from the plaintiffs and as they have been recovered by the municipality, the plaintiffs have no right to claim a refund of those amounts.

(1939) Bom. 685 = 41 Bom. L.R. 1002
5th April 1939.

In a second appeal (No. 685 of 1937) between the same parties and under the same circumstances, the High Court

HELD that sections 104, 105 and 203 of the Bombay Municipal Boroughs Act, 1925, are no justification for holding that the levy of taxes by distress can only be made within the period limited for a suit.

Held further that if there are two methods of procedure open to the municipality one by distress under section 105 and the other by suit under section 203 it is impossible to say that because one of these alternative methods is subject to limitation the other must also be so subject.

Broomfield, J.—(Extract). The question of law in this second appeal is whether a municipality can recover arrears of unpaid taxes by distress warrants when its remedy to recover them by suit is barred. The only question is whether section 105 of the Act is subject to any, and if so, what period of limitation. If we hold that the section is subject to limitation and that the action was time-barred, the decrees of the lower Court are correct. If on the other hand as contended on behalf of the appellant, Surat Municipality, the powers of the municipality under section 105 are not subject to limitation, the plaintiffs' suit will have to be dismissed.

The point depends mainly on the construction of sections 104 and 105 of the Act. The learned trial Judge took the view that the wording of these two sections and section 203 when read together implies that the distress procedure is to be adopted, if at all, immediately or within a reasonable time and the latest before the time limited for a suit under section 203. He relied on the fact that a period of fifteen days only is allowed to the assessee for objecting to the contents of the bill and that when a notice of demand is issued the objections to that have to be filed within fifteen days. He thought that the general effect of the language

of the sections was that recoveries by warrants are to be made as early as possible, and he also thought that the language of section 203 indicated that if recovery by distress is to be made at all, it must precede the suit in point of time relying on the words "in case of failure to realise by such process the whole or any part of any amount recoverable under the provisions of Chapter VIII." The District Judge took a similar view. On the construction of sections 104 and 105 and 203 we can find no justification for the finding of the lower Courts that the levy of taxes by distress can only be made within the period limited for a suit. Section 104 provides that as soon as any tax becomes due the Chief Officer shall, with the least practicable delay, cause a bill for the sum due to be presented. If the sum claimed is not paid within 15 days, the Chief Officer may cause a notice of demand to be served. It is not alleged that there was any delay in the presentation of the bills in this case. No time is prescribed within which a notice of demand must be sent. Then it is provided in section 105 that if the person on whom a notice of demand has been served does not either pay or show cause or prefer an appeal within fifteen days from the service of the notice, the sum in question may be levied under a warrant. It is not stated that this warrant is to be issued within fifteen days or with the least practicable delay or within a reasonable time or anything of the sort. The power given is quite general and unrestricted, and the reasoning which has found favour with the Courts below requires the insertions of words in the section which find no place there. It may be that the legislature may have contemplated that the distress procedure should be taken promptly and within a reasonable time, but it has not said so. It is not open to the Courts to infer that section 105 is subject to any period of limitation or to say that the provisions of this section are inapplicable if the period for bringing a suit under section 203 has expired.

Under section 203 a suit may be brought within the period of limitation of course, in case of failure to realise the municipal taxes by the summary process. If recourse is had to a suit in those circumstances it is quite true that the distress proceedings must have been taken within the period of limitation for the suit, since otherwise the suit would be barred. The words at the beginning of the section show that recovery by suit is an alternative procedure which may be resorted to in cases where the distress procedure has not been or could not be availed of. If there are two methods of procedure open to the municipality one by distress under section 105 and the other by suit under section 203, it is impossible to say that because one of these alternative methods is subject to limitation the other must also be so subject. We think that if it had been intended that the procedure under section 105 should be subject to any limitation, the legislature would have said so. In any case, it is not for the Courts to give effect to an intention which has not been expressed. The point that if the issue of distress warrants is delayed for years on end the properties may change hands and difficulties may arise in view of section 112 has no material bearing on the construction of the relevant sections of the Act. We allow the appeal, therefore, and dismiss the plaintiffs' suit with costs throughout.

On the second appeal No. 686 of 1937 the Court held that the appeal having abated, for the reasons stated, the order of the lower Court must stand.

[1940] Bom. 830
4th & 22nd July 1940.

The Gokak Municipality (deft.) appellant

vs.

Rajaram Shridhar Kulkarni (plff.) respondent

In the case of the discharge or dismissal of an employee of a local body, a cause of action for damages for wrongful dismissal arises when there has been a breach of any provision, whether contained in a statute or rule made under the statute, which may fairly be regarded as one of the conditions of service, and affecting the tenure of office of the employee concerned.

Where there is no contract to employ the servant for any definite period he is entitled, on wrongful dismissal, to damages for the period of notice only.

The plaintiff was a school teacher in the service of the defendant municipality. He was appointed in **Bombay District Municipal Act, 1920** and was allowed to continue in **1901, Section 46.** service until 1933. On April 29, 1933, there was a resolution of the School Committee to the effect that the plaintiff should be served with a notice to show cause why his services should not be dispensed with. On April 30, there was a special general meeting of the municipality at which it was resolved to give the plaintiff one month's notice and remove him from service. A notice dispensing with the plaintiff's services was issued on May 3, and his services were dispensed with from June 30. On November 28, he filed a suit claiming Rs. 2,000 as damages for wrongful dismissal, alleging that he was a permanent teacher and that the defendant was under a legal obligation to continue his services till he was at least 55 years of age. The defendant municipality relied on rule 156 of the rules made under section 46 of the Bombay District Municipal Act which is as follows:—"Every municipal officer or servant is liable to discharge at one month's notice, but except with the concurrence of the President and the sanction of the municipality, no officer or servant whose salary exceeds Rs. 10 shall be discharged before he has reached the age of fifty-five. Explanation: Discharge does not include dismissal." The trial Court found it proved that the defendant was under a legal obligation to continue the services of the plaintiff till he was fifty-five years of age and awarded damages to the amount of Rs. 1,584. This decree was confirmed on appeal. The municipality filed a second appeal in the High Court.

HELD that the municipality was not guilty of any breach of the provisions of rule 156, that the plaintiff was not a permanent servant of the municipality and that he had no claim to damages.

[For rule 156 see statement of facts above.]

"Rule 157. Every municipal officer and servant is entitled to and may be required to retire on completion of 30 years' municipal service and shall in no case be permitted to remain in municipal service if he has become physically, morally or mentally unfit for the due discharge of his duties."

Broomfield, J.—(Extract). In this second appeal by the municipality the first point that has been argued is that the plaintiff on the facts alleged and proved could have no cause of action. [His Lordship referred to *Municipal Board of Shahjahanpur vs. Sukha Singh (1937) All. 434* and after distinguishing it from the present case, referred to *Prabhu Lal Upadhyaya vs. District Board, Agra (1938) All. 252* and proceeded]. No doubt this case does afford some support for the argument put forward for the appellant. But it is to be observed that the learned Judges who decided the case treated the Secretary of the District Local Board as though he was on the same footing as a servant of the Crown and therefore *prima facie* subject to the rule that servants of the Crown hold office at the pleasure of the Crown. In *Municipal Borough of Dhulia vs. Ramchandra Bapuji (1937) Bom. 867* it was pointed out by this Court that it may well be doubted whether the rule in question applies to the employees of local bodies who are not properly speaking servants of the Crown at all. I may point out that the Bombay District Municipal Act of 1901 itself differentiates between servants of the Government and municipal servants, for instance in sections 10 and 15. In *Municipal Borough of Dhulia vs. Ramchandra Bapuji (1937) Bom. 867*, we held in effect that the conditions of service of the employees of local bodies must be ascertained from the special laws under which they were appointed..... Rule 156 as well as the other rules which have been referred to in the argument has been made under section 46 of the Act of 1901 by which the municipality has power to make rules not inconsistent with the Act, among other things for the guidance of their officers and servants and determining the mode and conditions of appointing, punishing or dismissing any officer or servant.....It hardly lies in the mouth of the appellant to argue that a breach of the rule would not give a discharged employee a cause of action. In our view in the case of the discharge or dismissal of an employee of a local body, a cause of action for damages for wrongful dismissal arises when there has been a breach of any provision, whether contained in a statute or rule made under the statute, which may fairly be regarded as forming one of the conditions of service and affecting the tenure of office of the employee concerned. In the present case therefore if we had held that there had been a breach of this rule 156, we should have held that the plaintiff had a cause of action for damages.

But it is contended on behalf of the appellant, and we think rightly, that there has not in fact been any breach of the rule.....

We do not think it necessary to say very much on the question whether plaintiff can be regarded as a permanent servant. In fact rule 156 is entirely inconsistent with any plea to permanency of tenure in a strict legal sense. No person can put forward a claim to remain in service until he is superannuated if one of the conditions of his service is that contained

in this rule, viz., that he is liable to be discharged at a month's notice provided certain formalities are complied with.

In actions for wrongful dismissal, the plaintiff may recover the wages for the whole unexpired period of service, though if he has obtained or might reasonably have obtained other occupation, this is to be taken into account (see *Mayne on Damages*, page 253, *Halsbury's Laws of England*, 2nd Edn. Vol. X, para 169). Here, of course, as we hold that there was no contract to employ the plaintiff for any definite period, those principles do not apply, and if he had awarded damages we should probably have held, as in *Municipal Borough of Dhulia vs. Ramchandra Bapuji* that plaintiff would have been entitled to damages for the period of notice only.

[*Prabhu Lal vs. District Board, Agra (1938) All. 252*, *Municipal Board of Shahjahanpur vs. Sukha Singh (1937) All. 434* Distinguished; *Municipal Board of Dhulia vs. Ramchandra Bapuji (1937) Bom. 867* Followed.]

(1941) Bom. 123 = 42 Bom. L.R. 886
3rd July 1940.

Emperor

vs.

Shirinbai Sorabji Nagpurwala

Under Section 48 of the Bombay District Municipal Act, 1901, by-laws have to be made with the previous sanction of the Commissioner, and by passing a suitable resolution. By-laws become operative only after they are brought before the Municipality and considered. Where the Commissioner makes material alterations in the draft by-laws submitted to him, the Municipality must follow the provisions of Section 48 (2) and invite criticism on the altered by-law.

The Vile Parle Municipality made certain by-laws in 1932, under the powers conferred by section 48 of the District Municipal Act, and submitted the draft by-laws to the Commissioner for sanction. The Commissioner made certain material alterations in some of the by-laws so submitted, but left Chapter III intact. The municipality on receiving back the altered by-laws from the Commissioner invited criticism on the by-laws as altered, and eventually did nothing further. Thereafter, the municipality treated Chapter III of the by-laws as having come into operation and prosecuted the accused for breach of by-law 3 of Chapter III for having failed to carry out a notice in respect of certain cow-sheds erected by the accused. The trial Magistrate convicted her and sentenced her to a fine. The Sessions Judge, being of opinion that the conviction and sentence were not according to law, made a reference to the High Court.

HELD that the by-laws in Chapter III never came into operation as the municipality had not passed a resolution to bring them into existence

after they were received from the Commissioner, and as there were no by-laws in existence, the conviction and sentence were not according to law.

Section 48, so far as is material, is as follows :

- "48. (1) Every municipality may from time to time, with the previous sanction, in the case of City Municipalities, of the Provincial Government or in other cases of the Commissioner, make, alter or rescind by-laws, but not so as to render them inconsistent with this Act,.....
- (2) Every municipality shall, before making any by-law under this section, publish in such manner as shall in their opinion be sufficient, for the information of the persons likely to be affected thereby, a draft of the proposed by-law, together with a notice specifying a date on or after which the draft will be taken into consideration, and shall, before making the by-law receive and consider any suggestion with respect to the draft which may be made in writing by any person before the date so specified.
- (3) When any by-law made by a municipality is submitted to the Central Government, Provincial Government or Commissioner for sanction, a copy of the notice published as aforesaid, and of every objection or suggestion so made, shall be submitted for the information of the Central Government, Provincial Government or Commissioner along with the said by-law."

Beaumont, C. J.—(Extract). The contention of the complainant is that, inasmuch as Chapter III was not altered or modified by the Commissioner, that Chapter must be deemed to have been passed and to have come into operation.

The question turns on the construction of section 48 of the Bombay District Municipal Act of 1901. [His Lordship summarised the material portions of the section and proceeded]. Now, it is to be noticed that the by-laws have to be made with the previous sanction of the Commissioner. It seems to me that the only way in which a municipality can make a by-law is by passing a suitable resolution, so that the resolution must be passed after the sanction of the Commissioner has been obtained. Therefore, it seems to me wrong to say, as the learned Advocate-General does, that as soon as the sanction of the Commissioner is given, the proposed by-law at once becomes operative. I do not think that it does. I think that it must then be brought before the municipality and considered. Where the Commissioner makes material alterations in the draft, I am disposed to think that the municipality must follow the provisions of sub-section (2) of section 48, and invite criticism upon the altered by-law, because the fact that the public have approved of the by-law in one form is no justification for passing it in another form. In the present case it may be that, inasmuch as the Commissioner had not altered the chapter in which the particular by-law was contained, it was not necessary to invite any further criticism upon that chapter. But I am clearly of opinion that, in order to bring Chapter III into operation, it was necessary to have a resolution of the municipality and *non constat* that the municipality would have been prepared to bring into operation one chapter with-

out the others. Inasmuch as they never passed such a resolution, I am clearly of opinion that the learned Sessions Judge is right and that there are no by-laws in existence.

42 Bom. L.R. 1060
12th Sep. 1940.

Emperor

vs.

Vishnu Tatyaba Naik

The sub-overseer of a District Local Board who tenders a bill containing false measurements and fraudulently obtains money from the President, is protected by Section 136, Bombay Local Boards Act, the preferring of the bill being an official act. It does not make any difference that in the discharge of the official duty, a fraudulent statement was inserted in the bill.

One V was a Sub-Overseer in the employ of a District Local Board and it was his duty to supervise the works, to take measurements and to report to the Board through S the Chairman of the Works Committee.

Bombay Local Boards Act, 1923,
Section 136(2).

He was also to sign bills prepared by the contractor and S had to countersign the bills. A certain bill prepared by a contractor and containing false measurements was signed by V and countersigned by S was submitted to the President and payment obtained from him. V and S were prosecuted for offences of cheating and falsification of accounts and abetment thereof under sections 420 and 477-A read with section 114 of the Penal Code. The accused contended that their acts were purported to have been done in pursuance of the Bombay Local Boards Act, and under section 136 of the Act, they could not be prosecuted without giving them one month's notice. S contended in addition that he could not be prosecuted in the absence of sanction under section 197 of the Criminal Procedure Code. The trying Magistrate overruled these contentions and ordered the trial to proceed, and this was upheld by the Sessions Judge. The accused applied to the High Court in revision.

HELD that the preferring of the bill was an official act and hence the act complained of, namely, the fraudulent and dishonest representation by means of the bill and measurement sheet, was protected under section 136.

Section 136(2) of the Bombay Local Boards Act is as follows :—

"No suit, prosecution or other legal proceeding shall be commenced against any local board, or against any member, officer or servant of a local board, or any person acting under the orders of a local board, for anything done, or purporting to have been done, in pursuance of this Act, or any other law for the time being in force which entitles or requires a local board, member, officer, servant as such, or other person so acting to exercise any powers or perform any duties without giving to such local board, member, officer, servant, or person one month's previous notice in writing of the intended action and of the cause thereof, nor after three months from the date of the act complained of."

Wassoodew, J.—(Extract). The authority on which the case was dealt with in the Courts below was *Emperor vs. Naik, 41 Bom. L.R. 1227*. Among the other cases referred to in argument were *Emperor vs. Rudragouda Rachangouda 39 Bom. L.R. 70*, *Emperor vs. Gurushidayya Shantivirayya 40 Bom. L.R. 1286* and *Hari Ram Singh vs. The Crown (1939) F.C.R. 159*. The learned Government Pleader has relied upon the case in *Emperor vs. Naik 41 Bom. L.R. 1227* for the view expressed in one part of the judgment of the learned Chief Justice that where the act complained of is obviously prompted by dishonesty and is done in violation of the official duty, the protection afforded by the provisions of section 136 of the Bombay Local Boards Act cannot be extended to it. There an administrative officer of a local board was prosecuted for cheating under section 420 of the Indian Penal Code, for submitting a false travelling allowance bill to the board, and it was held that the protection under section 136 did not apply. There reference was made by the learned Chief Justice to *Hari Ram Singh vs. The Crown (1939) F.C.R. 159*, which was cited before him on behalf of the accused, but he thought that case could be distinguished. [His Lordship then discussed this case and quoted certain observations of Sulaiman, J. and proceeded]. In *Emperor vs. Naik* the learned Chief Justice was not prepared to follow that case because he thought that the decision of the Federal Court could be distinguished from the case before him, first, because the Court there was dealing with section 270 of the Government of India Act, whereas the case before him arose under section 136 of the Bombay Local Boards Act, 1923, and, secondly, because the charge in that case was under section 420 of the Indian Penal Code. Another ground for distinction was that the accused before him was not bound to claim any travelling allowance at all, and that therefore he was not entitled to the protection under section 136.

The view adopted by this Court consistently in cases such as *Emperor vs. Rudragouda Rachangouda* and *Emperor vs. Gurushidayya Shantivirayya* are clearly reconcilable with the view taken by the Federal Court of the protective provisions of the enactment.

Here, the principal ingredient in the offence of cheating was the false representation made to the District Local Board upon which the latter was induced to part with the money. That representation was made according to the complaint by means of a bill with an appendix containing a false measurement sheet. If that bill was fraudulently and dishonestly made and submitted which was the accused's duty to submit and in submitting it they appended a statement which was false to their knowledge, they were certainly purporting to act, though not actually acting, in pursuance of the Act. It cannot be denied, as I have already said, that under the rules which are made under the Act and which in my opinion must be regarded as part of the Act, it was the duty of both the Sub-Overseer and the Chairman to sign and countersign the bill respectively in order to enable the contractor to claim, and the District Local Board to pay, the amount stated in the bill. It is therefore difficult to resist the inference that the preferring of the bill was an official act and it did not make any difference that in the discharge of the official duty a fraudulent statement was inserted in the bill. Therefore, in my opinion, the act complained of; namely, the fraudulent and dishonest representation

by means of the bill and measurement sheet, would be protected under section 136 of the Bombay Local Boards Act. There is no doubt that the member is also entitled to protection under section 197 of the Criminal Procedure Code.

Broomfield, J.—(Extract). The principle which the Federal Court laid down in *Hari Ram Singh vs. The Crown* may be stated to be this. If the act alleged to be criminal is done by a public servant in his official capacity, that is, if it is an act which it is his duty to do as such public servant under the law governing the case, he is protected, although by reason of the fact that he has done the act dishonestly or fraudulently or in any other manner contrary to the law, he may have committed a criminal offence. On the other hand, if the offence charged involves an act or acts which the accused is not required to do and which are outside his official duties, the liability to prosecution is unfettered. If this principle is applied in the present case, it seems to me to be clear that the accused must be held to be protected by section 136 clause (2) of the Bombay Local Boards Act, and in the case of accused No. 2 by section 197 of the Criminal Procedure Code.

[*Hari Ram Singh vs. The Crown (1939) F.C.R. 159*, *Emperor vs. Rudragouda Rachangouda 39 Bom. L.R. 70*, *Emperor vs. Gurushidayya Shantivirayya 40 Bom. L.R. 1286*, Followed; *Emperor vs. Naik 41 Bom. L.R. 1227*, Explained.]

42 Bom. L.R. 1193
24th Sep. 1940.

The Vita Municipality (applicant)

vs.

Gangaram Tatyaji Jadhav (respondent)

A Magistrate hearing an appeal under Section 86 of the Bombay District Municipal Act acts as a persona designata. Consequently, an order passed by him under that section is not open to revision by the High Court under Section 115, Civil Procedure Code.

The Vita Municipality issued a notice of demand against the respondent in respect of a municipal claim for house-tax and water-tax under section 82 of the Bombay District Municipal Act. The respondent appealed to the Second Class Magistrate, against the notice of demand under section 86 and the Magistrate reduced the tax from Rs. 12 to Rs. 10. The municipality applied to the High Court in revision.

HELD that the Magistrate acted as a *persona designata* and hence the revision application did not lie. The mere fact that section 83 contains no express provision that the decision of the Magistrate under that section is final does not mean that an appeal or application in revision lies against that decision.

Section 86, so far as is material is as follows :—

“ 86. Appeals against any notice of demand issued under sub-section (3) of section 82 may be made to any Magistrate or Bench of Magistrates by whom under the directions of the Provincial Government, or of the District Magistrate, such class of cases is to be tried.”

N. J. Wadia, J.—(Extract). A preliminary objection is raised that no revision application lies. The contention is that under section 86 of the Act, the Magistrate to whom the appeal was made was a *persona designata*, and against his decision no appeal or revision application would lie to this Court.....It has been held in *In re Dalsukh Ram* (1907) 9 Bom. L.R. 1347, that under section 86 of the Bombay District Municipal Act, 1901, a Magistrate hearing an appeal of the kind mentioned in the section is merely an appellate authority having jurisdiction given by the Act to deal with the question of a civil liability and he is therefore not an inferior Criminal Court, to which alone the revisional jurisdiction of the High Court under section 435 of the Criminal Procedure Code applies. The case did not deal with the question whether a revision application against a Magistrate's order would lie to the High Court on the civil side.

The power given to a Magistrate or Bench of Magistrates under section 86 is analogous to the power which is given to the District Judge under section 22 of the Act to determine disputes about the validity of elections.....It is now well-settled that the Judge referred to in section 22 is a *persona designata* against whose decision no appeal or revision application lies to this Court. [After pointing out the differences between the provisions of section 86 of the District Municipal Act and section 111 of the Boroughs Act, his Lordship proceeded]. The question whether the High Court can entertain a revision application under section 115 of the Code of Civil Procedure against an order made by the Sessions Judge in revision under section 111 of the Bombay Municipal Boroughs Act came before this Court in *Surat Municipality vs. Hamiduddin* (1937) 40 Bom. L.R. 387, and it was held by Mr. Justice Norman sitting singly that the High Court could entertain such an application. The question was again considered by a bench of this Court in *Lokmanya Mills Ltd. vs. Municipal Borough, Barsi* (1939) 41 Bom. L.R. 937, in which it was held agreeing with the decision of Mr. Justice Norman that an application lay to this Court against an order made by a Sessions Judge under section 111 of the Bombay Municipal Boroughs Act. It is argued for the applicant municipality that the provisions of section 110 of the Municipal Boroughs Act are exactly similar to the provisions of the Bombay District Municipal Act, and that therefore the decision in *Lokmanya Mills Ltd. vs. Municipal Borough, Barsi*, must by analogy be held applicable. But although the provisions of the two sections are similar, the legislature has deliberately made a distinction as to the effect which appeals under them would have. It would have been perfectly easy for the legislature which had inserted in section 111 in the Municipal Boroughs Act of 1925 to insert a corresponding provision in the District Municipal Act. But it did not do so, and the only inference that can be drawn is that it thought that a provision for some revising authority was necessary in the case of the more important municipalities to which the Act of 1925 was intended to apply, but that

such a provision was not necessary in the case of the less important municipalities governed by the District Municipal Act of 1901.....The legislature has deliberately made a distinction between the appeals provided by the two sections, and the appeal to the Magistrate under section 86 of the Bombay District Municipal Act must therefore be governed by the provisions of that section alone. The mere fact that section 86 of the Bombay District Municipal Act contains no express provision that the decision of the Magistrate or Bench of Magistrates under that section is to be final does not mean that an appeal or application in revision lies against that decision. The view taken of the provisions of that section in *In re Dalsukhram* was that the Magistrate or Bench of Magistrates hearing appeals of the kind mentioned in section 86 was merely an appellate authority having jurisdiction given by the Act to deal with the question of a civil liability; in other words, that the Magistrate or Bench of Magistrates was a *persona designata*, and on that view no application in revision would lie to this Court against the decision of the Magistrate.

[*In re Dalsukhram* 9 Bom. L.R. 1347, *Ahmed Sulleman vs. Municipal Commissioner of Bombay* 32 Bom. L.R. 178 Referred to; *Surat Municipality vs. Hamiduddin* 40 Bom. L.R. 387, *Lokmanya Mills Ltd. vs. Municipal Borough, Barsi* 41 Bom. L.R. 937 Distinguished.]

43 Bom. L.R. 333
11th Nov. 1940.

LEVY OF A HOUSE-TAX BY A VILLAGE PANCHAYAT

By J. M. THAKORE, B.A., LL.B.,
Chief Officer, District Local Board, Broach

Under section 26 of the Bombay Village Panchayats Act (Bom. Act No. IX) of 1920, a house-tax was to be compulsorily levied by a Village Panchayat in accordance with rules made by the Governor in Council. It was laid down in rule 6 of these rules, "(a) All buildings used exclusively for religious, educational or charitable purposes, such as temples, masjids, churches, schools, dharmashalas, dispensaries, or which the general public have right to use without payment shall be exempt from the house-tax; (b) All Government and Local Board buildings used solely for public purposes shall be exempt from this tax" (Please *vide* Bombay Government Gazette, 1922, Part I, pages 429-430).

Under sub-section (1) of section 89 of the Bombay Village Panchayats Act (Bom. Act No. VI) of 1933, every Panchayat had to levy in such manner and at such rates as may be prescribed, such of the taxes or fees specified in sub-section (2) of section 89 of the Act as may be necessary for the proper discharge of the Panchayat of its duties under the Act. Though levy of a house-tax was not mandatory as it was under the Bombay Act No. IX of 1920, "a tax upon the owners or occupiers of houses and lands within the limits of the village" was one of such taxes leviable by a Panchayat. And, under rule 3 of the rules made by Government under clause (m) of sub-section (1) of section 108 of the Bombay Village Panchayats Act, 1933, and published in G. R. G. D. No. S. 174/1 dated the 18th December 1934, the following houses and lands were exempt from this tax :—

- "(a) All houses and lands belonging to Government, Local Board and Panchayat and used solely for public purposes;
- (b) All houses and lands used exclusively for religious, educational, or charitable purposes;
- (c) all houses and lands with a capital value of less than Rs. 100 or with an annual letting value of Rs. 5 or less."

Sub-section (1) of section 89 of the Bombay Village Panchayats Act, No. VI of 1933 was substituted by the Bombay Act XVIII of 1939 as under :—

"Every Panchayat shall levy a tax upon the owners or occupiers of houses and lands which are not subject to payment of agricultural assessment within the limits of the village in such manner and at such rates as may be prescribed. The rules made for the levy of such tax may provide that the payment of such tax may be made either in cash or by the rendering of work and labour." In exercise of the powers conferred by sub-section (1) of section 112 of the Bombay Village Panchayats Act, 1933 (Bom. VI of 1933), the Government of Bombay authorized the Commissioners of Divisions, under G.R.G.D. No. S. 174/1 dated the 1st November 1940, to make rules under clause (m) of sub-section (1) of section 108 of the Act in respect of the tax upon the owners or occupiers of houses and lands leviable by Village Panchayats under sub-section (1) of section 89 of the Act. Rule 10 of the Draft Rules proposed by the Commissioners of Divisions and published in the Bombay Government Gazette, Part IV-C dated the 23rd January 1941 at page 58, contained the provisions of exemption almost similar to the rule 3 of the rules published in G.R.G.D. No. S. 174/1 dated the 18th December 1934 referred to above except the limit of assessment liable to exemption was reduced to Rs. 50/- instead of Rs. 100/- in the case of capital valuation of a house, and to Rs. 3/- instead of Rs. 5/- in the case of annual letting value of a house. When the rules were finally published by the Commissioners of the Divisions at pages 615 to 619 of the Bombay Government Gazette, Part IV-C dated the 15th May 1941, under their Notification No. V.P. 123 dated the 5th May 1941, this exemption rule which was in force for more than two decades was deleted. When reference was submitted officially it was correctly pointed out and explained by the Commissioner, Northern Division, that as the draft rule 10 which provided for exemption of certain houses and lands from the levy of house-tax was held to be *ultra vires* of section 108 (1) (m) of the Bombay Village Panchayats Act, 1933, by the Remembrancer of Legal Affairs, this rule was consequently omitted from the final rules, because the Act did not empower Government to make rules providing for exemption of any houses or lands from the levy of house-tax. Section 89 (1) of the Act merely states that every Village Panchayat shall levy a tax upon the owners or occupiers of houses and lands which are not subject to payment of agricultural assessment in such manner and at such rates as may be prescribed. Section 100 of the Bombay Local Boards Act, 1923, section 75 of the Bombay Municipal Boroughs Act, 1925 and section 60 of the Bombay District Municipal Act, 1901, permit the local body concerned before imposing a tax, to specify the classes of persons or of property or of both, which the

local body concerned proposes or desires to make liable, and any exemptions which it proposes or desires to make. A Village Panchayat is to be compulsorily established in a village having a population of not less than 2000. Discontent is bound to prevail in every Panchayat as soon as it comes to know that temples, masjids, churches, schools, dharmashalas, dispensaries, chavdis and similar buildings used exclusively for religious, educational or charitable purposes and all Government, Local Board and Village Panchayat buildings used solely for public purposes shall not be exempt from house-tax. In the interests of public it is absolutely most essential that His Excellency the Governor of Bombay may be pleased to amend immediately sub-sections (1) and (2) of section 89 and clause (m) of sub-section (1) of section 108 of the Bombay Village Panchayats Act, 1933, so as to empower Government to make rules providing for exemption of any classes of persons or of property or of both from the levy of the taxes by a Village Panchayat under sub-sections (1) and (2) of section 89 of the Act, and not to postpone this urgent matter of public interest till Legislature meets.

