

enquiry and report to the Tax-collector within three days. If the Collection Inspector endorses the report, the Tax-collector will send on the case to the Assessment department, and the Assistant Assessor will make a local enquiry within three days and will either (a) realise the amount (in which case he will receive a bonus deducted from the general bonus fund of the Collection department), or (b) report as irrecoverable to the Vice-Chairman, who will either order remission or send the case to the municipal pleader to realise by way of civil suit.

7. On the 23rd of the last month of the quarter, the Secretary will put up to the Chairman a statement shewing (a) amount realized, (b) amount remitted, and (c) amount sent for realization to the municipal pleader. The total of these three amounts should exactly equal the current demand. The only legitimate heads for any balance that there may be, should be (i) "amount reported irrecoverable and still under enquiry," (ii) amounts covered by warrants and precepts actually executed. These amounts should be very small.

8. On the 12th of the first month of the next quarter the municipal pleader will put up to the Chairman a statement shewing (a) the number and amount of debts sent to him for realization through the civil courts, and (b) the number and value of civil suits actually instituted. These two sets of figures should tally.

Perhaps a programme would make the procedure clearer. The subjoined programme exhibits the complete cycle of collection operations for one quarter.

Collection Programme.

1st March	Assessment department begins delivery of April-June bills to the Collection department.
15th "	Assessment department finishes delivery of April-June bills to the Collection department.
20th "	Last day for execution of warrants of distress and sale for the January-March quarter and for reporting irrecoverable warrants.
23rd "	Secretary submits to Chairman statement shewing for January-March quarter (a) Collections, (b) Remissions and (c) Amounts sent to Municipal Pleader.
1st April	Service of bills for April-June quarter begins.
12th "	(1) Service of bills for April-June quarter ends. (2) Municipal Pleader submits to Chairman a statement shewing action taken on amounts for January-March quarter sent to him for recovery by civil suit.
13th "	Service of notices of demand for April-June quarter begins.
30th "	Service of notices of demand for April-June quarter ends.
1st May	Issue of warrants of distress for April-June quarter begins.
31st "	Issue of warrants of distress for April-June quarter ends.
1st June	Assessment department begins delivery of July-September bills to the Collection department.

This is the working programme of the Howrah municipality where over 97 per cent. of the quarterly demand is regularly realized within the quarter; the amounts realized by distress, sales, and civil suits averaging less than 2 per cent. of the total collection.

Miscellaneous points of Collection Procedure.

A few points in connection with the actual working of the system may be noted.

1. *Collection Routine.*—The bill-collectors should go round in the morning serving bills and notices, and receiving payment when it is offered; and in the afternoon they should attend at the municipal office in order to pay in what they have collected, make up their accounts, write their reports, and do miscellaneous clerical work. At this time too they will receive amounts paid in by such ratepayers of their respective circles as prefer to pay at the office.

It may be noted that should a ratepayer offer payment at the office at any time, receipt cannot be refused; if the bill-collector of his particular circle is absent, the Tax-collector must himself receive payment and grant a receipt.

2. *Exemption from payment of warrant-fee.*—The law provides a substantial fee recoverable from the defaulter in each case in which a distress warrant has to be issued. This must invariably be recovered, the only exception allowable being in the case in which the defaulter pays his dues after the issue of the warrant, but before the distress is actually effected. In this case half the warrant fee may be remitted in consideration of the municipality being saved the trouble and delay involved in seizing the property, making the inventory, and holding the sale.

3. *Civil Suits and Precepts.*—Some municipalities make a practice of writing off as irrecoverable small sums which cannot be recovered by the ordinary procedure of distress and sale, on the ground that to realise them by precept or civil suit entails more trouble than they are worth. But if we accept the principles enunciated above, we must condemn this as a piece of shortsighted policy which, in order to avoid a little trouble at the outset, allows the public to see that there is a chance of escaping scot-free, and thereby greatly encourages systematic defaulting.

4. *Remissions.*—Those items of the demand which, for whatever reason, have to be written off as irrecoverable (the Chairman being the only authority who can sanction such writing off) are lumped together and shewn in the quarterly account statements as "Remissions." But remissions differ a good deal in character,

and in the interest of efficient administration it is necessary that their various classes should be carefully distinguished.

Administratively considered, remissions may be regarded as dividing themselves into three classes—(a) remissions of right, *i.e.*, remissions which *must* be granted under the law on account of vacancy, irregularity in the assessment, &c., (b) remissions of grace, *i.e.*, rates and taxes remitted by the Commissioners in meeting on the ground of poverty, hardship, &c., and (c) remissions of necessity, *i.e.*, dues which it is found to be impossible to recover owing to limitation, absence, death, non-existence of movable property, &c. Now it is clear that it is only for the third class of remissions—the remissions of necessity—that the collection staff can be held in any way responsible; and for the purpose of gauging the quality of the work of the Collection department the first two classes of remissions should not be taken into account at all.

5. *Check by the Assessment department.*—A slack or dishonest Assessment department may cause financial loss to the municipality by omitting to enter certain holdings or “improvements” in holdings in the Assessment register; and a slack or dishonest Collection department may cause a similar loss by reporting in certain cases that rates and taxes are irrecoverable when they are not so. Both departments deal with exactly the same materials, namely the holdings as they actually exist, and they can and should therefore be made to act as checks on each other. It was chiefly with this end in view, that in Chapter V so much stress was laid on the importance of combining the Assessment work with the Building work, and of putting the combined work under a head of a department on the Engineer’s side, the Collection department being placed on the Secretary’s side.

The operation of this cross check is as follows: it must be arranged that any bill-collector who discovers and reports the existence of a holding or an “improvement” in a holding for which the Assessment department has not made out a bill, shall receive a substantial reward. Such a case must mean one of two things: either the owner has created a new holding, or has built a house on the old holding without taking the permission of the municipal authorities, for which he can be prosecuted and fined; or else, the Assessment department has corruptly or carelessly failed to enter in the Assessment register a holding or an improvement which is noted in the Revaluation or Building registers which are maintained by the department itself—a serious error which merits severe punishment.

On the other hand, it must be arranged that any bill which the Collection department reports as irrecoverable on the ground that the ratepayer is wrongly described, or that the holding is not traceable, shall be immediately sent to the Assessment

department—not for report, (which would only lead to interminable correspondence between the departments)—but for *realization*. If the officer of the Assessment department succeed in realizing the demand, he is given a reward which is deducted from the bonus fund of the Collection department; if the demand is not so realized, then it is clear that it is the Assessment department which is in fault and measures must be taken accordingly.

It is not desirable that the relations between the Assessment and Collection departments should be of too cordial a nature; and a healthy antagonism between them can be maintained by a judicious use of these cross-checking arrangements.

Collection of Licenses and Tolls.

The arrangements for collecting the two remaining imposts, namely licenses and tolls are of quite minor importance. License-fees must be paid at the office in advance; if they are not so paid the defaulters are simply prosecuted before the Magistrate; and a few convictions and fines will very soon teach ratepayers that to attempt to evade or delay payment of their license-fees is not a paying game.

With regard to tolls, a system of counterfoil tickets coupled with systematic inspection by the Collection Inspectors should be sufficient to prevent leakage and fraud.

The Collection Staff.

For collection purposes the municipal area must be divided into a number of circles, a bill-collector being placed in charge of each circle. In practice it will be found that the maximum number of ratepayers which can be dealt with by one bill-collector is about 1,000. Circles should be grouped into divisions, each under the general control of a Collection Inspector. These officers supervise the outdoor work of the bill-collectors, their special duties being as noted above (page 60) to explain to ratepayers disputed entries in their bills, to personally execute warrants in difficult cases, to make local enquiries for the purpose of checking reports submitted by bill-collectors on (a) "irrecoverable" warrants, (b) holdings to be sold, (c) holdings not in existence, and (d) new and improved holdings, and to make local enquiries in all mutation cases.

Bonus system.—A very important factor in promoting efficiency is a system of bonuses or commissions for good work. The following system has been on trial for some years in Howrah, and has proved highly successful.

Collections to be calculated quarterly; remissions of right, and remissions of grace, but *not* remissions of necessity being deducted from the demand. Then if the collections are found

to exceed 95 per cent. of the current demand, a bonus equal to 10 per cent. on the amount of their monthly salary to be paid to the officers concerned for each 1 per cent. by which it so exceeds; the bonus of the Tax-collector being calculated on the total collection, that of each Collection Inspector on the collection of his division, and that of each bill-collector on the collection of his circle.

The great thing is to convince the staff that the best and safest method of earning a little addition to their pay is to work for a bonus, rather than to lay themselves out to take small tips from ratepayers who wish to delay or avoid payment. The two methods cannot be combined; it must be one or the other; and a misguided bill-collector who chooses the wrong one is very soon betrayed by his results, and can be got rid of forthwith.

Complaints and Petitions.

The popularity of a municipal administration depends a good deal upon the kind of spirit it displays in its dealings with the wants and grievances of ratepayers as set forth in complaints and petitions addressed to the authorities. A system that ensures a prompt and thorough enquiry into each case is what the public has a right to expect; and it is very bad policy to allow the staff to treat this enquiry work as though it were merely an unnecessary and vexatious addition to their daily burden.

It should be remembered too that these complaints and petitions furnish the authorities with a means of checking the work of subordinate officers in a way which is hardly possible by any other method; and for this reason, if for no other, the ratepayer with a grievance should have things made easy for him.

In dealing with complaints and petitions three conditions should be borne in mind:—

(i) A ratepayer must be given every facility for making his representation without paying either a regular fee to the municipality or an irregular "gratification" to a municipal servant.

(ii) Every representation must be carefully enquired into and reported on with reasonable promptness.

(iii) The order finally passed must be promptly communicated to the petitioner without demand for fee or "gratification."

The following working arrangements are suggested:—

1. *Receipt of petitions.*—There should be a fixed time for the receipt of petitions at the office on every working day. Petitions should be received by either the Chairman, the Vice-Chairman, or (in their unavoidable absence) the Secretary, *personally*—the privilege of representing matters personally to the authorities being one that is highly valued by the public. Every petition

should be registered forthwith, and the petitioner told the date on which he should come to have the final order communicated to him.

N. B.—For the convenience of ratepayers who cannot attend at the fixed time there should be a locked box furnished with a slit, and marked “for receipt of petitions” fixed on a verandah open to the public; and the receiving officer should open this box daily. Petitions will also, of course, be received by post; but under no circumstances whatever should they be received, by or through a municipal servant.

2. *Enquiry into petitions.*—Petitions will be enquired into in the ordinary course by the departments concerned, promptness being secured by a strict system of register-keeping, the supervision of which will be one of the personal duties of the Chairman. In this connection two points may be noted—

(a) A complaint or petition which has been enquired into and endorsed by a Ward Commissioner should be investigated by an officer not lower in rank than the head of a department, and the order finally passed by the Chairman should be communicated to the Ward Commissioner by a letter.

(b) A petition charging a municipal servant with corrupt or oppressive conduct should be immediately inquired into *personally* by the Chairman, the Vice-Chairman, the Secretary or the Engineer, as the case may be.

3. *Communication of orders passed to petitioners.*—For the purpose of communicating orders passed, petitions may be divided into three classes:

(a) Petitions personally presented, petitioners personally present on the day fixed.

(b) Petitions personally presented, petitioners absent on the day fixed.

(c) Petitions placed in the box or received by post.

Petitions of class (a) present no difficulty; the petitioner is told the purport of the order by the receiving officer and the matter ends.

