

# The Bombay Local & Suburban Train Service

Annual Issue Dec. 1923





## THE BOMBAY LOCAL & SUBURBAN TRAIN SERVICE

[FROM 1867 – 1923]

### THE HISTORY OF ITS DEVELOPMENT AND OPERATION.

#### INTRODUCTORY

WRITING in 1887 with regard to the variations in population density between the different parts of the island of Bombay, the Health Officer remarked: "There..... for our whole population and for the better city of the future if only the doors of communication are kept open."

Looking at the map and bearing in mind the fact that the present population density Bombay is 78 persons per acre, it will be readily perceived how very desirable it is that those doors of communication should be kept open. Sea-girt, restricted by nature, densely populated and congested, there is hardly another great population centre in the world in greater need of an efficient and reliable railway system.

In one respect the residential problem in Bombay is similar to what it is in other large

cities. It is exemplified in the familiar fact that people engaged in business do not or cannot reside at or near their place of business.

At least from the town-planner's point of view it is a somewhat unfortunate fact that so many people's business, whether it be in office or shop, is usually found in the "Fort" region, a narrow area flanked by the sea on either side, and situated at the point where the Island begins to narrow till it tapers off in the familiar jutting beak of Colaba.

Proximity to this important part of the city, being fundamentally a rent-determining factor, has had its inevitable economic consequences. Hence the quest for ex-urban residential accommodation, the pressure that tends to drive people farther and farther afield into the suburbs, even beyond the Island limits, and at a very



The "Down" Exit Bandra Station

considerable distance from the Fort, the scene of their daily work.

Consequently there is the growing need for cheap, speedy and convenient transit facilities, a need that is of course felt in every big populous city, but one which is of peculiar and vital concern to the insulated city of Bombay.

Investigators of the Bombay Slum problem remind us of the deplorable fact that nearly two-fifths of the population of Bombay Island is huddled into a little over one-fifteenth of the total area. And we are further reminded that even if the entire population were evenly distributed over all parts of the Island "the density would be in the eyes of modern economists far too great." It is somewhat disquieting also to see that despite indefatigable efforts of the Improvement Trust the last census shows the density per acre to have in fact increased from 67 in 1911 to 78 in 1921.

These significant statistical facts obviously have a direct bearing on the great question of communications. Free, open and rapid communication with Salsette Island, the northern portion of bay Island, and the mainland, it is easy to ..... is one of the constant factors in the solution of this problem. Hence the supreme importance of local and suburban railway system as a circulation of artery of the city, as an auxiliary to the beneficial schemes of the town improver, health officer and slum attacker; a service that tends to entice away from the crowded city to places of light, purer air, greater freedom – more and desirable surroundings generally.

A constant appeal commends itself to the one who contemplates cheaper living beyond the limits, but not of course at an inconvenient distance from his place of business. But obviously the question of "convenient" distance is largely dependent on the speed and frequency