INSPECTION NOTE ALANDI MUNICIPALITY

Inspected the accounts of the Alandi Municipality on 12th May, 1941.

2. The financial position of the Municipality is sound and the accounts are well maintained.

3. It is gratifying to note that the Municipality has maintained a record of 'Nil' arrears consistently during the last 4 years. The Municipal staff and office-bearers deserve credit for this satisfactory position.

Camp Alandi, }
12-5-41. }

(Sd.) T. N. S. RATNAM,
Examiner, Local Fund Accounts.

JUST PUBLISHED

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DIRECTORY OF LOCAL SELF-GOVERNMENT IN INDIA WITH SPECIAL REFERENCE TO THE BOMBAY PROVINCE

Mr. J. A. MADAN, C.S.I., C.I.E., I.C.S., Adviser to His Excellency the Governor of Bombay, expresses the following opinion about the Directory of Local Self-Government, published by the Local Self-Government Institute :—

"Mr. C. D. Barfivala, M.A., LL.B., Director, Local Self-Government Institute, Bombay, has done great credit to himself and to the Institute in publishing a much needed "Directory of Local Self-Government in India with special reference to the Province of Bombay" and richly deserves the thanks of all interested in Local Self-Government in this Province.

"The Directory is a unique and ambitious publication containing information on various subjects in which the Municipalities and District Local Boards in this Province are interested, and would be very useful as a reference book not only to local bodies, but to the students of Local Self-Government in this Province.

"Much time and labour has been spent in collecting the information, and I have every hope that the volume will inspire close and detailed study and will supply valuable guidance for the progressive development of self-government in this Province."

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PRESIDENTIAL ADDRESS

OF

MR. L. M. PATIL, B.A., LL.B., M.L.A.,

Ex-Minister of Local Self-Government,

Government of Bombay,

delivered at the Provincial Conference of Local
Bodies, held in Bombay on 4th October 1941.

DELEGATES,

I have great pleasure in welcoming you as Delegates from different local bodies in the Province who have come from distant places at great inconvenience to yourselves. It is gratifying to see that some of the village panchayats have sent their Delegates from great distances and I am certain that they have some interesting things to say regarding the administration of the Village Panchayats Act, which was recently overhauled by the Congress Government of which I was a humble member. I specially extend my welcome to the Delegates of the Municipal Corporation of Bombay whose co-operation and assistance we greatly stand in need of. I think that the time has come when the Corporation of Bombay should share the responsibility for giving a lead to its younger sister local bodies. I know that the Corporation of Bombay will have little to learn from these bodies and much to teach them. But "He that giveth is thrice blessed". At least in this spirit I invite them to co-operate with the Institute by becoming an integral part of its constitution and identifying itself with its numerous activities. I am certain that the junior staff of the Corporation will benefit by taking training in the Institute. I hope this appeal of mine will receive due response.

You are aware that Provincial Conferences of Local Bodies are held at an interval of three years and a series of important subjects relating to the Constitution, functions and finances and administration of local bodies are considered and resolutions passed thereon. One of such important resolutions for the acceptance of which local bodies were consistently agitating was for the appointment by Government of a committee for inquiring into the constitutional, financial and functional problems of local bodies and for making recommendations with a view to effect an all round improvement in all these matters. The Congress Government responded to this important call and I had the honour

to appoint what is known as the Kale Committee. The terms of reference were purposely kept wide, in order that the Experts' Inquiry may not be restricted in its scope. I am glad that the Committee has fully availed itself of this freedom and submitted a very comprehensive Report. Before, however, I could take any steps to implement these recommendations, political circumstances compelled the Congress Government to go out of office. I had not even an opportunity of publicly exercising my views on the recommendations. I, however, feel amply gratified to note that these recommendations have met with general approval from the public and the press and the Committee have received admiration for their work from all quarters. Prof. Kale and his colleagues have placed before the public a weighty and valuable document. It is a minute and scholarly study of the problems of Local Bodies. They deserve the thanks of the public for handling these problems with sobriety of judgment and practical reasonableness. I respectfully add my own note of appreciation of the work done by the Committee and hope they will accept my thanks though it is so late for reasons which they will appreciate. I would also like to express my agreement with the Committee in their acknowledgment of the services which Mr. Barfivala rendered in the preparation of the Report. Much water has flown since the Congress Cabinet resigned office. Three Divisional Conferences of Local Bodies were held and have given their consideration to the Report and a fourth Provincial Conference of Presidents of important local bodies was held under the auspices of Government when Mr. Madan, Adviser to His Excellency, presided. The recommendations of the Committee were more or less approved by all these Conferences. I congratulate the Local Self-Government Institute for focussing the attention of local bodies and the public on these recommendations. I consider it to be a good sign of the times that local bodies and the public should have devoted considerable attention to these recommendations. The Government of Bombay also deserves thanks for promptly taking up consideration of these recommendations and not shelving them as is usually the fate of many a report. All these events naturally led the public in general and local bodies in particular to expect that Government would accept most of the recommendations. Government have now published their decisions on all but a few of the recommendations. I have carefully considered these decisions and after making due allowances for the difficulties of Government, which I have no intention to underrate, I have no hesitation in expressing a thorough sense of disappointment, which I understand you all have come here to express. I regret that the attitude of Government towards many of the recommendations has been halting, half-hearted and un-

sympathetic. I believe, the least that the Government could have done was to have steps taken to rehabilitate the finances of local bodies by accepting some of the recommendations; they could have also assisted the local bodies by conceding to some of them which involved some extra work on Government officials and by making adjustments in the matter of transfer of functions recommended by the Committee. Some such measures would have gone a long way towards the object which the Congress Government had in view in appointing the Committee.

As it is, the Government decisions make a very poor reading. A number of vital recommendations have been simply and categorically rejected without any attempt to carry conviction, some of the recommendations are yet pending consideration, some are brushed aside because they require legislation, some are not found to be emergent, some have been even rejected on the ground that their acceptance would involve a little extra-work on the revenue officials. Eliminate all these and the sum total of the so-far-accepted recommendations comes to very little indeed. That little leads us nowhere and fails to effect improvement. The Local Bodies rightly expect a more imaginative treatment, a spirit of accommodation and a little sacrifice on the part of the Provincial Government. Where are all these elements? They are simply conspicuous by their absence.

I shall not go into further details. I expect the Conference to give its serious consideration to the decisions taken by Government and freely express its opinions thereon. Even if the present irresponsible and irresponsible Government finds it difficult to take a more generous view of the problems of local bodies, I am certain, no future popular Government can afford to neglect to give its due attention and take prompt action to implement a number of these recommendations.

Before proceeding with detailed consideration of the various recommendations and the Government attitude towards them, a few fundamental principles governing the progress of Local Self-Governing Institutions, principles which should form the basis of all recommendations on problems affecting them, may be mentioned. An individual wishing for self-advancement and hoping to achieve the *summum bonum* of his life cannot receive a better advice than that of becoming self-reliant and independent of expectations of help from outside. As with individuals so with groups, with the difference that group working subordinates individual good to the general good, embraces the principle of greatest good of the greatest number and has also corresponding limitations; but virtue of self-reliance is as indispensable to

groups as to individuals. The Local Bodies are territorial groups. The good of the component parts consistent with the ultimate happiness of the aggregate whole is the aim and object of this particular formation of the group. The State has to look after several such territorial groups. It will not do for any of the group to helplessly look upon the State or the Confederation to support it in the performance of all its local functions. For this it must be self-reliant. Moreover, the group working has a constitutional aspect. In the smallest territorial group like the few tiny Parishes in England 'direct' government may prevail but in a group of normal size in the modern world where the strength of the population is the deciding factor, 'a representative form' of government must be adopted. To perfect this mode of representation is the aim of true modern democracy. After perfecting the machinery of election which would give the widest scope to democracy, the other problems which will face the group are those of functions, their revenue and last but not the least, their efficiency.

The problem of local self-governing units as I envisage it, is thus fourfold or rather fivefold: (1) The question of the proper representation of the population of each unit, (2) Its functions and powers, (3) Sources of its income, (4) Its efficiency and (5) Control by the State. The fourth and the fifth may go together or may be dealt with separately. All these aspects are not independent of each other but are inter-dependent. For example, mere democratising of the Constitution without adequate powers or assignment of proper functions would be meaningless. Similarly grant of powers or assignment of functions without the means to carry them out or resources to perform those functions would be putting the unit in an intolerable position. Lastly, entrusting local bodies with the welfare of a good number of people and endowing them with powers and assigning functions and even resources to carry them out—without the State performing its fundamental duty to protect the inhabitants of each locality either from internal mismanagement or from external aggressions or from natural mishappening beyond their control—would be inviting untold miseries on the component elements of each group. When, therefore, we are prescribing conditions or recommending improvements in the present conditions for the betterment of local bodies we will have to deal with these complex questions. It will not do to isolate one factor from the other or apply standards of other nations which may not fit on all fours with local conditions found in our country.

You will please permit me to say that when I, or rather the party to which I belonged, was in power, progress in all these directions was

aimed at and it will be for the public to judge as to how far the measures adopted were successful in tackling fundamental problems of the development of Local Self-Government consistent with efficiency.

Regarding the democratisation of local bodies, I have always been in favour of adult franchise and the Congress Government of which I was a member took steps towards achieving this objective by taking measures to provide for adult franchise for the city of Bombay by amendment of the City of Bombay Municipal Act, by abolishing Government nominations throughout and by providing safeguards for the training of the voters by the literacy movement. Regarding general improvement in the administration of Local Bodies, the problem lies in the solution of the perennial antithesis between Democracy and Efficiency. I submit that what the Congress Government attempted was to strike the golden mean between the two extremes of Centralisation and Decentralisation. I do not maintain for a moment that there can be no two opinions on these subjects. In fact, the people all over the world have not yet found a solution of this paradox of Local Self-Government, I mean the paradox regarding the reconciliation between the good of the people and the will of the people. The State has to find a reconciliation to the best of its ability consonant with the conditions that prevail at the time. To achieve an all-round improvement without imposing upon the people any set of ideas, however well meaning, the Congress Government appointed the Kale Committee consisting of experts in Local Self-Government. I have no doubt the recommendations of this Committee would have received a more sympathetic consideration from Congress Government or from any popular Government.

I am generally in agreement with the Committee in their administrative recommendations regarding adult franchise, purity of elections, joint electorate, eradication of nepotism and favouritism to whatever extent these evils may exist, adjustment of areas, etc. I find that in their recommendations regarding appointment, punishment and removal of principal officers, the Committee have brought to bear on the problem considerable insight into the working of local bodies and have suggested solution of the problem on the line which represents substantial advance on the present conditions of service and tends to consolidate the position of officers and certainly secures a better tenure of service. I would suggest that to begin with, action may be taken on the lines suggested by the Committee and the experiment may be reviewed after a few years.

As regards facilities for training of the staff, I am glad that Government have brought to the notice of local bodies the Committee's re-

commendations to afford more and substantial facilities for encouraging their employees to obtain the L.S.G.D. Diploma. And I am further glad to inform you that the Institute has succeeded in obtaining the co-operation of a large number of discerning local bodies in this important matter by getting their rules revised so as to regularise and make easy the grant of such facilities. I suggest once again what I have always been suggesting in the past that the Diploma should be made a compulsory qualification for all new entrants. Such a step is in the interest of local bodies as also of Government. It is bound to increase efficiency, which in turn means lesser Government control which local bodies would welcome as it would be a measure of greater freedom and which Government would or should welcome as it would lessen their responsibility, burden and anxiety.

There are other administrative suggestions too numerous to review in a short speech like this, but I would at least mention one more of them, viz., the Committee's recommendation regarding the purchase of Municipal requirements through the agency of the Local Self-Government Institute. This recommendation has been based on substantial evidence before the Committee including the evidence of the Examiner of Local Funds than whom few persons can claim to know better the advantages of the suggested course. I know that the Institute has considerably succeeded in making this service effective and Local Bodies are every day utilizing the same to their own advantage.

As regards the financial recommendations of the Committee, I agree that wherever a clear case is established on proper inquiry of under-taxation by certain municipalities of house tax, etc., Government should step in and bring it to a level conforming to the capacity of the people to pay, bearing in mind the vital needs of the locality.

I also agree with the Committee's recommendation for the levy of certain other taxes such as a tax on Professions. Regarding proper adjustments for sharing with local bodies incomes from taxes such as transfer of properties, revenue from non-agricultural assessment, etc., Government should have taken a more sympathetic attitude, and should have gone some way in the direction recommended by the Committee.

Coming to the subject of grants, I feel that there is considerable force in the Committee's recommendation for increasing their amount; but they make a greater appeal to me where they press for making these grants on some permanent basis. Regarding loans, the difficulties pointed out by the Committee are very real and I do not see why recommendations in this behalf cannot straightaway be accepted.

Regarding the recommendations of the Committee for transfer of functions, it is a pity that Government missed the object of the Committee's recommendations which are based on avoidance of duplication and achievement of economy. If Government cannot go whole-hog, one fails to understand why no action has been taken in the matter of small works like minor roads, village water supply, etc. The Committee have also studied very thoroughly the question of slum clearance and housing of the poor and I believe Government should not lose any time in taking up the subject which cries for solution so urgently and so long.

I will not deal with other recommendations though many of them are most important and dear to me just because of want of time. I would rather leave the subject to be dealt with in detail by the Subjects' Committee.

I have dealt at some length with the principles of *Local Self-Government* to be borne in mind while dealing with its day to day problems. To those who consider the subject from this angle of vision my firm advice is that the idea of efficiency should not blur their perspective of the fundamental principle of democratic Local Self-Government.

Personally speaking, I cherish a profound belief in the principles of Local Self-Government and I am emphatically of opinion that no country can really advance on democratic lines unless this principle is imbedded in the hearts of the people and is fundamentally accepted in its written and unwritten law. Empires based on ultra-centralization and bureaucratisation are bound to tumble down like a beautiful edifice constructed on a sandy foundation. Western historical ideology is a sad contrast to the ideology of Local Self-Government in ancient India where Local Bodies were small republics within a large republic.

I will now request some of the Delegates to address the meeting generally on the Government decisions and we shall then proceed with the election of the Subjects Committee at about 4 p.m.

» KOLERIN «

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RESOLUTIONS OF THE PROVINCIAL CONFERENCE OF LOCAL BODIES, 1941

[Resolutions of the Provincial Conference of Local Bodies held under the Presidentship of L. M. Patil, Esqr., B.A., LL.B., M.L.A., Ex-Minister of Local Self-Government, Government of Bombay, on Saturday and Sunday the 4th and 5th October, 1941, in the office of the Local Self-Government Institute, 11, Elphinstone Circle, Fort, Bombay.]

1. This Conference is of opinion that time has arrived when the Municipal Corporation of Bombay should share with the Local Self-Government Institute the responsibility of training the people in the art of Local Self-Government and its other activities which would promote the cause of Local Self-Government in our country, by becoming an integral part of the Institute.

*Moved from the Chair.
Carried Unanimously.*

2. This Conference is of opinion that the Municipal Corporation of Bombay should take early steps to encourage the members of its staff particularly the junior staff to take the training imparted by the Institute to the students of the L. S. G. D. Classes by giving facilities and promotions or increments as may be found suitable. This Conference feels that such a step will not be only in the interest of the staff but in the interest of the efficiency of the municipal administration.

*Moved from the Chair.
Carried Unanimously.*

3. (a) This Conference brings to the notice of all local self-governing institutions the urgent necessity of proper education of citizens as regards their responsibilities and rights with a view to ensure efficient and popular administration of the villages and towns and strongly recommends that they should have this item of work in the foreground of their activities in the next few years.

(b) This Conference requests the Local Self-Government Institute to guide Local Bodies that may ask for such help and guidance by preparing suitable literature and alternative programmes to suit the varying local conditions.

Proposed by : Mr. S. R. Bhagwat, L.C.E.,
Adviser, Poona Municipality.

Seconded by : Mr. Mahomed Omar Ebrahim Patel, B.A., LL.B.,
Councillor, Bombay Corporation.

Carried Unanimously.

4. This Conference requests the Local Self-Government Institute to examine the possibility of co-operation amongst Local Bodies for common advantage and mutual benefit as regards provision for insurance of their properties and in the matter of investment of their long-term funds such as Sinking and Depreciation Funds, Provident Funds, etc.

Proposed by: Mr. S. R. Bhagwat, L.C.E.,
Adviser, Poona Municipality.

Seconded by: Mr. S. C. Bhatt, President, D.L.B., Broach.
Carried Unanimously.

5. This Conference wishes to emphasize upon the necessity of training all sections of citizens in the true spirit of citizenship by achieving unity among the different sections through the spirit of compromise, toleration and accommodation with a view to a smooth and efficient working of Local Bodies.

Proposed by: Mr. M. O. E. Patel, B.A., LL.B.,
Councillor, Bombay Corporation.

Seconded by: Mr. S. R. Bhagwat, L.C.E.,
Adviser, Poona Municipality.
Carried Unanimously.

6. This Conference places on record its sense of utter disappointment at the inability of the Government to accept several recommendations of the Local Self-Government Committee, 1939, despite the fact that most of those recommendations received general approbation of local bodies at the three Divisional Conferences held under the auspices of the Local Self-Government Institute, viz., the Gujarat Divisional Conference held at Surat on 11th and 12th May, 1940, the Maharashtra Divisional Conference held at Nasik on 29th and 30th June, 1940, and the Karnatak Divisional Conference held at Dharwar on 15th and 16th June, 1940, and also the approbation of Provincial Conference of the Presidents of principal local bodies convened by the Government of Bombay at Poona on 16th and 17th August, 1940, and in spite of the fact that the Recommendations were admired for their thoroughness and balanced judgment by His Excellency the Governor of Bombay at the said last-named Conference, and despite the fact that the Report was well received by the Public in general.

Proposed by: Mr. G. R. Kumbhakoni, B.A., LL.B.,
Chairman, Municipal School Board, Sholapur.

Seconded by: Mr. H. D. Shah, B.A., LL.B.,
President, Kaira Municipality.
Carried Unanimously.

7. This Conference protests against Government accepting those recommendations of the Local Self-Government Committee, 1939, which involved the raising of taxes by local bodies and goading local bodies to raise such taxes without at the same time taking into consideration the vital conditions subject to which the Committee made these recommendations. Isolating these recommendations from their context and forcing action thereon is unfair and oppressive to the local bodies and Government should desist from such action. These remarks apply to Government action to proposals like the raising of the Local Fund Cess, increase of House Tax, reduction of Government grants, control over administration of Primary Education, transfer of cattle pounds and several other matters of major importance.

Proposed by: Mr. G. R. Kumbhakoni, B.A., LL.B.,
Chairman, Municipal School Board, Sholapur,
and Member, Sholapur Municipality.

Seconded by: Mr. N. M. Vajirkar,
Member, Sholapur Municipality.
Carried Unanimously.

8. This Conference regrets to note that the several proposals of the Committee calculated to improve the administration of local bodies have not been accepted by Government for reasons which are unconvincing. The Conference feels that obstacles raised by Government in putting into effect these recommendations could have been overcome if Government was really anxious to help local bodies towards the improvement in their administration, Government should not, for example, have hesitated to put into effect some of the recommendations on the ground that they would involve some burden on Revenue and other Provincial Officers.

Proposed by: Mr. G. R. Kumbhakoni, B.A., LL.B.,
Chairman, Municipal School Board, Sholapur,
and Member, Sholapur Municipality.

Seconded by: Mr. N. M. Vajirkar,
Member, Sholapur Municipality.
Carried Unanimously.

9. This Conference regrets to note that Government have failed to transfer to local bodies the functions and powers which are recommended by the Committee for transfer. The step would have relieved the congestion of work of the Provincial Secretariat and maintenance of duplicate agencies.

Proposed by: Mr. G. R. Kumbhakoni, B.A., LL.B.,
Chairman, Municipal School Board, Sholapur,
and Member, Sholapur Municipality.

Seconded by: Mr. N. M. Vajirkar,
Member, Sholapur Municipality.

Carried Unanimously.

10. This Conference requests Government that the major part of the expenses incurred in respect of the preparation of census report should be borne by Government, and the burden of the expenses on Local Bodies should be reduced to the minimum in view of their tender finances. Government should also be pleased to supply free of cost copies of their census reports to each local body which subscribes towards the expenditure incurred in this connection. The census records should be kept in Taluka offices and inspection thereof made available to Local Bodies free of cost.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.

11. This Conference recommends to Government to reconsider the orders in G.R.H.D., No. 47024, dated 8th May, 1941, and agree to allot the whole of the surplus proceeds from Motor Vehicles Tax to local bodies in view of the fact that this increasing source of revenue has been unjustly appropriated for the purpose of provincial finance and such appropriation has materially affected the finance of local bodies.

Proposed by: Mr. S. C. Bhatt, President, D.L.B., Broach.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.
Mr. G. G. Naik, President, D.L.B., Thana.

12. This Conference disapproves of Government action in employing coercive methods for recovery of expenses incurred in connection with epidemics in view of the fact that finances of many of the Local Bodies do not permit them to incur such expenses and in view of the recommendation of the Kale Committee in their Report under paragraph 214 wherein it is recommended that Government should shoulder all the financial responsibility in dealing with epidemics.

Proposed by: Mr. G. G. Naik, President, D.L.B., Thana.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.

Carried Unanimously.

13. This Conference requests Government to agree to permit the use of Government agency for the collection of Professional Tax levied

by District Local Boards and Gram Panchayats as otherwise this source of revenue will remain unavailable to local bodies.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.
Mr. S. C. Bhatt, President, D.L.B., Broach.

Carried Unanimously.

14. This Conference recommends to Government to move the Agricultural Department to make investigation into the requirements of villages in the matter of providing dams or taking steps for preservation of sweet water for irrigation and water supply purposes or for the protection of the property of villagers against monsoon inundations and make report to the District Local Board concerned and to the Collector of the District for suitable action. Government is further requested to make liberal grants for the attainment of the object underlying such investigation.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.
Mr. S. C. Bhatt, President, D.L.B., Broach.

Carried Unanimously.

15. This Conference draws the attention of the Government to the recommendations contained in para. 226 of the Local Self-Government Committee wherein it has been recommended "that the management of pounds be re-transferred to Government who would after defraying the cost of such management pay over to the Local Bodies the net proceeds from fines and fees recovered in this behalf, the method of payment to be by charging the net proceeds to provincial revenues and not by grants" and requests Government to act upon the recommendation in view of the fact that the finances of Local Bodies might otherwise be seriously affected.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.
Mr. S. C. Bhatt, President, D.L.B., Broach.

Carried by Majority. Three voting against.

16. This Conference is emphatically of opinion that *ad hoc* committees like the Rural Development Board and the School Buildings Committees should be abolished forthwith as they are unrepresentative

and they encroach upon the legitimate sphere of duties of Local Boards and there is considerable waste of time and energy and duplication of work and the appointment of such committees betray the distrust on the part of Government by appointment of such committees.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.
Mr. S. C. Bhatt, President, D.L.B., Broach.

Carried by Majority. Two voting against.

17. * This Conference recommends that the section 6 of the Village Panchayat Act be so amended that the power of nominating members to Village Panchayats in cases where there is failure to elect on the part of the Panchayat voters should vest in the Standing Committee of the District Local Board instead of the District Local Board.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. P. B. Kotasthane,
Member, D.L.B., Ahmednagar.

Carried.

18. This Conference requests Government that the approach roads and the water supply grants should be given to Local Bodies along with the right to select the roads or water works Government confirming itself to scrutinise the proper application of the funds to the objects for which the grants have been made.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.

Carried Unanimously.

19. This Conference requests Government to restore grants to Local Bodies which have been withdrawn or reduced and place them on statutory basis and assure Local Bodies of their continuity and certainty.

Proposed by: Dr. V. K. Dongre, M.B.B.S.,
President, D.L.B., Kolaba.

Seconded by: Mr. A. G. Awate, President, D.L.B., Poona.

Carried Unanimously.

* An Amendment to the effect that the President of the D.L.B. should be authorised to nominate was moved by Mr. S. T. Patil, B.A., LL.B., M.L.A., Member, D.L.B., Bijapur, and seconded by Mr. G. B. Chitale, B.A., LL.B., President, D.L.B., Ratnagiri, was lost.

20. This Conference approves the following resolution of the Provincial Board of Primary Education passed at their meeting held on 19th August, 1941, and thanks the Board for realising the difficulty under which the local authorities and School Boards find themselves and for arriving at proper solution in the matter. This Conference trusts that the Government would be pleased to accept the recommendations of such an august statutory body created by the Bombay Primary Education (Amendment) Act.

“At present very few School Boards have joined the Local Self-Government Institute because the expenditure incurred by them on items such as annual subscription, T.A. to attend meetings, etc., is disallowed even against the P.E. Fund. This Board recommends that in future School Boards should be allowed to join the Local Self-Government Institute and expenditure incurred on items such as those mentioned above should be admitted for Government Grant.”

“The Board is of opinion that this step will enable the School Boards to join the Institution which will then become a representative institution of Local Authorities and School Boards together and the Board recommends that Government should be pleased to recognise it as a representative agency for consultation whenever Government desire to invite the opinion of Local Authorities and School Boards on matters relating to Primary Education.”

Proposed by: Mr. G. R. Kumbhakoni, B.A., LL.B.,
Chairman, Municipal School Board, Sholapur,
and Member, Sholapur Municipality.

Seconded by: Mr. M. A. Khude, B.A., LL.B.,
Member, Barsi Municipality.

Carried Unanimously.

21. This Conference is of opinion that all non-local authority municipalities including those from whom the control of primary education has been recently transferred to local authorities, should not be made to contribute more than 1/3 of the expenditure incurred on the primary education within the area as it would be a serious inroad upon the finances of municipalities to exact greater percentage and it would be unfair to make distinction between those which were originally non-local authorities and those which have been recently made as such.

Proposed by: Mr. G. V. Jorapur, B.A., LL.B.,
Member, Bagalkot Municipality.

Seconded by: *Mr. Harilal D. Shah, B.A., LL.B.,
President, Kaira Municipality.*

Carried Unanimously.

22. This Conference reiterates the following resolutions passed at the Divisional Conferences of Local Bodies during 1940:—

- (1) This Conference is of opinion that the amendments made in the Primary Education Act, 1923, by the Amending Act XII of 1938, are based on distrust of public workers and a direct blow to their prestige and self-respect; experience has proved that the very undesirable division of powers between the Local Authority, the School Board, the Administrative Officer, the Inspecting Staff and the Director of Public Instruction while fixing specific responsibility in none, has made the system of primary education inelastic and unprogressive and has resulted in a deterioration of the educational effort. The Conference is, therefore, emphatically of opinion that the Primary Education Act should be broad-based on confidence in public workers and all powers with respect to appointment, control, punishment of staff and expansion of education be vested in the chosen representatives of the public or, it should be scrapped and the show of Local Self-Government in this behalf done away with, Government assuming full responsibility and control in respect of primary education.
- (2) This Conference is of opinion that the present practice of imposing financial burden like the duty allowance and personal pay on Local Authorities in respect of Primary Education without their consent is opposed to all recognised canons of representative Government and intimates to Government that the Local Authorities will feel bound on principle to oppose such orders irrespective of other considerations.
- (3) This Conference is of opinion that the Government has failed to accord sanction to proposals of Local Authorities in respect of increase in staff, necessitated on account of voluntary expansion of primary education and as a result of this policy there is marked deterioration in efficiency. Due to this deficiency in staff there is a considerable wastage especially in schools where a single teacher has to impart education to pupils of various standards.
- (4) This Conference is of opinion that early measures for the introduction of universal free and compulsory education are absolutely necessary for further advance of the people and urges upon the Government the necessity of making financial provision for the

same by liberalising the Government grants and placing them on statutory basis and by so amending the Local Self-Governing Acts as to provide for compulsory levy of education cess or for earmarking a definite portion of revenue for the purpose.

Proposed by: *Mr. G. R. Kumbhakoni, B.A., LL.B.,
Chairman, Municipal School Board, Sholapur,
and Member, Sholapur Municipality.*

Seconded by: *Mr. A. G. Awate, President, D.L.B., Poona.*

23. This Conference draws the attention of Government to the fact that their Educational Department has been administering the Bombay Primary Education Amendment Act, 1938, retrograde as it is, in the most unsatisfactory manner humiliating to local bodies and encroaching upon the legitimate scope of their work. The Conference therefore warns Government that these irritating departmental methods are bound to lead to a situation which will create a crisis adversely affecting the interest of primary education. This Conference hopes therefore that Government will take urgent steps to prevent such a contingency arising.

Proposed by: *Mr. S. C. Bhatt, President, D.L.B., Broach.*

Seconded by: *Mr. G. G. Naik, President, D.L.B., Thana.*

Carried Unanimously.