As regards petitions in classes (b) and (c), printed postcard ($\frac{1}{2}$ anna) notices should be sent to each petitioner informing him that orders have been passed, and will be communicated by the receiving officer to any person presenting the postcard notice at petition-receiving time. If the card is not presented within a month, the petition is sent to the record-room as finally disposed of.

N. B.—In any case, if a petitioner wants a copy of the order he must pay a small copying fee.

CHAPTER VIII.

The Work of the Engineer's side.

**The position and qualifications of the Engineer—~~Assessment—Roads—~~
Conservancy—Miscellaneous.**

His position and qualifications.

A glance at the scheme for the Engineer's side will show how very little of his work is concerned with purely engineering matters. In fact, "Engineer" is rather a misleading title for the chief executive officer of a large municipality—"General Manager" or "Chief Superintendent" would be a more suitable appellation. He must, of course, have had a good engineering training (such as would entitle him to a certificate as a "District Engineer"), and possess a thorough practical acquaintance with sanitary work; but when the Commissioners are making the appointment, it is not so much a highly diplomaed civil or sanitary engineer that they should look out for, as for a trained and proved administrator—"a strong persevering man" who can control his temper, knows the country and the language, and will stand no nonsense from his subordinates.

Every effort should be made to secure a trustworthy man of this type: the Commissioners will find him a paying investment, even if they have to give him what may appear an excessive salary. They should too, if they can possibly afford it, appoint a home-trained European rather than any one else for the following among other good reasons:—

(a) The average home-trained "Britisher" usually has more "driving power" and administrative ability, and commands more respect from a mixed force of manual labourers than an average Eurasian or Indian of the same class. This view is endorsed by the almost universal practice prevailing in mills, factories, indigo estates, tea gardens and industrial concerns generally—the proprietors, whether European or Indian, find that it pays them to put in a European as manager at double the salary they would give to an Indian.

(b) Sanitary work bulks very largely among the duties of an Engineer; and experience shows that it is as a practical sanitarian more than anything else that the Indian municipal officer is apt to prove a failure. Scientific sanitation is not an idea that appeals very much to the oriental mind; we have no training-ground

for sanitary officers out here; and it is apparently difficult for a man who has never left India to realise that the abominations of the ordinary Indian *busti* or bazaar are not part of the order of nature, and can and should be done away with. At any rate one often finds an Indian-trained officer, with an excellent theoretical knowledge of sanitary principles, serenely ignoring a state of things that no decently energetic home-trained man could tolerate for an hour.

(c) It is a capital thing to "break the chain" by interposing an officer of a different race at some point or other in the process by which the municipal funds are expended. One sees rather too often in a municipality a "family party" of contractors, overseers, and accountants, all on the best of terms with each other for the best of reasons, and trusting to a public opinion which is always curiously tolerant in such matters, and to their caste and family connections in town, to escape detection and punishment.

But if the Commissioners cannot afford to give a salary that will attract a *good* European, they should by all means appoint an Indian—an untrustworthy or incompetent European is the worst of all possible choices.

The duties of the Engineer have been enumerated on page 62 above and there is no necessity to recapitulate them here. For all the more important of them excellent text-books exist; and it is no part of the plan of this book to attempt to summarise the elaborate and often highly technical instructions to be found in these text-books and manuals. Where a note on any of these duties is given it will be understood that the length of the note has no relation whatever to the importance of the subject in the municipal scheme, but is determined solely by the extent to which it has been thought possible to supplement the instructions of the text-books by criticisms and suggestions derived from actual experience.

A list of text-books which should be available for consultation by the Engineer and his staff in every large municipality may be given:

(1) Roorkee Treatise on Civil Engineering, Section VI Bridges; VIII Roads; XI Sanitary Engineering, and XII Water-supply.

(2) Manual of Hygiene, Sanitation and Sanitary Engineering (Jones).

(3) Municipal Engineering (Silk).

(4) Modern Methods of Sewage Disposal (James and Trencham).

(5) Sanitary Handbook (McNally).

- (6) Sanitation of Mofussil Bazars (*Disney*).
- (7) Sanitary Engineering (*Moore*).
- (8) Water-works Distribution (*J. A. McPherson*).
- (9) Oriental Drainage (*James*).
- (10) Surface Drainage (*Silk*).
- (11) Health Officer's Pocket-book (*Willoughby*).
- (12) The more deadly forms of Cattle Disease in India (*Hallen*).

Assessment.

"Assessment" properly so called is a function not of the Engineer but of the Commissioners themselves. It is the Commissioners alone, that is to say, who have the power to decide what taxes should be levied, and at what rates, and what exemptions and reductions should be granted in particular cases. But their decisions on these points must, of course, be based on a Valuation List of the holdings in the town prepared by some agency appointed for the purpose: and thus the word "assessment" has come to be commonly used to cover this operation of valuation as well as the assessment proper; and when a special officer is appointed to make the valuation (as by the Act provided), he is called not the *Valuer* but the *Assessor*.

The reasons which make it desirable that the Engineer should be appointed Municipal Assessor also, have been given on page 50 above. Their force will be better appreciated when the system of assessment is explained in detail.

It is unfortunate that for this particular subject no text-book is available. No writer appears to have dealt with "Rating" under Indian conditions; and the fundamental differences between these conditions and English conditions, as well as between Indian law and English law, make the many excellent English works on "Rating" and "Valuing" practically useless to the Assessor of an Indian municipality—he must do his best with the Municipal Act and the Account Rules as his only guides.

Summary of the law regarding Assessment.

The prescribed procedure is by no means free from pitfalls, and the first thing for the Assessor to do is to get a clear idea of its main features—what it enjoins and what it prohibits.

The sections of the Act which refer to the imposition of the tax and the methods of valuation are so important that they may be given *in extenso* as follows:—

"96. When it has been determined that a rate shall be imposed on the annual value of holdings, the Commissioners, after

making such enquiries as may be necessary, shall determine the valuation of all holdings within the municipality as hereinafter provided.

"97. Save as is herein otherwise provided, such valuation shall be valid for five years from the date on which it first takes effect in the municipality, and until the beginning of the year next after the date on which a new valuation may be made, or until the valuation be revised and amended.

"101. The gross annual rent at which any holding may be reasonably expected to let shall be deemed to be the annual value thereof, and such value shall accordingly be determined by the Commissioners, and entered in the valuation-list :

"Provided that, except in the Darjeeling Municipality, if there be on a holding any building or buildings, the actual cost of erection of which can be ascertained or estimated, the annual value of such holding shall in no case be deemed to exceed an amount which would be equal to seven and a half per centum on such cost, in addition to a reasonable ground-rent for the land comprised in the holding :

"Provided also that, where the actual cost so ascertained shall exceed one lakh of rupees, the percentage on the annual value to be levied in respect of so much of the cost as is in excess of one lakh of rupees shall not exceed one-fourth of the percentage determined by the Commissioners under section 102 :

"Provided further that, in estimating the annual value of a holding under this section, the value of any machinery that may be on such holding shall not be taken into consideration."

Some points about these sections may be noted :

1. Put shortly, the annual rental value of a holding is the amount of annual rent which the holding would be likely to fetch, or the amount obtained by adding a certain percentage of the cost of construction of the buildings comprised in the holding to a reasonable ground-rent, *whichever amount is less.*

2. The proviso in section 101 is imperative : where there are buildings, the actual cost *must* be ascertained or estimated, as also the "reasonable ground-rent."

3. It is the cost of construction *at the time that the building was constructed* that must be ascertained or estimated, not the present value of the building, or the cost of a similar building constructed at the present time. Therefore dilapidations or depreciations are not to be taken into account. The idea underlying this provision is apparently the idea, that only the capital originally sunk should be taxed.

The subsequent procedure may be described as follows :—

The Assessor having prepared his valuation statement in accordance with these sections submits it to the Chairman, (not the Commissioners in meeting) who alters it as he thinks fit, and then prepares from it a rating-list for the whole municipality, which he signs and publishes in the manner prescribed by law. Any deviation from this procedure will render the whole assessment null and void.

Appeals from individual ratepayers are then received up to a month from the date of publication. They are heard and disposed of by a Committee of "not less than three Commissioners who shall be appointed in that behalf by the Commissioners at a meeting. The Commissioners so appointed, after taking such evidence and making such enquiries as they may deem necessary, may pass such order as they shall think fit in respect of such application. The decision of such Commissioners, or of a majority thereof, in such cases shall be final." (Sec. 114).

N.B.—This provision bars the jurisdiction of the Civil Courts, except in cases where "there is a breach of the rules prescribed by law for making the valuation."

The Quinquennial Revaluation.

Now let us see how the Assessor is to set about the actual business of Revaluation. And let us suppose that it has been decided that he is to start with a clean slate—that he is to ignore the existing assessment, and existing arrangements generally, and make a complete and correct valuation of all the holdings in the town exactly as he finds them. In a town of any size, this obviously means a great deal of heavy and responsible work, which the officers of the Assessment department cannot possibly be expected to perform in addition to their ordinary routine duties. They will require the assistance of a temporary staff; and it will usually be found that the best arrangement is to put the regular staff on the special revaluation work, and employ the temporary staff on the ordinary routine work.

The outlines of a scheme which has proved successful in practice is given below. It has been designed to meet the requirements of the typical municipality of 1,50,000 inhabitants which we have taken as our example in Part II above.

General Plan.—The Assessor first has prepared a map of the town on a scale of, say 300 feet to the inch, shewing every road, street, and lane, and divided up into assessment blocks or circles, say, two circles to the square mile. About six months before the expiry of the existing quinquennial period, the two Assistant Assessors and Building Inspectors (see Scheme on page 71

above) are placed on the special duty of revaluation, each man taking half of the total number of cricles, and being given a staff of two surveyors and three peons to help him.

These two special officers will then proceed to work through the town methodically, circle by circle, in accordance with a fixed programme, measuring, valuing, and (when necessary) numbering each holding before proceeding to the next. Their work will, of course, be subject to close and constant check by the Assessor, who must approve and countersign each valuation. As each circle is finished, the valuations are sent into the office, where a special clerk prepares from them a valuation statement and a rating-list which is published over the signature of the Chairman. The two officers are kept on special duty for a period of three months after the publication of this list, in order that they may attend all meetings of the Appeals Committee, and make any further enquiries and reports that may be ordered by the Committee. At the end of this period of three months they revert to their ordinary work.

Sketch Books—The results of their work are embodied in a series of sketch-books which contain for each holding the following particulars:—

1. The number of the holding (with old and new numbers when there has been a change), the street, the owner, and the occupier.
2. The existing valuation.
3. The dimensions in square feet of the entire holding.
4. An estimate of the reasonable ground-rent for the same.
5. A sketch-plan of every building on the holding on a small scale, shewing in every case its outside measurement, and, where entry is not objected to by the occupier, also the number of rooms it contains and their dimensions.
6. A very brief description of the materials of which it is composed, and an estimate of its cost of construction.
7. An estimate of the rental value of the holding taken as a whole, with a brief record of the materials on which such estimate has been based, e.g., actual rent-receipts, evidence of neighbours, rent of similar houses in the neighbourhood, etc.
8. The valuation fixed. It must be signed and dated by the Assistant Assessor and countersigned and dated by the Assessor.

These sketch-books are valuable records and should be very carefully preserved.

Special responsibility of the Assessor.—The Assessor is, of course, generally responsible for the whole work of revaluation, but there are three duties in connection with it which he must perform personally.