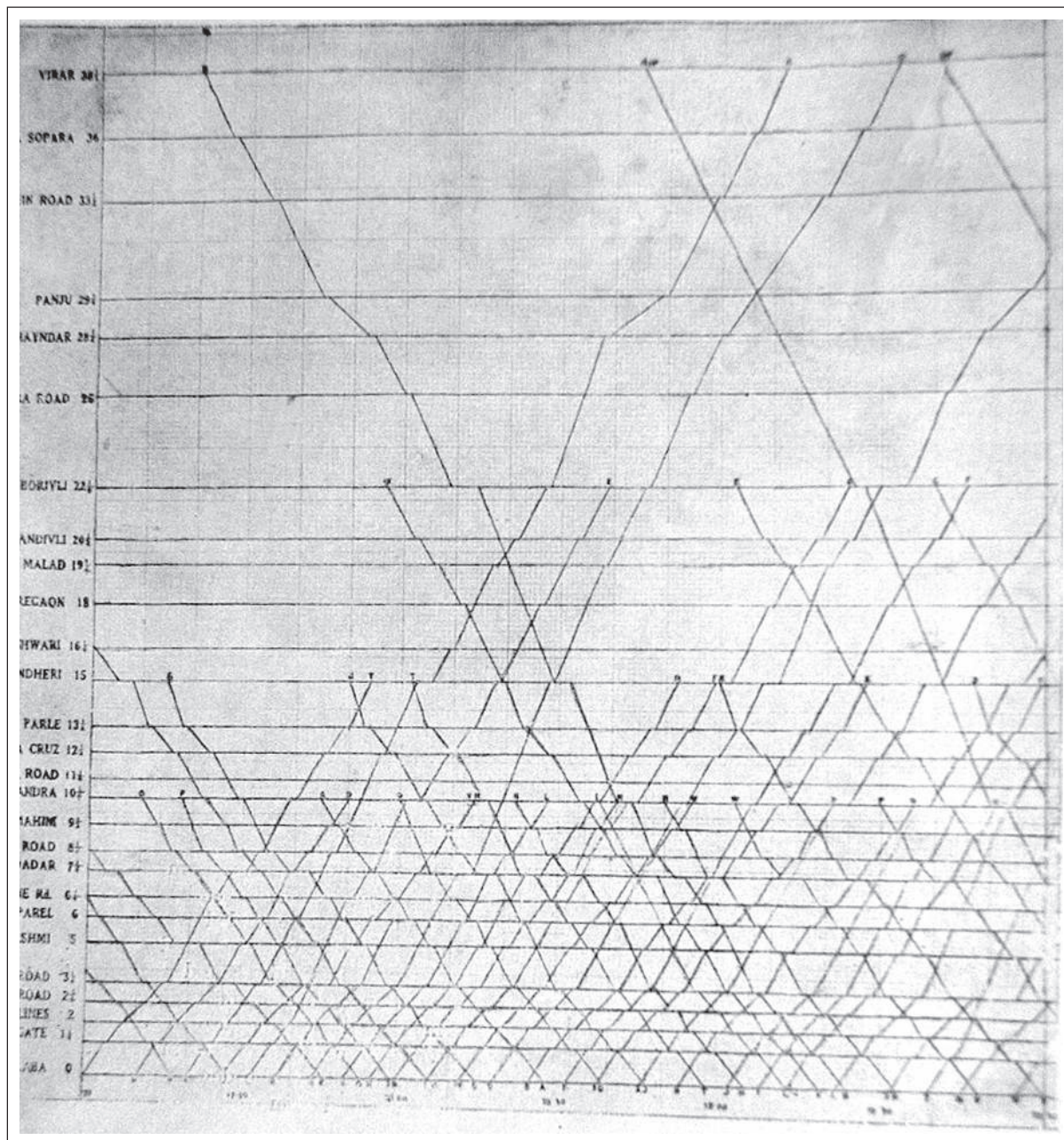


**Diagram No. 1 - Train Graph Showing Local Services Time-Table between 5 pm and 8 pm**

of the local train service. And in this context a quotation from the writings of Mr. H. G. Wells is particularly pertinent. On the subject of "Locomotion in the Twentieth Century," he wrote twenty years ago: "The more frequent a local service the more it comes to be relied upon." The words were italicized by the author himself and such emphasis on the statement was apparently justified. It is no doubt chiefly on account of its frequency and accurate time-keeping that the local service of the B. B. & C. I. Railway has come to be more and more relied

upon from year to year.

For those residing at shorter distances from the business centre the tramway service is availed of to a very great extent, but obviously the scope of this service is limited. The point whereat the resources of the latter end, and the point where the need of railway service begins, is very obvious and clearly defined. No doubt the improvement of road communication of recent years has also been availed of by those who can afford to rely on motors.

Thus, as a result chiefly of its peculiar situation, it happens that Bombay is the only city in India, if not indeed in Asia, which can be said to possess the "city train"; and it is indeed in this particular respect that its great rival in the east, Calcutta, lags behind the western capital. Calcutta is, in a certain sense, surrounded by lines of railway, but there is no railway service into the commercial heart of the city; there are no city stations, and so the passenger who works daily in the heart of the city has to travel a long distance to and from the terminals.

A moment's study of a time-table of the Bombay, Baroda and Central India Railway will give one an idea of the scope of the Company's Bombay local passenger service. Here it may be said, as in Western countries, is the city train, carrying the city worker daily to and from his place of business in the Fort or neighbourhood to any of the twenty-four stations on the line between Colaba and Virar, 39 miles distant.