24. This Conference requests Government to see that the Administrative Officers are not kept in service under the same Local Authority continuously for a period of more than three years.

Proposed by: *Mr. G. R. Kumbhakoni, B.A., LL.B.,
Chairman, Municipal School Board, Sholapur,
and Member, Sholapur Municipality.*

Seconded by: *Mr. M. A. Khude, B.A., LL.B.,
Member, Barsi Municipality.*

25. This Conference is of opinion that the procedure for selecting members on the School Board from the constituency of non-local authority municipality required to be amended and simplified. It appears desirable to provide for nominations to be proposed and seconded by two members of the said Municipality instead of the present method of holding elections twice and asking the President to sign the nomination papers. When all the nomination papers from all non-Local Authority Municipalities are circulated amongst them final voting may be held and effective measures be prescribed to see that the resolutions recording the Voting are communicated to the Local Authority concerned by the President.

Proposed by: Mr. Harilal D. Shah, B.A., LL.B.,
President, Kaira Municipality.

Seconded by: Mr. Chhotalal T. Parikh, B.A., LL.B.,
President, D.L.B., Ahmedabad.

Mr. P. R. Kabirbuwa,
President, Alandi Municipality.

26. This Conference is of opinion that it is necessary to provide Educational qualification for the seats reserved for Muslims, Harijans and Women, etc., as is provided for others under Section 3 of Primary Education Act. If, however, sections other than Mahomedans are against providing such educational qualifications they should at least be insisted upon in the case of Muslims.

Proposed by: Mr. Ayubkhan Guljarkhan,
Member, D.L.B., East Khandesh.

Seconded by: Mr. A. K. Pathan, B.A., LL.B.,
Member, Borsad Municipality.

Carried by Majority. Two voting against.

27. This Conference resolves that Section 11 of the Bombay Municipal Boroughs Act and Section 12 of Bombay District Municipal Act be so amended as to disqualify a person whose name has been entered in the municipal voters' list by virtue of his name being included in the list of voters of the Bombay Legislative Assembly Roll but who has been in arrears of municipal dues, in the same way as other municipal voters.

Proposed by: Mr. Shivprasad M. Shukla,
Member, Godhra Borough Municipality.

Seconded by: Mr. M. E. Pulli,
President, Sholapur Municipality.

Mr. P. R. Kabirbuwa,
President, Alandi Municipality.

28. This Conference requests Government to permit the use of Government Lands to the municipalities within whose jurisdiction they are situated and which are not required for Government purposes and which municipalities require for a public purpose.

Proposed by: K. S. Abdullah Haji Isa Bhagat,
President, Godhra Municipality.

Seconded by: Mr. S. M. Shukla,
Member, Godhra Municipality.

29. This Conference is strongly of opinion that all street lands (including all open public spaces abutting thereon) should vest absolutely in municipalities and Government should not make any claim in respect of the same against municipalities or from any persons claiming through them. Similarly all sub-soil rights over lands vesting in municipalities should be entirely at their disposal.

Proposed by: Mr. G. K. Dave, President, Anand Municipality.

Seconded by: Mr. G. M. Modak,
President, Nandurbar Municipality.

30. This Conference requests Government to consult the office of the Local Self-Government Institute whenever any coercive measures are intended to be taken against any local body to enable the Institute to inquire into the propriety of such action. The office of the Institute is hereby empowered and specially required to represent before Government the cases of individual Local Bodies when in its opinion justice, equity and fair play require such a representation.

Proposed by: Mr. B. G. Khatu, B.A., LL.B.,
President, Chiplun Municipality.

Seconded by: Mr. H. J. Kazi, Member, Godhra Municipality.
Mr. S. V. Vad, B.A., LL.B.,

Member, Bhusawal Municipality.

Mr. G. K. Dave, President, Anand Municipality.

Mr. M. C. Chhatrapati, B.A., LL.B.

Member, Jambusar Municipality.

Mr. S. M. Shukla,

Member, Godhra Municipality.

31. Every Village Panchayat should get 1/10th of the Land Revenue collected within the panchayat area.

Proposed by: Mr. V. T. Hegde, Member, D.L.B., Kanara.

Seconded by: Mr. V. T. Patil, B.A., LL.B.,
President, Illakha Panchayat, Kolhapur.

32. * Section 89(1) of the Village Panchayat Act should be so amended as to enable every Panchayat to levy tax on all classes of houses within the area except charitable and religious institutions and those whose assessment falls under the minimum fixed under the Rules.

Proposed by: Mr. N. D. Devdhekar, B.A., LL.B., M.L.C.,
Sar Panch, V.P., Umbargaon.

* An Amendment was moved by Mr. S. T. Patil, B.A., LL.B., M.L.A., to add the words "houses in Gaathan Lands" at the end and it was lost.

Seconded by: Mr. V. T. Hegde, Member, D.L.B., Kanara.

Carried.

33. Government should assign to the Village Panchayats 25% out of the non-agricultural assessment including fine recovered within the area of village panchayat independently of the share allotted to District Local Boards.

Proposed by: Mr. G. D. Nande, Member, V.P. Niphad.

*Seconded by: Mr. V. V. Dandekar, B.A., LL.B., M.L.A.,
Member, D.L.B., Thana.*

34. Government should appoint qualified secretaries who have passed the examination prescribed by the Local Self-Government Institute in those Village Panchayats the income of which is Rs. 2,000 or more.

*Proposed by: Mr. V. V. Dandekar, B.A., LL.B., M.L.A.,
Member, D.L.B., Thana.*

*Seconded by: Mr. N. D. Devdhekar, B.A., LL.B., M.L.C.,
Sar Panch, V.P., Umbargaon.*

Carried Unanimously.

35. This Conference is of opinion that all Government Departments should make it a universal practice to consult village panchayats whenever important matters affecting the village such as fixing the Annewari, Village Famine Relief Work, Village Approach Roads, Village Water Supply, Granting of Liquor Licences, fixing or altering places for holding market or fixing cart-stand are concerned.

*Proposed by: Mr. R. N. Rajadnya,
Sar Panch, V.P., Aitavade Khurd.*

*Seconded by: Mr. S. M. Salve, Member, Bhagur Municipality.
Carried Unanimously.*

36. This Conference requests that steps may be taken to amend the Bombay Co-operative Society's Act or rules made thereunder with a view that cases which are at present entrusted for decisions to a single arbitrator or to a Board of arbitrators may be entrusted for decisions by the Village Panchayats within their powers whenever Judicial powers are bestowed upon them. Such legislative changes as may be necessary to give effect to this suggestion may be undertaken at an early date.

*Proposed by: Mr. R. N. Rajadnya,
Sar Panch, V.P. Aitavade Khurd.*

*Seconded by: Mr. D. G. Kale,
Sar Panch, V.P., Asoda, E.K.*

37. This Conference requests that Judicial Powers under the Village Panchayats Act should be conferred at an early date on the Benches of Village Panchayats.

*Proposed by: Mr. V. V. Dandekar, B.A., LL.B., M.L.A.,
Member, D.L.B., Thana.*

*Seconded by: Mr. D. G. Kale,
Sar Panch, V.P., Asoda, E.K.*

38. This Conference is of opinion that the village panchayats which are near cities or which are as big as cities should be allowed to tax every seat of latrine from Rs. 6 to Rs. 12 per year and for every additional seat from Rs. 3 to Rs. 6. Present Rule No. 8 (special sanitary cess) framed under the powers conferred by Clause (n) of sub-section (1) of Section 108 of the Bombay Village Panchayats Act 1933 should be so amended as to give effect to the suggestion proposed above.

*Proposed by: Mr. Y. R. Tawde,
Sar Panch, V.P., Dahisar.*

*Seconded by: Mr. D. G. Kale,
Sar Panch, V.P., Asoda, E.K.*

39. This Conference recommends that the income realised from the sale of fishes in tanks or river bunds situated within the area of Village Panchayat should be assigned by Government to the Village Panchayat concerned.

Proposed by: Mr. S. F. Hatnalli, Member, V.P., Alur.

Seconded by: Mr. N. B. Kusnur.

40. This Conference is of opinion that where the power of appointing muktisar for temples for which there is a cash allowance from Government rests with the Collector, members of the respective religion of the Village Panchayat within whose jurisdiction such a temple is situated should be consulted.

Proposed by: Mr. M. E. Sopal, Sar Panch, V.P., Vairag.

Seconded by: Mr. A. D. Patil, Sar Panch, V.P., Virdel.

41. This Conference is of opinion that every person desirous of standing as a candidate for a Village Panchayat must pay a deposit of Rs. 10 which would be forfeited if he does not get 1/8th of the total number of votes polled divided by the number of seats allotted to such village panchayats and therefore recommends to Government that the Village Panchayat Act and the Rules made thereunder should be so amended as to give effect to this suggestion. In the case of Harijan candidates, the deposit should be Rs. 2 only.

Proposed by: Mr. V. V. Dandekar, B.A., LL.B., M.L.A.,
Member, D.L.B., Thana.

Seconded by: Mr. A. D. Patil, Sar Panch, V.P., Virdel.
Carried Unanimously.

42. This Conference requests Government to amend house-tax rules to the effect that option should be left to every Village Panchayat to levy the same either on the basis of capital value or annual letting value.

Proposed by: Mr. V. V. Dandekar, B.A., LL.B., M.L.A.,
Member, D.L.B., Thana.

Seconded by: Mr. V. T. Hegde, Member, D.L.B., Kanara.
Mr. D. G. Kale, Sar Panch, V.P., Asoda.
Carried Unanimously.

43. That if a candidate for Presidentship and Vice-Presidentship of a local body possesses five years' experience of local bodies, qualifications recommended for these posts by the Kale Committee should not be insisted upon.

Proposed by: Mr. P. B. Kotasthane,
Member, D.L.B., Ahmednagar.

Seconded by: Mr. N. B. Bhapkar,
Member, D.L.B., Poona.

44. It is requested that the Government should not withdraw any of the forest concessions which were granted by the Congress Government as other District Local Boards will suffer financially because Local Fund collections will be materially lessened.

Proposed by: Mr. V. T. Hegde, Member, D.L.B., Kanara.

Seconded by: Mr. G. R. Deo, President, D.L.B., Kanara.

A vote of thanks to the Chair was moved by Mr. S. S. Naik and supported by Messrs. S. C. Bhatt, A. K. Pathan, C. T. Parikh, H. J. Kazi, Ayubkhan Guljarkhan, and G. R. Deo.

Messrs. S. C. Bhatt, A. K. Pathan, C. T. Parikh, H. J. Kazi, Ayubkhan Guljarkhan, and G. R. Deo moved a hearty vote of thanks for Mr. S. S. Naik, the Hony. Secy. and Mr. C. D. Barfiwala, the Director of the Institute.

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WATER SUPPLY

By S. S. NAIK, B.A., B.SC. (Edin.), L.C.E. (Bom.)

[Continued from Vol. XII, No. 1 from page 48]

(2) Masonry Dams

A masonry dam has got a section which owing to its great height must be calculated for strength and for counteracting the overturning moment. The whole dam is carried down to very good solid foundation and the width at the bottom is considerable. Great care and calculations are needed for the design of the section and the foundation. Typical cross sections are given below.

CROSS SECTION OF MASONRY DAM

(Waste Weir or Spillway separate and not in the Dam)

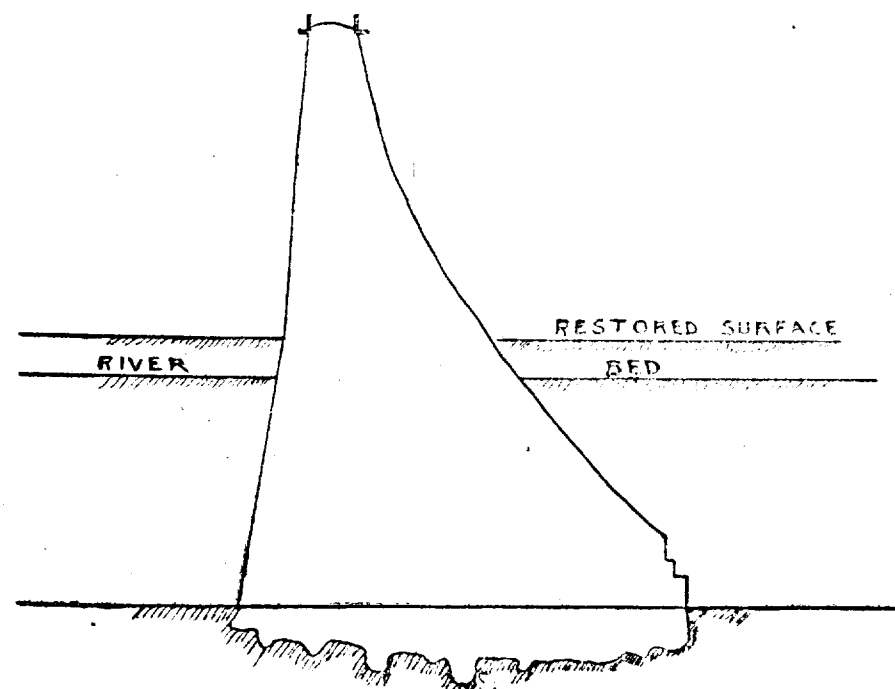


Fig. 14.

The "waste weir" of such a dam can be located in a part of the length of the dam which is kept at a lower level to facilitate the flow of water. The water runs down the outer slope of the dam to the

original nala and down the nala. In most places the bottom of the bed on the outer side is protected by masonry cushions to prevent scouring action and to withstand the impact of the fall of water. The fall is very great, being equal to the height of the dam. In the Bhandardara dam on the river Pravara in Ahmednagar District, the fall would be 275 feet and the scouring of the bed by the falling water would be very great. In most cases except in low dams, waste water is led away by an independent waste weir channel, where site for such a channel is

ARRANGEMENT OF MASONRY DAM (IN SECTION)

(Spillway Dams)

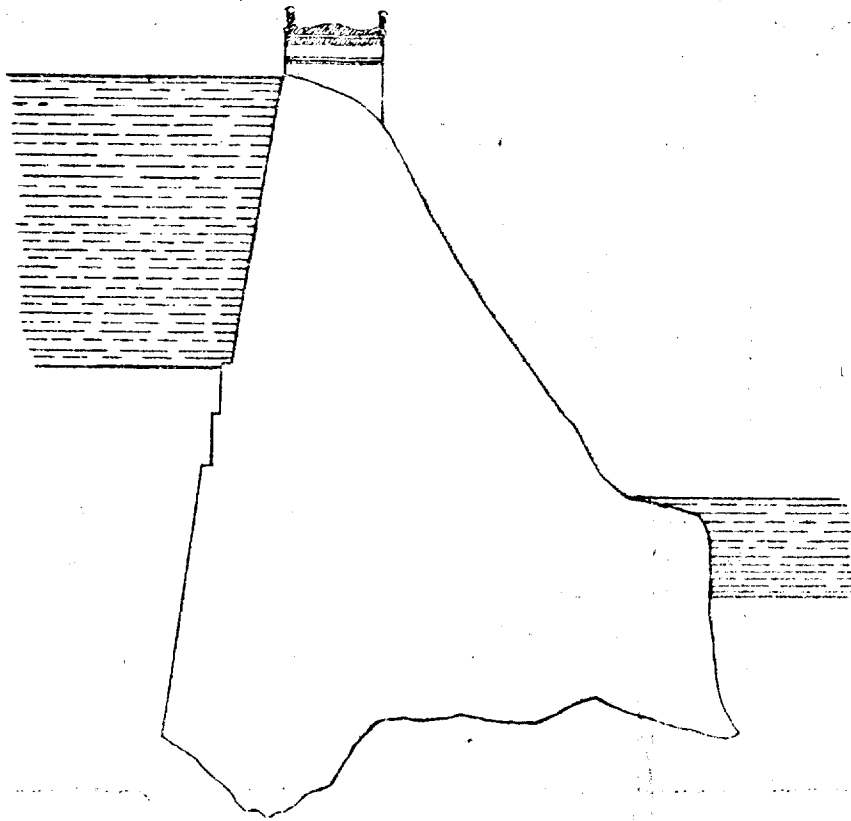


Fig. 15.

available. In case the waste weir is located in a portion of the length of the dam, a special profile is given to the outer face of masonry to break the force of flow of water. (See section of Vrynwy dam in Figure 15.)

ARRANGEMENT OF AN EARTHEN DAM (IN SECTION)

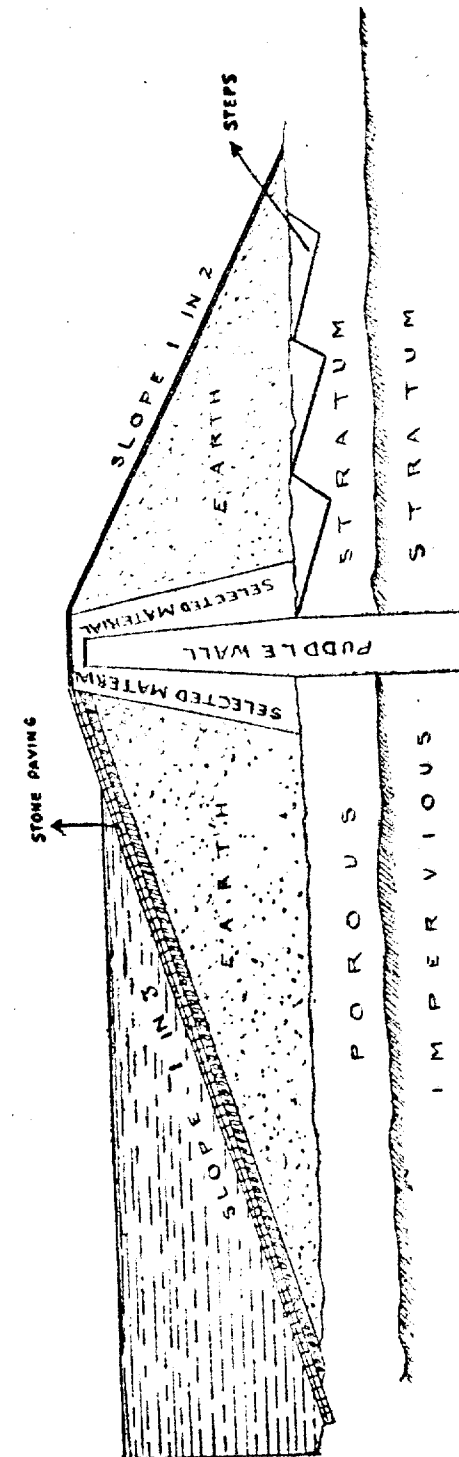


Fig. 13.

The old design of dams were two, earthen dams and masonry dams. Earthen dams are still types of dams suitable and economic for foundations where rock is not met with and where a sufficient thickness of waterproof soil or material is found in the foundation suitable for storage of water. The construction of such a dam is cheap and does not require greatly skilled labour. Work can be provided for the local labour and the question of local unemployment can be solved to some extent for some years. Where, however, the foundation consists of good rock of the proper variety, which is neither laminated nor has faults, dykes or veins, a masonry dam is the best even for small heights. The uncertainty and risk of an earthen dam are more serious than those of a masonry dam of the same height.

"Masonry dam" is an expression which covers all pukka dams. The earlier dams like the Bhandardara in Ahmednagar District, undertaken early in this century were all masonry dams with regular rubble masonry for facing and an interior filling with large stones that could be handled by manual labour. Then came the design of the outer regular masonry facing and inside "plum concrete" which was a name for lime concrete with as many large boulders as possible embedded inside. Cement concrete with such boulders was the next development. The modern reinforced concrete construction has now changed all the face design, the top design and interior filling. In our part of the country, no large dam has been undertaken after the Bhatgar dam for the Nira irrigation scheme, which was designed early in the century and carried out during the first two decades. We are, therefore, not familiar with any of the new designs for large projects except as a matter of academic interest. The largest work carried out during the second and third decade of this century in India was the Mettur dam on the Cauvery.

Some illustrations of water-supply dams and other dams would be of interest. We give below the details of the Bombay water-supply dams and some facts regarding other notable dams in the world. (See opposite page.)

Storage Reservoirs for Bombay Water Supply

Name	Catchment area in sq. miles	Rainfall in inches	Storage capacity Million gallons (above lowest outlet)	Length of dam at crest level in feet	Maximum height of dam in feet	Lowest outlet from top of water spillway in feet
1	2	3	4	5	6	7
Tansa	...	106	35,600	9,000	130	40
Vihar	...	88	9,120	(masonry) 835,554 & 936	85; 42 & 40	34
Tulsi	...	103.8	2,294	(earth) 1,360; 150 (earth)	85	59.25
Other Notable Dams (Masonry)						
Bhandardara, India, Bombay, Ahmednagar District	47.0	220	10,086	1,680	270	
Mettur Cauvery Dam, Madras	15,700	...	93,500	5,300	170 214 including foundations	
Boulder Hoover, California (Concrete Dam)	...	...	...	1,180	739 including foundations	
Earthen Dams						
Bon Accord, Transval	121	28	400	3,476	58 (irrigation scheme)	
Blidge River, " (South Carolina)	53	15	2,120	1,135	60 (do.)	
Saluda River (South Carolina)	...	...	2,500,000 (acre ft.)	...	208 (Power Purposes)	
Belfast Water Supply, Ireland	...	...	...	508	88	

CHAPTER XIV

STORAGE OF WATER IN DAMS

The height of the dam being determined as described in the foregoing Chapter, the most important point is to determine the quantity of water that can be stored in the dam. Water cannot be stored to the full height of the dam, because waves formed at the surface of the reservoir would overtop the crest of the dam and create complicated problems. Some portion of the top height, therefore, must be kept free.

The height to which water is allowed to be stored in any dam is called the F.S.L. or "Full Supply Level". This F.S.L. is 7 to 10 feet below the top of the dam in earthen dams and 5 to 7 feet in masonry dams. In earthen dams the greatest precautions must be taken to prevent water from reaching the top *under all conditions and circumstances*. Because in case of exceptional wave action, if water goes over the top, it will wash away the outer side of the dam, and the dam will burst immediately.

All surplus water that flows in the reservoir over and above its designed capacity must be made to flow away as soon as it comes in. This is the function of the "waste weir". The dimensions of the waste weir therefore require elaborate calculations and design. First of all, the width needed to discharge the heaviest flood must be calculated and designed in such a way that it must not allow water to rise more than a certain height. The velocity must also be kept within bounds, as with excessive velocity the action on the base and sides waste weir would be bad. There would be erosion in the bed if it is made of earth, and washing out of joints, if of masonry. Thus if L feet is the width of the waste weir, H feet the height to which water will rise in the waste weir and V feet per second the velocity of discharge, we have—

Total discharge = LHV cubic feet per second.

Besides this rise of water H feet in the waste weir, there is a certain "afflux" or additional height to which water will rise while approaching the waste weir. We can call this H_1 . Besides this, there is a certain height H_2 to which the waves in the reservoir are likely to rise. There is a factor of safety, say, of 2 or 3 feet which must be added to all these. So, the total height of the top of the dam over the waste weir bottom level must not be less than $H + H_1 + H_2 + 3$. After rainy season, when the waste weir ceases functioning, the level of water in the reservoir will be up to the waste weir bottom sill level and therefore this is the level of the effective storage or of the F.S.L. mentioned above.

In all the above calculations, the quantity and severity of the maximum flood are most important; because the design of the waste weir depends on this. It is for this purpose that the formulae for the maximum discharge given by Col. Dickens and others are useful;

because they give the maximum discharge from the catchment in cubic per second and give an idea of the maximum conditions we might expect in the waste weir. Once this is known, it is quite easy to calculate by hydraulics and mathematics the various levels mentioned above. But as we have mentioned in Chapter XI the assumptions about maximum run off depends upon the severity and the amount of rainfall. If instead of 10 inches of rain in 24 hours that we assume in our calculation, the rain is 13 inches in 12 hours, the whole fabric of our assumption, calculation and provisions for the safety of the dam is flimsy, and in such cases the dams are in danger. Some dams have burst under such conditions. An earthen dam would burst with a certainty, a masonry dam might be in danger of bursting. The bursting of a dam is a calamity in two ways; one is that the whole expenditure, which is very heavy, and which probably could not be undertaken over again, is lost. But this though great, is a minor danger. The huge volume of water, liberated over the country-side, flows in such a quantity and with so much force that it sweeps houses, cattle, men, property and crops before it. The rush is so great that in some cases it washes away the soil to the level of the hard rock below. A bursting of a dam in the Poona District, washed away 8 or 9 feet of the soil in some villages and exposed the rock underneath. Thus, where there were luxurious crops, one could see only an expanse of bare rocks. In all the larger reservoirs in this country and particularly the reservoirs in and at the base of Himalayas, elaborate telephone and telegraph communication arrangements are made and the level of water kept under observation, and information about the rise of water given to all concerned. In case of abnormal rise, the villages and cities downstream are warned to be careful.

Thus we see that even though the height of the dam is considerable, a good bit of the top portion, ranging from 5 feet to 10 feet is not allowed to store any water at all. And looking to the contours of the land and to the capacity for storing water for every foot height of the storage, the top portions have got the greatest capacity, and if these are not to be utilised for storage the loss is great. In case of high masonry dams, this loss is not so great when compared with the total storage. But in case of earthen dams and dams with a low height, the loss is very great. Suppose, we take an earthen dam with a height of 50 feet and we have to abandon the top 8 or 10 feet without storage, the loss might work to 20 or 30 per cent of the storage capacity to the full height of the dam. Some expedients are followed to save a portion of this. At the end of the monsoon, adjustable gates which are provided in the waste weir are closed and water is allowed to rise up to some height above the waste weir sill level. But this entails a great cost. Supposing the width of the waste weir is 400 feet, and 400 feet of adjustable gates are very costly. It therefore becomes a matter of compromise between the cost and benefits derived from the extra storage.

Thus we can find out the full supply level to which the water will be stored at the end of rainy season, and will be available for use thereafter. There is, of course, some replenishment of water in the reservoir. Rain water which is absorbed by the soil in the catchment

during the rains, is given up in small springs or sub-soil flow, and comes out in places in the nala and flows in the reservoir. But for hard mountain catchments this is very little and in all cases acts as an additional amount on which no reliance can be placed. When the full supply level is determined, the total quantity of water available for use in the reservoir at the end of the rainy season is determined by calculations from the contours of the land and from the plans. A table giving the total storage for every foot and decimal of the dam height is prepared and kept for ready reference. So that the quantity of storage can be determined as soon as the height of water is read from the height gauge plate in the dam.

Thus we know the total quantity of water available at the beginning of the dry season, and this must last us till replenishment starts coming in again with the next year's rains. The point to be determined next is to see if the whole of this quantity is available for use, or there are any losses during the season.

The losses that we have to encounter in the storage reservoir are included under three heads :—

- (1) Losses due to silting and non-utilisation of certain portion in the bottom of the reservoir.
- (2) Losses due to leakage through the joints of masonry or through the bottom and sides of the dam or through faults, fissures, or dykes in rocky material of the bed.
- (3) Losses due to evaporation from the reservoir.

All these losses are very considerable. They deserve to be studied in details.

(1) *Loss of water in the lower portion of the reservoir*

Water coming in such reservoirs during the floods is highly charged with suspended silt or sediment. The flood comes with force and velocity at the upper end of the nala where it enters the lake, and then as the expanse is very great, the water spreads over the area of the lake and loses its velocity almost completely. When the level rises and the waste weir starts functioning, a flow of water starts at the waste weir end. These two places are at the extreme ends of the lake opposite each other. The flow in the waste weir only takes away the top water, and water in the lake is generally stagnant, or if at all a small current is generated, it has got very little velocity. The suspended silt or sediment, therefore, settles all over the bed of the lake, the greatest thickness of settlement being near the dam where the depth of water is maximum. The whole lake acts as a settling tank described later in Chapter XVI.

Every year therefore the lake goes on silting and the bottom portions are filled up. In some cases the silting is so great that it almost fills up the dam. The dam on the Ghataprabha near Hukeri Road for the Gokak storage is almost completely silted up. Silting being steady and continuous year after year, it is very difficult to find a remedy to stop this nuisance.

In case of earthen embankments we are afraid there is no remedy. One, that may be tried, is the construction of a catch-pit some way up in the valley, where very big pieces of stone, etc., can be intercepted. But this will not help much.

In case of some masonry dams, however, scouring gates are provided at the bed level of the nala, and during floods these gates are kept open. They are closed a little before the end of the rainy season, and the lake is allowed to fill.

In many cases, the results of these scouring sluices have been very peculiar. Silting proceeds in all places in the tank except in a line from these sluices, and the result is that, a deep nali or gulli is formed from the scouring sluices, so that in spite of all the expenditure and labour no good is done by these sluices. The silting is really very heavy.

The problem is very acute in those catchment areas where alluvial soils are found overlying rocky foundations. The alluvial soils dry up and are reduced to dust in the hot season. When first showers of rains come, the whole of the top dusty layer is washed in the tank. The silting up of many reservoirs is a matter of grave concern to many people.