First—He must issue detailed instructions to the special officers in order to ensure that all valuations shall be made on the same principles, and in conformity with the law.

This is a matter to which special attention must be paid. It will take a good deal of drilling and close supervision to make the Assistant Assessors understand the law and follow the methods it prescribes, especially in connection with the "cost of construction." They will object (not unreasonably) that there are many cases in which the best valuer in the world would be puzzled to estimate the cost of construction; the age of a building is often quite unascertainable, and even if the approximate date can be given, the actual cost of labour and the various materials at that date and in that locality is very difficult to arrive at. They will want either to put down the present value, or else make calculations allowing for depreciation and dilapidation. Nothing of the sort must be allowed on any consideration. It would cause the valuation to be rejected by the Appeals Committee, or, supposing the Appeals Committee to pass it, would render the municipality liable to a civil action on the ground of a "breach of the rules prescribed by law for making the valuation."

Perhaps the best way out of the difficulty is for the Assessor to prepare beforehand, from an examination of all available data as to cost of labour and materials, a schedule shewing decade by decade for the last hundred years, the estimated cost of construction per square foot of the different classes of buildings commonly met with—dwelling-houses, shops, warehouses, etc., in their several varieties. The Assistant Assessor then, in order to estimate the cost of construction of a particular building, would simply have to take its "plinth measurement," ascertain or guess the decade in which it was built, determine its class on the schedule, and work out his calculations accordingly.

The "plinth measurement" method is recommended in preference to either of the other two methods, *viz.*, (a) "cubing" and (b) making a detailed estimate. Cubing is the method usually employed in England, where a scale based on an estimate of four-pence per foot-cu be for an ordinary cottage is recognized. But this method for various reasons which need not be detailed is unsuited to Indian conditions. And the remaining method—the making of a detailed estimate—though the most exact of all, is quite out of the question in view of the enormous labour and expense it involves.

The fixing of rental values does not present the same difficulties. Where (as in the case of owner and occupier being the same) the rent paid is not ascertainable, an estimate can easily be made by calculating from the rents actually paid by similar holdings in the neighbourhood.

The great point is to make the Assistant Assessors understand that in every case they must make two *independent* valuations, (1) by the rental-value method and (2) by the cost-of-construction-plus-ground-rent method, and must enter as the valuation whichever of the two amounts is the less.

Secondly—The Assessor must make frequent local inspections, and check as many valuations as possible. He should check on the spot not less than ten per cent. of the valuations, and should personally enquire into all complaints of malpractices on the part of the special staff.

Thirdly—In every case in which the holding includes a mill, a factory, a railway station, a public building, a hospital, etc., the Assessor should make the valuation himself.

There is no general practice of letting or hiring buildings of this character, and their annual rental value is a difficult matter to ascertain. The question is fully discussed in the judgment of the Madras High Court, *Secretary of State vs. Madras Municipality*, I. L. R., 10 Madras, 38, which is quoted in Collier's Manual and which ought to be carefully read by the Assessor. In practice, however, in view of the great concessions made by the law in the case of buildings costing a lakh of rupees and over, it will usually be found that the valuation arrived at by the cost-of-construction method is in these cases so far below what the annual rental value might be assumed to be, that this latter figure has only an academic interest.

Routine work of Assessment department.

A complete revaluation on the above lines will make the routine work of the Assessment department a very simple affair indeed.

All that it will have to do is, (a) to value new buildings or improvements in buildings on information supplied by the Building department, (b) to enquire into applications made by the rate-payers for reduction of taxes on account of fire, demolition, vacancy, and so forth, and (c) to revise accordingly the demand as set forth in the Assessment register.

Roads.

A "Roads" Policy.

The construction and maintenance of roads are among the first and most obvious duties of a municipality; but one rarely finds that the Commissioners' work in the direction is governed by anything in the shape of a definite "Roads Policy."

A new road usually owes its existence to a more or less clamorous demand made by a more or less numerous body of ratepayers living in a particular area ; the support of some of the Commissioners is enlisted, the matter is brought forward in meeting, and the Commissioners after satisfying themselves that the road is "necessary" (which of course means very little), enquire whether the funds necessary for its construction are available ; if this is found to be the case, they will very likely sanction the proposal. The same thing happens when the demand is for the conversion of a *kutchra* road into a metalled one ; in each case, it is the immediate cost of construction or conversion that is considered, and not the resultant increase in the annual maintenance charges. The increase, it should be remembered, must remain a perpetual burden on the municipal revenues ; for although the Commissioners may make new roads to any extent, they are forbidden by law from closing any road once opened to the public except with the special sanction of the Local Government

Again, as regards road repairs, the arrangements are usually equally unsatisfactory ; one rarely finds any standard of efficiency kept in view when the necessary allotment is made in the annual Budget. The amount allotted is usually based on "last year's figures," or else it is arrived at by the highly unsatisfactory method of providing for all other items of expenditure first, and leaving what is over "for the roads."

In a municipality where these haphazard methods of dealing with roads prevail, one is pretty sure to find that the Commissioners have more miles of road than they can afford to keep in a decent state of repair ; and that "the disgraceful state of the municipal roads" has become a standing grievance, involving inconvenience to the public, worry to the staff, and friction all round.

This unsatisfactory state of things would be avoided to a great extent, if the Commissioners would frame a roads policy on the simple principle that *a municipality should not construct more roads than it can keep in good repair.*

The first step towards putting this principle into practice is obviously, to find out the annual cost of keeping in good repair the existing roads. And, if the Commissioners take sufficient trouble they can obtain *once for all* a very fairly accurate estimate of the amount required. They should appoint a special sub-committee (including, if possible, Commissioners with engineering experience), with instructions to report with regard to each existing road (a) the cost of its *entire* renewal and (b) the period that should elapse between such renewals.

Earth and gravel roads will give the committee little difficulty ; they are re-made and dressed in the same way every year, and

the number of cubic feet of earth or gravel required can be easily ascertained.

With regard to metalled and brick roads, however, more detailed enquiries will be found necessary. To arrive at the cost of renewal for each road, the Commissioners, after deciding what thickness of metal or brick is required in view of the character and extent of the traffic it has to bear, should work out carefully the rates for collecting, spreading, and consolidating the quantity of material it requires, taking into consideration its dimensions, its distance from the dépôt, and any other circumstance they may consider relevant. In determining the *period* of renewal, the chief points to be considered are, the present condition of the road, the amounts spent on it in past years both for regular repair and "patch repair," and the traffic it will be called upon to bear in future. In this matter, as in all others requiring technical knowledge, the sub-committee will do well to check the facts and figures given by the municipal staff by "outside" professional opinion whenever possible; and the local officers of the Public Works Department and District Board will no doubt be found ready to give the sub-committee the benefit of their advice and assistance, when the importance of the enquiry is explained to them.

The list of roads submitted by the sub-committee will be in some such form as this :—

Serial No.	Names.	Class of Road.	Total cost of renewal.	No. of years.	Total cost of renewal per year.
1	2	3	4	5	6
6	Kali Mookerji Road	1st class (metalled).	6,000	2	Rs. 3,000
10	Haradev Chatterji Lane	2nd class (metalled).	500	4	Rs. 125
5	Kristoram Bosak Lane.	3rd class (brick).	300	6	Rs. 50

N.B. (1) The amount in column 6 is arrived at by dividing the figure in column 4 by the figure in column 5.

(2) The total annual amount that should be allotted for road repair will be the total of the amounts in column 6 *plus* a certain percentage (which should in no case exceed ten per cent.) allowed for "patch repairs."

(3) It is of course not necessary that the amount noted in column 6 against each road should be spent on that particular road every year. The necessary condition is, that the whole length of each road should be renewed within the period noted against it in column 5; and this can be best ensured by the use of a system of Road Charts as described below under the head "Repair."

With this list before them, the Commissioners can compare the amount that they find themselves able to allot yearly for road repairs with the amount actually required by the roads. If the balance is on the right side, they can, of course, spend the excess in making new roads or raising the class of old ones; but if (as will generally be found to be the case) the balance is on the wrong side, they will themselves realize, and be able to explain to discontented ratepayers, that they are not justified in doing anything in this direction until more prosperous times. or a redistribution of the items of expenditure, enable them to make up the deficiency.

Private Contributions.

The possibility of obtaining contributions from members of the public should not be overlooked. Where (as often happens) the Commissioners can provide funds for the construction of a badly needed new road, or the widening of an existing one and for its subsequent maintenance, but can do nothing owing to the heavy cost of the necessary land acquisition proceedings, an effort should be made to find some well-to-do citizen who will be willing to pay into the municipal funds the sum necessary for the acquisition, securing in return a permanent memorial of his public spirit in the shape of a road named after himself or some other member of his family. In many municipalities a good deal can be done in this way, if Ward Commissioners take an interest in the matter.

Anticipatory Alignment.

In a town where the population is growing more or less rapidly, it is the duty of the Engineer to survey the "rural area," and lay down (on paper) the lines of the new roads that will be required hereafter. It is unfortunate that the present law does not give municipal authorities the right to refuse to sanction the building of a house on the land covered by such "anticipatory alignments"; but, in practice, it will generally be found possible to keep the space free, by pointing out to intending house-builders the advantage of building along the line of what will eventually be a public road. If, however, they prove recalcitrant, it is difficult to see what can be done; very few municipalities can afford to adopt the alternative of acquiring the land, and thereby

lock up their capital in property which they may not be able to put to a profitable use for years to come.

Encroachments.

Another important item of the Engineer's duties is to see that the roads are not obstructed or encroached upon by private owners. The municipal roads should be demarcated by permanent boundary-marks set up at such intervals as seem necessary; and a list of roads and paths over which the public have a right of way should be kept, and arrangements made to have them inspected at least twice a year in order to bring to light cases of encroachment.

As soon as an encroachment is reported, the Engineer should visit the spot and submit a full report to the Chairman. In cases where the encroachment or obstruction is of recent origin, and the municipal records shew clearly that it interferes with a public right of way, the Chairman need feel no hesitation in disregarding any plea of title or right, and should direct the Engineer to remove the obstruction forthwith, and should sanction at the same time the prosecution of the offender under section 217 of the Act. Where, however, the obstruction appears to be of long standing, or where there is any doubt whatever as to the public right in the matter, this summary method of dealing with it will not be advisable, and the regular procedure laid down in section 233 of the Act should be followed. Under this section, notice must be given to the party to remove the obstruction within a certain period, and if he fails to comply, an application must be made to the Magistrate to order its removal.

In any case, prompt action should be taken, and no suggestion as to "compromise" should be entertained. Slackness or weakness on the part of the municipal authorities in this respect is likely to be followed by the making of encroachments on a wholesale scale; and the experience of many municipalities proves, that when encroachments have been general, and have been tacitly acquiesced in for any considerable period of time, the problem of their removal becomes a peculiarly difficult one.

Construction and Repair.

Roads in India are commonly considered as falling into two classes: *Kutcha*, i.e., roads made of the natural soil of the locality and *Pucca*, i.e., metalled roads; the metal being stone, (trap or granite), *kunkar* (nodular limestone), laterite, or *jhama* (broken vitrified brick), according to local circumstances.

Complete instructions covering every step in the process of construction of each class of road will be found in the *Roorkee Treatise, Section VIII; Jones' Manual; Silk's Municipal Engineering*; and the schedules and circulars of the Public Works Department.

The municipal system, however, does not provide for any professional supervision of the Engineer's work on the roads; and in view of the large proportion of the municipal income allotted yearly for their upkeep, it is very necessary that the *lay* supervision by the Chairman and the Works sub-committee should be of as thorough and close a character as possible.

