

property. Birmingham followed with the Improvement Scheme of 1875 which made Mr. Chamberlain's reputation and involved the destruction of 90 acres of insanitary property. Similar operations have been carried on, not only in most towns in England and on the Continent, but even in the United States, where there are cities old enough to have developed slum areas.

But although in Calcutta there are areas which are so badly laid out, that the wisest course is to pull them down and rebuild them, it has been found elsewhere that this is a very expensive remedy and one of limited effect. It is not possible to pull down the whole of the northern part of Calcutta: though as one wanders through its gullies and lanes one constantly comes across areas which positively cry out for such treatment. Less drastic remedies have in the long run a very considerable effect: there are powers to compel the owners of individual houses to remedy sanitary defects and to abate overcrowding which can be brought into operation: those powers are exercisable by the Corporation: the Trust only steps in where the drastic remedy of wholesale demolition has to be resorted to. This, from the strictly sanitary point of view, is the limit of its duty in regard to remedying the past. Now let us think about the future. Calcutta is growing and when we regard the future we are compelled to consider greater Calcutta with all the Suburban Municipalities as a unit. Calcutta was originally bounded by the Circular Road: it long ago outgrew those limits: but unfortunately no single authority was constituted to control that growth: a glance at the map of Calcutta and its suburbs shows that there is no relation at all between the street planning in the city proper and that in the suburbs: there is not a single adequate road which starts in the centre of the city and runs out into the surrounding country: Chowringhee dies out in the 30 feet wide Russa Road: the road system of Bhowanipur, Ballygunge and Entally has no connection with that of Calcutta. Machua Bazar and Maniktolla Street are, it is true, continued eastward in Narcoldanga Road and Maniktolla Road, but they are themselves quite inadequate to receive any heavy suburban traffic: further North the approaches to the Belgachia and Barrackpore Roads are insufficient and even dangerous. This is the direct result of not having authorities with sufficiently large territorial jurisdiction: the necessity for an authority to deal with growing cities and their surroundings as a whole is being more forcibly felt in London and other growing cities day by day and there is a crying need for such an authority in Calcutta.

Calcutta has grown up practically at haphazard and then, when affairs were found to be intolerable, sporadic improvements were effected. A brief recapitulation of what was done from time to time may be in place here.

The original limits of Calcutta proper were defined by the Marhatta Ditch, a defence against the anticipated inroads of Marhatta marauders. This ditch was filled up before the expiry of the Eighteenth Century and became the Circular Road, one of the few satisfactory

main roads now possessed by Calcutta, but one which does not assist in the most important movements of traffic. It was metalled as early as 1800.

Lord Wellesley in 1803 appointed an Improvement Committee one of whose duties was "to ensure that the irregularity of buildings should be forbidden and that streets and lanes, which have hitherto been formed without attention to the health, convenience or safety of the inhabitants, should henceforth be constructed with order and system."

The Committee's income was supplied by lottery profits and in 1817 the Improvement Committee was merged in the Lottery Committee which continued responsible for Town Improvement till 1836. This Committee signally failed to prevent the evils aimed at by Lord Wellesley but nevertheless Calcutta owes to it almost all that is satisfactory in its system of roads. The Committee created the North and South Road known successively as Cornwallis Street, College Street, Wellington Street, Wellesley Street and Wood Street. It laid out the Strand Road along the river bank and created Cornwallis Square, College Square, Wellington Square and Wellesley Square; Free School Street, Kyd Street, Colootolah Street, Amherst Street and Mirzapore Street are other important roads which we owe to the only authority which made any attempt at Town planning in Calcutta. For twenty years after the abolition of the Lottery Committee in 1836, successive authorities were constituted and superseded and little effective work was done. In 1856 a Municipal Corporation was constituted and one of its first operations was to lay out Halliday Street. From 1852 to 1856 the law required that all new Streets intended for carriage traffic should be 50 feet broad but this wholesome provision was repealed in the latter year. The constitution of the Municipal authority was repeatedly revised and under the Act of 1888 the Corporation was composed of 75 Commissioners, of whom 50 were elected by the rate-payers, 10 by certain public bodies and 15 appointed by Government and a large area of suburbs to the East and South of the old Calcutta was included within its jurisdiction, the Municipal area being thus raised from 11,954 acres to 20,547 acres.

Before this date (1888) the Town proper had been drained and supplied with water: the filling in of surface drains and the laying of water pipes rendered it possible to open out many lanes and narrow roads and it was claimed that between 1876 and 1888 the area of roads in the town had been increased by 33 per cent: but these additions in point of fact were almost useless for traffic purposes.

The floating bridge across the Hughli had been constructed in 1873-74 and the only other improvement on a large scale undertaken between 1856 and 1888 was the construction of Harrison Road, 70 feet wide running from the Hughli Bridge to Sealdah. This very important work was completed in 1893.

The Lottery Committee and its successors having their jurisdiction in Calcutta proper never looked beyond its boundaries. Since 1888 the Corporation has paid attention to the added area, and it has given

is the new 60 feet road running through the Fringe Area, Lansdowne Road, Harish Chandra Mookerjee Road and Hazra Road, but the state of its finances has forbidden it from doing anything drastic in the way of road-making in thickly populated areas.