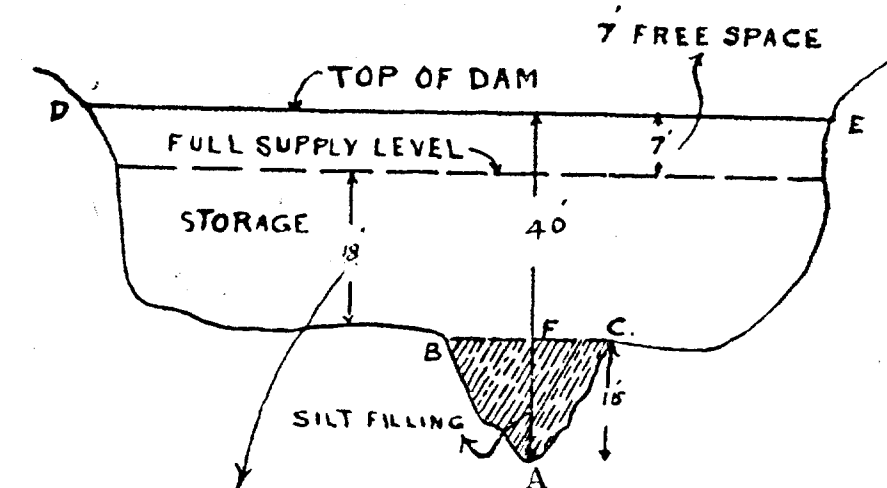
The timing of the opening and closing both of the waste weir gates and of the scouring sluices is the matter for careful consideration, manipulation and supervision. They must be opened before floods and closed before the tail end of the rainy season. The vagaries of the rainy season make the timing very difficult. Early opening might cause a lot of precious water to escape from the reservoir in case the monsoon fails and reduce the storage considerably.

Looking to this difficulty of timing the opening and closing the gates, automatic gates are now being fitted up to some of the bigger dams. The gates designed by Sir M. Vishweshvarayya are found to be very good and are fitted in some places.

The omnipresent silt and suspended matter has a tendency to settle near the reservoir walls. If we take samples of the water in dry season, we will find that top water is very clear, except for some floating impurities at the surface. As we go to depths below the top, the clearness goes on decreasing gradually, and near the bed of the lake the water is highly charged with suspended silt. As time goes on, part of the bottom is filled with a silt deposit. If water is drawn from near the bottom depth, it will be highly charged with suspended impurities. Therefore the outlet must be taken above this region of silt. The bottom 10 or 12 feet must be left out of calculation, as the water charged with silt is bad from many points of view. That is why the bottom ten or twenty feet are also not available for distribution to the town.

Usually the term "height of dam" indicates in most cases the height above the lowest point in the nala bed at the time the dam was designed. After the dam is constructed and the storage of water begins, this lowest point is different and would be different on the two sides of the dam. The section of nala is a deep gulley with land having a gentle rising slope starting from the banks of the gulley on either side. Some years after the reservoir starts functioning, the whole gulley is silted

up and the bottom of the reservoir has a flat portion in the middle and slopes on two sides. (See Figure 16).



Of this 6' is lost by evaporation.

Fig. 16.

Therefore the lowest point in the reservoir near the inner face of the dam is shifted a good height up from the old one. In the above figure it is shifted to F from A where it was in the original nala. The lowest point on the outer side of the dam remains, however, where it was or in some cases of masonry dams, where the dam acts as a waste weir, the scouring action of water deepens the nala bed, and the lowest point goes much lower. After some years of storage, in case of masonry dams in particular, the inner and outer lowest points may differ by 40 or 50 feet in levels.

If we look up the contours of the ground and the storage capacity of the dam, we will find that nala or gulley portion, though, when considered from the relative heights, appears to form a considerable part of the total height of the dam, has very little storage capacity when compared with the whole reservoir. In the above figure for instance the portion BAC which is the gulley of the nala has only a very insignificant storage capacity when compared with the portion DBFCE which forms the final section of the reservoir after the gulley is silted up.

This is the reason why in many dams the outlet is taken very much higher than the lowest point in the dam and apparently a large portion of dam seems to be given up, and an erroneous impression is created that a good deal of storage is lost. Taking the example of Tansa dam for the Bombay water supply, the maximum height of the dam is 125 feet. The lowest outlet is 40 feet from the top, that is, 85 feet from the lowest point. To the layman it would appear a folly to construct a 125 feet dam and to abandon 85 feet or more than two-thirds of it without utilising the water therein. If we could see the reservoir

without water, most of 85 feet would constitute the valley or gorge of the river, and would be found silted up. The storage capacity of the 85 feet height would form a very small portion of the total storage capacity and hence the loss is not great.

This would prove that the location of the lowest outlet some distance up in the dam from the lowest point is not so great a calamity or mistake one is tempted to think it is when only heights of dams are considered.

In some of masonry dams, the heights are given with reference to the lowest foundation levels. These give no indication of the actual height available, though, of course, the figures are awe-inspiring. The 732 feet masonry dam given in the list at the end of the last Chapter is an instance of this sort, though one must admit it is a colossal work.

In an earthen dam constructed by us in Mysore, the maximum height of the dam is 60 feet, the full supply level (F.S.L.) is at 52 feet and the outlet level is 35 feet from the valley bed, or in terms of height 58% of the height is left unutilised for purposes of supply. Almost the whole of the 35 feet would represent the nala gulley and the silt deposit.

The "storage" capacity in any dam indicates the quantity of water that is available between the lowest outlet and the "Full supply level." The portion below the outlet is not taken into consideration.

(2) Losses due to leakage of water

These losses are due to two reasons, first the losses due to leakage from the bottom, sides and body of the dam, and secondly the loss due to the absorption of water by the soil of the lake bottom or sides.

No matter, how carefully the work is done, there is bound to be a certain percentage of loss depending upon the nature of work and the water tightness of the joints.

In the second item of the loss due to the absorption of water by the bed, the loss occurs if the water so absorbed can escape through the joints or seams. In a hard rocky bed, dykes or veins are likely to open up owing to the pressure of water and thus allow large quantities of water to escape. We have given the example of the Hubli dam before.

Fortunately, silting up of the bed and of the joints by deposits of suspended materials might have some effect in reducing the pores or cavities through which water goes out and thus reducing the leakage.

In some cases this leakage is 5 to 10 per cent of the water available.

(3) Losses due to evaporation

The loss due to evaporation is really a great loss. All through the year, the surface of water in the lake is open and the temperature of the air is higher than that of the water. There is bound to be evaporation day in and day out and during the 8 clear months, especially during the 4 hot months the evaporation is very great. Evaporation depends upon the surface of water and the amount of heat or rather upon the difference of temperature between the water and surrounding

air and also upon the amount of humidity of the air. The greater the amount of humidity for a given temperature the less is the evaporation.

Results of evaporation would therefore be different in different climates, different conditions and different countries. In England where there are very few clear days, the evaporation is much less than in India.

Experiments are carried out in this part of India on some of the canals and some of the lakes and it is found out that on the average 1½" of the surface is evaporated per day. The evaporation per year is 6 to 7 feet of the water surface. More experiments are still in progress. In the Tansa dam in 1939, the average loss due to evaporation during 213 dry days was found to be 22.41 million gallons per day as against 90 million gallons used by the city of Bombay. Thus 25% of the daily allowance was lost in this way.

Thus to take an example, out of the total 50 feet height of an earthen dam, the top 7 feet are free board, that is, there is no water stored. The bottom 15 to 20 feet are not drawn upon, because the outlet is at this level above the bottom. 7 feet are lost in evaporation. Therefore, during the year only about 20 feet of water is available. The top portions contain much more water per foot and hence a large percentage of water is thus lost. By knowing the contours, the actual quantity available can be calculated, and taking on the average about 7% of this for leakage, the remaining is available for use in the town.

If the height is more, the loss is proportionately much less. If the dam is 150 feet high masonry dam, the loss would be proportionately much less that is, only 26 or 30 feet out of 150 feet. Greater proportion of water is therefore available in high masonry dams.

Storage of Water Needed to Satisfy the Demand

As we have seen above, once the reservoir is full and water is drawn from it, the reservoir continues to get its replenishment of water during the rains and for some time after that, even though the daily requirements of the town are being drawn. During some part of this period, towards the end of it, the water is drawn is more than the replenishment. After this, there is the period when the water is drawn and there is no replenishment at all. Generally, this period, which we will call "non-replenishment period" can be taken from the end of the rainy season to the beginning of next rainy season, and even a few days after the rains start, because the first few showers are utilised to saturate the dry soil which is thirsty for water. In the Deccan and Karnatak high lands, where most of the reservoirs are situated, rains start about 15th of June and end on 15th September. The "replenishment period" might, therefore, be taken from 25th June to 25th September or a three months period. Therefore the non-replenishment period would be in usual course a 9 months or 270 days period. The store in the reservoir, circumscribed by all the losses, leakages, etc., must therefore be sufficient to last the town for 270 days at least. The losses include the losses in the lake as described above, the losses in purification, the losses in transit and the losses in the service reservoir. The

losses in the distribution system are included in the daily requirement (*vide* Chapter VIII).

Therefore 270 days nett supply is the minimum storage required under the most favourable circumstances. Sometimes the rains start late in July and sometimes the rains stop in August. Taking an extreme case in which the rains stop in August and start in July next year (we have observed such instances in Ahmednagar), the store must be for about a year, or 360 days supply.

Then again if there are chances of a complete failure of the monsoon (instances observed in Ahmednagar) with a few inches of rain, giving no flow in the catchment, the period of "non-replenishment" is increased by 12 months more. Therefore, to be safe for a water supply project, the minimum store in the reservoir must be a two years supply or 720 days. There is also one great disadvantage during this prolonged period of "non-replenishment" when rains fail. The heat of the sun during the period of "rainy season" (which does not exist) or from 15th June to 15th September and thereafter upto the end of October is so great that an additional quantity is lost by evaporation, much more than the 7 feet per year we have calculated in the losses. So the total loss by evaporation is much more than 14 feet for the two years and hence the quantity available would be much reduced.

In the dry area, a reservoir which has a small catchment area and a capacity just enough to supply requirements for 8 or 9 months, is bound to fail. In the Dharwar water supply, there are years when water is not available in November and December. The late rains sometimes give a merciful replenishment and the people get some water. But the late rains are uncertain and scanty.

In this respect of the "non-replenishment period", the conditions in England and in India differ radically. As we have remarked in Chapter XI of this book, the nature, character and period of rain in England and India are different. It rains in England during all the months, the driest spell being a few weeks in the summer (April to August). So the lakes and reservoirs get the replenishment steadily all through the year. The provision for the "non-replenishment period" could be restricted to two or three months at the most. Whereas in India as we have seen above, you must have the provision for a year and should have a provision for two years.

The results of experiments and observations carried out in England are analysed, classified and some empirical formulae are based on those. Students of Engineering, who base their knowledge on the results in England, are tempted to use these formulae for Indian conditions. If we follow the results, the reservoir so designed will be a failure and will give no water in April or May when water is most urgently needed.

We take one instance below.

Hawksley's formula for capacity of reservoir :—

$$C = \frac{1000}{\sqrt{r}}$$

Where C = Capacity of reservoir in terms of days supply ;

r = Average rainfall in three driest years ;

= .8 of the general average.

Taking the Darna Dam in Nasik which is a hilly area (rainfall 50 inches in a year), we have—

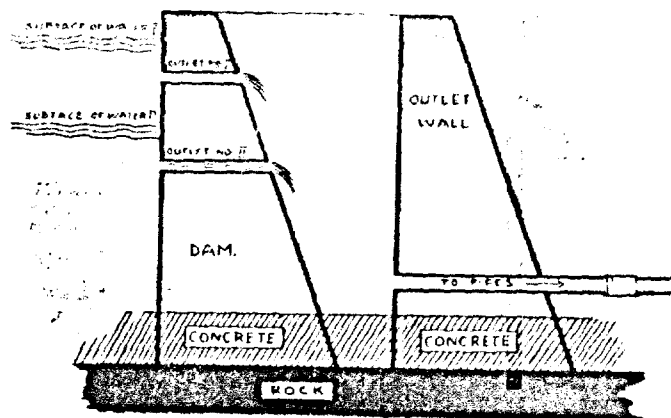
$$r = 50 \times .8 = 40.$$

$$\text{Therefore } C = \frac{1000}{\sqrt{40}} = \frac{1000}{6.2} = 161 \text{ days supply.}$$

From what we have given above about the Indian conditions and capacity of reservoirs, it would appear that such a reservoir would fail in April, with disastrous results.

The arrangement required for drawing off the water from the dams (called the outlet) demands very high technical and engineering skill. Any work introduced in the earthen dam affords a number of junctions between the mass of earth and the work so introduced, which are surfaces along which leakages are possible and likely. Therefore only one such outlet work is provided in a dam. There is a regulating tower attached to such an outlet and adjustment about the level at which water can be drawn is made by means of valves in the tower. Well regulated and well designed siphon is found to be best and would work very well and the work of the dam would not be disturbed thereby.

Arrangement showing series of outlets a little below surface of water in a masonry dam, with an outlet well.



The outlet well is an enclosed chamber about 50 ft. in length.

In case of masonry dams, a series of openings one below the other can be kept at different levels and the water drawn off at any desired level. The arrangement for drawing off water must be a few feet below the top level of water to avoid floating impurities and debris being drawn in. The work of outlet for the Tansa Dam for the Bombay water supply cost the Bombay Municipality 6 to 8 lacs of rupees.

It will thus be seen the work of the reservoirs is very costly, lacs and crores of rupees being required. The whole scheme must therefore be well investigated in all its bearings by experts in each branch, engineering, geology and finance. It must be wholly successful in all respects. The cost must be such that the burden should not be beyond the means of those for whom the scheme is designed.

CHAPTER XV

PURIFICATION OF WATER

In Part II of this book, we have considered the kinds of impurities which water is liable to get at various stages of its journey from the moment it starts in its purest form as a drop from the clouds. If the atmosphere is cleared of its suspended impurities and gases by good showers of rain, and rain water is collected from showers which come thereafter through this purified atmosphere, it would be possible to collect, in good convenient places such as roofs of houses, very pure water, which might take the place of distilled water. I have seen a municipality collecting this water for their motor lorries and using it as distilled water, to avoid the high cost of distilled water. In some places water is collected from roofs of houses in specially constructed underground reservoirs and used for supplies for some months by the householders who make their own arrangements for the storing.

After falling on the ground, the water that flows over it takes many of the particles of pulverised dust and animal and vegetable wastes with it. Most of these form, generally, floating or suspended impurities. Some of the wastes and some of the salts in the surface soil dissolve in the water, but the proportion is very small. Some of the vegetable waste in suspension decomposes in water and gives organic matter in solution. Water that sinks in the soil and comes up as springs, brings large quantities of magnesia and lime in solution as carbonates and nitrates, and becomes what is called "hard water". The hardness is either temporary or permanent. The water of some of the rivers flowing from hills composed of iron ore has iron in solution.

The ever-pervading germs and bacteria are also present in all waters.

Different qualities of water require different purification. It is therefore necessary to test the quality of water before purification is taken up. Reservoir waters, for example, would not require purification for hardness, because that water has neither time nor opportunity to dissolve any salts. Well water on the other hand has generally no suspended impurities and does not require purification in sedimentation tanks.

Purification of water is important from the point of view of the users. But when the question of cost comes in, it would be worthwhile studying the kind and degree of purification we require for every purpose.

Taking the various uses of water given in the table in Chapter VII, the degree of impurity allowable in each case is different.

For domestic use in drinking and cooking, water required is of a high degree of purity, without suspended impurities, without most of the dissolved impurities and without any micro-organism and patho-

genic germs. A small degree of hardness consisting of certain dissolved salts of lime and magnesia is not however unwelcome, because it gives a sparkle and relish to the water. Flat pure water is not so palatable as the sparkling water from some springs or wells. But only certain salts can be tolerated and those too, within limits.

For some other purposes, certain other impurities may be allowed. When water is used in bulk, for cultivation or gardening, large amount of suspended and dissolved impurities may be tolerated. For civic uses, water is required in large quantities and may be of almost any degree of impurity. Some municipalities use any well water available, when they have no water supply scheme in existence.

For commercial purposes, except for stables, for washing cattle or cleaning the stables, tolerably good water is needed. For washerman's business water with hardness is undesirable, because it costs him more for soap.

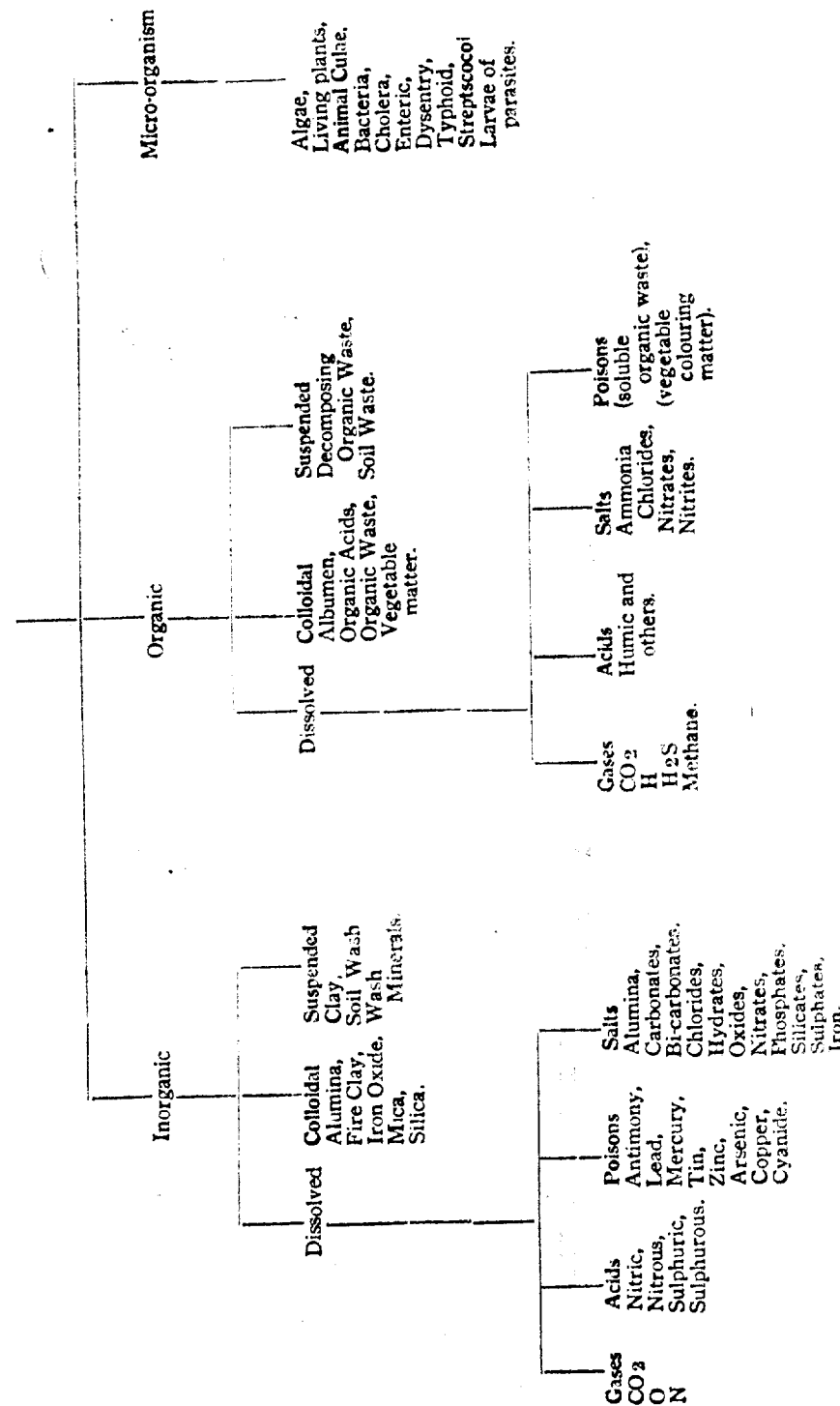
For manufactures, very pure water is needed, because in those factories where chemical processes are needed for the manufacture of the final products, the impurities may have different chemical reactions and thus alter the results. The degree of purity needed is different in different cases, and a study of the conditions and purity needed would be worth the expense on experiments. Thus taking an instance, if water is needed for boilers, the presence of dissolved salts is undesirable, because it leaves an incrustation inside the boilers which increases the amount of fuel required for producing the required power and also might have bad results if the incrustation is too thick. But water having pathogenic germs can be used for such boilers without any bad results. The requirements of the factories are so different that many factories taking water from public water supplies make their own arrangements for purifying it to their own standard for different processes.

Thus we see that purification is only a relative word. When the water supply for a municipal town is purified, an attempt is made to purify it upto the general standard required in a household. Purification is costly, and the removal of dissolved impurities like iron is very costly. In some towns in Bengal, where water is obtained from wells or bores, iron is present in a dissolved state and its removal is so costly that purified water is restricted in bare necessities for drinking and cooking only. In Munshi Gunge, water allowed per head per day is 2.46 gallons only.

Two Separate Systems of Water

The cost and difficulty of purification might indicate the necessity of a double system of water supply. In villages and towns, where water is obtained from wells by the public themselves, we see this double system of the supply of water. Good water is available from a few wells. Brackish water is available in most of the wells. People have a small supply of good water stored in separate brass or copper pots; and a large supply of the ordinary water for general use in large galvanised iron cisterns. In those cases of pipe water where the allow-

IMPURITIES



ance is very limited and where large rivers flow by, one might think of two systems of distribution, the purified water in separate mains in small quantities and the crude water in large quantities in different mains. But there are two main disadvantages in such a dual distribution.

(1) The cost of two different systems of distribution is very great. A town which is hardly able to finance one system cannot afford to have two such systems.

(2) There might be some confusion and a mixing up of the two systems anywhere from the start to the householder's storage pots.

In many places a small allowance of good water is given by pipes and the householder is left to arrange for himself for water for general use.

We thus see that before purifying water, we must determine upto what degree the purification must be carried out, and how far we can approach towards that goal. The standard of minimum purification or rather of the maximum impurities allowable is given further on (*vide* Part II, Chapter VIII).

The impurities present in water can be classified as given in the table opposite this page. The range is very vast and whereas some of them are very bad, others are innocuous.

The order in which they are harmful would be as under :—

(1) When actual poisons such as arsenic and aconite are dissolved in water. These can hardly be removed from water and such a water cannot be used. Fortunately, such waters are rare in this country and province except in some of the jungle tracts of Khandesh.

(2) Water containing pathogenic germs. These are also very dangerous. The germs cannot be seen with bare eyes but require very powerful microscopes. From time to time pathogenic germs abound in the water of many supplies, particularly in wells and in streams when the level of water is low and water stagnates. They are the cause of many epidemics, causing millions of deaths. It is, therefore, necessary to detect such impurities and to take steps to purify the water. The best course is to purify all water for personal use by either chlorination carried out by the municipality, or by boiling done by the householder. If these precautions are taken, most of the epidemics will disappear as they have disappeared from Germany or England. Other precautions and preventive measures such as inoculations and vaccinations are also necessary.

(3) Water containing dissolved organic impurities is bad. Though as a rule it might not directly produce bad results, it acts as a very good breeding ground for pathogenic germs. The introduction of a germ or two in such water is likely to produce disastrous results, because the germs would breed very fast, as in a culture.

(4) Suspended impurities. These are bad because they dislocate the digestive system and give rise to dysentery, diarrhoea and other disorders. Fortunately, these can be seen by the naked eye and man does not like to use such water, and takes steps for purification.

(5) *Dissolved inorganic impurities on a large scale are not good.* These can be detected by taste and some of them render the water "hard."

We have used so many terms above, that it is best to define and explain some of those most commonly used.

(a) 'Dissolved impurities' are those which are taken up by water, on account of its action as a solvent, helped also by the action of various acids, etc., which water takes in solution from the air. The impurities form a chemical compound with the water. These impurities generally tend to make the water 'hard water' which is defined under (b) below.

(b) 'Hard water' is that water in which it is found difficult to obtain lather with soap. Soap dissolves in pure (soft) water, but when water has got calcium and magnesium salts present, soap forms a hard insoluble precipitate. Water can only dissolve soap after the calcium and magnesium are precipitated. The hardness is of two kinds—

(i) *Temporary hardness.*—This is mainly due to calcium bicarbonate and/or magnesium bicarbonate. This can be removed by boiling water.

(ii) *Permanent hardness.*—This remains after boiling. It is mainly due to calcium and/or magnesium sulphate and/or chloride. The amount or degree of hardness is expressed in terms of the grains of calcium carbonate (CaCO_3) dissolved per gallon of water. This is called "Clarke's system" of expressing hardness. Thus water with 9 grains of CaCO_3 dissolved in one gallon is 9° in hardness. The metric standard denotes parts of CaCO_3 per 100,000 parts of water and is 1 times the above system.

The total hardness in water for human consumption should not exceed 30° on Clarke's Scale.

(c) 'Suspended impurities' are those which are found in water in finely divided condition, in a physical mixture with the body of water. Those which are lighter than water float at the surface. Those which have the same specific gravity, or a specific gravity almost the same as that of water are mixed with water, and are present everywhere. Those that are heavier than water have a tendency to settle down when the water is still, or travel at a very low velocity. An appreciable velocity in a current of water does not allow these to settle. Some of the rough and coarse grained particles settle down even during the flow of water. The rate of settlement depends upon the size of the particles, the specific gravity thereof and the velocity of water.

(d) 'Colloidal impurities' are those which exist in water in very finely divided state. The particles are so small, that if present in small quantities they are not visible to the naked eyes. If present in large quantities, they give a cloudy appearance like the culture of bacteria cultivated in soup. Really speaking, the bacteria culture is also a colloidal impurity, because the size of each bacteria is very minute. The particles are so small, that they float in water indefinitely, because, while tending to settle down to the bottom, the resistance offered to

the sides of the particles by the water is almost equal to the weight of the particle. A grain of 0.00001 mm. dia. would constitute a colloidal impurity. Such a particle takes 63 years to settle one foot. So that if there is a settling reservoir about 10 feet effective depth, it would take 630 years for these impurities to settle down to the bottom.

There are various terms pertaining to the purity and colour of water which also require some explanation.

(e) 'Pure water' is water that is free from matters that render it objectionable for use.

(f) 'Safe water' is water which is potable and free from pathogenic germs or toxic impurities.

(g) 'Clear water' is water having no suspended impurities.

(h) 'Colourless water' is water having no colouring matter in solution or semi-solution.

(i) 'Polluted water' is water which gets impurities from sources other than natural sources, such as drains, manure heaps, waste waters, cemeteries, etc.

Water Good for Human Consumption

Characteristics of water fit and good for human consumption are as under :—

(1) It should be moderately soft—more than 20° per 1,00,000 in hardness is considered unsuitable.

(2) It should be free from smell or taste—when heated to 37°C.

(3) It should be cool and transparent—clarity of water should be such that a platinum wire 1/25" in diameter shall be discernable 6 feet below surface in normal mid-day light.

(4) It should contain large amount of dissolved oxygen.

(5) It should contain sufficient carbonic acid to make it sparkling and refreshing.

(6) It may contain a minimum quantity of organic matter and a trace of ammonia, but must not contain nitrites.

(7) It should be free from iron and should not contain more than normal chlorine.

(8) It must have no action on lead.

(9) The total bacteria count should be the lowest specified.

Analysis of Water

This is more a subject for the Chemical Analyst and the Public Health authorities. As far as the analysis is concerned, it is purely a matter for them, but the collection of samples, the knowledge where the samples should be collected and the kind of analysis needed is for the Engineer and Administrator to know.

Analysis of water falls under four heads :—

- (1) Physical;
- (2) Chemical;
- (3) Bacterial; and
- (4) Under microscope.

CHAPTER XVI

PURIFICATION OF WATER. SEDIMENTATION

Purification of water is divided into three stages. One or more of these may be necessary in a particular case depending on the quality of water to be purified. In case of good water from an artesian well, none of these stages may be necessary, and the water may be used as it is. Each stage consists of one or more operations, depending upon the quality of water.

The three stages of purification are :—

- (1) Pre-filtration purification of water ;
- (2) Filtration of water ; and
- (3) Post-filtration purification of water.

From the above one could easily surmise that the most important operation in the purification of water is the filtration. As explained under that heading, the maximum number of harmful impurities are removed by filtration.

Pre-filtration purification consists mainly in removing suspended impurities, which are heavier than water and which can and do settle down to the bed of the sedimentation tanks in a reasonable time, and also those that are lighter than water and can float at or near the surface. Generally inorganic impurities are heavier than water and can be dealt with in this stage of purification. Floating impurities can be removed by mechanical means, by straining the water coming out of the outlet arrangement, before it is allowed to pass through any work.

Many organic suspended impurities are neither heavy enough to settle at the bottom in a reasonable time, nor light enough to float at the surface and be removable by straining. Most of them are in a finely divided state and are mixed in the body of water. These can be removed by filtration. Organic dissolved impurities can also be dealt with in the filters.

Post-filtration purification consists in the removal of those impurities which filtration cannot remove. These are mainly of two sorts—(a) dissolved inorganic impurities which make water hard, e.g., salts of lime, magnesia and sometimes of iron, (b) micro-organisms which survive the bacterial beds in filters and pass through them.