It is not necessary or desirable that this supervision should extend to the Engineer's professional dealings with particular items of his work. But in every department of municipal working, some sort of compromise between the interests of efficiency and the interests of economy has to be made; and it should be the duty of these supervising authorities to satisfy themselves, that the Engineer's working system of road construction and repair is based on the particular compromise that best suits the local circumstances. Moreover, by periodically examining the progress of the actual work, they can do a good deal to check slackness and procrastination on the part of the Engineer and his subordinates.

The general lines of such a system suited to the needs of the average municipality in lower Bengal, where the roads are of three classes, *viz.* earth, *ghama*, and stone-metal, might be somewhat as follows:—

1. *Earth Roads.*—Tenders should be called for, and the whole work given out on contract. The specification should be that laid down for district roads by the Public Works Department authorities for the particular district to which the municipality belongs, and any deviation suggested in the interest of economy should be carefully examined by the Works sub-committee before being sanctioned. The rates will usually be higher than the Public Works rates, as the contractor must not be allowed to cut "borrow-pits" on the sides of the roads. Such "borrow-pits" greatly obstruct drainage, besides forming ideal breeding-places for mosquitoes.

2. *Metalled Roads.*—The main point to be considered in the construction of a metalled road is, of course, the amount of traffic it will be called upon to bear. Dividing on this principle, one may say, that there are roughly three classes of metalled roads: (1) *first class* roads, which have to bear a very heavy and continuous cart-traffic (usually to be found only in cities); (2) *second class* roads, which have to bear an ordinary amount of cart-traffic; and (3) *third class* roads, on which there is a small

amount of cart-traffic, but in which it is desirable to have a strip of metalled causeway in order to render it passable for carts all the year round.

First class roads—Roads of the first class must be made of stone-metal. *Jhama* metal, however well laid, will not stand heavy and continuous traffic without breaking up in a few months. Fourteen feet (i.e., the space sufficient for two carts to pass each other) should be the minimum width of the metalling, and the full Public Works specification for district roads should be followed throughout.

Second class roads—The question whether roads of this class should be made of stone-metal or of *jhama* must be decided by the comparative cost of these two materials. It may be taken roughly that a *jhama* road carrying ordinary traffic will require regular renewal twice as often as a stone-metalled road; and if stone-metal is not more than twice as expensive as *jhama*, it should be used. In some towns, however, which are off the line of rail and distant from the quarries, the cost of stone-metal will be found to be three or four times that of *jhama*. In such cases, of course, *jhama* must be preferred. As in the case of first class roads, the strip of metalling must have a minimum width of fourteen feet.

In the case of second class roads, it may be found possible in the interests of economy to fall rather below the standard of the Public Works specification, e.g., four inches of metal may be used instead of the regulation six, etc. But all such departures from the standard should be sanctioned by the Works committee.

Third class roads—The strip of metalling should be eight feet wide—no more and no less. This width is sufficient for one cart, and to give extra width between eight feet and fourteen feet (the width necessary for two carts to pass), is simply waste of money. The strip should be either *jhama* or stone whichever is cheaper in the long run.

In constructing metalled roads, it will be found economical to give out to contract all the work except the watering and consolidating, and it will usually be found better to have these done departmentally. Where the municipality possesses a steam-roller, it should invariably have the consolidating work done by its own servants and should not lease it out to contractors.

Repairs—The annual Repairs Estimate submitted by the Engineer should be carefully scrutinized by the Works sub-committee, and compared with the Road List (see page 111 above) and the Road Charts. The Road Charts give in graphic form

the past history and future requirements of every road on the list, e.g.,

No. 15, PUNCHANANTOLA ROAD (STONE METAL).

(Class 2)—Length 4907 Feet. Period of Renewal—5 years.

Scale	1000	2000	3000	4000	4907 Ft.
Year.					Feet.
1895-96					1,422
1896-97					1,110
1897-98					910
1898-99					500
1899-1900					Nil
1900-01					500
1901-02					316
1902-03					1,103

The shaded portions represent the length metalled every year.

The Repairs Estimate will probably shew a persistent tendency to increase year by year. But from what has been said above in connection with the Road List, it will be clear that no increase in expenditure will be justified, unless there is reason to believe that there has been a corresponding increase in the *total* amount of traffic in the town. If this is not the case, and the reason given for the increase in the estimate is the usual "increase of traffic on such-and-such roads," it is evident that there has been a diversion of traffic from some road or roads to some other road or roads; and that what is wanted is merely a revision of the "period of years" given to the roads in question in column 5 of the Road List. The roads which bear less traffic than before will have this period increased, and those which bear more traffic than before will have this period reduced, with the effect of reducing and increasing correspondingly their respective annual allotments in column 6—the total of column 6 remaining at the same figure as before.

As regards the actual work of repair full instructions are to be found in the text-books. But, however well the work may be done, money will be wasted and the public inconvenienced, if the

various operations are not carried out *at the proper time*. This is a matter which should have the Chairman's special attention. For the preliminaries, i.e., the allotting of the funds, and the passing of the estimates through sub-committee and meeting, the Secretary's side is responsible; the supplying of the necessary information and, of course, the actual work itself are the duties of the Engineer's side. When delay occurs therefore, each side is inclined to throw the blame on the other, and unless the Chairman has a clear idea of times and seasons he will find it difficult to decide between them. He should therefore, in consultation with the Secretary and Engineer, frame a road-repair programme or calendar; and satisfy himself by occasional inspections both of office papers and the roads themselves that it is being properly worked up to.

A specimen calendar suitable to a town in Lower Bengal is given below.

Road Repair Calendar.

January	Engineer inspects all metalled roads and gives instructions for preparation of Repair estimates. Repair of earth roads continues.
February	Repair estimates of metalled roads placed before Works sub-committee by the middle of this month. Earth roads as in January. N. B. Annual Budget framed by the end of this month.
March	Repair estimate of metalled roads passed by General Meeting. Earth roads as in January and February.
April	Commissioners' sanction to Budget received by the middle of the month. Tenders for supply of road-metal called for and contractors appointed by the end of the month. Earth roads finally dressed; and turfed where necessary.
May	Collection of road-metal begins. Side-drains and slopes of all roads cleared of jungle and graded where necessary in anticipation of the rains.
June	Collection of road-metal continues. Spreading begins with the first burst of the monsoon.
July	} Collection, spreading and consolidation in full swing. Detailed estimates for repair of earth roads framed and passed by the General Meeting about the end of September.
August	
September	
October	Spreading and consolidation continues. Slopes and side-drains of all roads cleared of jungle and silt after the rains.
November	Spreading and consolidation end early in the month. Flanks of metalled roads repaired and dressed in the last fortnight. Rain-water cuts on earth roads repaired and all surfaces dressed.
December	Earth roads as in November.

Conservancy.

"Conservancy" as applied to municipal work is a term of wide application which covers many important duties, the chief being—(a) the regulation of the building of private privies and

septic tanks, and the supervision of their working, (b) the collection and disposal of night-soil from public latrines and private premises, (c) the construction and maintenance of public sanitary conveniences, (d) the collection and disposal of sullage water, (e) the collection and disposal of house-refuse and street-sweepings and (f) the cleaning and filling-up of insanitary tanks.

There are many text-books dealing with this branch of the Engineer's work, the chief Indian authorities being the following—*Jones' Manual*, *Silk's Municipal Engineering*, *McNally's Sanitary Hand-book*, and *Disney's Sanitation of Mofussil Bazars*. Besides these works, there are, of course, the many useful notes and circulars issued from time to time by the Local Governments and the provincial Sanitary Commissioners.

The following few practical hints on points not specifically dealt with by these text-books are meant to be merely supplementary to the instructions they contain.

Management of the Sweeper staff.

The sweepers will require the constant personal attention of the Engineer who must be particularly on the look-out for attempts on the part of the subordinate staff to oppress or blackmail them. He must make a point of personally investigating their grievances, real or imaginary, as soon as they are brought to his notice; and do everything in his power to prevent a successful strike bringing home to them the exceptional strength of the position they are placed in by the peculiar conditions of their calling.

Some points may be noted:—

(a) Recommendations for fines on account of bad work or non-attendance submitted by the gang foreman must be carefully scrutinized, first by the sanitary overseer, and then by the Superintendent. If this is not done, every gang foreman will certainly obtain a substantial contribution from each sweeper working under his orders.

(b) Careful arrangements must be made for paying the sweepers punctually every month, and the Superintendent must be present throughout. Otherwise, the pay-office staff will do its best to levy a percentage on the payments.

(c) If possible, the entire sweeper staff should be provided with quarters rent-free. In any case, this should be done for the trenching-ground staff. A good supply of drinking-water at every depôt and trenching-ground is absolutely necessary, if sweepers are strictly prohibited (as they should be) from using public hydrants and wells.

Collection of Night-soil.

Working arrangements.—In a large municipality a "Conservancy map" of the town is absolutely necessary. It will show the circles under each sanitary overseer, the public latrines and depôts, and the *numbers* of each class of conservancy workers—male sweepers, female sweepers, night-soil carters, sullage carters, rubbish carters, and wheel-barrow men—allotted to each circle. The proper allotment of night-soil workers can only be determined by experiment; in thickly populated areas, one male sweeper can deal with thirty or forty privies per day, and a female half the number. These are maximum figures; where privies are difficult of access and far apart, the number will have to be considerably reduced.

Besides the circle map, the sanitary overseer will have an Index Register for his circle shewing *by name* each person working under his orders; and he will work his staff on a system of morning, afternoon, and night musters, checked by tallies at the depôts and trenching-grounds. The sweeper staff will require careful and continuous watching by peons, and must be made to use the main roads leading to the trenching-grounds and depôts. If they are allowed to go by by-lanes they will empty their buckets into the nearest ditches or pieces of waste land.

People often ask, why an attempt is not made to do away with what is an undoubted nuisance to the public by getting the work of cleaning privies done *at night* instead of in the daytime. But this is practically out of the question in India. The following are the main reasons:—

1. In most Indian houses the privies are in the back-yard, and can only be reached by way of the front door. A householder naturally objects to leaving his front door open all night.

2. Sweepers enjoy a very poor reputation for honesty, and house-holders object to their being given authority to be on their premises at night.

3. Sweepers themselves object strongly to night-work, and will not do it except in gangs. They are afraid of snakes, scorpions, and ghosts, and do not want to run the risk of being taken for thieves and knocked on the head.

4. When they work in the dark proper supervision is impossible, and they cannot be prevented from emptying their buckets into the drains and tanks.

The best plan is to muster them just before day-break so that they can start work as soon as it is light. Their work should be over by noon when they can be dismissed for food and rest. They

can be mustered again in the afternoon, and put on other work such as cleaning depôts, tarring buckets, etc.; or they can be used as emergency gangs to do the work of the morning's absentees. A few carters must be deputed for night work, i.e., for removing to the trenching-grounds at night the loaded carts which have been stored in the depôts during the day.

Public Latrines.

The large masonry latrines seen in most Indian towns are not really of a convenient type. They are usually dark and very badly ventilated, and often raised to an absurd height from the ground. What is wanted is not one or two large structures of this kind, but a fair number of small (ten or fifteen-seated) sheet-iron latrines distributed evenly throughout the town. These sheet-iron conveniences may be slightly dearer to build than the masonry ones, but they are indisputably cleaner, healthier, and more appreciated by the public. Nor need their service cost more. A single sweeper, if he is given quarters near by, can easily look after two or even more of these small latrines.