Now apart from any question of growth of population it is obvious that every city of any size requires facilities for movement from one part to another and especially from the circumference to the centre. The facilities required vary from time to time : a road which is sufficient when people travel in *Palkis* is useless for tram cars and motors. Modern inventions make very rapid transit possible. But electric trams and motor busses require broad roads, if they are to use their speed. In London, the average speed of trams on busy roads varies from 8 to 8¾ miles an hour, in Calcutta it is about six miles an hour all round, and on the northern section in the busy part of the day must sink to about four. As a city grows business tends to concentrate at one or more centres : it is impossible for all the workers to live at these centres and hence they have to be transported from and to their homes every day ; the quicker the journey, the farther they can afford to go : hence quick transport facilitates the extension of a city : the extension of a city means cheap rents and cheap living : for it is only excessive competition for land which forces up rents : thus the extension of a city not only counteracts the tendency to overcrowding but also reduces the cost of living. But the existing roads in Calcutta were, of course, made without any regard to the needs of modern transport and without any reference to the fact that Calcutta might ever extend beyond Circular Road. It is a plain necessity that roads must be made having regard to both these factors and these roads should be constructed with an eye to the needs of the future as well as of the present : in so far as they run through the insanitary and congested areas of the present town, such roads can be made to serve a double purpose, for they can often be so aligned as to run through and open out the worst plague spots : this is a policy which has been followed both in Birmingham and in Bombay : to mention two instances with which I am acquainted.

So far we have not touched directly on the fact that Calcutta is growing, but it is growing rapidly : greater Calcutta added 100,000 to its numbers during the past decade. Where and how are these new comers living ? It is of little use to improve away slums if others as bad or worse are growing up all around. This is a difficulty with which the Bombay Improvement Trust is faced. The building laws at present in force in Bombay are so defective, that new dwellings are continually erected with every possible sanitary defect : under these circumstances the work of the Trust becomes a task of Sisyphus :— while one area is being improved as bad are growing up around. In Calcutta, this is not so : the Calcutta building laws are fairly adequate and when new buildings are erected they have to be an enormous improvement on what has gone before. This is however only true of the Corporation area : in suburban municipalities there are not adequate building regulations, and as I shall explain immediately it is

in these uncontrolled areas that the growing population of Calcutta tends to settle. But building laws by themselves are not sufficient : as a town grows it must have its extensions laid out with adequate roads and open spaces : and this must be attended to, not only when an unoccupied area is developed, but when population becomes dense on an area previously sparsely populated.

The movements of population in Calcutta, as revealed by the last Census, are interesting and should be carefully studied by every one who sets out to advise the Improvement Trust.

If, neglecting the insignificant and exceptional areas of Waterloo Street and Hastings, we draw a line east and west along the line of Kyd Street and Ripon Street ; the character of the population on either side of the line is markedly different. North of the line the density varies between 130 and 237 persons to the acre. South of the line the density in no ward exceeds 68 to the acre. I may mention that in London, the population of boroughs like Shoreditch and Bethnal Green is 169 to the acre : in Chelsea it is 100 and in Kensington 75.

Wards I to VI. constitute the extreme north of the town, with Machooabazar as its southern boundary ; these wards are thickly populated—130 to 227 to the acre, but at the last Census they all showed substantial increases of from 8·7 to 14·5 per cent. But south of Machooabazar the case is different : in the whole of the rest of Calcutta inside Circular Road the Census showed that the population was stationary or declining. The single exception was Puddopukur, which showed an increase of 6·7 per cent.; this ward lies between Bow Bazar and Dharamtollah : the population is 180 to the acre and the housing conditions are very unsatisfactory.

This widespread decrease in population is of course due for the most part to the improvement in sanitary conditions and in the class of buildings which has been erected in recent years. When a bustee is swept away and a residence of the better class or a warehouse erected on the site, a less population is naturally accommodated. Nor is it difficult to ascertain what has become of the displaced population, for every ward outside Circular Road and south of Sealdah Station shows a substantial increase in population, the percentage of increase being as high as 53·5 in Beniapukur and 28 per cent in Ballygunge. It is well known that there is an immense floating population in Calcutta composed of men, who have come down to work, leaving their families in the districts. This floating population should be distinguished for many purposes from the permanent residents who have their families with them. The Census figures for females help us to trace the permanent population. Of the six northern wards five give a total increase of 6,300 females, but Ward V., which is notoriously unhealthy with an increase of 4,336 males, shows a small decline in females : the permanent residents are not increasing there. Similarly in the wards which form the centre of the town, while the population as a whole has declined, the loss of females is greater than that of males. On the other hand Entally, Beniapukur and Tollygunge

show increases in females of 2,000, 5,300 and 2,700, respectively. These figures corroborate our previous conclusion that the permanent population is shifting to the north of the town and to the south-eastern suburbs. The loss of permanent population from the centre of the town is even greater than would at first sight appear, because that loss is partly made good by an influx of male working population.