Filtration, therefore, is the most efficient and the most important operation in the purification of water and the two others are only supplementary stages, one to make water fit for filtration so that the filter-beds may not be overtaxed by the presence of suspended matter, and the other to remove those impurities which even filtration is not able to remove.

Pre-filtration Purifications

This scheme for purification of water depends on the quantities and character of impurities present. The whole scheme may not be, and is not necessary, for all the kinds of waters. Some water may require only one, some more than one and some almost all the processes. The desideratum is that the water should be purified, as a preliminary step, of all those impurities which would clog the filters and make them inefficient after a short working period. Frequent and costly cleaning would be needed for the filters.

Water in large storage reservoirs might not require any of this treatment, and could, with some precautions, be drawn in the filter beds almost directly. Water from rivers when in floods might require almost the full treatment.

The various processes are given below :—

- (1) Storage and aeration, to effect preliminary improvement ;
- (2) Mechanical straining of water drawn from the store ;
- (3) Addition of chalk, lime, soda, etc., to remove temporary hardness ;
- (4) Chemical treatment with a coagulant to remove colour and finer suspended matter ;
- (5) Pre-chlorination or other treatment to remove algae and other vegetable organisms ; and
- (6) Sedimentation or settling tank processes to remove the coarser particles of suspended matter.

We will now consider these in the serial order.

(1) Aeration of Water

The effects of aeration on water are dealt with at some length under the heading of the "self-purification of water." Contact with air brings two purifying agents, the loose oxygen in the air and sunlight in contact with water and purifies it of some of the organic impurities. Water in a storage reservoir is in contact with the open air at its surface. While coming out of the outlet arrangement, and further while going to the various purification works, it generally flows with velocity through masonry ducts and this further gives the water an opportunity to purify itself.

(2) Straining of Water

This is purely a mechanical method of removing the floating impurities in water. There are many vegetable impurities which float on water. Leaves of trees, twigs, dry wood, dry grass and all sorts of vegetation from the catchment, and small algae or vegetable organisms from the water itself are always found floating at the surface of the water. The feathers of birds, sometimes the dead bodies of birds and small animals also float at the surface. All these must not be allowed to enter the works beyond the reservoir. For this purpose, in the first instance, the water, drawn for water supply, is drawn from a level a few feet below the surface of the reservoir. Both the outlet and the siphon

arrangement can be so arranged that water is drawn from a level a few feet below the top. The floating impurities are therefore prevented from entering any of the ducts. Most of the impurities are driven by wind and wave action towards the inner face of the dam, and in small earthwork dams, a man or two specially employed can remove these every day by means of long rakes from the surface as they drift towards the dam.

If any of these floating materials enter the ducts, special strainers of expanded metal of a small mesh can be inserted in some places along the ducts. These will collect the floating substances near them, which can then be removed by a man inspecting the duct from time to time.

Water is allowed to enter coagulating tanks, settling tanks and filters by means of orifices slightly submerged below the surface, so that floating impurities cannot enter these tanks and can be removed from time to time at the top near the orifice where they are bound to collect. Efficient strainers can also be used.

The modern method of drawing water by means of a floating arm, which is described later, is intended to exclude floating impurities at the top of the sedimentation tanks, from being drawn from the tank with the purified water.

(3) Addition of chalk, lime, soda, etc. to remove temporary hardness

The process of removing hardness both temporary and permanent is described later on (*vide* Chapter XVIII). The main object of this preliminary treatment is that as the process produces precipitates in the water, the settling tanks can best be utilised to settle these before the water passes through the filter tanks. Any processes to be carried out after filtration of water should leave no residues which are neither harmless liquids nor gases. Therefore if there is to be any precipitate the best place for it is before water enters the settling tank.

(5) Pre-chlorination and other chemical treatment to destroy vegetable organisms

Minute living vegetable growths are not efficiently removed by straining or even by drawing the water a few feet below the surface, because they have almost the same specific gravity as of the water itself and are present everywhere in the water.

These cannot be settled in the settling tank because they are not heavy enough to settle. If they are allowed to go to the filter beds, the top of the bed will have an unnecessary strain because of the large volumes of this minute vegetable life. So the best way is to treat them with chlorine before water enters the filter beds. The action of chlorine is to decompose them into water and hydrogen. Water so formed adds to the volume of water, and the hydrogen escapes to the air and thus no waste products are left. Some of these impart a greenish colour to the water in the reservoir. This colour is also removed.

(4) Coagulation

This process is necessary for water that has got finely divided particles of suspended impurities. The time taken for settlement in

the settling tanks depends upon the coarseness of the particles of suspended matter and, of course, on the specific gravity. All mineral particles are heavier than water and hence all such particles have a tendency to settle.

Taking grains of sand for instance which have got specific gravity enough to sink to the bottom, the results of experiments giving the proportion of size to the time for settling one foot are given in the following table:—

No.	Dia. of grain. m.m.	Order of magnitude.	Rate of settlement per second—m.m.	Time to settle 1 foot.
1	10.0	gravel	1000.0	0.3 second
2	1.0	coarse sand	100.0	3.0 seconds
3	0.10	fine sand	8.0	38.0 "
4	0.01	silt	0.154	33.0 minutes

Other Materials

5	0.001	size of bacteria	0.00154	55.0 hours
6	0.0001	" clay particles	0.0000154	230.0 days
7	0.00001	" colloidal "	0.000000154	63.0 years

This can easily be explained by physics and mathematics.

From the above we can see that settling tanks can deal with particles up to size 4 in the table above. Supposing we take a 10 feet depth of settling tank, size No. 4 would take $33 \times 10 = 330$ minutes or 5.5 hours to settle. Whereas size No. 5 will take $55 \times 10 = 550$ hours or 23 days to settle. Thus size No. 4 is about the minimum we can deal with in settling tank. Water is kept in such a tank for not more than a day.

It is, therefore, clear that smaller particles are not dealt with in settling tank, but are passed on to the filters. They will, therefore, clog the filters. And even then some of the finer particles might not be held up by the filters, but might go to the "pure" or filtered water chamber. The water will not therefore be "pure".

This process of coagulation is, therefore, useful in two cases only—

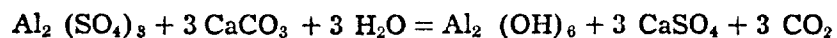
(1) When the quantity of sediment is very large as in a new flood and the settling tanks are not able to purify it because of the large volume of silt; and

(2) When the suspended matter is too fine to settle in a day or two.

This process is necessary in removing turbidity of water when it goes beyond a certain point. There are many substances that can be used as coagulants. Alum is the cheapest and the best, because it does not introduce any harmful matter in the water.

This process consists in chemical reaction of alum upon the alkaline matter present in the water. An insoluble heavy gelatinous flocculent

precipitate is formed by the action of alum on alkaline matter. This 'floc' while settling down entangles in its mass many of the impurities including some of the micro-organisms and carries them down for settling at the bottom. Colour, odour and taste are also removed from the water. The chemical reaction is as follows:—



The effect of the addition of alum is to convert the CaCO_3 or chalk dissolved in water into calcium sulphate and give up CO_2 gas. The most important part of the reaction, however, is the formation of aluminium hydrate which is sponge-like gelatinous mass and flocks to bottom and is called "floc". The presence of alkalinity is essential in the process and if sufficient alkaline matter is not present, it may have to be introduced. It is not desirable to introduce more alum sulphate than is needed for the chemical reaction as it will remain in water in solution.

The dosage of the coagulant would naturally depend on the turbidity. A table of turbidity and dosage required would have to be prepared and the dose regulated. A keen watch will have to be kept on the conditions day by day. Usually the dose is from .5 to 3 grains per gallon of water.

Coagulation is carried out in tanks which consist of two parts—

(1) the mixing chamber and (2) the settling chamber.

The mixing chamber has an arrangement for giving the necessary dose to the raw water as it enters the chamber. The mixture is then made to pass through a passage which has got baffle plates (see Fig. 17 below). The water while passing, impinges on the baffle plates which are designed to break the velocity of the water and to churn it thoroughly, so as to ensure a thorough mixture. The velocity is not more than 2.5 feet per minute.

The length of the chamber is so designed that the time taken by water to pass through it, including the baffle plates, coincides with the time required for the proper mixture of the coagulant with the water and for the appearance of the "floc". This is usually between 20 to 45 minutes.

The water then goes to the settling chamber where it is kept for the time required for the "floc" to settle to the bottom. This is 2 to 5 hours. The settling chambers are masonry tanks usually rectangular 10 to 12 feet deep where water is kept still or allowed to flow slow, till the floc settles down fully. The speed is broken by baffle walls.

The usual arrangement of these settling tanks is like that in a settling tank for sedimentation which we are describing later in this chapter. The only difference is the addition of a mixing chamber of which a sketch is given below.

As we see from the chemical reaction, the action of alum depends upon the presence of alkali and this must be regulated to the required percentage to give good results. The work therefore requires constant expert watch and regulation.

SKETCH OF MIXING CHAMBER FOR A COAGULATING TANK

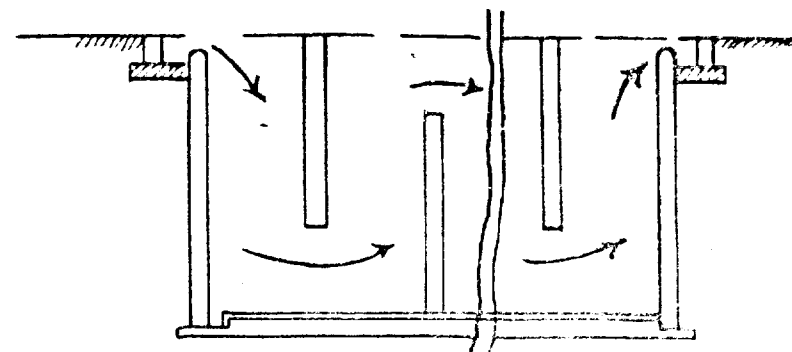


Fig. 17.

We cannot but make a passing reference to the theory advanced by some scientists about the precipitation of the colloidal impurities. They maintain that the impurities hold their place in water and offer resistance to settling on account of the presence of electric ions. They are charged with similar electricity and hence there is a force repelling each particle from the other, which prevents their coming together and joining to settle down. The addition of alum serves to de-electrify the charge, and then the small particles lose the repelling force and settle down easily. We do not know the verification of this theory, which on the face of it, seems a likely one.

(6) Settling Tanks

When however the suspended materials are coarse grained enough to settle down in a reasonable time, like numbers 1 to 4 mentioned in table given before (See page 169), these are dealt with by the ordinary settling tanks. The raw water is brought to these tanks and allowed to stand there for the time required for the settlement of the suspended material.

Time taken for Settlement

We have seen in the table referred to above, that the time taken for settlement of the different sizes of particles per foot depth is different. If in a given case, the nature of the suspended impurities is the same, and the time taken per foot settlement can be known by experiments at different times of the year, the tanks can be designed accordingly. During the fair weather, there is no need to settle the impurities because water drawn from the reservoir is pure water, as large reservoirs themselves act as settling tanks as we have explained while considering the silting of reservoirs. Even in rivers, once the river is in a stable condition of a steady flow, the water is pure enough as far as suspended impurities are concerned. It is only during freshets and the heavy floods that the water of rivers must be, and the waters of reservoirs may have to be, passed through settling tanks.

Having determined the length of time during which water must be kept in the settling tanks, the question is about the construction of these tanks.

There are two kinds of tanks—

- (1) The fill and draw or intermittent settling tanks ;
- (2) The continuous settling tanks.

(1) The Intermittent Settling Tanks

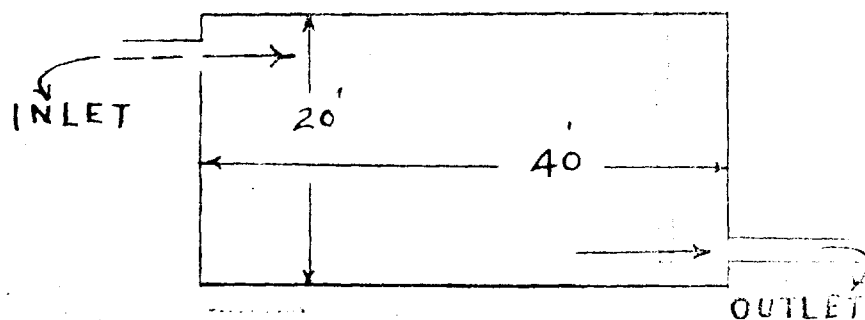
In these tanks, water is filled in the tank, allowed to rest during the period required for settlement which is usually a day or 24 hours. During this time the suspended material settles down to the bottom of the tank leaving clear water above. This water is then drawn for use, and after the clear water is drawn, the sediment and mud below are washed out. The tank is again filled and used.

Supposing the time taken by water to settle in a given depth of tank is 24 hours, the tank is to be filled, taking an hour or two in this process, then kept still for 24 hours, then the water is drawn. This drawing takes a longer time and the cleaning and emptying the tank of mud takes some time, so that from the time the tank started filling to the time it is ready for use again it might take 30 or 36 hours, and hence one more tank is needed to supply the next day's needs. One tank is also needed as a stand by. So that if the capacity of the tank is taken as one day's supply, three such tanks would be needed. It is possible however to arrange the tanks in a series and to have a slightly less area. (See Figures 20 and 21 below.)

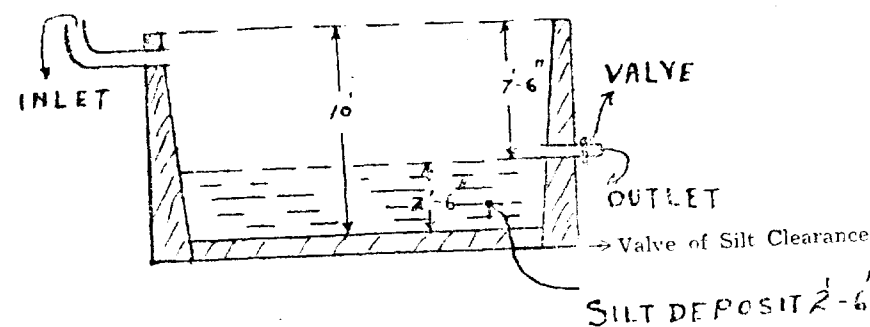
In these tanks, water is drawn above the level of the silt deposit and mud is removed by a valve near the bottom. Supposing the depth of the tank is 10 feet, the bottom 2'-6" are taken up by this mud and silt. The outlet therefore must be at a height of 2'-6" from the bottom. The head of the incoming water has a "head of water" represented by the level of the top and when water is drawn at 2'-6" height from the bottom, the loss of head is 7'-6".

The inlet and outlet are at two opposite ends of the tank in plan. (See Figures 18 and 19.)

SETTLING TANK FILL AND DRAW METHOD



PLAN
Fig. 18.



SECTION
Fig. 19.

The arrangement of tanks in a series is shown below (See Figures 20 and 21). The valves are arranged in such a way that any tank of the series can be filled or emptied and one channel can be utilised for filling and one for emptying. By these arrangements, the area of settling tank required can be reduced to some extent.

ARRANGEMENT OF SETTLING TANK

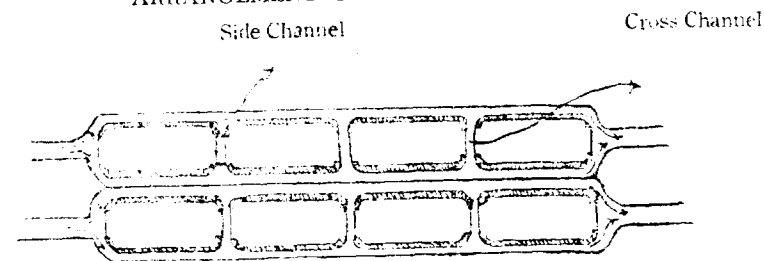
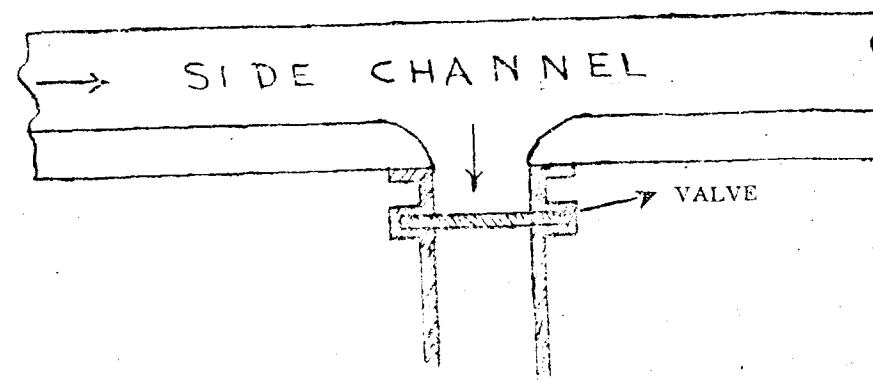


Fig. 20.

(IN PLAN)



Cross Channel
Fig. 21.

The modern method of drawing off the water from such a tank is by means of what is called a 'floating arm'.

FLOATING ARM OUTLET OF SETTLING TANK

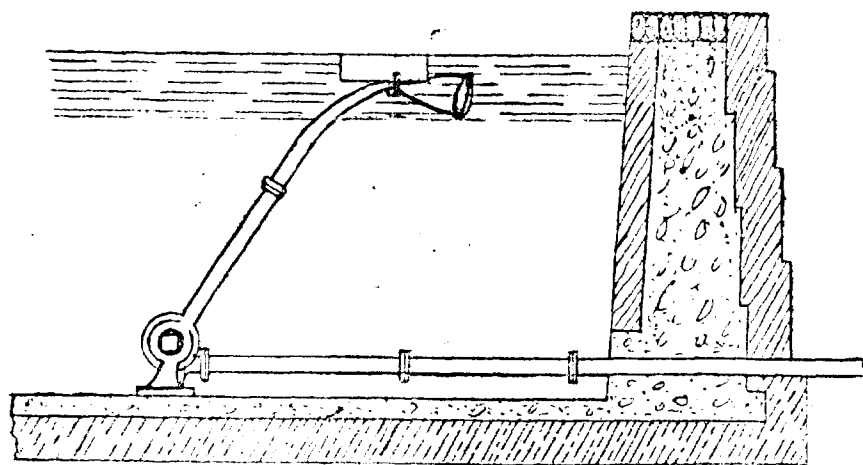
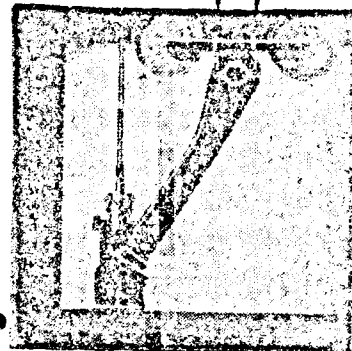
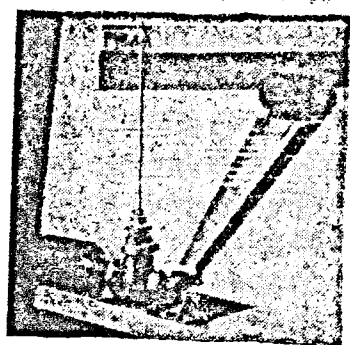


Fig. 22.



The floating arm, as illustrated in the above figure, consists of a draw-off pipe, the lower end of which is hinged by a suitable arrangement to the outlet valve in the bottom of the tank. The upper end of the pipe has a bell mouth to allow water to enter the pipe easily. The floats are attached to the bell mouth and are arranged in such a way that the top of rim of the bell mouth is always 6" to 9" below the surface of the water. Whatever the depth of water in the tank, the pipe swivels round the hinge, the floats always remain at the surface water and the bell mouth is 6" to 9" below water. Water is therefore drawn invariably from a depth of 6" to 9" below the surface avoiding all the floating impurities.

When the bell mouth reaches the zone of mud and silt which is about 2'-6" from the bottom, the hinge is arranged in such a way that the bell mouth is prevented from going any further and automatically stops at 2'-6" from the top. Thus even if the valve is inadvertently kept open the bell mouth has no water to draw from.

This is a very ingenious automatic and decidedly advantageous way of drawing off the water. The floating arm is connected with the outlet pipe by a valve arrangement at the hinge.

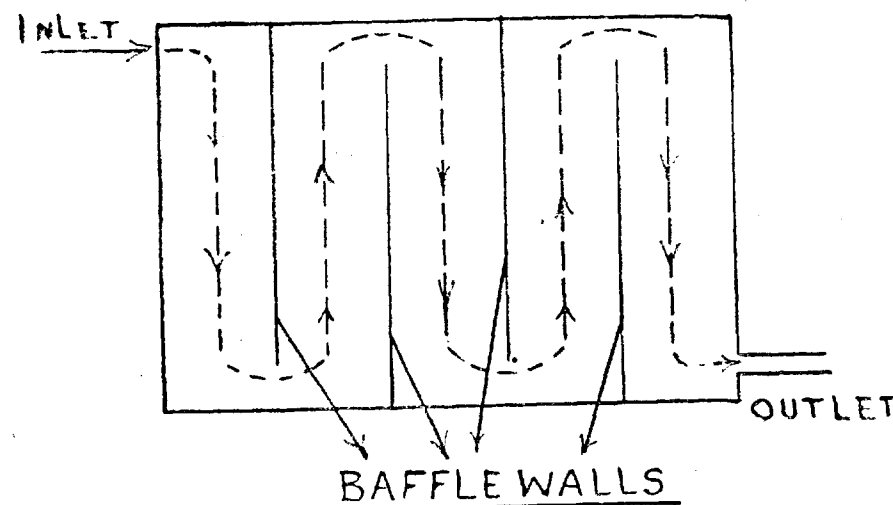
(2) The Continuous Settling Tank

Water moving very slowly allows the suspended impurities to settle almost in the same way as if it were standing still. There is a velocity which may be called the 'critical velocity'. If the velocity of water is less than this 'critical velocity', then the water allows the impurities to settle. This is the principle of the continuous settling tanks.

In this tank water enters at one end of the tank. As soon as it enters the tank the velocity of the water is broken by means of baffle walls and openings at different levels in the walls, to such an extent that water moves very slowly in the tank. The general arrangement is given in Figures 23 and 24 below.

CONTINUOUS SETTLING TANK

Diagrammatic Sketch



PLAN

Fig. 23.

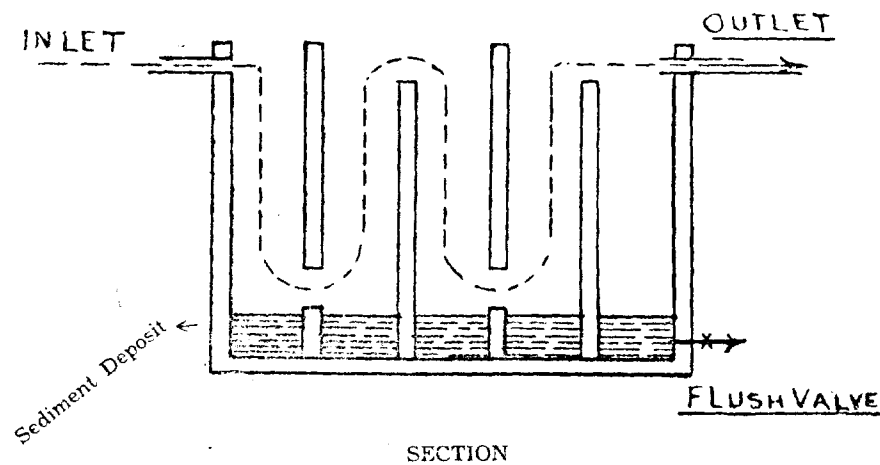


Fig. 24.

The velocity of water in the tank is so regulated that the time taken by water to travel through the tank is a little more than the time required for the settlement of the suspended impurities.

The supply of muddy water at one end and the drawing off at the clear water at the other are continuous, the flow being regulated to meet the two requirements—(1) the velocity is such as to allow settlement of sediment, and (2) the total flow in 24 hours is equal to the total daily demand.

After some time, there is enough sediment in the tank and the tank must be cleared. These tanks require less area than the intermittent tanks as each tank of the series can be cleared and cleansed when the others are working.

The construction of both these tanks is similar except that in the case of the continuous tank, the draw-off is at the top level of the tank.

The tanks are rectangular masonry reservoirs of watertight bottom and sides. The depth is 10 to 12 feet. Some are constructed even 16 feet deep. In both the varieties some of the bottom portion cannot be utilised as silt and mud accumulate and arrangements are needed to clear this. Supply and outlet consist of channels controlled by valves. There are valves in the bottom of the tank to facilitate clearing of the tanks. (See Figure 25.)

The intermittent settling tank is now almost condemned as an antiquated device for purification of water. It has got many disadvantages, some among which are as under :—

(1) There is a loss of head in the tank. Water comes in at the top, and is drawn away at a height of 2'-6" or so from the bottom. Supposing the tank is 10' in depth, the loss of head is 7'-6". In many cases where the head is just enough for a gravity system this loss is considerable.

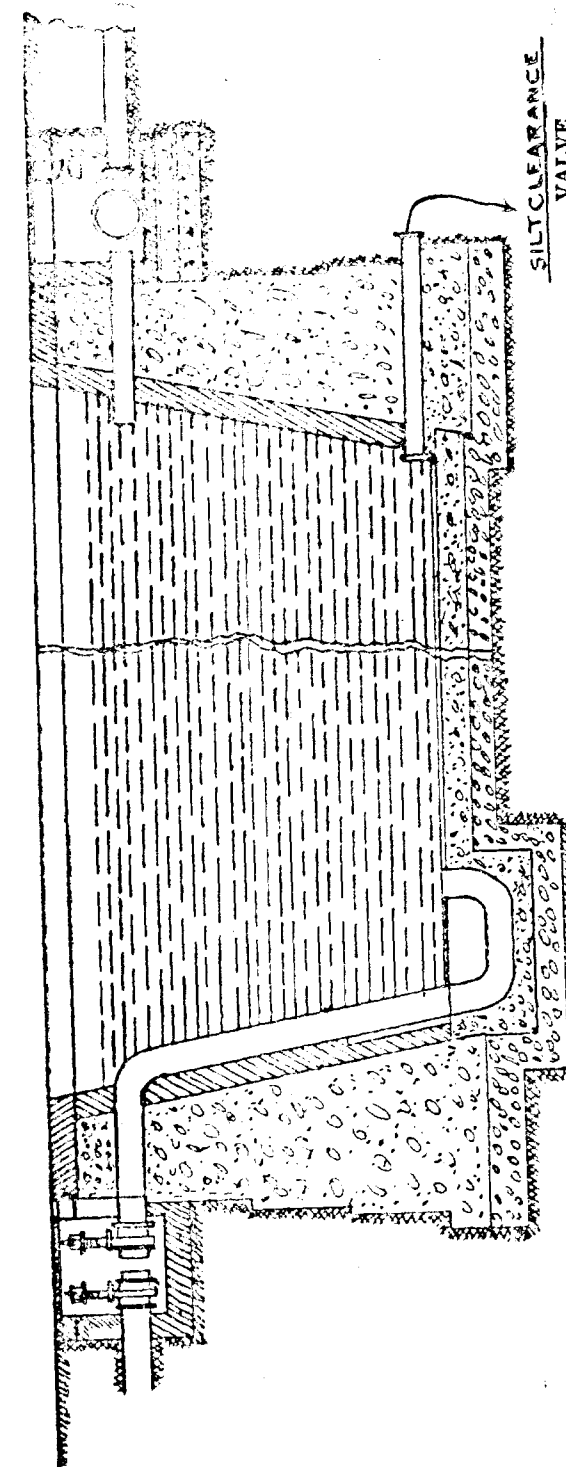
SECTION OF CONTINUOUS SETTLING TANK SHOWING
INLET & OUTLET ARRANGEMENT

Fig. 25.

(2) The time taken to fill the tank and to empty the clear water is considerable. The filling may be speedier, if a larger channel or pipe is used. But the emptying is slow. Supposing we have to feed water to filter beds the rate of inflow to the filter beds must be regulated as per quantity of water to be filtered per minute. The clear water portion of the sedimentation tank holds one day's supply in the illustration we have taken above. Therefore, the rate of flow from the settling tank will have to be steady for 24 hours and the tank can only be emptied in 24 hours. Otherwise a clear water reservoir must be provided, the settling tank emptied in it within an hour or two, and then the clear water tank can supply the filters at a steady rate of flow. This will entail double expense.

(3) The filling, emptying, cleaning and all other manipulations of the settling tank will have to be done day after day every day and will require much manual labour and expert supervision.

(4) The number of tanks needed owing to disadvantage No. 2. is much greater than those calculated from the day's supply. As we have remarked above, three tanks are needed in place of the one calculated to hold a day's supply.

All these disadvantages disappear in the case of the continuous system :—

(1) The level at which water is drawn from the tank is the level of the top of the tank and hence there is no appreciable loss of head. Water at the top is the purest water and this is available for drawing off.

(2) The flow in and also out of the settling tank is continuous and hence, the feed to the filter will be steady, no separate pure water reservoir being needed.

(3) The action being continuous, no manual labour is required except when the tank is to be cleaned. Only general supervision is needed.