The Horbury pattern is as good as any, but whatever pattern is selected it should conform to the following specification:—

(1) The floor to be impermeable (asphalt or cement), and to be fitted with catchpits for urine and washings.

(2) The seats to be glazed earthenware or iron, and to be made on the separation system.

(3) The side walls to terminate about eighteen inches below the roof, in order to ensure proper ventilation and lighting.

(4) The roof to have eaves projecting far enough to throw rain-water clear of the drain leading to the catchpits.

(5) Cross-ventilation at the bottom of the latrine to be provided for.

A perfectly efficient latrine on these lines can be put up "departmentally" at a total cost, including cement floor, iron seats, catchpits, etc., of about seventy rupees per seat. This is a good deal cheaper than the rates quoted by the engineering firms.

Disposal of Sullage.

"Sullage" is the term applied to the liquid refuse and wastes of a town—kitchen and privy washings, and drainings from cow-houses, stables, etc. With a complete system of graded masonry drains its removal presents no difficulty. The

householders must be made (as provided by the Act) to connect their premises directly with the municipal drains, and thus all foul liquids are carried away out of the town as soon as they are produced.

It is a very different matter with a *kutchra* drainage system—the familiar arrangement of a network of stagnant roadside ditches communicating more or less freely with the tanks and ponds that hold the town's domestic water-supply. With this system, each house has (or is supposed to have) a masonry catchpit, into which the sullage drains, and from which it has to be removed periodically by the municipal conservancy service. But the quantity of sullage produced is usually so large, that to remove it completely and regularly, as nightsoil is removed, would mean an absolutely prohibitive expenditure on carts and cartmen. So one finds that in most municipalities the "sullage service" is a very perfunctory business indeed, and that practically the whole of the sullage water is allowed to overflow into the ditches and drains, and thence either to percolate through to the subsoil, or to find its way into some neighbouring tank or pond.

The only real remedy for this insanitary state of things is a scientifically-designed system of graded masonry surface drains. But if a municipality cannot afford this, it should certainly do its best to minimize the nuisance by providing a regular sullage service for at any rate the more thickly populated portions of its area. Moreover, a great deal can be done in the way of limiting the quantity of sullage produced by making arrangements to exclude bathing water, and by insisting on the rims of the catchpits and the edges of the connected house-drains being raised an inch or so above ground level. This will exclude storm-water and surface drainage. Also, where filtered water is laid on, special care must be taken to prevent the possibility of waste tap-water finding its way into the catchpits.

Having got the sullage into the carts, the question is, how to get rid of it? It is highly offensive stuff, and is subject to very rapid decomposition owing to amount of organic matter it contains. Moreover, unlike night-soil, it does not contain within itself the elements necessary for its own destruction, and therefore trenching, or spreading on the ground—the methods usually employed—are not satisfactory ways of disposing of it.

By far the cheapest and most effectual method is to pass it through what is usually called a "bacteriological filter," and to use the effluent to raise crops of grass for the use of the municipal cattle. Bacteriological filters have been used with very satisfactory results for some years past in the Howrah Municipality; but from the number of enquiries as to their construction and method of working which have been received, it would seem that they are not in general use in India, and a

brief description of one of the Howrah filters is therefore given below :—

THE HOWRAH SULLAGE-FILTER.

(See plan next page.)

The filter shewn in the plan disposes daily of 20,000 gallons of really bad sullage at a nominal cost. It will be seen that the "upward" system of filtration is adopted, and that the filter works automatically, gravity being the only force employed. The effluent is slightly turbid and quite inoffensive.

Construction.—The three chief features of the filter are the settling tanks (marked D D on the plan), the main filters F F, and the series of subsidiary filters H H. They are constructed as follows :—

The settling tanks (each 15' \times 15') are made of masonry. It will be noted that the floors slope slightly towards the sludge outlet.

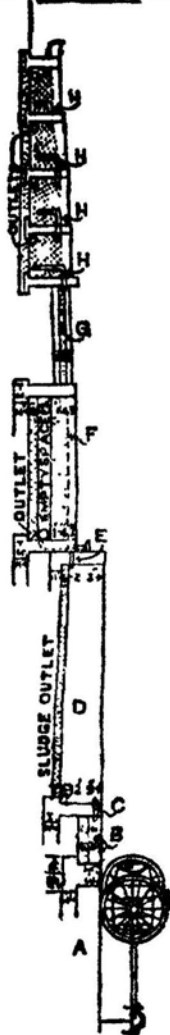
The main filters (each 9' \times 6') are also made of masonry. Each filter has a false bottom or grating of iron bars (old wheel tyres will do) placed about two inches apart, and raised about twelve inches from the floor; the space below the false bottom being left empty. The space above (1' 6" thick) is filled with pieces of hard clinker, vitrified brick, or other impervious material, each piece being about the size of a tennis ball. The rougher the surface of these pieces the better for the growth of the bacteria; smooth pebbles or pieces of granite are useless.

The subsidiary filters are constructed of the same materials as the main filter, and on the same lines, except that there is no false bottom, the feed pipe being led down to about three inches above floor level and supported on a stand. The larger the number of these filter chambers the clearer and purer will be the effluent. In practice, however, a series of four chambers as shewn in the plan has proved quite sufficient.

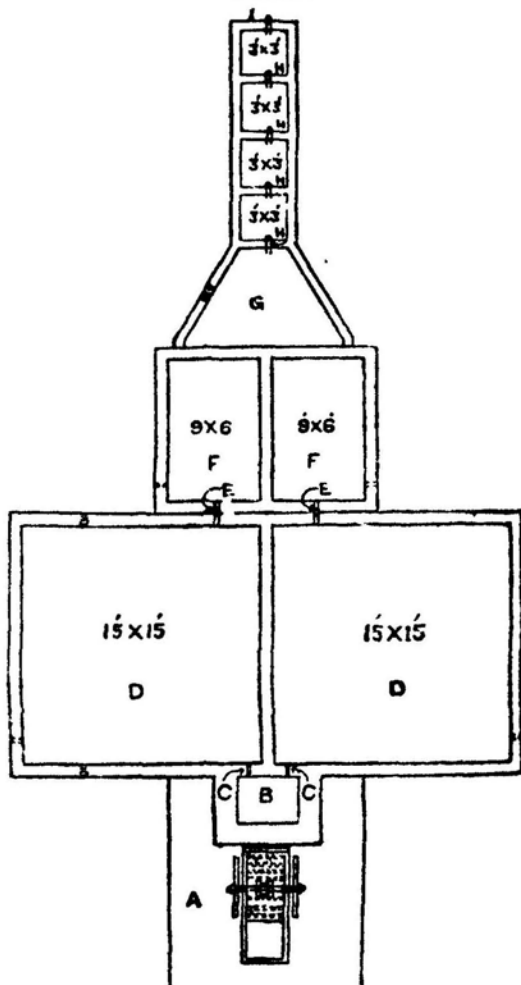
Method of working.—The sullage is brought in carts to the ramp A, and is emptied into the receiving sump B. From there it passes through the feed-pipes C C to the settling tanks D D where it remains about an hour. Valves are then opened and the sullage passes through the pipes E E to the empty spaces at the bottom of the filter F F. It then gradually rises through the filtering material to the surface, where it overflows and passes in a thin sheet over the aerating slope G, and is conducted by a pipe to the bottom of the first of the series of subsidiary filters H H. It rises through the filtering material and overflows at the surface, and is again conducted to the bottom of the next chamber and so on, until it finally emerges as a fairly clear

HOWRAH SULLAGE FILTER
SCALE 12 FT. = 1 INCH

LONGITUDINAL SECTION



PLAN



effluent through the outlet *I*, and is conducted by a system of moveable pipes and troughs to the grass-beds by which the filter is surrounded.

Some notes on the practical working of the filter may be given.

1. The flow of sullage into the main filter should be regulated so that the settling tank is emptied entirely before it is required for a fresh supply. The sludge should be removed daily through the sludge outlet. When dried it forms a very powerful fertiliser.

2. The settling tank should be scummed occasionally in order to prevent rags, corks, plantain leaves, etc., passing into the filter.

3. The filtering material should be changed every six months.

4. A bucket of night-soil should occasionally be thrown into settling tanks in order to neutralize the acids and make the liquid more alkaline.

5. For a filter of this size, dealing with about 20,000 gallons of sullage daily, a grass-bed (*doob* grass) of four and half bighas will be found sufficient—the yield of grass being about 6 maunds per 100 square feet per annum.

Miscellaneous.

The six chief duties of the Engineer may be said to be *Assessment, Roads, Conservancy, Water-Supply, Drainage, and Lighting.*

In the case of the first three on this list, some notes intended to supplement the information supplied by the text-books have already been given in this Chapter. In the case of the last three it is not proposed to make any attempt in this direction. They are strictly technical subjects, and the text-books mentioned on page 118 above give all necessary information and instruction with regard to them.

But besides these six chief duties, there are many minor matters which claim a share of the Engineer's attention; most of them being quite adequately dealt with by one or more of the text-books aforesaid. A few supplementary notes based on practical experience may however be given in connection with three of them—(1) *Cattle management*, (2) *Tramways*, and (3) *Destruction of noxious animals.*

Cattle management.

In Chapter V it was estimated that a municipality of 1,50,000 inhabitants would require to keep 200 buffaloes (for the night-soil

and sullage carts), 50 bullocks (for the drain-cleaning and rubbish carts), and 20 ponies (for the watering-carts). It will be seen therefore that in any municipality "purchase and keep of cattle" will form a very considerable item on the expenditure side of the Revenue account.

The natural "wastage" i.e., losses among the stock by death and disablement, may be put down at about twenty per cent. annually. But this percentage may be enormously increased if the animals are overworked, ill-treated, and underfed; if they are not effectively protected from being poisoned by the local *chamars*; and if prompt action is not taken as soon as cattle-disease appears among them.

Yard Superintendent—The chief safeguard against loss from these preventible causes is an honest and efficient Yard Superintendent. The qualifications and duties of this officer are summarized above (page 69) as follows:—

"He should possess some veterinary qualifications, and have had experience of handling unskilled labour; supervises both cattle-yards and maintains discipline and efficiency among the staff; treats sick animals and segregates them when affected by contagious diseases; prepares daily fodder indent on the Store-keeper; takes early morning muster at one or other of the yards, and distributes the animals among the carters; takes evening muster at one or other of the yards, and examines the condition of the animals returned."

Now the best means of ensuring honesty and efficiency on the part of the Superintendent is to make it to his pecuniary interest to keep the stock healthy and in good condition, rather than the other way, as in those municipalities where the Superintendent is given opportunities of taking commissions from the grain-contractors on the amount of food "saved," and from the cattle-dealers on the new stock bought. The Commissioners should fix a fairly high percentage of "natural wastage"; and should give the Superintendent a substantial bonus for every point below that percentage which he is able to shew at the end of the year. And he should on no account be allowed to have anything to do with the supply of food and straw, or with the purchase of new animals. The food and straw should be supplied to him *daily* by the Store-keeper (an officer on the Secretary's side of the office); and new animals should invariably be purchased in the open market by the Engineer himself.

Housing.—Protection from both rain and sun, ventilation, and proper drainage, are the three main points to be considered.