But the boundaries of Calcutta are purely artificial and it is necessary to look beyond the Suburban Wards to the Suburban Municipalities. These increased in population very substantially: it is true that the South Suburban Municipality merely added to its population 1,700 males, the number of women remaining stationary, but Cossipore Chitpur showed an increase of 19 per cent.

Manicktolla	...	...	...	66 per cent.
Garden Reach	...	...	...	40 "
Tollygunge	...	...	...	45 "

The increase in these four municipalities amounted to 32,000 males and 20,000 females; figures which contrast strongly with those for Calcutta, where the increase was 38,000 males and only 4,300 females. These figures show that the class of population which brings its womenfolk to Calcutta is settling in the suburbs and not in the centre of Calcutta: in the centre we tend to have a population of single men: of the everincreasing crowd of labourers and traders who visit Calcutta only temporarily.

The Trust was created partly to provide suitable and healthy accommodation for the normal increase of population in Calcutta, and that increase we have found is settling largely in the suburban Municipalities. I have said nothing of the increase of 20,000 on the Howrah side of the river. Probably few of my hearers have closely inspected the conditions which prevail in those Suburban Municipalities: they are very bad: there is for one thing no drainage system and no one has ever attempted to lay these areas out with adequate and suitable roads and open spaces: the work to be done here is obviously of a very pressing nature: and as the people continue to crowd in in their thousands it becomes more difficult with every day's delay. And not only must suitable living conditions be provided for these people but they must be linked up with the centre of Calcutta by proper traffic routes, that is to say, that the main thoroughfares which we have found to be necessary in the town itself, must be continued into these new and rapidly growing suburbs. This the Improvement Trust can do, as it can assume jurisdiction over the Suburban Municipalities: but the Corporation will always be reluctant to take over areas which involve heavy capital expenditure, while yielding but an insignificant revenue. Until these outlying areas have been supplied with the necessities and amenities of a healthy Municipal life, the Improvement Trust is the only possible centralised authority which can deal with greater Calcutta as a whole. In Calcutta proper, it may have a divided authority, outside the limits of the Corporation the responsibility for the future rests practically on the Trust and on the Trust alone. Does not this position justify the Trust in paying early and special attention to the improvement of the Suburban Municipalities?

Another matter which the Trust has to consider is the need for the provision of open spaces : not merely of squares and boulevards but of parks on a large scale : the modern world is appalled at the rate at which the modern city spreads : in a few decades the people living in the centre of the city are miles from any open space where green things grow, where fresh air can be breathed and where there is space for healthy outdoor recreation.

In America especially the need of staying the onward flow of bricks and mortar by interposing a ring of parkland round a city, where it has attained a moderate size, is daily more clearly recognised. One favourite method is to take up several large parks and connect them by a broad wooded parkway. In the older towns of Europe the parks have been mostly secured by accident, through the acquisition of royal palaces or the demolition of fortifications : Calcutta owes the maidan to military exigences not to design : had there been no Fort there would have been no maidan. What chance did in the past foresight has now to do for the future. What proportion of its resources it is justified on spending on the parks of the future and at what stage of its proceedings it should turn its attention to this matter are questions which the Improvement Trust has to answer.

Another question or rather group of questions for the Trust to deal with, relates to the rehousing of persons displaced by the operations of the Trust. In England Parliament in sanctioning any Improvement work usually requires the Local Authority to provide accommodation for the persons actually displaced by the demolition of their houses. No such requirement has ever been imposed on the Corporation of Calcutta. Nor has the law imposed it on the Improvement Trust. But the Law does lay upon it the duty of paying attention to the accommodation of the dishoused population and gives it power to erect dwellings for the poorer classes. To what extent should the Trust build ? Should it be content to manage its dwellings at a loss : What classes should it seek to accommodate ? are questions which may give rise to difference of opinion. The Bombay Trust has housed 15,000 people in its model chawls and has frankly done so at a loss : finding its reward in the fact that the death rate among its tenants is only half of that among a similar population outside. Circumstances differ in Calcutta and there is much to be said against such a policy.

Lastly, are we to spend 8 crores on town improvements with no regard to æsthetic considerations ? In Europe and America this side of the question attracts more and more attention. No public building can be erected, no street alteration made without vehement and often heated discussion as to the artistic result. Enormous sums are cheerfully spent to secure beautiful or dignified effects. I do not think that at present there is any strong feeling in this direction in Calcutta. It would be easy to show that Government has not done much to encourage by example the growth of a love for civic beauty, but one may hope that a generation will arise here imbued with a desire not only for a Calcutta which is sanitary and which is convenient but also for a city that shall be beautiful and grand, the worthy capital of a province or of a nation which aspires to be something great in the future.

I have asked or suggested several weighty questions, questions as to the relative importance and the relative urgency of the various tasks which lie before the Trust. It is impossible to do everything at once : there is much that cannot be done at all ; for the resources of the Trust, though large, are not unlimited. No one is more conscious than myself that there may be reasonable difference of opinion as to how some of my questions should be answered. This indicates the need of great caution in framing a policy : but for my part I am convinced that the Trust must adopt one clearly outlined and coherent policy and having once adopted it must pursue it unflinchingly, and not allow its attention to be diverted by the side issues which will constantly be raised.

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