(4) When they are constructed in a series as explained in the previous part of this chapter, any tank can be isolated and cleared, the extra area required is very little in proportion.

When a continuous tank is to be cleared, *all the water* in the tank must be run to waste with the silt and mud and the loss of water is considerably more. The water is at different stages of purification in the different compartments and at different heights in the same compartment and cannot be utilised when the tank is being cleared.

Loss of Water in Settling Tanks

The bottom portion of the tank is full of silt and muddy water. Taking the instance we have taken, the tank is 10 feet in depth, we can utilise only 7'-6" and a depth of 2'-6" of water must be run to waste. Even though it is silt and muddy water, the proportion of water

is very large, say, 80%. Therefore, total water lost is $25 \times .8 = 20\%$. That is, 1/5th of the water brought from the source is lost in the settling tanks. This does not include water required for the cleaning of the tank and water lost by evaporation in the settling tanks which are shallow, and water lost by leakage along the joints of the walls and through the bed of the tank and also through the various fittings. The whole quantity lost would come upto 25%.

In the case of continuous tanks the loss is a little less because the cleaning is not so frequent as in the intermittent system.

CHAPTER XVII

FILTRATION OF WATER

Slow Sand Filter

We now proceed to the most important part of the process of purification—a process by which most of the impurities, except the dissolved salts and the most recalcitrant micro-organisms, are removed.

During purification by filter-beds, man follows in the footsteps of mother nature. Water which had imbibed many of the impurities of the atmosphere, and flowed over the decaying vegetable and animal remains in the top crust of the earth, taking up also the mud and filth of the top layers of soil, percolates through the sandy soil. It comes out in springs and deep wells, as sparkling water, rid of all its impurities except a few dissolved salts, provided no outside contamination enters the water during its passage through the soil. The soil therefore purifies the water during its passage, the more permeable the soil, the better the purification.

Filter Beds

The filter bed is a rectangular tank with good watertight walls and bottom, of stone or brick in lime or cement, with a watertight cement plaster both to the bed and to the sides. Modern reinforced cement concrete construction can be best utilised for these tanks. The bed is sloping towards the centre where there is a gutter to lead away purified water to the outlet. A slope of 1 in 100 or 200 is sufficient. On the bed there are two layers of bricks laid at right angles to each other. The first layer is laid with its rows at right angles to the central drain, and with a small distance about an inch or inch and a half between each row so as to act as collecting drains leading to the central drain. The upper layer is laid with its rows at right angles to this bottom layer or parallel to the drain, with very little space left between bricks. Patent drain devices are also used but the bricks are most efficient, cheap and available anywhere.

Over the bricks a layer of coarse gravels passing through a $3/4$ " mesh, but retained by a $1/2$ " mesh sieve is used to a depth of 6". On this there is a layer of finer gravel making the whole height of gravel 9". Then sand in ascending order of fineness is laid to a height of 3' to 5'. The coarsest sand is at the bottom, the finest is at the top, the whole quantity of sand being carefully graded before it is used. On this there is water to depth of 3' to 4' and a free space of about 2'. The total inner height chamber is about 12 feet. (See Fig. 26.)

SLOW SAND FILTER IN SECTION

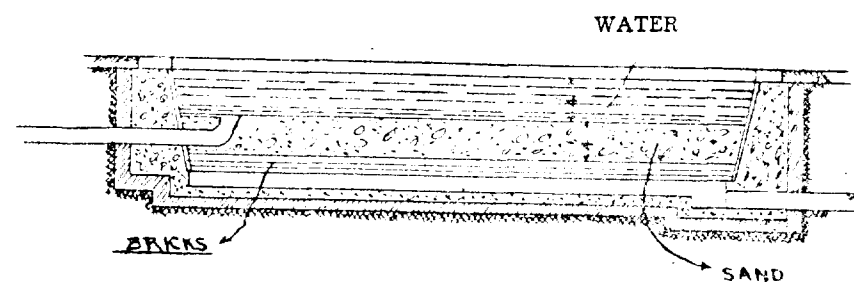


Fig. 26.

The sand, gravel and bricks are well selected, and washed before use. The sand must be good quartz sand which is available in this part of the country in large quantities. The selection, grading and washing of the materials before use is one of the most essential parts of the work, because the efficiency of the filtration depends on the way these are carried out.

Water must enter the filter in such a way as not to disturb the surface. The flow must, therefore, be steady. This can be achieved by keeping a constant head of water at the inlet. There are many devices to guarantee this. The designs of the inlet and outlet arrangements are complex and we need not enter into them here.

The *working of the filter* is as under:—

Water when it enters the filter has got light organic impurities in suspension, organic and inorganic impurities in solution and micro-organisms. When water comes in contact with top of the sand it starts going down in the sand. Organic suspended impurities are held up by the top layer of sand. Other suspended impurities are also held up by the sand. The filter bed in this respect acts only as a very efficient strainer during the first few days it is in operation.

Constant contact with water sets up a sort of disintegration in the organic particles at the top of the filter bed, and a layer of slime or a gelatinous substance is formed at the top of the filter bed with the grains of sand as a nucleus. This layer is called the "vital layer" and contains a colony of micro-organisms. When this layer is fully formed, and is efficiently working, the micro-organisms in the layer attack the various *organic impurities* in water both dissolved and suspended and convert them into water and gases. The water goes down the filter bed and the gases escape into the air.

The 'vital layer' attacks many of the bacilli and reduces them to innocuous products. But it is not able to attack the recalcitrant bacilli particularly those like the typhoid, cholera, etc. which are the deadliest amongst the enemies of man. The 'vital layer' is a biological bed just like a contact bed in biological sewage purification, the action being just the same. The layer goes on increasing in thickness. The inorganic impurities, which are left in the interspaces between the grains of

sands, go on clogging the filter, so that great resistance is offered to the passage of water through the filter, and the quantity of the filtrate is much reduced. The filter is thus 'clogged' and the outward sign of it is that it does not give the necessary quantity of water. There is, certainly, a stage beyond which the rate of filtration cannot be allowed to fall, because the supply will then fall short beyond limit allowed. There will not be a corresponding advantage of improvement in the purity of water. Because once the 'vital layer' is fully formed any increase in its thickness does not improve the quality of the filtrate.

Some research workers advocate that electric action takes place in purification of water by filters. The reaction of ions between the layers of sand, the ingredients of the 'vital layer' and the particles of impurities, attracts the impurities to the 'vital layer' and keeps them there.

Cleaning of Filter-beds

When this stage of clogging of the filter-bed is reached, it must be cleaned. The process of cleaning is very simple. The top layer of sand which encloses the 'vital layer', about $\frac{1}{2}$ " to 1" is removed. The sand to a few inches below this is loosened by mechanical means, and then water is allowed to pass through the remaining thickness of sand. For the first few (two or three) days till the 'vital layer' is fully developed again, the sand acts as a mere strainer, and the action is merely mechanical; chemical and biological purification being absent. The water, therefore, is not of the required purity and is run to waste. Once the 'vital layer' is fully formed, the valve is turned on and water delivered for use. The result is that every filter-bed becomes inoperative for supply of pure water during the time of the development of the vital layer, 2 to 4 days after the letting in of raw water after cleaning. Additional filter area must be provided to compensate for this loss of time. Filter-beds usually require cleaning after 4 or 6 weeks depending upon the size of sand and upon the number and quality of the impurities. The main test is the quantity of the filtrate through a unit area. As soon as this falls below a certain limit, fixed in every filter-bed by experience, the bed must be cleaned.

We have said above that the method of cleaning filters consists in scraping off sand at the top. Every time about an inch of sand is taken out. The finest sand is at the top. The layer of fine sand thus goes on diminishing in thickness and a time comes when any more scraping would reduce the thickness of the layer so much, that the efficiency of the filter would suffer. At such a time, it would be necessary to add another six inches or one foot layer of fine sand of the required grade. In many places, sand scraped away is washed and cleaned and kept for future use, though in places where there is abundance of sand, this may not be necessary. There are special devices and machines for washing sand. It is no doubt difficult to get a fine sand of the necessary grade. The whole problem, as to whether to store the scraped sand and to wash it and keep it for re-using, or to throw it away and use fresh sand when needed, is one of economic and financial consideration, as to the com-

parative cost of washing and keeping sand or that of a fresh supply including availability, cost of carriage, etc.

The purification carried out in filter-beds is thus mechanical, biological and electrical. The suspended matter, the organic dissolved matter and many of the micro-organisms disappear from the water. As to what degree of purification is carried out depends upon the quality of water. Generally over 98% of the micro-organisms are removed by filtration. The suspended impurities are almost wholly removed.

The whole process of filtration depends upon the formation and presence of the 'vital layer'. Any element which tends to disturb the layer must be eliminated. It is for this reason that the inlet of water is so designed as not to disturb the top of sand. There must, therefore, be no velocity or fall of water on the surface of sand.

As the 'vital layer' becomes too thick a greater head of water is needed to maintain the rate of filtration. The force of the greater head of water might crack the 'vital layer' and allow crude water to pass through the crack and spoil the whole filtered supply by mixture. This is one of the reasons as to why the filter must be cleaned after reasonable intervals.

In England, Germany and America, many experiments and a good deal of scientific research were carried out on the nature, thickness and composition and working of the 'vital layer'. The research is carried out for more than 60 to 80 years and it is proved that the 'vital layer' is the most essential. The process is automatic, so that if man takes care to maintain certain conditions, benevolent nature will do the rest for him.

The relation of the size of the sand to the purity of the effluent was also a subject on which many scientists carried out research. The table given below would give the comparative purity of water with the size of sand used:—

Effective size of sand grains in millimeters.	Proportion of bacteria passed into effluent.	Percentage of bacterial purity of the effluent.
0.38	0.16	84
0.29	0.16	84
0.26	0.10	90
0.20	0.08	92
0.14	0.03	97
0.09	0.02	98

The whole of the sand must be of such a fineness as to pass through a sieve of 400 meshes to a square inch. 80% must pass through a sieve of 900 meshes to a square inch and none must pass through a sieve of 3,600 meshes to a square inch. Similarity of form in the size is also important.

The depth of sand needed in the filter-bed was and is being investigated by many scientists.

The conclusion about depth of sand is that the depth of sand above the gravel must not be less than 3 feet.

Head of Water over Filter

The size of sand, the depth of sand and the clogging of sand, have their effect on the head of water required on the top of the filter so as to give the necessary rate of effluent. When the filter is new, a small head just enough to give the necessary quantity is sufficient. As the quantity of the 'vital layer' and its intensity increases, and as also the inorganic impurities go on clogging the interspaces between the grains of sand, greater resistance is offered and greater head is needed to give the desired quantity of water. In every filter there is a limit beyond which this head cannot increase; as the result after this stage is reached is unsatisfactory and when this head is reached the filter is ready for cleaning. Suppose the head to start with was 2'-6" and after 5 weeks the head reaches 5 feet which is supposed to be the maximum allowable head in that filter, when this condition is reached, the filter must be cleaned. The adjustment of head is done by devices in the inlet chamber of the filter.

Rate of Filtration

Taking a normal filter, arranged as above described, with about 3' layer of good fine sand of the necessary fineness, with a 3' head of water on sand, the rate of filtration is 50 to 80 gallons per day per square foot of filter. Knowing therefore the population of the town, and the water used per day per head, the area of filter-bed can be easily calculated.

Illustration

A town with a population of 20,000 uses average 20 gallons of water per head per day. Find the area of slow sand filter needed.

Average water needed — 20 gallons per head per day;

Maximum need in hot water — 1.50 times;

Therefore, water to be filtered per head per day = 30 gallons;

Total water to be filtered = $20,000 \times 30 = 6,00,000$ gallons.

Taking the average rate of filtration per square foot of filter as 60 gallons per day,

Area needed for the above quantity—

$$\frac{6,00,000}{60} = 10,000 \text{ sq. ft.} = \frac{1}{4} \text{ acre.}$$

Therefore one filter of 100×100 will be enough.

This does not provide any spare area needed for cleaning of filters nor any spare in case of break-down and dislocation of filters. In such cases if the beds are large, large spares are needed.

If beds are arranged in a battery of two rows of 3 filters each, the size of each would be $60' \times 40'$, there will be enough spare space for both purposes, one bed being provided for cleaning every week.

ARRANGEMENT FOR SIX FILTER BEDS

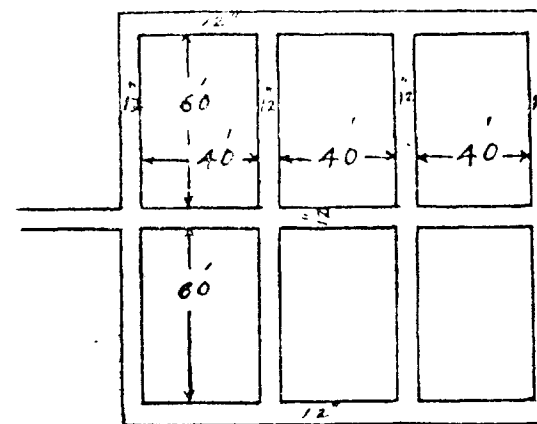


Fig. 27.

As regards increase of population and increased rate of supply the provision can be made as and when necessary. Because any extra provision means an extra bed to be added to the series. It is only necessary to reserve enough open space to construct filter-beds in future.

Head of Water lost in Filters

Water introduced in the filter must have a maximum head of 5 ft. above the surface of sand in the filter. The height of the materials in the filter is about 6 feet. Therefore the total head of water in the filter above the bed of the filter is about 11 feet. Water is drawn away at the level of the bed of the filter. Thus, all the 11 feet of head is lost. An additional loss of 11 feet of head over and above the loss in settling tanks is rather a serious loss. The total loss in the two processes is about 22 feet.

Loss of Water in Filters

We have seen above that the filter requires scraping at some intervals, and that after each scraping the water that comes out of the filter-bed is run to waste, till the 'vital layer' is formed again. Taking an instance of a filter-bed where for three days water is to be run to waste in this way after, say, four weeks working of the filter, the total loss is $\frac{1}{9}$ th or $12\frac{1}{2}\%$ of the water supplied to the filters.

The slow sand filter has got one great disadvantage that it requires large space. Near large commercial places space means cost. Taking a hypothetical case for Bombay:

Population — 15,00,000.

Water per head per day — 80 gallons.

So, total water used per day = $15,00,000 \times 80 = 12,00,00,000$ gallons.

Taking 80 gallons of water effluent per sq. ft., area required is $\frac{12,00,00,000}{80} = 15,00,000$ sq. ft. = 35 acres. Taking space for additional beds for cleaning and spares we will require about 45 acres.

For the equipment, fittings, inlet and outlet arrangement, for the space to be left between the beds, and for all equipments for manipulation of the filters, very large space is required, and total for Bombay would be about 60 to 80 acres or so. Land near a city being very costly, so much space will not be available. Taking it for granted that the filtering will be done near the reservoir and not near Bombay, at the reservoir Tansa lake, there is no space for these operations.

The difficulty of finding the large space required for slow filters, forced scientists and engineers to see if it would not be possible to speed up the process of filtration. As we saw, by increasing the head of water on filters, the quantity of filtrate is increased. It is also possible to hasten the process of filtration by using a coarser sand and thus minimising friction to water in passing through the filtering materials.

Both these are achieved in what is called the Pressure Filter or Mechanical Filter or Rapid Filter.

Rapid on Pressure Filter

This filter consists of an iron or steel tank containing:—

(1) A system of underdrains, which are of many designs and patterns. These are for collecting the filtered water. They are also so designed that the sand cannot force its way in these drains, and that water flowing in the reverse direction from the drain to the sand for washing purposes is able to wash the sand properly.

(2) A layer of filtering material. This is quartz sand. The depth of sand is 2 to 3 feet. There should be no acid matter in the sand. The particles should be round to facilitate washing. The size should be between 0.3 to 0.5 mm. There should be no fine sand as it would be removed by washing, and would hamper the rate of filtration. The sand is much coarser than that used in the slow sand filter. There is a layer 6" of gravel below the sand.

(3) A suitable arrangement for adding coagulant to the water. Coagulant is added in order to produce a floc very quickly. This floc forms a layer on the surface of the sand and takes the place of the 'vital layer' in the slow filter. The impurities are held up by the floc by entanglement in the thickness. Coagulation is *absolutely necessary* and must form a part of the filter arrangement. If the water is soft, it will be necessary to give it temporary hardness before allowing it on the filter-bed, otherwise no floc is formed.

(4) A layer of 'polarite' some way down the sand. This serves to reduce iron in the water. (This is only necessary where the water contains iron salts in solution.)

(5) An arrangement by valves, etc. to regulate the flow of water.

(6) An arrangement for draining away water after the filter is washed.

(7) An arrangement for cleaning and washing the filter.

There are two kinds of filters:—

(a) Gravity Filter; and (b) Pressure Filter.

(a) Gravity Filter

In this case the top of the filter is open and the water enters at a constant head and remains in the filter at a constant height. The advantage of this filter is that it is open to inspection. A mechanical arrangement including a small pump is required for regulating the head on the filter.

The advantage of these filters is that the outer shell may be constructed of concrete. The other arrangements are the same as in a pressure filter.

(b) Pressure Filter

In the case of the pressure filter, the outer shell must be constructed of mild steel. Water can be delivered directly by the main. The pressure at which the filter works must be ascertained and the steel casing must be constructed to withstand this pressure. They are usually made in steel tanks 8 feet diameter. There is a false bottom with many nozzles to drain the filtered water and for convenience of washing the filter.

In both these filters the control of water must be adjusted to a nicety by *maintaining* a constant head in gravity filters, and a constant pressure in the pressure filter. This requires many adjustments of mechanical devices, of which there are innumerable designs patented and used.

Rate of Filtration

The chief advantage of this filter is that the rate of filtration of water is very great, about 1,500 to 2,500 gallons per sq. ft. of filter area per day. There is consequently very great saving of space in this kind of filter when compared with a slow sand filter as the area of filter required is about 1/50th.

Cleaning of Filters

The radical difference between the slow and rapid filters is that the method of cleaning rapid filters is very different from that of the slow sand filter. The rate of filtration is very great; therefore in a very short time the filters become clogged with impurities from the large quantities of water that pass through them. Taking the rate 50 times higher than the slow filter, if we assume the water has the same proportion of impurities per unit, the filter will be clogged in 1/50th of the time and will have to be cleaned oftener. Supposing the slow filter requires cleaning once in five weeks, the rapid filter will require cleaning every 15 hours. The other fact to be borne in mind with regards to rapid filters is that, whereas in the case of the slow filter

the impurities are concentrated mainly in the top layers and very few can be found 4" or 6" from top of the sand, the great velocity of water and pressure and also the larger size of the sand grains, drive the impurities almost through the whole depth of sand of this filter; so that in the case of the Slow Filter, removal of 1" top layer of sand will be sufficient, in the case of the Rapid Filter, the whole of the sand must be washed.

It is therefore necessary to loosen the sand, to agitate it and also to wash it with water delivered with force. The loosening and agitation is done with the help of compressed air which is delivered from the bottom so that while passing upward through sand it loosens it and shakes it, loosening also the impurities sticking to the grains of sand. Then water under pressure is passed the same way, and the impurities are washed and the dirty water comes out at the top of the filter and is led away by a special arrangement and runs to waste.

It must be noted that the water required for this purpose must be filtered water, otherwise the impurities in the water used for washing will still be present in the body of the filter when it starts acting. The water required for this purpose is 2 to 3 per cent of the water filtered during the working period.

The water coming out of the filter, after it begins to operate again after cleaning will not be good filtered water, and will have to be run to waste for some time. The time is usually 20 minutes to 30 minutes. This loss of water is about 3 to 4 per cent. The total loss of water would be 5 to 7 per cent.

Thus we see that the operation of washing is a very complex one, very frequent one and requires skilled labour and supervision. It also requires compressed air and filtered water under pressure.

The choice of a type of filter, in any given conditions, is very important. We have therefore to study the advantages and disadvantages of each kind.

Slow Sand Filtration vs. Rapid Filtration

- | | |
|---|---|
| - (1) Initial cost of outlay large. | + (1) Initial cost relatively small. |
| + (2) Maintenance charges small. | - (2) Maintenance very expensive. |
| + (3) Preliminary treatment not necessary. | - (3) Coagulant like alum must be added before filtration. |
| - (4) Rate of filtration 2,000,000 gallons per acre per day, and therefore large area needed. | + (4) Rate of filtration 100,000,000 gallons per acre per day, and hence small area needed. |
| (5) Advantageous for waters with little turbidity and not coloured. | (5) Useful for waters which are highly turbid and coloured. |
| + (6) Nitrogenous matter oxidised during filtration. | - (6) No oxidation of nitrogenous matter. |

- | | |
|--|---|
| + (7) The process largely biological and partly mechanical and electrical. | - (7) The process is mainly mechanical. |
| + (8) Cleaning easy; by scraping top layer. | - (8) Cleaning difficult and costly; requires compressed air, water under pressure and machinery. |
| + (9) Cleaning required once in 5 or 6 weeks. | - (9) Cleaning needed at least once a day. |
| + (10) Reduction of Bacteria very great, about 98 to 100%. | - (10) Reduction of Bacteria less uniform and not so efficient, about 90%. |
| + (11) Constructed out of materials available locally and hence fully <i>Swadeshi</i> . | - (11) Must be ordered from England or America and hence wholly <i>Foreign</i> . |
| + (12) Working automatic and foolproof. | - (12) Working requires constant attention and adjustments. |
| + (13) Does not require—
(a) expert knowledge for day-to-day working;
(b) hardly any mechanical controls, gadgets and machinery. | - (13) Requires a good deal of—
(a) expert mechanical knowledge;
(b) all sorts of mechanical controls, gadgets and machinery. |
| - (14) Vital layer must not be disturbed or broken and hence inlet must be carefully arranged. | (14) Layer of floc is constantly formed and hence disturbance does not count. |

+ Indicates advantage.

- Indicates disadvantage.

Looking to the advantages and disadvantages of the two kinds of filters we see that numerically the advantages are overwhelmingly in favour of the slow sand filter. The subject of choice being an important one, we will scrutinise the arguments for and against filters of each kind.

The first and most important advantage, in favour of the slow filter is that the purification in this filter is much more efficient than that in the other filter. In the slow sand filter, the purification is chemical, bacterial and electrical and hence the filtrate is of a very high quality. All the organic impurities and most of the bacteria are destroyed in the process. In the other filter the process is purely mechanical, a question of straining and entanglement of the impurities and bacteria by the physical mass of the "floc". Even the sand used in the mechanical filters is coarser and has lesser straining power. If the quality of the filtrate is the main issue, as of course it ought to be, the slow sand filter is far superior to the rapid filter in this most important essential.

The construction and manipulation of the slow sand filter is very easy. The filter can be constructed by ordinary workmen and be run also by ordinary labour. The scraping required once in 5 weeks and so can be done by gang of coolies, under an ordinary mukadam at a

very low cost per year. The only one mechanical device needed is the arrangement of the inlet which requires ordinary adjustment from time to time.

The rapid filter is full of so many gadgets and supplementary mechanisms. To speak of a few, the inlet device requires a small machine-driven pump. Every day the cleaning and washing of the filter requires highly complex machinery. You require machinery to compress air, machinery to deliver air, machinery to deliver water under pressure, special fittings to run off the dirty water after the washing and a vast number of others. For supply of the spare parts, and for the repair to the various contrivances the owner is at the mercy of the supplier and in war time as at present, he might be held up for days or months. In an ordinary Indian town where even an ordinary bolt and nut must be ordered from Bombay, where small repairs to ordinary machinery must be done by 'experts' from Bombay, a rapid filter is out of place.

Thus the rapid filter is an inferior filter from a point of view of purification and it is not a sound financial investment. The only point left in the favour is economy in space. Near a metropolitan town, where space is not available or in a town like Ahmedabad or Hyderabad where water is taken from rivers near the town and where there is no space between the river bank and the town for installing slow filters, it may be desirable to instal a rapid filter.

In those cases where the water is very turbid and where it is not possible to clarify it by sedimentation tanks and coagulants must be used, it is better to use a rapid filter, because both the operations of coagulation and filtration can be done in one process and a large amount of space and expenditure can thus be saved. Where the water is clear, a slow sand filter is the best.

Even a large town like Madras installed a slow sand filter. But in all those places where there is good space, as in all mofussil towns, a slow sand filter is the best and most economic.

In Bengal, where the impurities in the water from bore wells consist of iron which must be removed, it may be necessary to install a rapid filter.

We have seen that from standpoints of economy and efficiency, slow sand filters are superior to rapid filters. The reader may well ask that if that is so, why are rapid filters commonly used in India—a fact testified by so many writers on water supply? Does that not prove that they are better than slow sand filters? My answer is *an emphatic no*. The reasons for wider use of rapid filters are quite different. The considerations are extraneous. I shall explain them. The first is a continuous propaganda by foreign manufacturers of filters. This propaganda is backed by an efficient service. The foreign manufacturer does everything for the purchaser, his engineers and fitters are available for constant advice. They would go to the place where filters are to be installed and attend to the whole of the installation work. They would also help in finding out an expert who would run the whole show

—an assistance which a local body feels almost bound to avail of, specially when the offer of assistance is often coupled with the warning that the supplying firm will not be responsible for defective working if any other person intermeddles. All this means monopolist prices which perforce come from the ratepayers' coffers. The second reason, why these rapid filters are used so widely, is that the Government authorities (the Public Works or Sanitary Engineering Departments), who have to be consulted by local bodies and without whose recommendation loans are not granted to them, almost invariably support schemes of rapid filters manufactured by two or three British manufacturers. The local body, who have no competent independent technical advisers to guide them, and who know that their loans would be sanctioned only if the department heads back their application, have tamely to submit to this ruinous economic drain that rapid filters cause, and to be saddled with a less efficient filter.

It will be seen therefore that the wider use of rapid filters by local bodies is not a sound argument in support of the theory that they are better than the slow sand filters. This wider use is no answer to the case I have made out that slow filters are both economic and efficient. The installation of slow sand filter by such an important municipality as Madras shows that they have appreciated their advantages mentioned above.

There is, however, another consideration. That is the drain of country's wealth by the purchase of foreign made machinery. In the past, whenever I have urged these considerations of Swadeshi against the foreign, I am told that I am marring my otherwise sound conclusions by considerations of nationalism which have no place in scientific studies.

This may be true, if we are considering propositions in the abstract. When, however, we are considering schemes of installation in a country like India, with tiny local bodies with meagre revenues, every pie that can be saved must be taken into account in preparing estimates of every water-supply scheme. Every device of employing cheap unskilled labour against prohibitive expert service must be resorted to by a practical worker who wishes not to write like an abstract scientist a thesis expounding abstract theories on paper, but who wishes to advise local bodies on an efficient and economic method workable by labour which can be locally recruited and which even a government department, obsessed with the notions about the efficiency of foreign machinery irrespective of the suitability to Indian conditions, cannot object to.

We hope our Engineering College professors will impress this point of view on the students when dealing with filters, because we have seen students prescribing rapid filters for a small town of 10,000 population, where land is very cheap and ample.

CHAPTER XVIII

POST-FILTRATION TREATMENT OF WATER

Softening of Water

Out of the whole list of impurities in the water, only two are left after it comes out of the filter-beds:—

- (a) Dissolved inorganic impurities;
- (b) The recalcitrant micro-organisms that escape through the 'vital layer' of the filters.

Both these are bad and must be removed.

(a) *Dissolved Inorganic Impurities*

We have made a passing reference to these impurities while dealing with the pre-filtration treatment.

Salts dissolved in water give it either—

- (i) Temporary hardness, or
- (ii) Permanent hardness.

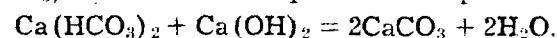
Temporary hardness can easily be removed by boiling water. But boiling water on a large scale is a very costly and troublesome operation.

Usually water from a reservoir, lake or from large rivers except those which flow through hills having soluble metallic salts, does not contain dissolved salts and the water is soft. Such water therefore requires no purification for hardness.

Water from wells, particularly from deep wells, has dissolved salts and is generally hard. It must, therefore, be purified for hardness.

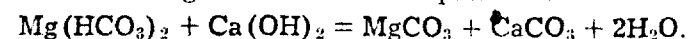
The maximum degree of hardness, allowable in water for human consumption must be less than 30° on Clarks system or 20° on Metric system. Hardness over this degree is positively bad. (*Vide* Chapter XV.)

Temporary hardness can be removed by what is called "Dr. Clarke's" process in which caustic lime water is added to the water. It removes the free and half bound carbon dioxide gas (CO_2) from the water and thereby converts the bicarbonate of lime $\text{Ca}(\text{HCO}_3)_2$ into insoluble carbonate (CaCO_3). The chemical equation of the process is as under:—



The insoluble carbonate thus precipitated becomes a suspended impurity and must be removed by sedimentation.

In the case of Magnesium salts the equation is:—



The sedimentation process, however, is rather slow both because CaCO_3 has not got a high specific gravity, and being a precipitate in a chemical reaction, is in fine powder. During slow sedimentation process, due to these two reasons, there is a danger of some of the carbonate being redissolved in water by contact with the CO_2 gas of the atmosphere with the top layer of water. The best way, therefore, is to use a rapid filter for purification after the precipitation.