A *double shed*, with two rows of masonry feeding-troughs in the middle, separated by a passage wide enough to allow of a man

passing, is a very convenient arrangement. The floor should be of some impervious material and not too smooth, and should be slightly sloped towards a drain connecting with a catchpit. The shed should be open on all sides, and covered by an overhanging corrugated iron roof with a straw ceiling. Height (from tie-rod to floor) about eight feet ; breadth (between pillars) about twenty-four feet.

Feeding.—The following table shows the daily amount of food which has been found sufficient to keep in good condition animals in full work :

Kind of food.	AMOUNT (IN SEERS) REQUIRED BY EACH.			
	Buffalo.	Bullock.	Horse.	Pony.
Gram .. .	1	1	4	3
Bran .. .	$3\frac{1}{2}$	$1\frac{1}{2}$	1	1
Straw .. .	8	5	1	1
Oil-cake .. .	$\frac{1}{2}$	$\frac{1}{2}$
Hay	6	4
Salt .. .	$1/12$ th	$1/12$ th	As required.	As required.

N.B.—If green grass is given instead of hay, it should be provided in the proportion of 3 to 1.

Animals should be fed twice a day ; and a plentiful supply of clean drinking water is a necessity. Refuse food should be at once taken away and buried.

General.—A few other points may be noted :—

1. Every animal should have at least twelve hours' rest out of the twenty-four. Buffaloes will require a couple of hours' wallow daily in some pond or stream.

2. With neck-galled animals, the usual practice is to take them off work altogether and reduce their rations. This is bad both for the work and the animal itself. The animal should be worked in a saddle, the shaft of the cart being altered accordingly.

3. A small segregation or observation shed should be built well away from the stables and sheds ; and any animal going off its feed, or found to be suffering from fever, (the usual preliminary symptoms of most epidemic cattle-diseases), should be segregated at once.

4. The courts have held that a buffalo is a "dangerous animal" kept at the owner's risk. An unruly or vicious beast

should therefore be got rid of at once; otherwise it may get the persons responsible for it into serious trouble.

Tramways.

In European towns the tramway systems are usually owned by the towns themselves and often yield handsome profits. In India however, this particular form of municipal trading is not likely to be seen for some time to come—the initial cost of construction being too heavy for an Indian municipality to incur as a speculative investment.

However, there is no reason why municipalities should not do their best to stimulate private enterprise in this direction. A tramway is an undoubted public convenience, and in large cities often affords the most satisfactory solution of problems connected with the congestion of population.

The relation between the municipality and the Tramway Company are settled by the Indian Electricity Act of 1903 and by Local Acts. There are however certain practical aspects of the question which are not dealt with by these Acts, and which may therefore be briefly referred to.

1. The concession to the Company should be for as short a term as the Company can be induced to agree to. One does not know what improvements in traction may not take place in the course of the next few years, and the municipality should reserve to itself the right to take over the system at a valuation at the end of a reasonably short period.

2. The agreement with the Tramway Company must provide that full specifications and detailed drawings of all structural work shall be submitted to, and approved by, the municipal authorities before the work is actually taken in hand.

3. The track-rent paid by the Company should be fixed at a moderate rate. But on the other hand, it should be arranged that the Company pays the municipality a substantial bonus in years in which the dividend exceeds a certain percentage.

4. The minimum width of the road on which a double track is laid should be thirty-two feet. This will allow of four lines of wheeled traffic—the two tramcars, and two lines of vehicles moving in opposite directions.

5. The municipal authorities should shew themselves generous in the way of widening the streets so as to secure the minimum breadth where it is deficient. For instance, they might reasonably agree to bear half the cost of any Land Acquisition proceedings that may be necessary for the purpose. In most Indian towns the streets are far too narrow.

6. The track and the cable should be laid in the *middle* and not on the side of the road. This is a very important point, for the following among other reasons :—

(a) Gas-pipes and water-pipes are usually laid at the sides of the roads, and the laying of an electric cable near them may affect them injuriously by setting up electrolytic action.

(b) Bursts and leaks in gas-pipes and water-pipes can be attended to without interrupting the tramway service.

(c) A central tramway-track regulates *traffic* by making cartmen and hackney-carriage drivers keep to the proper side of the road—a phenomenon rarely seen in Indian towns.

Destruction of Noxious animals.

The Municipal Act allows the Commissioners to spend money on the “destruction of noxious animals,” and some municipalities take advantage of this provision to the extent of paying out small sums as rewards for the destruction of poisonous snakes and superfluous pariah dogs. But recent researches into the origins of epidemic diseases are making it quite clear that there are many towns where a very much wider application of this particular provision may be made with the greatest possible advantage to the health of the community. It has now been established that the anopheline mosquito is indispensable to the existence of malaria, and that the rat-flea if not similarly indispensable to the existence of plague, is at any rate mainly responsible for its dissemination; while the importance of the common house-fly as an infection-carrier in the case of typhoid, cholera, small-pox and other epidemics is becoming more and more clearly recognized.

These insect-pests are certainly “noxious animals” in the strictest sense: and no hesitation need be felt in devoting a substantial portion of the amount allotted in the Budget under the head “Public Health” to a systematic campaign against them, their hosts, and their breeding-places. An infective rat-flea is obviously impossible in the absence of an infected rat; anopheline mosquitoes require ponds and marshy places as breeding grounds; and the maggots that turn into blue-bottles and flies *must* have carrion or undisturbed filth to live in and feed on.

These facts indicate the main lines which such a campaign should follow, namely :—

Rats—To be destroyed by poison, or trapping, or by inoculating them with virus. Their multiplication to be checked by passing, and strictly enforcing, a by-law requiring all gram-godowns and other warehouses likely to become the haunts of rats to be made “rat-proof” by means of cement or stone floors.

Mosquitoes—(a) That ideal breeding-ground for mosquitoes, the *kutchas* drainage system of tanks and stagnant ditches usual in Indian towns, to be replaced by a system of shallow open masonry drains properly graded. This is of course a big and expensive business, and must be done gradually as funds permit.

(b) The municipal sanitary staff to be reinforced by a "mosquito-brigade" working on the lines which have proved so successful in South and Central America, Sierra Leone, Mauritius, Ceylon, Ismailia, and elsewhere; its work being to "kerosine" ponds and marshy places, and to fill up hollows and depressions which may become breeding-grounds for mosquitoes in the rains.

Flies—(a) The municipal trenching-grounds (the great breeding-place for flies) to be very carefully looked after. Dusting with lime as the trenches are filled has been found most efficacious in the way of preventing the appearance of maggots; and it should be remembered that a fly-grub cannot burrow down to the filth on which it feeds through more than four inches of superimposed earth.

(b) Town-refuse and offal from the slaughter-houses and markets to be removed without delay and burnt in incinerators or buried.

(c) By-laws prohibiting the accumulation of filth on private premises to be framed and strictly enforced.

A municipality that is really in earnest in its efforts to deal with pests of this kind, cannot do better than affiliate itself to the newly-formed Society for the Destruction of Vermin which has its head-quarters in London, and is establishing branches everywhere.

Four Suggestions.

- (1) Aldermen—(2) Plural Voting—(3) Valuation by the District authorities—(4) Easier borrowing terms.

The following suggestions advocating certain changes in the existing municipal system are offered for what they are worth; they have been framed with special reference to the conditions prevailing in Bengal.

1. Aldermen.

In a first-class municipality, one-third of the Commissioners should be nominated by Government, one-third elected by the rate-payers, and one-third elected from among their own number by the elected members of the retiring Board.

This arrangement would leave unchanged the existing proportion between Government representatives and popular representatives, (namely, one-third nominated to two-thirds elected), and would endow the policy of the municipality with an element of stability which is sometimes lacking under existing conditions.

The members elected by the retiring Board would correspond almost exactly to aldermen on Town Councils at Home; and according to a very competent and unprejudiced American observer—Professor Lowell—the provision of a class of aldermen is one of the best features of the business-like English municipal system. His remarks on this subject apply so well to Indian conditions that they may be quoted in full.

He says, (*The Government of England*, Vol. II, p. 200) “... the institution of aldermen, which allows a man who has served the town faithfully, and acquired experience in municipal affairs to remain in the council without submitting to a re-election. One is told that in this way many valuable councillors are retained who would be unwilling to throw themselves again into an electoral contest. Thus a number of the senior members of the council have been kept from retiring, and even if not of the largest caliber when first elected, they have attained a position of prominence, have become proud of the good name of their town, and perpetuate the administrative traditions.”

All this is entirely in accordance with Indian ideas. The methods of a popular election are even more distasteful to the

respectable classes in India than they are to the same classes at Home; and there can be little doubt that a change in the system of representation on the lines advocated would be welcomed by the best elements among the urban population, and would go a long way towards raising the status of municipal councils in the eyes of the public.

2. Plural Voting.

Every ratepayer should have, instead of a single vote as at present, a number of votes (subject to a fixed maximum) proportionate to the amount of municipal rates and taxes he pays.

The voting qualification is so low (the payment of Re. 1-8-0 yearly to the municipality in rates and taxes giving a man a vote), that in an ordinary Indian town the upper and middle classes are quite swamped by the mass of voters belonging to the lowest social grades—cartmen, sweepers and so forth; and in contested elections the actual votes of the educated section of the community count for very little. The successful candidate will be the man who has managed to secure the majority of the voters belonging to the lowest classes; and this he must do, not by convincing them of the soundness of his views on points of municipal policy (these being matters which they neither understand nor take the slightest interest in), but by becoming what is called a “good canvasser”; the two main ingredients of good canvassing being first, a free distribution of *baksheesh*, and second, the bringing to bear of all the influences—official, social and religious—which can induce a voter to give a favourable vote through fear of future unpleasant consequences to himself.

It may be said that unsatisfactory features of this kind are incidents of popular government everywhere, and that the weight of latter-day opinion is in favour of considering them as more than compensated for by the great benefits conferred on the community by a “broadening of the base of representation.” But, on the other hand, it must not be forgotten that town government on elective lines is something entirely new to India; and no one who has had practical experience of its working out here will find it easy to persuade himself that the simple formula of “one man, one vote” is the best of all possible recipes for producing efficiency and progress in the administration of Indian municipalities.

The existing “broad-based” representation is responsible for at least two serious defects in the present system: *first*, the fact that the undignified electioneering methods it entails repel many of the very best men from coming forward as candidates for seats on the municipal committees: and *second*, the fact that the voting strength of the only section of the community which is in

any way amenable to the teachings of modern sanitary science is too small.

The first defect is a patent one, and has perhaps been sufficiently dwelt upon earlier in the book. But the second is less generally recognized owing to its consequences having been hitherto neutralized in a great measure by "official influence," and is bound to assume greater and greater prominence as this official influence decays. That this decay, gradual in the past, is likely to be very much accelerated in the near future, no one who studies the signs of the times can doubt. And it is therefore worth while to consider how a more or less complete "emancipation" of Indian municipalities would be likely to affect their policy *considered from the standpoint of the sanitarian.*

Now in discussing questions of Indian sanitation, one must never lose sight of the fact that it is not so much that the Indian standard is inferior to the Western standard, as that the Indian way of looking at such matters as scientific conservancy, building rules, and vaccination and plague regulations, is fundamentally different from our own. The social customs of the Indians, the fatalistic cast of their religions, and their strongly-rooted sentiment of the right of every householder to order the affairs of his house as seems to him best, combine to produce an attitude of mind towards European sanitary methods which is apathetic where it is not actively hostile. In fact, it is not too much to say, that in the opinion of nine Indians out of ten these methods are merely useless and meddlesome attempts to interfere with the settled order of things in general, and the liberty of the individual in particular.

Nor is it too much to say, that nine out of every ten schemes of sanitary reform which have been carried into effect in Indian towns have been pushed through by the official influence *afore-said* (i.e., the influence of the executive and medical authorities of the district), in the face of more or less active opposition on the part of the communities they were designed to benefit. It is true that the good results which have followed the introduction of these reforms have furnished a series of object-lessons which are beginning to produce a certain effect. But this effect is confined entirely to certain sections of the rich and educated portion of the community. The great bulk of the population remains absolutely unimpressed; and the proletariat of any ordinary Indian town (supposing it to be made to understand the issue) would not have the slightest hesitation in rejecting the finest drainage scheme in the world, if it involved an addition of a pice in the rupee to the holding-rate.

Now whatever may be said, from a philosophical point of view, in favour of this popular attitude towards the science and art of sanitation, one thing is clear; and that is, that the

Government of this country stands quite definitely committed to an attitude that is diametrically opposed to it. The Government holds the view, that is to say, that the ravages of pestilence and disease *can* be mitigated by human endeavour, and that the individual *ought* to be restrained from making himself a danger to the life and health of his neighbours; and has expended much labour and money in translating this view into practice. The question therefore, whether one of the results of the elimination of official influence on the lines suggested by the recent Commission on Decentralization and other authorities *would* not prove to be a sharp reaction against the "forward" sanitary policy inculcated by Government, is one that needs serious consideration. To the writer, it certainly seems that, if, as proposed, official Chairmen are to be abolished wholesale, and the financial control exercised by the executive authorities is to be materially relaxed, the Government view of sanitation has but a slender chance of holding its own against the popular view, *inside* the municipal committee in any circumstances; and absolutely no chance whatever, unless the municipal administration is in the hands of the most independent and public-spirited among the citizens, and the preponderant voice in the municipal councils is the voice of the educated and well-to-do section of the community. This state of things can scarcely be expected if the voting qualifications and methods of election now in force remain unchanged.

3. Valuation by the District authorities.

In municipalities where taxation is based on rental values, the valuation being subject to periodical revision, this revision should be made by the Revenue authorities of the district, the Commissioners having no concern with it whatever.

Under the existing system the control exercised by the Commissioners over the revision of the valuation is a very real and effective one. The Chairman as their representative modifies as he thinks fit the revaluation statement submitted by the valuing agency *before* publishing it; and the Appeals committee of the Commissioners which deals with it *after* publication, reduces individual valuations to any extent it pleases.

It is not surprising therefore that a suggestion of this kind should always meet with strong opposition from the municipalities. The argument invariably brought forward is that to take away from the Commissioners the right of controlling the assessment of their towns is to violate one of the cardinal principles of local self-government, namely, the right of the community, to tax the community, for the benefit of the community. But an analysis of the facts will reveal the unsoundness of this argument; the fallacy lying in the ambiguous word "assessment." "Assessment" is the term commonly used to denote both of the two processes

essential to taxation by rate, namely, first the *valuation*, and secondly, what one must call for want of a special name the *assessment proper*—two operations which are really entirely distinct and different in character.

To make a valuation of a holding means simply to make an estimate of its annual rental value—a strictly scientific operation from which any personal or arbitrary element is (or ought to be) entirely excluded. The actual rental value of a particular holding in a particular town in a particular year may possibly be very difficult to determine, but still it is *ex hypothesi* some exact sum of rupees, annas and pies; a fixed and not a variable quantity; the *x*, so to speak, of an equation, each of whose other factors can theoretically have its value exactly calculated.

An assessment properly so called, on the other hand, is an operation of an entirely different character. It involves *first* a decision as to the kinds of taxes to be levied, *secondly* a decision as to the percentage on the valuation (previously ascertained) at which each such tax should be levied, and *thirdly* a decision as to the exemption or reduction in the amount of the taxes realizable that should be granted in particular cases where exaction at the full rate would cause undue hardship to the ratepayers concerned. Now, in this operation the personal and arbitrary elements obviously figure very largely: at each of its stages perfectly legitimate differences of opinion may arise among the Commissioners as to the course which will best serve the present and future interests of the municipality; and the law provides that in each such case the decision arrived at by the majority of the Commissioners shall be carried into effect.

To put the matter into a nutshell, the valuation of a municipality is a scientific operation with which the feelings of the ratepayers and the opinions of individual Commissioners have *nothing* whatever to do; the assessment, on the other hand, is an operation which is controlled mainly by considerations of policy, with which the feelings of the ratepayers and the opinions of individual Commissioners have *everything* to do. A correct valuation is, of course, the indispensable basis of a good assessment: but a good assessment means an assessment which, besides being based on a correct valuation, is, in addition, adequate, well-balanced and considerate. A valuation is a valuation and nothing else, and absolutely the only virtue possible to it is to be *correct*.

If this distinction is borne in mind, there will be no difficulty in perceiving that a suggestion which affects the operation of valuation only, and leaves untouched the operation of assessment (as above defined), cannot be said to infringe any principle of local self-government. And it follows therefore that the only reasonable question to ask with regard to the suggestion now under

discussion is—*Does it offer a practical means of securing a more correct valuation than is possible under present conditions ?*

Now there are certain conditions which any particular method of valuation must comply with if the resultant valuation statement is to be accepted as complete and correct. The more obvious of these conditions may be formulated somewhat as follows—*first*, the valuing agency must possess expert knowledge ; *secondly*, no local influences must be brought to bear upon it when engaged on the valuation ; *thirdly*, its working must be subject to some supervision or check ; and *fourthly*, the final results of its work must not be liable to modification by any “outside” (*i. e.* non-expert) authority.

This combination of conditions, even if it is not exhaustive, covers the field sufficiently well to serve quite adequately as a test of the merits of different methods of valuation ; and in order to compare the proposed method of valuation with the existing method, it will be sufficient to take each of these four conditions in turn and see how far it is complied with by the existing method and the proposed method respectively.

The procedure of the existing method has been described in the article “Assessment” above (pp. 106-110). It is briefly as follows : Every five years the Commissioners appoint a valuing agency which may be either, (a) the Ward Commissioners (each Commissioner valuing his own ward), or (b) a sub-committee of Commissioners (to value all the wards), or (c) the ordinary municipal assessment staff, or (d) an officer or officers borrowed from the Local Government—this last being an agency very rarely employed. The valuation statement submitted by this agency, whatever it may be, is scrutinized by the Chairman, who can, and generally does, make reductions either wholesale, *i. e.*, so much per cent. all round, or in detail in connection with the valuation of individual holdings, or both. “Reduction” is said advisedly ; enhancement being practically impossible, as a valuation enhanced by the Chairman could scarcely be upheld before the Appeals committee in the face of the opinion of Commissioners’ own valuing authority. The statement thus modified is then published as the official valuation statement, and every ratepayer has the right of appeal against his valuation. These appeals are heard by a specially appointed committee of the Commissioners called the Appeals committee, which deals with them individually, and reduces the valuation as it thinks fit (enhancement being prohibited by law). The order of this Appeals committee is final.

Now to turn to the proposed method—the method of valuation by the District Revenue authorities.

An obviously suitable agency lies ready to hand in the shape of the “Land Acquisition” establishment which forms part of the

staff of every District Officer. In every district there is a Deputy Collector specially empowered to exercise the function of a valuer with regard to property acquired from private owners for Government and public bodies and companies under the provisions of the Land Acquisition Act. He is assisted by a more or less numerous trained subordinate staff, and could undertake a municipal valuation without the slightest difficulty, the work being of precisely the same character as his local investigation work preliminary to the making of an award in a Land Acquisition project.

The outlines of a practical scheme might be as follows. At the time of the quinquennial revision an officer of the District staff subordinate to the Land Acquisition Deputy Collector to be appointed the Municipal Assessor (or more properly speaking the Municipal Valuer). In a small municipality he would be a Canungo, and in a large municipality a Sub-Deputy Collector. This officer's duty to be, to make a valuation of all the holdings in the municipality in the manner prescribed by the Municipal Act. The valuation made and published, appeals to be received from individual ratepayers (as now) on the ground of over-valuation, and also from the Chairman of the municipality on the ground of *under-valuation*. These appeals to be decided locally by the Deputy Collector, sitting with two municipal Commissioners to help him, it being understood that the functions of these Commissioners are merely advisory, the responsibility for the decision resting with the Deputy Collector alone. The decision of the Deputy Collector is to be final, in the same way as the decision of the Appeals committee of the Commissioners is final under the law at present, the Civil Courts having no jurisdiction.

The valuation having been finally fixed by the Deputy Collector, the Commissioners would then enter the field and proceed to perform their function of making an *assessment*; that is to say, to decide what taxes should be levied, and at what rates they should be levied; and what exemption from, or reduction of, taxation should be made in the case of individual ratepayers. The first two important matters would naturally be discussed and decided upon by the whole body of Commissioners in General Meeting; the last matter, being concerned with details, would conveniently be considered by a special Assessment sub-committee whose recommendations would require the ratification of the General Meeting. And in regard to this last matter, it may be suggested that it would be advisable to give the Commissioners rather more latitude than the law allows them at present. Suppose for instance, that there was a general feeling among the Commissioners that owners of residential premises residing on their own property should not be taxed as highly as tenants of rented properties, or that cultivated lands should not be taxed as highly as lands used for building sites, or that specially lenient treatment should be given to institutions of an educational or religious character;

then it should be open to them, after recording their opinion to that effect, to reduce the amount of taxes realizable from the holdings in question. But it must be the *assessment* that would be reduced—not the *valuation*. The valuation would stand permanently on record; and when, on the holding changing hands or otherwise, the particular circumstances which led to the reduction of the assessment ceased to exist, the full assessment on that valuation would be automatically reverted to.

With the outlives of both methods of valuation—the existing and the proposed—before us, we may now proceed to take in turn each of the four conditions of correct valuation noted above, and see how far it is complied with by each of the two methods respectively.

1. *Expert knowledge*—Where the valuing agency is either a Ward Commissioner working singly or a general sub-committee of Commissioners, the existing system is out of court altogether under this head. As we have seen, a valuation is essentially a scientific operation, and in carrying it into effect no amount of local knowledge can make up for want of training and experience. The municipal staff too, must be pronounced decidedly inferior to the Land Acquisition department as an expert valuing agency; they are not in such constant practice, they are less strictly supervised and controlled, and the field from which they collect their data is a more restricted one. It is only in the rare case where a Government valuer is employed, that the existing system is not pronouncedly inferior to the proposed system under this head.

2. *Freedom from local influences*—Here we come upon one of the chief defects of the existing system. At the time of the quinquennial valuation local self-government exhibits itself in its very worst aspect. Whether the valuing agency be the Commissioners themselves, or their staff, the pressure of local influences—religious, social, and partisan—exerted in order to induce it to reduce the valuations of individual ratepayers is so heavy and persistent, that the strongest and most conscientious find it almost impossible not to give way to some extent; while where the Commissioners or the staff are weak, the results are often nothing more or less than scandalous. Both the Land Acquisition staff and the Government valuer are however independent “foreign agencies,” and can afford to ignore improper influences of this description.

3. *Check on the valuing agency*—The absence of a proper check on the valuing agency is another serious defect of the existing system. A ratepayer may appeal to the Assessment committee against over-valuation; but no machinery whatever is provided for detecting or dealing with the not uncommon cases, in which through the carelessness or deliberate fraud of the valuing

agency—Commissioners, municipal staff, or Government valuer, as the case may be—a holding is *under-valued*, or even omitted from the valuation list altogether. The suggested procedure on the other hand does supply this necessary check: the valuation made by the Sub-Deputy Collector or Canungo would be scrutinized by the permanent Assessment staff of the municipality, and cases of omission or apparent under-valuation reported to the Chairman; while *per contra* the routine work of the Assessment department would be, so to speak, placed on its trial every five years before an independent expert agency. This cross-check would render fraudulent under-valuation almost impossible.