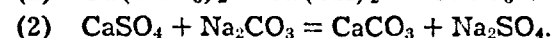
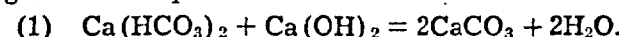
PERMANENT HARDNESS

There are two processes by which this hardness can be removed:

- (x) Lime Soda process;
- (y) Base Exchange process.

(x) *Lime Soda Process*

Taking the first process, we have to add two re-agents, lime and soda to the water. The reactions of calcium salts are given in the following chemical equations:—



The reactions in the case of calcium chloride and nitrate are also similar. Magnesium salts give similar reactions. The change that takes place is that the calcium and magnesium salts are replaced by soluble sodium salts, and the lime and magnesia carbonates are precipitated. The sodium salts so replaced have the advantage that they do not impart hardness to water, and for all practical purposes the water can be used as soft water.

The best way to soften water on a large scale is to use mechanical means to mix the re-agents and then to pass the water through rapid filters. The hardness is not completely removed, but is reduced to 2° or 3°.

Both these processes are necessary for water to be supplied to a large industrial city where it is required for manufacturing process. The use of a rapid filter can therefore be justified here.

The method of removing the hardness of water by the soda lime process is a very clumsy one requiring so many manipulations and chemicals that on a large scale it is costly and troublesome. Besides, it does not reduce hardness completely as required in water for certain factories for chemical products.

(y) *Base Exchange Process*

A good deal of experimental and research work was done by eminent scientists and as a result of the investigations a more modern and less costly method requiring only one manipulation was found out, and plants are now prepared and are doing very satisfactory work in completely reducing the hardness of the water.

The method consists in the use of a mineral called 'zeolite' which is used as a filtering medium.

Zeolites are of two classes :—

- (1) Aluminium Silicate;
- (2) Double Silicate of Alumina.

Of these the first are found to be very useful for the purpose of reducing or removing completely the hardness of water.

Natural zeolites were found to be neither so extensively available nor so efficient as they should be. The composition might vary and impurities found in the natural zeolites would affect the purity of water when it comes out of the zeolite filters.

Artificial compounds were tried, and at last scientists hit on a compound which was found to be cheap, easily manufactured and very efficient. This was manufactured in two or three forms which had slightly different composition and slightly different qualities though the principle of the working is the same. The two most common are 'permutit' and 'doucil'.

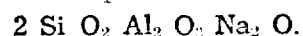
Permutit is manufactured from felspar, Kaolin clay and soda. These are mixed in a fixed proportion according to their chemical composition and fused in furnace like a glass furnace. After it attains a certain degree of fusing, it is allowed to cool and is then crushed to a degree of fineness between .5 and .25 millimetre grains. The permutit is then washed thoroughly to rid it of all impurities and alkalies.

The material is used in filters of the type of pressure filters, where a layer of permutit is used instead of sand, 2'6" to 3 ft. in thickness and water allowed to filter through at a rate of flow 10 to 16 feet per hour according to the percentage of hardness in water. The water main is coupled to the inlet end of the filter, the flow regulated and water drawn at the outlet end, and the filtrate is found to be free from all hardness. The filter can be used for any factory or other places where water without a trace of hardness is needed and as seen above the use is very easy.

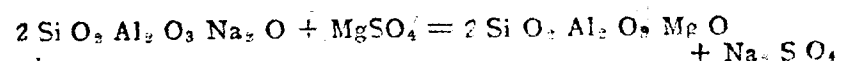
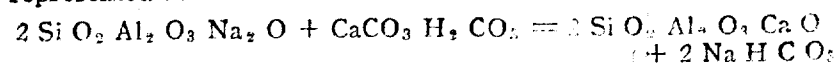
The composition of permutit is as under :—

Silica	..	..	46 %
Alumina	..	..	22 %
Sodium Oxide	..	..	13.6%
Water	..	..	18.4%

The chemical formula is represented as—



When hard water passes through the filters, the dissolved impurities which give hardness to the water, undergo chemical changes which are represented as under :—

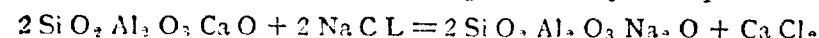


(Similar changes occur in the case of other salts of calcium and magnesium when present in hard water). All the calcium present is held

up by the material of the filter, which parts with its sodium. The water coming out therefore gets rid of all the calcium and has sodium in solution. Sodium in solution does not however give hardness to the water. The water may froth. It is useful for washing and laundry purposes, as it has got more of sodium carbonate (Soda Carb.). It may not be very useful for boilers as it froths there.

It would be seen from the chemical reactions given above that the filtering material in the filter becomes poorer in its sodium and goes on substituting calcium or magnesium in place of the sodium. A time is bound to come when the material which was "permutit" will no longer have any water softening quality as it will have no more sodium to part with. In the natural course of things, the materials of the filter would have to be thrown away and a fresh supply added. This would involve a great cost.

Scientific research further revealed that, if a solution of common salt of suitable strength were allowed to trickle through the used up filtering material for a suitable time, sodium in the salt would strengthen the permutit by supplying the necessary amount of sodium (13.6%) and the calcium contents in the filtering material would be washed away as calcium chloride (CaCl_2) which is highly soluble. The filter would therefore be "regenerated" and ready for further use. Common salt being very cheap, the cost of the regeneration would not be great. The chemical equation of these changes is represented by the equation :—



When the filter is found to be used up, the water-supply main is disconnected and a calculated dose of solution of common salt of a certain strength is allowed to trickle through the filtering material for 8 to 10 hours. The chemical process is complete by that time. The material is then washed clean of all the salt and calcium chloride for about half an hour and then the filter is ready for use again. Two filters must be provided, one for use while the other is being regenerated and washed. In some cases, it is found useful to regenerate the filter for half an hour or so every day at the slack period and then to wash it of all salt and Ca Cl_2 . In this method you are always sure of a reliable filter which is not allowed to run down fully.

The material "Doucil" has the advantage that it takes a very short time, 15 minutes to half an hour, for the "regeneration" as the chemical changes are instantaneous.

The work is not very cheap, but the filters are handy, they remove the hardness completely and leave no sediment.

These filters are useful for iron removal. For the removal of iron the chemicals used are however different. It can also be removed by a layer of 'polarite' or magnetic oxide of iron in a pressure filter. The layer is about 6" in thickness in the middle of the filtering material.

In this province water is generally free from iron, except at Matheran, Mahableshwar and one or two other places. Hence we are not dealing with the subject except for a passing reference above.

When water is subjected to the full scheme of purification as described before, it parts with all its impurities except the recalcitrant bacteria, some of whom are really dangerous. The water must, therefore, be "sterilised" for the removal of these.

Sterilisation of Water

There are many methods of sterilisation. Boiling water to a certain temperature is probably the most effective and simplest. It cannot, however, be done on a large scale, where large quantities of water are to be dealt with. The only method therefore would be to use "germicides" or chemicals which would kill the bacteria.

The following conditions must be satisfied when a chemical is used as a germicide:—

- (a) After treatment, water must be palatable and must have no bad or injurious effects on men, animals, plants or on distributing pipes or machinery through which it passes;
- (b) No precipitate must be formed after the addition of chemicals, otherwise removal of the precipitate would require further purification and cause further expenditure;
- (c) The chemical used must be cheap and must not necessitate heavy initial cost of the plant needed for the method;
- (d) The plant must be capable of easy working.

There are many chemicals which are germicides. Now it is accepted beyond any controversy that chlorine is the best germicide both practical and economical when required for purification of large quantities of water.

The chlorine treatment can be given by any of the three following methods:—

- (1) by use of Bleaching Powder;
- (2) by use of Hypochlorite of Soda;
- (3) by use of Chlorine in liquid form.

We will now consider each of these.

Bleaching Powder.—The chemical formula is $\text{Ca}(\text{Ocl})\text{cl}$. It is a white powder containing 30 to 35 per cent active or available chlorine when fresh. The compound is however very unstable, and goes on losing its chlorine when exposed to climatic changes. Great care is therefore necessary in storing it. When the powder is to be used we are not sure of the amount of chlorine available per pound and therefore before use for the day, experiments must be made to determine the quantity of chlorine available and then the dosage must be given. The process is both tedious and expensive and requires a laboratory and a chemist.

Hypochlorite of Soda.—The chemical formula is Na ClO . This is an alkaline liquid and contains very little chlorine almost 14%. The compound is however stable. But the large quantity of reagent that must be transported for a required dose of chlorine makes it very

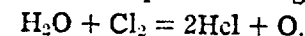
expensive. It has however the advantage that it is more soluble in water.

As a result of both these methods, the water purified is mixed with large quantities of impurities during the process of purification. May be, they are harmless, but still they are impurities introduced in water which is being given the last touches in a purification process. Money was spent on the water for removal of similar impurities. They therefore partly defeat the object of purification.

Liquid Chlorine.—It is for these reasons that liquid chlorine is now invariably used for the sterilisation of water. Liquid chlorine is available in cylinders which are easy to transport.

When subjected to a pressure of about 100 lbs. per square inch, depending on temperature, chlorine becomes liquid; and can be conveniently stored in cylinders which contains 70 to 100 lbs. of liquid chlorine. It is highly corrosive when damp and special fittings are needed for the whole apparatus dealing with it.

The chemical reactions of the process are given by the equations:



The liberated oxygen attacks the bacilli and vegetable matter present in the water, and converts them into water, gases and harmless products. The action is hastened by sunlight.

The advantages of the process are—

- (a) The gas is very powerful concentrated and a pure germicide which can be stored for a long time without deterioration;
- (b) The space required for storing is very little and the cost of transport is comparatively small;
- (c) The cost of sterilisation is very little;
- (d) Manipulation of the process is very easy and the results obtained are very accurate and uniform;
- (e) No sludge or residue are formed;
- (f) The dose being very precise, there is neither fear of overdose nor of underdose;
- (g) The initial cost of plant needed is very small.

Chlorine is added by means of small apparatus called the "chloronome". The pressure on the gas from the cylinder is reduced and the chlorine mixed with water. This water is then mixed with the water to be purified and arrangements are made for a thorough mixing of the solution of chlorine and the water to be purified.

The dose necessary, depends on the presence of impurities. It varies between one part in a million to one part in five million parts of water. This works out to two pounds to ten pounds per million gallons of water.

Chlorine leaves some taste and smell and probably there is some loose chlorine in the water so treated. The Poona water supply has

often such a smell. To remove this, "dechlorination" is needed. A calculated dose of sulphurous acid gas or ammonia serves the purpose.

The ammonia-chlorine process consists of applying ammonia with the chlorine which results in the formation of chloramine (NH_2Cl). This compound has the effect of prolonging the disinfecting action of the chlorine. As a result of this extended action less chlorine is used and in some instances chlorophenol tastes are avoided. Chloramine does not react with organic matter; hence, the full effect of the chlorine as a disinfecting agent may be utilized even in the presence of organic matter. The application of ammonia is quite similar to the direct-feed method of supplying chlorine. The source of supply of ammonia is cylinders of 50 to 100 pound capacity in which the gas is liquified under pressure. Gas control machines called "ammoniators" are used to regulate the dosage. The water to be treated must be alkaline if chloramines are to be formed.

In most instances ammonia is added first and thoroughly mixed with the water before chlorine is introduced.

Bombay water supply is at present purified by a dose of 2 parts of chlorine to one of ammonia by a Candy type chlorinator and ammonia-tor plant. The dosage is 1.5 parts per million parts.

In the new scheme for sterilisation, the plant will be at Pawai. The work is automatic. Both the chlorine and ammonia solution will be injected automatically in the mains and will sterilise water during its flow in the mains. The mixture of water and the solution will be a thorough one and there will be no smell after the water reaches the consumer.

Unfortunately, all the chlorine used was a foreign product, mostly German or Czechoslovakian, and after the present war the stocks became so low that there was a scramble on the part of many municipalities to obtain the stock needed. We hope, the present war serves as an eye-opener in this respect, and for all the necessary supplies of chlorine and other heavy chemicals, we must have our own organisations and factories which will make us independent of others. Besides, these factories will give work to many students trained in science and to a large number of workmen, and stop the current of good Indian money to foreign countries for such materials.

"Flat Water"

The water so purified by the three processes of purification, the filtration and the process previous to it and after it, is no doubt free from harmful impurities and germs, and men can use it without harm or fear. But the water is now 'flat' water. It loses all the bracing qualities such as presence of a little free oxygen or of some gases or acids or of some salts which make the water sparkling and good for human health. The water is pure but insipid.

But the greater danger is that such purified water is deprived of all those properties which it had of withstanding to some extent any pollution introduced in it. The power of natural resistance is gone.

If therefore any bacteria are introduced after this stage, either during passage in pipes or in the service reservoir or later in any part of the distribution system, they increase much speedier than they would in the natural water before purification. Great care must be taken to protect the supply after it is purified. This is fully dealt with in Part II of the book. The purified water must also be utilised as soon after the final purification as possible.

Location of Purification Works

In the scheme of purification works, the location of the various works for the three stages of purification is an important factor that requires consideration.

We have seen before (*vide* Chapter XVI) that suspended impurities and those that render water temporarily hard, settle down when water is still or flows at a slow speed. If such water were to be led through ducts and pipes, suspended impurities would be deposited in the pipes or ducts and in all supplementary chambers, or towers or at every bend or valve where the velocity of the water would be considerably reduced. In most of the irrigation canal systems, the deposit of silt in the canals is one of the main troubles and a lot of expenditure has to be incurred in removing silt from canals. But canals are open and therefore silt can easily be removed. Supposing pipes were used, the removal would be almost impossible or very costly because all the joints from long lengths joined together would have to be taken out, and remade at very great cost, a job which is almost impossible owing to the cost and time required. The incrustations of the deposits of salts from water with temporary hardness, would not be so extensive as silt, but would be very hard and still more difficult to remove.

A pipe line once disturbed presents so many difficulties that it is best not to disturb it when laid in position.

For this reason alone, heavy suspended impurities must be removed as early as possible and the best place for the sedimentation or settling tanks is as near the source as possible.

There are other reasons also for the location of almost all the works except "sterilisation" near the source.

We have seen that considerable quantities of water are lost both during sedimentation and filtration. The sizes of ducts and pipes are dependent on the quantity of water to be conveyed. Hence it is always more economical to arrange for the inevitable losses as near the source as possible, because then the net quantity to be conveyed is less and the sizes of ducts and pipes would be more reasonable and more economical. There is certainly no sense in carrying water a long way and losing some of it in the inevitable losses in processes of purification.

Where hardness of water or iron must be removed, it would be better to do it before it is let in the pipes so that the danger of incrustation referred to above is obviated.

The last process, that of sterilisation, must however be carried out as near the consumers place as possible, that is, near the service reservoir or near the distribution system. Water after it undergoes all the treatment, and particularly the sterilised water, is "flat" and must be used as soon as possible after it is sterilised, because as we have said before it loses all its natural power to resist the pollution it might get during the passage through pipes, and other works. The time that water takes from the source to the service reservoir is very indefinite. So that in face of these two indefinite items about pollution and time, it is best to sterilise water near the service reservoir.

The problem becomes more important when water requires pumping. Parts of the pumps and their fittings that come in contact with dirty raw water are sure to be clogged and to have incrustations which must be removed very often. The volume of raw water is greater, and to pump it and then to waste it in the unavoidable losses mentioned above, is a waste of good money for nothing.

There is also one further reason for the location of the purifying plant near the source. Generally, the source is away from the town and land is cheap and easily available. Both the settling tanks and purification works require a very large space. This can be easily available and cheap near the source. The disposal of the waste waters from the settling tanks and filters does not present difficulty near the source, because they can easily be let out in the nala. The cost of land is one of the excuses for using mechanical filters. Slow sand filters which are more efficient and cheap can be used, when filtration is carried out near the source.

There might also be some facility and saving in the establishment charges if all the works are centralised in one place near the source.

It is therefore desirable and necessary to locate the whole purification system except the sterilisation near the source of water and to locate the sterilisation plant near the distribution system.

Clear Water Reservoir

Purified water is thus available at the end of the purification system, at the outlet from the filter-beds, or from the water softening plant, where such plant is necessary and is used. This water comes or is expected to come out at a steady rate of flow from the outlet referred to above and is available for further use. Whether the water can be conveyed directly from the outlet by pipes, or must be collected in a "clear water reservoir" depends upon two circumstances:—

(1) That we can be absolutely certain that the filtering process is continuous and the effluent from the filters comes at a uniform rate to feed the pipes;

(2) Whether pumping is necessary.

Condition No. 1 may not be always satisfied because you cannot be sure of a uniform rate of effluent. But the greater reason is that in case of a mishap to the filtering plant or any dislocation of the arrange-

ment, there is no stand-by of filtered water to depend upon and to feed the pipes.

When pumping is necessary, a clear water reservoir is a necessity. Because, it is not possible to adjust the rate of the flow of the effluent to the rate of pumping of water to such a nicety as to be equal at all times even when pumping is continuous during all the 24 hours. When however pumping is carried out during some hours of day only, say, for 16 hours, the "clear water reservoir" is absolutely necessary.

Its capacity must be enough to hold a 10 or 12 hours supply. Theoretically it must be able to hold filtered water that comes in eight hours during which the pump is not working, and must hold an additional two or four hours supply in case of eventualities.

The size and shape of the reservoir is then a matter of mere calculation and design. The work must be waterproof, so that no outside contamination may come in. The reservoir must not be open and impurities from the air, or those dropped by birds or trees should not be allowed to enter therein.

The site of the clear water reservoir must be just near the outlet of the purification works. The arrangement of all the works is shown in the Figure 28.

As regards the various levels at which water is available in all these works near source, the diagrammatic sketch given on the next page with the explanatory notes, explains the position and shows the final level at which the water is available for conveyance. This is an important factor for pumping of water.

The starting point of the levels of the water is the level of the outlet. We have to take the level at which water comes out of the lowest outlet, in case there are more than one outlets.

When we start from this position knowing this level, water enters the settling tank with or without the coagulation arrangement. The loss of level is represented by the difference of level between the inlet and outlet. The same applies to all kinds of filters (10 ft. to 15 ft.).

The loss in the water softening arrangement is clearly the same (10 ft. to 15 ft.).

In the clear water reservoir water comes at or near the top and is drawn off near the bottom and the loss is represented by the height of the tank (10 ft. or 12 ft.).

There is a loss of two or three feet in the pump well for locating the foot-valve of the pump.

The total loss of head, therefore, is between 40 to 50 feet in all these arrangements if the full programme is to be carried out, and water enters the rising main or conveyance main at a level 50 ft. below the outlet pipe of the dam.

In the Bombay City water-supply at Tansa there are no settling tanks or purification works. No pumping is needed at the source and hence water from the outlet is drawn directly in the pipes from the

DIAGRAMMATIC SKETCH OF WORKS AT THE SOURCE

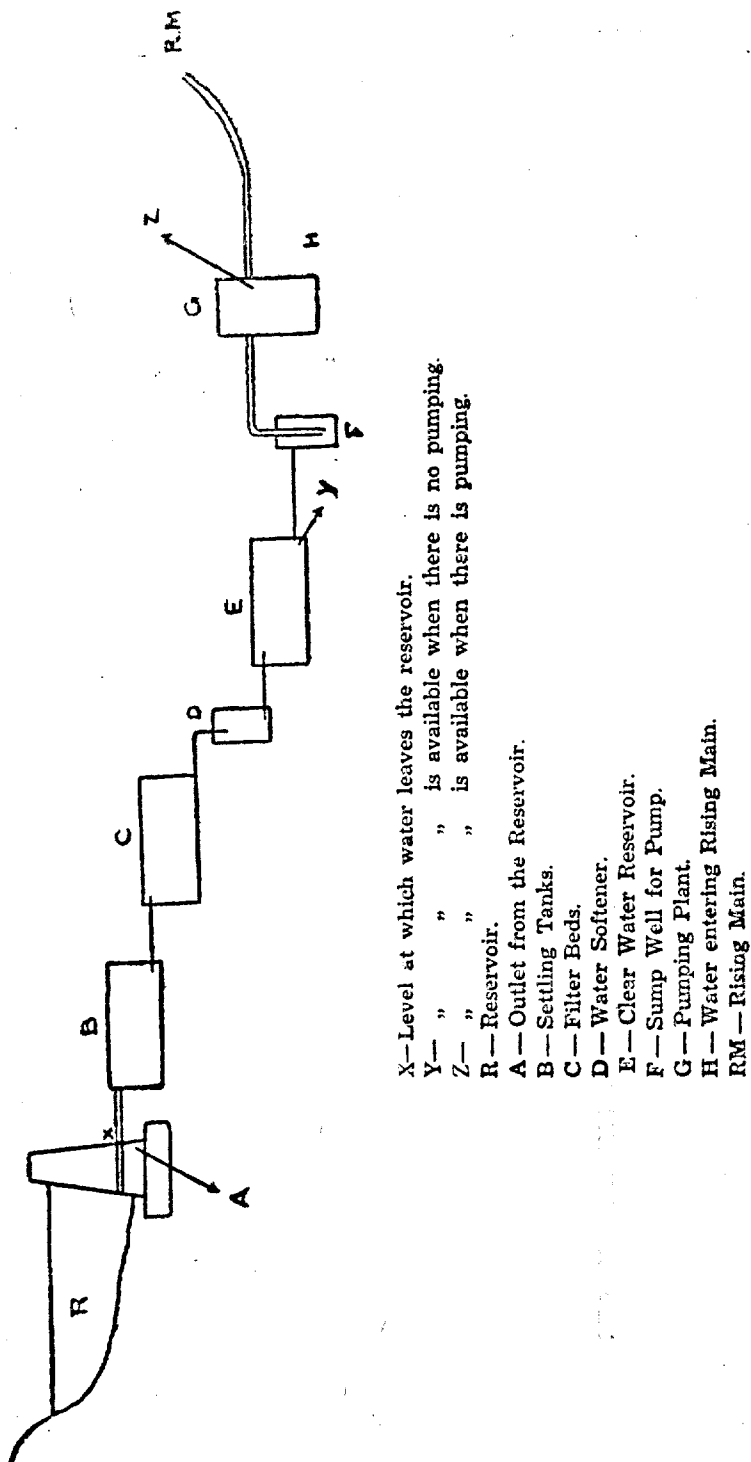


Fig. 28.

outlet well. The lowest outlet, however, is 40 ft. from the top of the dam and about 85 feet higher than the bed of the nala. The pipe line is much below the outlet level and the whole head between the pipe line and the outlet sill is lost. This loss is not felt because the total available head is more than enough.

CHAPTER XIX

PUMPING OF WATER

We see from the last part of the previous chapter, that water enters the mains, either gravity mains or rising mains, at a level which we can fix from the nature of the works. This level represents the level at which the water starts its journey through the mains to reach the distribution system near the town and is the basis for all further calculations of levels.

The final destination of this water entering the mains is the service reservoir of the distribution system which is considered later on (*vide* Chapter XXII) and the level it has to reach is the "full supply level" in that reservoir. Thus we have a very definite idea of the level at the start and the level at destination of the water.

Besides reaching the level in the service reservoir, water during its passage through the pipes has to overcome friction of the pipes and consequent resistance to its flow, and other losses of head. These can also be calculated.

At the start, therefore, water must have enough energy to reach the final level and also to overcome the total loss of head.

Supposing, therefore, A is the level of water in the outlet pipe at the clear water reservoir and B is the level of the point to which water must rise in the service reservoir and C feet is the total loss due to friction and other losses in the pipes, the total level to which the water must be capable of rising is represented by B + C and the total head which water must have to rise to this level is represented by

$$A - (B + C) = A - B - C$$

If the result of the above expression is negative then pumping is required.

(1) Taking some illustrations :

$$\begin{aligned} \text{If } A &= 360 \text{ ft.} \\ B &= 110 \text{ " } \\ C &= 140 \text{ " } \end{aligned}$$

$$\text{Then } A - B - C = 110 \text{ ft.}$$

or there is still a surplus head of 110 feet and no pumping is needed.

$$\begin{aligned} (2) \text{ If } A &= 200 \text{ ft.} \\ B &= 110 \text{ " } \\ C &= 140 \text{ " } \end{aligned}$$

$$\text{Then } A - B - C = -50 \text{ ft.}$$

So pumping is required to raise water 50 feet.

$$\begin{aligned} (3) \text{ If } A &= 40 \text{ ft.} \\ B &= 110 \text{ " } \\ C &= 140 \text{ " } \end{aligned}$$

$$\text{Then } A - B - C = -210 \text{ ft.}$$

And therefore pumping is required to raise water 210 feet. Thus we see, that three cases are possible.

(1) In which the level of water at the source is such that it can travel by force of its own head (by gravity), to the service reservoir. This is called the "Gravity System".

(2) In which the level is such that it can travel a part of the distance by gravity and must then be pumped.

(3) In which the water must be pumped from the beginning.

(1) Gravity System

A gravity system is the best, because it saves the cost of pumping which consists of capital cost and a very great deal of recurring charges.

Very few towns can have this advantage. It is only possible in those places where there are hills round about and where sites for storage reservoirs are available in those hills.

Pumping is not a matter of choice but one of necessity when levels are not favourable for a gravity supply. It would even pay to go some distance further away from the town, if a gravity supply is available. The Bombay water-supply comes mainly from Tansa which is 64 miles away from Bombay and is most fortunately a gravity supply.

(2) Supplies requiring pumping for some part of the height

Even when the hills are near, many town water supplies are such that water can travel only a part of the way by gravity and must then be helped the remaining distance by pumping. Water is purified near the source and a clear water reservoir is constructed at that place where water can reach by gravity. Pumps are then installed here. Such a water supply is only a partial blessing, because Nature helps only partially to save the expense of pumping. The best conditions for such supplies would be those in which water can be brought almost to the town by gravity. It can then be pumped to the service reservoir which is always at a higher level than the town as explained later (*vide* Chapter XXIII). Such supplies are better because pumping installation can be located near the town, and is better for working, supervision and administration.

(3) Supplies requiring pumping from beginning

These supplies can be classified under two heads : (i) Where water from reservoirs can be purified and led by gravity to the clear water reservoir just near the purification works, and then pumped from there. (ii) In which water must be pumped to the purification works, and then to the service reservoirs.

In cases coming under (i) the impounding reservoir must be sufficiently high to have a head of 50 feet of water as we have calculated

for losses at the source. When once water comes from the purification plant, it is stored in a clear water reservoir and pumped by a rising main from there. In the Dharwar water-supply, for instance, water from the Kelgeri tank is allowed to filter naturally into a small reservoir excavated down stream from the dam. The reservoir serves the purpose of a clear water reservoir. A small pump well is constructed near this small reservoir and water is pumped by a rising main.

(ii) *Water pumped for purification.*—All supplies in which water is taken from rivers or wells requires pumping from the beginning. In case of water from wells, generally no purification is necessary except for hardness and/or iron. Wells which are within a very convenient distance from towns can be pumped directly in the service reservoir. In wells where water is hard or has iron, purification is necessary and then pumping must be done in two stages, once from the well to the filters, and then the filtered water from the clear water reservoir to the service reservoir. Bore-wells in Bengal require such a purification.

Water obtained from rivers must necessarily be purified and pumping must be done in two stages. Such rivers generally flow by the side of the town, and the pumping plant must be located in a place well above the highest possible flood. Water in the river is full of impurities and clogs all parts of the pumping machinery that come in contact with it. The cleaning of these parts is in itself a laborious work which must be done frequently. Purification works must be situated as near as possible to the river bank, to save cost of pumping the raw water to a long distance.

The second stage of pumping is from the clear water reservoir to the service reservoir.

Pumping Machinery

Pumping machinery consists of two parts:—

(A) The Power Plant.

(B) The Pump.

(A) *The Power Plant.*—The kind of power plant would depend upon the motive power for driving the pumps. There are three kinds of machinery which can be used for generating the power to be used:—

(i) Steam Engine.

(ii) Oil Engine.

(iii) Electric Power.

The Steam Engine is now out of date, because though it is more reliable and more foolproof than any other engine it is very clumsy and old fashioned and requires more fuel and more time to come to a working condition, and much energy is lost in cooling when the work is stopped.

The Oil Engine, particularly the Diesel type of engine is now more in use. The fuel used is crude oil. The engine is not so clumsy, and now it is as reliable as a steam engine and takes up load at once. This

is generally used for the production of motive power. It requires less fuel and has a greater percentage of efficiency ratio.

Electric energy is nowadays found to be the best for pumping water. In every town of some importance there is a plant for generation of electric energy for light and power. During day time, there is very little or no load on the plant. It can, therefore, generate the energy required for pumping water very cheap.

Advantages of electric pump are:—

(a) The initial cost of the installation is very cheap.

(b) The running cost also is very cheap.

(c) The whole plant is compact and can be installed and housed very conveniently. In case of transfer from one place to another, an electric plant affords more facilities.

(d) When required to run on partial load, the running expenses are proportional to the load. In a steam engine you have to waste steam in such cases, in an oil engine the efficiency ratio is smaller for partial loads than for large loads.

(e) Power can be put on or off at an instant's notice. Steam engines take a very long time to be ready with steam, oil engines take some time.

(f) There are no waste products in the working of the motors. The other engines give out ashes, smoke and gas, and leave a dirty appearance of oil everywhere.

(g) Both skilled and unskilled labour required for manipulation is the minimum possible.

(h) The efficiency percentage is very great. It is up to about 90 to 95% as against 60 to 70% of steam and 70 to 80% of the oil engine.

These are certain disadvantages. In case of failure of the electric plant, the whole water service would be dislocated. But in modern times, a failure of an electric power plant dislocates most of the city's service. Dislocation of water service adds to the discomfort. But modern power plants are very reliable.

The most serious disadvantage is that the Municipality is at the mercy of the electric company and in case of a deadlock between the company and the municipality such as that at Jalgaon for some months in 1938 and in other places, water supply would be in danger of being stopped. Some electric companies are not amenable to ordinary reason, but insist on a monopoly price and the negotiations break down. Dharwar had to install oil engine only last year because such negotiations failed.

Ahmedabad, Hyderabad (Sind) and many other large Municipalities are using electric power for pumping with advantage and there is no reason why others should not use it.

(B) *Pump.*—The type of pump found to be most suitable is the centrifugal pump. When the vanes are properly designed they send a continuous stream of water. Of all pumps they are the least affected

by suspended impurities and grit. They have no valves and other parts to get out of order. They can be easily installed in any position.

Power Needed for Pumping

While calculating power required to pump water to the level of the F. S. L. in the service reservoir, we have to determine two factors on which it depends.

(x) The total load to be moved.

(y) The force which must be overcome.

The total load to be moved is the weight of water. The unit of time being taken as one minute, the weight of water to be pumped per minute is found out as under :—

Quantity of Water to be pumped

In cases, where the pumped water is let out directly in the mains without an intermediate service reservoir, the allowance for inequality of demand must be taken about 2 to 3 times the average demand in the day. During this busy time of the day the pump provided must have the capacity to pump 3 times the average supply needed per minute at any time. A larger power unit is, therefore, necessary, and when it is not working at peak load, the work is very inefficient. Provision for fire protection is extremely insufficient. The method of pumping directly in the mains is now discarded and no water-supply scheme is designed without a service reservoir.

Where service reservoirs are provided, pumping can be kept up at a constant rate during the time the plant works. In ordinary towns with a population upto 20,000 the pumps are worked for about 16 hours a day. 16 hours represent two shifts of eight hours each for the workmen and the remaining 8 hours can be utilised for cleaning the engine and pump. When the plant is cleaned every day it works more efficiently and has a better life.

The pump, therefore, must be capable of pumping the whole day's supply in 16 hours working time.

Thus if :

W = Water required per head per day in gallons (average).

N = Population of the Town.

Total water needed in 24 hours = $W \times N$ gallons = $W \times N \times 10$ lbs.

This must be pumped in 16 hours.

Weight to be lifted per minute = $\frac{W \times N \times 10}{16 \times 60} = \frac{WN}{96}$ lbs.

The forces against which this is to be moved are :—

H = Height in feet represented by the difference of level between the level of the service reservoir and the entrance to the rising main.

h = Head in feet lost in friction and other losses in pipes.

Total of H + h feet.

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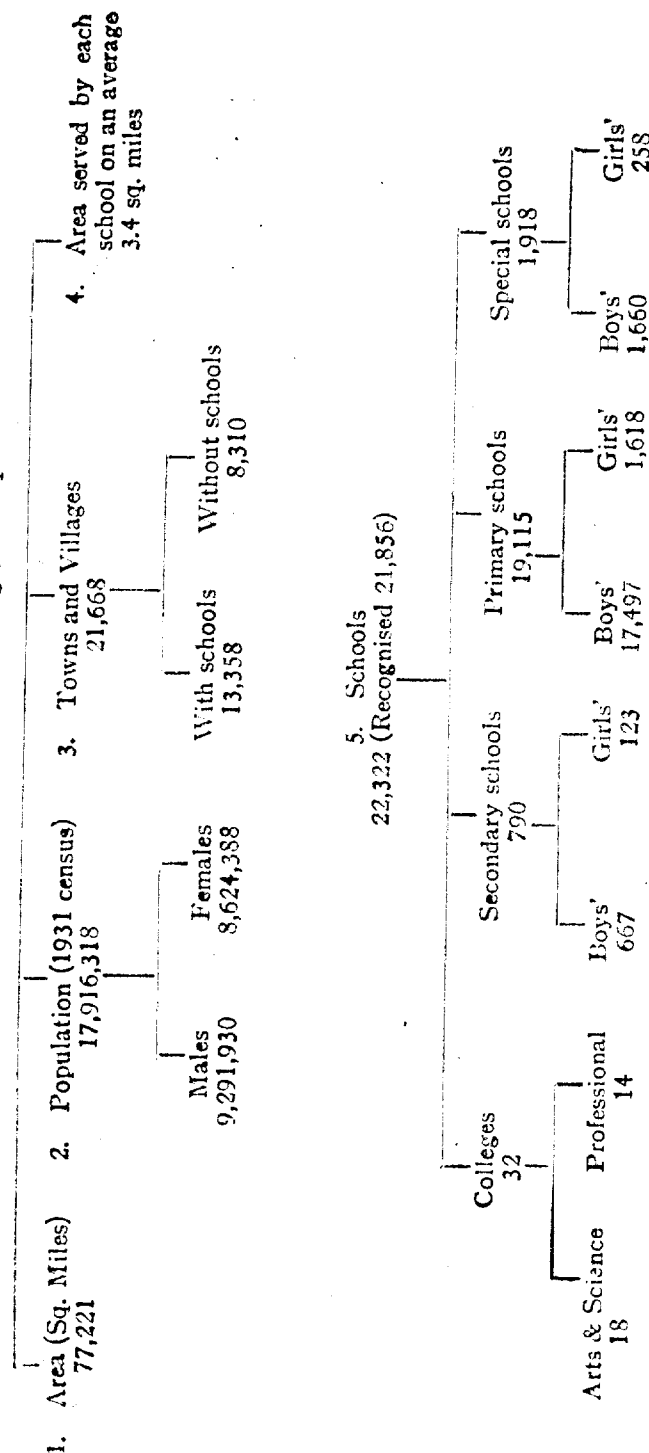
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EDUCATION IN THE BOMBAY PROVINCE (British Districts)

STATISTICAL DATA—1939-40

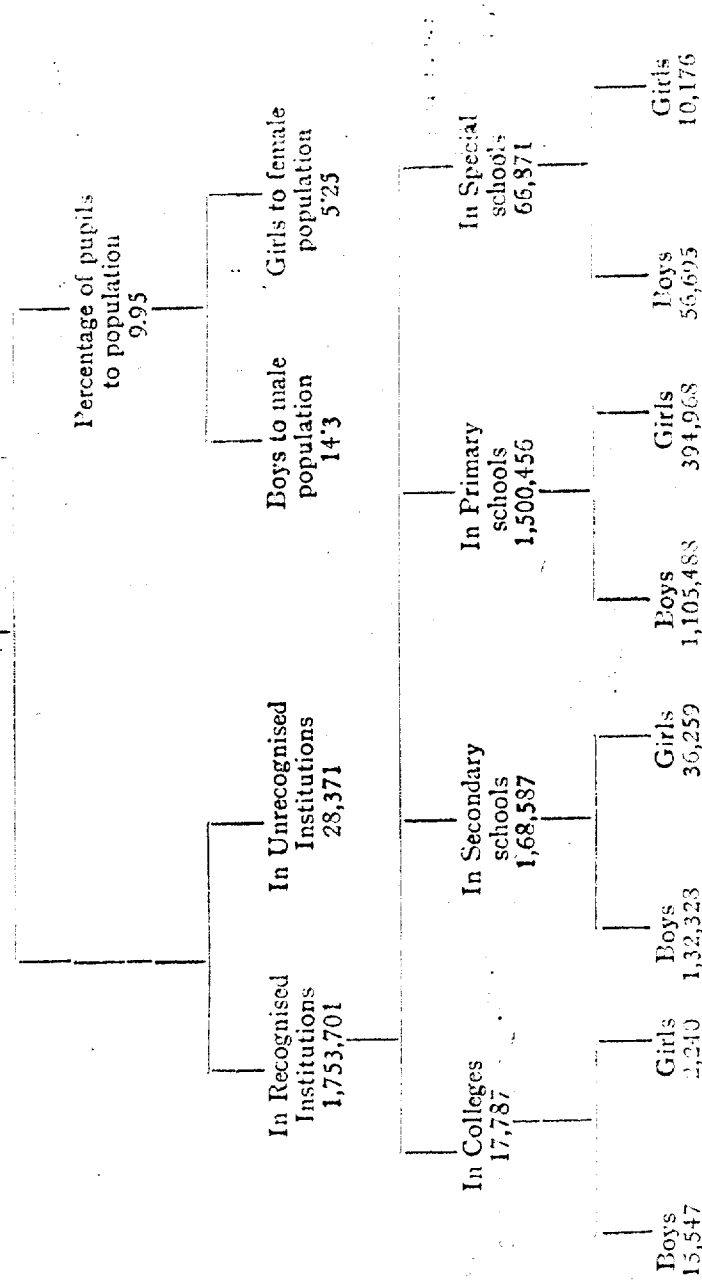
*COMPILED BY PRINCIPAL K. S. VAKIL,

Maharani Tarabai Teachers' College, Kolhapur

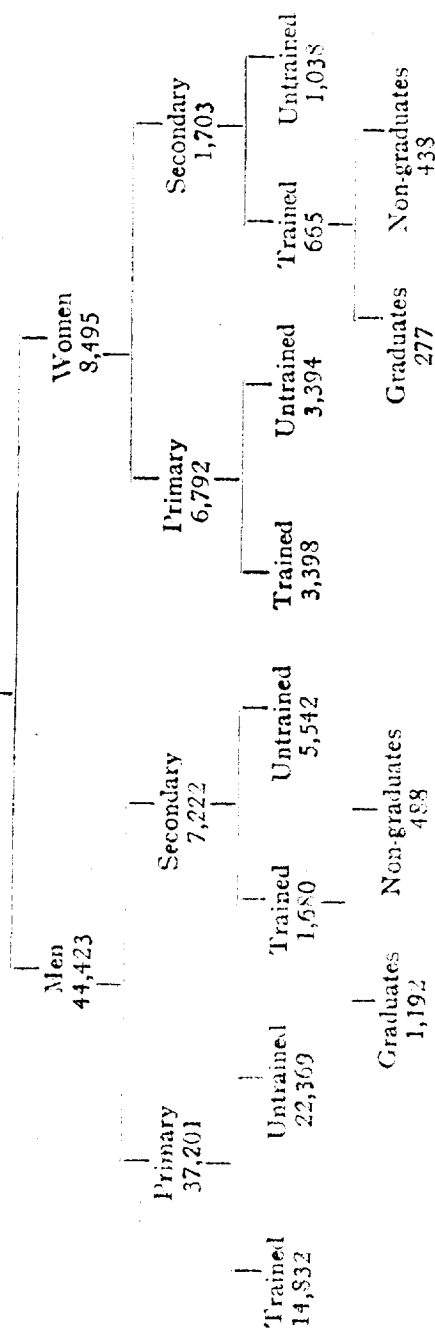


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6. Pupils 1,782,072 (1,329,012 boys and 453,060 girls)



7. Teachers 52,918



8. Expenditure on Education

Total	Government's share
Rs. 4,38,79,934	Rs. 1,97,01,200

VITAL STATISTICS OF THE DIFFERENT PROVINCES IN INDIA

Province	Birth rate per mille of population for the year 1939	Death rate per mille of population for the year 1939	Rates of natural increase + or decrease— per mille, 1939	Infant mortality rates per mille calculated on the number of births registered during the year 1939		
				Male	Female	Total
Bengal Presidency	...	21.9	+10.1	153.9	138.8	146.6
Madras Presidency	...	25.3	+13.2	185.6	165.4	175.5
Bombay Presidency	...	27.5	+15.7	159.7	145.0	152.7
United Provinces	...	23.1	+13.2	145.8	132.2	139.4
Punjab	...	25.6	+21.6	174.9	159.3	167.6
Central Provinces	...	33.6	+7.8	228.9	207.7	218.6
Bihar	...	23.0	+10.3	172.1	138.1	155.3
Orissa	...	28.2	+6.7	207.0	187.2	197.4
North-West Frontier Province	...	18.7	+11.6	135.1	124.5	130.5
Assam	...	20.7	+9.9	156.6	142.3	149.7
Sind	...	11.5	+9.4	105.3	106.3	105.7

L. S. G. D. EXAMINATION

May 1941-September 1941 Session.

LIST OF SUCCESSFUL STUDENTS.

(In order of Merit)

- | | |
|--|---|
| 1. Jal Hormusji Ardeshir Vakil
(with Distinction) | 20. Ishwarlal G. Desai |
| 2. Indravadan D. Ghia
(with Distinction) | 21. S. B. Gupte |
| 3. Ismail Mohmedally Kanga | 22. A. E. Ghasletwala |
| 4. A. G. Bhawalkar | 23. Hameed-u-ddin Afzal Hussein
Mohsinee |
| 5. Bhagwandas Jesrajibhai
Kotdawala | 24. J. O. Mendonsa |
| 6. Gopal Achut Shanbhag | 25. C. Balajee |
| 7. Roop Lal Bhatnagar | 26. D. B. Vaidya |
| 8. K. T. Nikhade | 27. Thakorelal Khandubhai Vashi |
| 9. Arjun Singh | 28. P. Venkateshwaran |
| 10. B. R. Ramchandran | 29. M. S. Deherkar |
| 11. N. G. Mehta | 30. M. V. Sahasrabudhye |
| 12. C. I. Poulse | 31. R. D. Patel |
| 13. N. S. Gandhi | 32. S. K. Kapatkar |
| 14. M. L. Thosar | 33. N. R. Rao |
| 15. S. V. Thete | 34. R. S. Pandit |
| 16. Nagendra Mahadeo Chikhlikar | 35. A. S. Kamlapurkar |
| 17. R. V. Joshi | 36. Ramshankar M. Upadhyaya |
| 18. M. S. Kahate | 37. Jayantilal Someshwar Shukla |
| 19. Manilal Kishorebhai Kumbhar | 38. Becharbhai Ishwarbhai Patel |

Bombay, 10-11-1941.

S. S. NAIK,
Vice-Chairman,
Board of Examiners,
L. S. G. D. Examination.

L. S. G. D. EXAMINATION

May 1941 - September 1941 Session.

EXEMPTION LIST.

The following students have been exempted in papers mentioned against their names:—

Name of the Student	Paper I	Paper II	Paper III	Paper IV	Paper V	Paper VI
Gamanbhai H. Desai	...	—	—	—	—	6
Pandurang P. Tanksale	...	—	—	—	—	6
L. R. Chellaney	... 1	2	—	—	—	6
Baliram V. Patil	... 1	2	—	—	5	6
Rajpal S. Vaswani	... 1	2	—	—	5	6
P. R. Raval	... 1	2	—	—	5	6
G. B. Nazan	...	—	—	—	—	6
N. R. Patwardhan	... 1	2	—	—	5	6
P. G. Vaidya	... 1	—	—	—	—	—
B. A. Desai	...	—	—	—	5	—
P. B. Bhavsar	...	—	—	—	5	6
R. C. Mehta	...	—	—	—	5	—
J. T. Bhatt	...	—	—	—	5	6
C. I. Mazmudar	...	—	—	—	—	6

S. S. NAIK,

Vice-Chairman,

Board of Examiners,

L. S. G. D. Examination.

Bombay, 10-11-1941.

LOCAL SELF-GOVERNMENT DIRECTORY

EXTRACTS FROM OPINIONS

J. A. Madan, Esqr., C.S.I., C.I.E., I.C.S., Adviser to His Excellency the Governor of Bombay:—

"Mr. C. D. Barfivala, M.A., LL.B., Director, Local Self-Government Institute, Bombay, has done great credit to himself and to the Institute in publishing a much needed "Directory of Local Self-Government in India with special reference to the Province of Bombay" and richly deserves the thanks of all interested in Local Self-Government in this Province.

The Directory is a unique and ambitious publication containing information on various subjects in which the Municipalities and District Local Boards in this Province are interested, and would be very useful as a reference book not only to local bodies, but to the students of Local Self-Government in this Province.

Much time and labour has been spent in collecting the information, and I have every hope that the volume will inspire close and detailed study and will supply valuable guidance for the progressive development of Self-Government in this Province."

Times of India (5-8-1941):—

"A PUBLICATION which deserves commendation is the comprehensive *Directory of Local Self-Government* published by the Local Self-Government Institute of Bombay under the guidance of its Director, Mr. C. D. Barfivala.

The Directory, which is over a thousand pages, fulfils a long-felt need, and the information it contains is of interest to all concerned with the workings of Local Self-Government in the country. Considerable labour must have gone to the collection and presentation of the varied details given in this volume.

By far the greater part of the book is concerned with the working of Local Self-Government in the province of Bombay, but developments in other provinces are also given adequate attention. As a 'vade mecum' for the student of municipal government, it is invaluable and will be welcomed."

Editor's Review in the issue of *The Bombay Chronicle*, dated 17-6-1941:—

"The Local Self-Government Institute, Bombay, deserves to be congratulated on bringing out a Directory of Local Self-Government in India with special reference to the Bombay Province. The Directory is a huge tome which is nearly 10 inches long, 6½ inches broad and four inches thick and is truly encyclopædic in its scope. As its Editor, Mr. C. D. Barfivala,

Director of the L. S. G. Institute, points out in his introductory note, the book "omits practically nothing that is worth knowing about every Municipality and District Local Board in the province of Bombay and embraces important items of information regarding these units throughout India." It contains in its 1,100 pages: (1) the history, constitution and the activities of the L. S. G. Institute, (2) a summary of the recommendations of the Kale Committee of 1939, (3) brief accounts of the activities of each of the Municipalities and District Boards in the Province of Bombay, (4) full information about the Presidency Town Corporations in India, (5) ample miscellaneous information, including statistics, bearing on Local Self-Government and an exhaustive bibliography of books useful to local bodies. But so far as its contents are concerned it is a veritable mine of information invaluable to all those who are actively interested in Local Self-Government."

D. MacLachlan, Esqr., I.C.S., Commissioner, Central Division :—

"The Directory is certainly useful and contains a comprehensive mass of useful information relating to local bodies."

Manilal Chaturbhai Shah, Esqr., B.A., LL.B., President, Ahmedabad Municipality :—

"I must congratulate Mr. C. D. Barfivala, M.A., LL.B., Director of the Local Self-Government Institute and the Local Self-Government Institute, for this publication of the Directory of the Local Self-Government in Bombay. It gives all information which is required for a comparative study of the problem, arising in the government of various local bodies in the province in a very handy force. The labour and the care with which the statistical tables have been prepared will evoke admiration. Mr. Barfivala, by his publication has put all the workers in the local bodies under a deep debt of gratitude and I am sure, they will make the best use of it. The Directory is of inestimable value to all interested in the problems of local bodies. It has supplied a want which was keenly felt."

I. R. Bhagat, Esqr., B.A., LL.B., Chief Officer, Ahmedabad Municipality :—

"Mr. C. D. Barfivala deserves high praise for bringing out the voluminous compilation containing such valuable information pertaining to Local Self-Government in the Province of Bombay. The trouble that he and his colleagues have undergone is commensurate with the great usefulness of the publication. It is a monumental work which crowns the life-work of Mr. Barfivala in the field of Local Self-Government."

M. V. Kulkarni, Esqr., President, Nandgaon Municipality :—

"Mr. C. D. Barfivala, M.A., LL.B., Director, Local Self-Government Institute, Bombay, has really taken great troubles spending much time and labour in compiling the volume which would prove a great boon to all interested in Local Self-Government problems."

"I heartily appreciate the work of Mr. Barfivala in this matter and hope that the Directory will meet the support of all."

D. S. Patil, Esqr., President, City Municipality, Bhusaval :—

"In my opinion the book will be of considerable use to Local Bodies in general and to students of Local Self-Government in particular."

The Administrator, Pandharpur Municipality :—

"The book contains very useful information regarding the working of the local bodies and in this respect the book will not only be welcomed by the local bodies for whom it is primarily meant, but by the general public too as it contains information on various subjects."

"The book has, therefore, served a long needed want of supplying such important information regarding the working of local bodies."

The President, Dhandhuka Municipality, Dhandhuka :—

"The book contains information on various subjects which are very useful for the Municipal administration."

Khan Sahib M. H. Moledina, President, Poona Suburban Municipality :—

"The work is not only useful to the officers but it is also instructive."

G. K. Dave, Esqr., President, Anand Municipality :—

"I highly appreciate the trouble taken for preparing such a huge volume containing the useful information for local bodies."

M. V. Munshi, Esqr., President, Dhoika Municipality :—

"The Directory is the first of its type and deserves great credit to your goodself for its being useful to various institutions."

M. V. Gore, Esqr., B.A., LL.B., President, Borough Municipality, Ahmednagar :—

"The Volume will be of great use to all Local Bodies for ready reference and guide and has become a "Memorial" work of the Institute."

R. B. Hivargaonkar, B.E., AM.I.E., Chief Officer & Engineer, Borough Municipality, Ahmednagar :—

"By entrusting the portfolio of the Local Self-Government to a Popular Minister, it was argued in certain corners that why should there be now the necessity of the existence of the Local Self-Government Institute. But the production of such an elaborate and valuable Directory of Local Self-Government in India with special reference to the Bombay Province, by my friend Mr. C. D. Barfivala M.A., LL.B., through the said Institute itself proves the necessity of its existence. All the publications of the Institute so far have been very useful in the day to day administration of the Local Bodies to their executive officers; and the present Directory has crowned all these publications."

Dr. P. A. Dias, L.M. & S., President, Bandra Municipal Borough :—

"I will not hesitate to say that the work is a valuable mine of information and will prove to be a veritable 'Vade Mecum' to all those who are interested in the progress of Local Self-Government in this country."

"As one intimately connected with the working of a self-governing local authority for nigh on three decades, I have great pleasure in giving expression to my sincere admiration of your untiring and zealous endeavours in the field of Local Self-Government of which the Directory will be a unique and lasting monument."

A. M. Shaikh, Esqr., M.A., Chief Officer, Municipal Borough, Dharwar :—

"Mr. Barfivala has by compiling the encyclopædic Directory placed all who are interested in Local Self-Government under deep gratitude. He merits high praise for the remarkable manner in which a voluminous mass of information has been co-ordinated, digested and presented in a fascinating way, apart from the patience and labour which he must have brought to the task. The service Mr. Barfivala has rendered in the field of Local Self-Government is well known, and no greater tribute to the present work can be paid than to state that it is such as Mr. Barfivala alone can produce."

B. B. Malia, Esqr., Chief Officer, Surat Borough Municipality :—

"Mr. C. D. Barfivala and his colleagues deserve heartiest congratulations and praise for the prodigious trouble taken by them in publishing the Directory of Local Self-Government in India with special reference to the Bombay Province covering over a thousand pages. The Directory has doubtless fulfilled a long-felt need of a comprehensive reference book to local bodies and to all interested in the government of Local Self-governing institutions in India and it is bound to supply valuable help and guidance to all who are striving for the progress and development of Local Self-Government in this country."

Durlabhji P. Desai, Esqr., President, Surat District Local Board :—

"One cannot help thanking the Local Self-Government Institute, Bombay, and specially its able Director, Shri Chunilal D. Barfivala, for supplying the Local Bodies in this province their long-felt want of a Directory giving detailed and useful information about the activities of the various local bodies in the province. The thoroughness and care with which the compilation has been prepared is beyond praise. The Directory will be of great use to the students as well as those working as officials or non-officials in Local Self-governing institutions. I feel great pleasure in congratulating Mr. Barfivala and his co-workers for bringing out such an exhaustive and instructive Directory. It indicates what a great interest and love Mr. Barfivala and his colleagues have in the betterment of Local Self-Government Institute."

Shivshanker Chhaganlal Bhatt, Esqr., President, District Local Board, Broach :—

"I congratulate you for the successful compilation of detailed and exhaustive information very efficiently collected in the Directory and am sure it will be most useful as a ready reference book to a municipality as well as a district local board."

"To facilitate the huge task for the preparation of such Directory every local body should consider its foremost duty to invariably send every year one copy of its annual administration report to your Institute as soon as its President forwards it to the Collector of the District."

J. M. Thakore, Esqr., B.A. (Hons.), LL.B., Chief Officer, District Local Board, Broach :—

"Mr. C. D. Barfivala, M.A., LL.B., Director, Local Self-Government Institute, Bombay, deserves felicitations for undertaking strenuous efforts in preparing a comprehensive and unique Directory which has veritably served the most useful purpose of reference guide and indicator of valuable facts relating to local bodies. The comparative study of detailed facts and statistics compiled therein will surely inspire local bodies to promote efficient administration and expand their activities."

Marutisinh Chhatrasinh Thakore, Esqr., President, District Local Board, Panch Mahals, Godhra :—

"The Directory is undoubtedly a very useful reference book containing information of various points pertaining to the Local Bodies."

Ishwarlal K. Vyas, Esqr., B.A., M.L.A., President, District Local Board, Ahmedabad :—

"The Local Self-Government Institute, Bombay, well deserves the congratulations for bringing out a Directory of Local Self-Government, unique of its kind in this country covering about a thousand pages of important information. It is a volume no student interested in general public life can afford to miss to study. Mr. Barfivala, the Director of the Institute has spared no pains to bring together in one volume a formidable mass of information all in condensed form. This country is grateful to his labour for this Encyclopaedia of Local Bodies—a work pioneer to many useful works on the subject. The Institute has added one feather more to its multifarious services to Local Bodies. I whole-heartedly commend the book to the general public."

S. N. Damle, Esqr., B.A., J.P., Secretary, Bombay Municipal Corporation :—

"The Local Self-Government Directory, edited by Mr. C. D. Barfivala, M.A., LL.B., Director, Local Self-Government Institute, Bombay, is a unique publication in India and will certainly be of great help to Municipal Officials and students alike."

"The publication has decidedly supplied a long-felt want for authentic information relating to Local Self-Governing Bodies in the Presidency and the Country."

N. S. Chinoy, Esqr., Vice-President, Matheran H. S. Municipality :—

"The book is one with comprehensive details on the working of each local body and bears credit to those who have contributed for its compilation."

J. B. Pandye, Esqr., Vice-President, Mehmabad Municipality :—

"I should not hesitate to say that the work is most useful to all interested."

Secretary, Dholka Municipality :—

"I have the great pleasure in expressing my opinion about the Directory published by you which is nothing but a jewel to Local Bodies as well as to the students of Local Self-Government in this province for ready reference."

Jethalal P. Parekh, Esqr., B.A., LL.B., Solicitor, Ex-President, Ghatkopar-Kirol Municipality :—

"I have seen the "Directory of Local Self-Government in India with special reference to the Province of Bombay" published by Mr. C. D. Barfivala, Director of the Local Self-Government Institute, Bombay. The Directory is an Encyclopædia containing all available information regarding Local Boards and Municipalities in the Province of Bombay and is the first publication of its kind in India. It is unique in every respect and is very useful not only to those who are interested in the administration of local bodies but also to the Public at large as a Standard Reference Book.

The Directory is sure to be a source of inspiration and guidance to all concerned and will considerably help in the improvement, development and progress of the Local Self-Government not only in the Province of Bombay but also in the other Provinces in India.

Mr. Barfivala deserves warmest congratulations and highest admiration and praise for the invaluable service done by him to all those interested in the administration and working of the Local Bodies and also to the Public by preparing and publishing with intense care and at a heavy cost of time and trouble such an admirable work of high value containing a treasure of useful information regarding Local Bodies and Municipalities. The said work adds a beautiful feather in the cap of Mr. Barfivala who is a profound and deep scholar in the sphere of Local Self-Government in India and who has devoted many useful years of his life in the service of the Public and who is still serving the Public in various ways by his well-known diverse activities in the sphere of Local Self-Government in India."

S. S. Pradhan, Esqr., B.A., LL.B., Chief Officer, District Local Board, Thana :—

"I have carefully gone through several sections of the Directory of Local Self-Government published by the Institute and have tested the accuracy of a number of statements and statistical tables. The exhaustiveness and the reliability of the information condensed in this formidable *vade mecum* of local bodies and the scholarly method of presenting the same from different viewpoints have constituted this monumental work a boon to all persons interested in local self-government and a pillar of perennial and legitimate pride for the Institute, which has published it and for Mr. Barfivala, the Director of the Institute, who has edited the same with the patience and the competence, which, I know from my long connection with administration of Local Bodies in the Province, he alone could bring to bear on the subject."

V231, 6 m N31

N41

Enquiries regarding all Municipal Requirements may be addressed to The Superintendent, Local Self-Government Institute, Fort, BOMBAY 1.

Catalogues for the following articles are available for inspection at the Institute.

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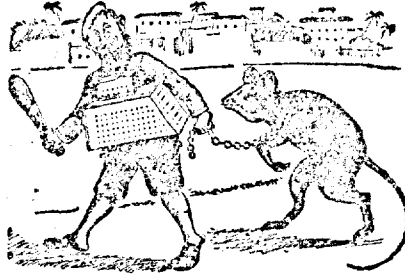
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