4. *Arbitrary alteration of the Valuation Statement*—This condition is habitually violated by the Commissioners themselves when, sitting as an Appeals committee, they reduce individual valuations on illegitimate grounds, *i.e.*, grounds which have nothing to do with rental value, but which concern the circumstances, considered in their personal, social, or religious aspects, of the persons owning or occupying the holdings at the time.

In every such case the figure left after the reduction has been effected stands as the actual rental value of the holding *for good*; the considerations which led to the reduction being unauthorized by the law, and therefore not capable of being placed on record. The result is, that where, as in most towns, this practice has been in force for a certain number of years, the "Valuation Statement," *quâ* valuation statement, is perfectly useless, and is, quite rightly, entirely disregarded by Civil and Revenue Courts when determining the values of houses and lands within municipal limits.

The existing system provides no means of checking this practice, the effects of which are highly detrimental both to the municipal finances and to the moral tone of the administration. The suggested procedure, on the other hand, would make such a practice impossible.

And herein lies the real explanation of the strong opposition invariably offered by municipal Commissioners to any suggestion to have the valuation carried through by an outside agency. They feel that it would mean depriving them of the power which, irregular and unauthorized though it be, they undoubtedly do possess and freely exercise at present, of alleviating in their discretion the burden of taxation for certain classes and certain individuals of the community.

And it was for this reason that in the suggested procedure, provision was made for giving the Commissioners an extended power of modifying the assessment in particular cases or classes of cases. It is after all not altogether unnatural that the

Commissioners should wish to be in a position to discriminate in favour of deserving or necessitous ratepayers. At any rate, to allow them to do so in an open and aboveboard way, by the use of methods which permit of some check on their proceedings being exercised by public opinion, would surely be better policy than to force them, as at present, to have recourse to an irregular and utterly unsound expedient which seriously compromises the financial future of the municipality.

We may now sum up the results of this comparison, and we may say that, as regards the last two of these four conditions, it is clear that the suggested procedure is superior to the existing procedure, whatever the valuing agency employed may be. And, as we have seen, it is equally superior as regards the first two conditions—except where an assessor borrowed from Government is employed. In this case (a very rare one), there would be nothing to choose between them.

There can be little hesitation therefore in coming to the conclusion that the proposed procedure would result in a much more correct valuation than is obtainable by the existing method: and this, of course, is the main point.

Further, the suggested procedure has been shewn not to conflict with any recognized principle of local self-government: and it is eminently practicable, inasmuch as it requires only a very slight alteration of the law, and employs a valuing agency which is already in existence. Nor would the cost be higher than that of a valuation under existing conditions properly carried out. On the contrary, it is reasonable to suppose that the Government would be able to give such concessions as would make it decidedly the cheaper of the two. In any case, the only appreciable cost would be the cost of the *original* valuation: the keeping-up of the routine Assessment registers, (see page 66 above) in a proper and systematic way, would make each succeeding quinquennial valuation a very simple and inexpensive business.

It may perhaps be thought that the question of valuation has been given too prominent a place among these suggestions, and has been discussed at too great a length. The writer's excuse must be, that his experience has convinced him that no single element of the municipal economy affects the success or reputation of a municipality so vitally as the valuation. A correct valuation, honestly given effect to, is the indispensable basis of the sound finance which can alone make a high standard of efficiency possible; whereas a sham "assessment" of the type which is too common under existing conditions, besides endangering the financial resources of the municipality, lowers the tone of the departments all round by the bad example it sets, and causes the public to doubt (very reasonably) the general good faith of the administration.

4. Easier borrowing terms—

The rate of interest charged by the Local Government on loans taken by municipalities for expenditure on "permanent improvements" should be reduced, and the period of repayment extended.

The sentiment of local patriotism is still in an undeveloped state in India. There are very few signs of the existence of that feeling of pride in the town of one's birth or of one's adoption, which, in most other civilized countries, has led successive generations of citizens to impose burdens on themselves in order to make their towns finer and more convenient places of residence for their successors.

From the point of view of the Indian ratepayer, an increase in taxation for any purpose whatever is an abomination: it is bad enough when it yields an immediate return in the shape of more lamp-posts, more sweepers, and more watering-carts; but to raise his taxes in order to pay for a scheme of drainage or water-supply which may not be in working order for five years or so, is a manifest and intolerable piece of injustice. Among municipal Commissioners too—even among the most enlightened of them—very similar views prevail. There is a general feeling that the average municipality is so poor, that it can only just manage to provide the municipal "services" which are absolutely necessary—road repairing, conservancy, lighting and so forth—and that it is unreasonable to expect it to cut down the scanty amounts allotted to these services, in order to pay for a "permanent improvement" which the town has hitherto been very well able to do without.

The researches of the Decentralization Commission have recently brought into prominence this general disinclination on the part of Indian municipalities to contract Improvement loans; and various theories have been put forward to account for it. Sir F. P. Lely in a note on municipalities printed as an addendum to the report of the Commission says ".... Mr. Meston, whose opinion is followed on this subject, lays stress on the desire of the tax-payers to reduce present burdens as far as possible. He might also have given them credit for a reluctance to tie up their surplus revenue in one or perhaps two projects, so as to deprive themselves of the power to undertake other, even minor, improvements in the interval." And again ".... the obligation of paying off a necessary loan in twenty years is crippling and unjust to the men of the present day."

As regards the origin of this feeling of reluctance to borrow, opinions may differ: one may hold, that its principal cause is either poverty (as municipal Commissioners themselves would say), or a disinclination to burden themselves for the benefit of posterity (as Mr. Meston thinks), or a prudent resolve not to

embarrass their finances (as Sir F. Lely thinks), or perhaps (as the writer ventures to suggest), a vague disbelief in, and dislike of, the methods of modern sanitary science. But as regards the existence of the feeling, and of its universality, there can be no question at all. And it may fairly be said of permanent improvement schemes in general, as it has been said above of schemes of sanitary reform in particular, that "nine out of ten schemes which have been carried into effect have been pushed through by the official influence aforesaid (i.e., the influence of the executive and medical authorities of the district), in the face of more or less active opposition on the part of the communities they were designed to benefit."

Now although this official influence is on the wane, and has apparently been doomed by the powers that be to a more or less rapid extinction, it is noteworthy that nothing has been provided to take its place. When it goes therefore, and municipalities are left to work out their own salvation on their own lines, one may expect to find a considerable decrease in the rate of expenditure on permanent improvements, *unless the raising of the necessary capital is made a much easier matter than it is at present.*

The Decentralization Commission has recognized this difficulty, and proposes to solve it by putting into force a scheme, in which a wholesale abolition of the contributions now demanded by Government from municipalities is combined with a liberal system of subventions and grants-in-aid—the whole additional cost to be borne by Government.

The Commission summarizes its proposals as follows:—
 " . . the Government should relieve them," i.e., the municipalities, "of any charges they now have to incur in regard to secondary education, hospitals at district head-quarters, famine relief, police, veterinary work, &c., nor should they contribute for services which are made Provincial, or be made to devote specific proportions of their income to particular objects. We do not propose to relieve them from plague charges, but where these are heavy the Government should contribute substantially. While we do not propose that municipalities should receive any regular subvention from Government, corresponding to the twenty-five per cent. on the land cess given to rural boards, they should receive assistance in respect to specially large projects, such as those concerned with drainage or water supply; and in the case of the poorer municipalities some subvention for general purposes will probably be required. Grants of this latter description should, as in the case of rural boards, be of a practically permanent character."

Now it is quite obvious that the additional expense which the acceptance of this scheme would entail upon local Governments would be very heavy indeed—heavier perhaps than they would be willing to bear. Moreover, (if one may venture to criticize so

high an authority) it is doubtful whether the advantages resulting from the scheme would prove to be at all commensurate with its cost. Two unsatisfactory features of the scheme strike one at once.

First—There is nothing to ensure that the additional funds placed in the hands of the municipalities by relieving them of all financial responsibility for secondary education, famine relief, and medical and veterinary work, and by paying them regular subventions, shall be spent on permanently improving the town, or even improving what the Commission calls “its normal services.”

From what one knows of the ways of Indian municipalities, one may prophesy with a good deal of confidence, that in a great many cases practically the whole of this extra amount would go, in one way or another, towards reducing the existing rates and taxes.

Second—The scheme proposes not only to perpetuate, but also to regularize and extend the existing system of Government doles.

Surely this is a move in the wrong direction. Even as it is, Indian municipalities tend to rely on Government assistance to an excessive degree. One knows of many cases in which the municipal authorities have sat with folded hands, watching their affairs go from bad to worse without making an effort to improve them, in the comfortable expectation that sooner or later a visit from the Head of the province would give them an opportunity of representing their desperate condition, and of extracting from him an eleemosynary grant. This attitude of “mere mendicancy” (as it has been termed by an ex-Lieutenant-Governor of Bengal) is entirely out of harmony with the “self-government” idea. And it is very doubtful whether the cause of self-government would be advanced by “emancipating” the municipalities with one hand, while pauperizing them with the other: for the proposals of the Commission, especially the proposal to grant “in the case of the poorer municipalities some subvention towards normal services” undoubtedly does tend in the direction of pauperization, i.e., of granting pecuniary relief in proportion to the degree of poverty claimed and proved by the recipient.

It must be remembered too, that the actual degree of poverty to which any particular municipality has sunk is practically unascertainable under the present system; the device of a “sham assessment” described above rendering it quite possible for a municipality shewing a taxation of three annas in the rupee to be in reality more lightly taxed than a municipality which shews a taxation of half that amount. Even under existing conditions the inducements offered to a municipality to be virtuous, and

thrifty, and to tax itself for its own good, rather than to be improvident, and slack, and to trust to Government's eventually pulling it out of the hole, are not as strong as they might be. The scheme proposed by the Commission would make them very much weaker still.

In the writer's opinion, the adoption of a policy of making regular subventions *towards normal services* would be a serious mistake. An ordinary municipality in ordinary circumstances, *i.e.*, when not suffering from the effects of some natural calamity such as a flood, a fire, or a pestilence, should undoubtedly be able to find the money necessary for the performance of these services. If it professes itself unable to do so, the presumption is that there is something badly wrong with its assessment, or with its method of dealing with the municipal funds, or with both.

Permanent improvements stand on a different footing altogether. Everywhere there is urgent need for them—for broader roads, better drains, an increased water-supply, and more public gardens and squares. And in assisting municipalities to provide themselves with these good things, the Local Governments need set no limit to their generosity. But their assistance should be given not so much in the form of *gifts, i.e.*, grants-in-aid, as in the form of *loans* on the easiest possible terms. The present rate of interest on such loans is four per cent. ; let it be reduced to two, or even one, per cent. : the present maximum period for repayment is twenty years ; let it be extended to thirty, forty, or even sixty years, in accordance with the character of the improvement concerned.

Such a policy would consult the truest interests of the cause of local self-government. It would encourage municipalities to form the habit of sacrificing the interests of the present to the interests of the future ; and at the same time, it would not stand in the way of the development of that spirit of sturdy self-reliance which has always been recognized as the hall-mark of the best sort of civic administration.

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