But without consulting a time-table one can get a very clear impression of the popularity of this local train service by standing in the vicinity of Church Gate Street station during the morning and evening peak periods and observing the dense passenger throngs issuing from the station as those six-minute interval suburban trains arrive and discharge their loads of humanity.

### **FIFTY YEARS OF STEADY PROGRESS**

The significant fact must not be overlooked that the B. B. & C. I. local service was inaugurated at a very interesting juncture in the history of Bombay, and that it has in fact developed with Bombay, the city that has since almost doubled its population – Greater Bombay.

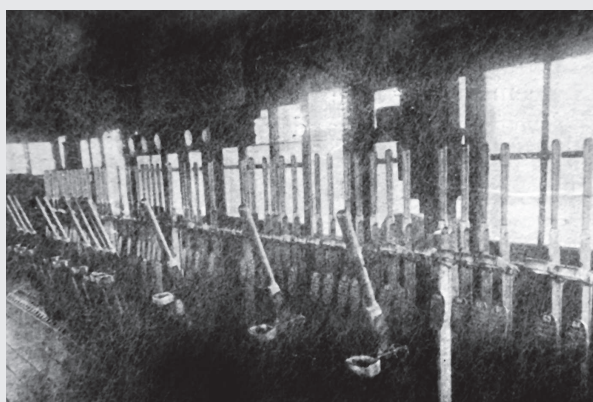
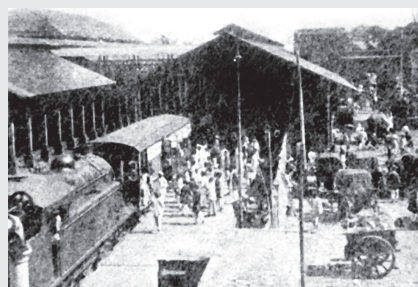
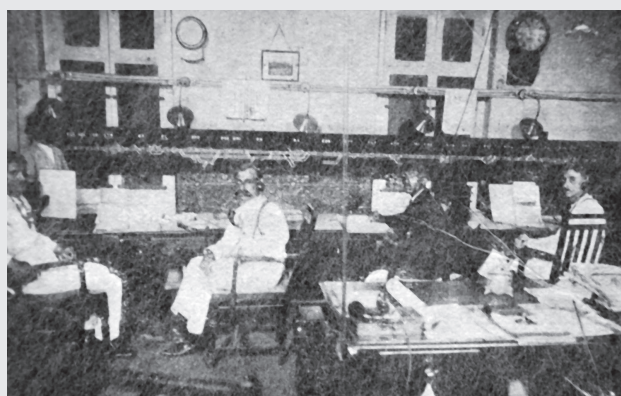
The date of this inauguration is not without interest. It was the 12th of April 1867, as far as the records can trace, when there commenced a service of one train each way per day between Virar and – not Colaba- but a station called"

Bombay Back Bay," Doubtless Bombay's oldest residents could locate "Bombay Back Bay," but at any rate the name furnishes a good geographical hint, allowing for the oblitative effects of marine reclamation.

At this period there was one mixed main line train and one passenger main line train per diem. The stations on the local section then were: Viraur, Neela, Bassein, Panjo, Berewla, Pahadee, Andaru, Santa Cruz, Bandora, Mahim, Dadur, Grant Road and Bombay (Back Bay). Some of the names in the old spelling are now scarcely recognizable. Each station, we are told, then kept a "complaint book."

These little historical details are worth recalling if only for the purpose of showing how the B. B. & C. I. local and suburban train service, like almost all great concerns, had a very small beginning. It had to look ahead to feel its way and make sure of its ground, and then being convinced of the soundness of its undertakings, it naturally and instinctively went ahead, meeting in gradual but ever-increasing measure the wants of an increasing travelling public.

From 1867 to 1870 – during these three years – it seems that there was only one train each way between Back Bay and Virar, presumably because, just at that time, one train each way seemed sufficient, and because – there were then no suburbs. But we may also presume that this one train was getting more and more crowded, and that people were more and more appreciating this new quick means of transit, and that the Company soon realized that not only one but several trains would be really necessary. Supply must continue to meet demand. And so in 1870 we find, from the records, that the service increased to five trains each way per day. Those trains, it appears, terminated at Church Gate or elsewhere north of that station. By 1870 evidently the B. B. & C. I. had made a very big stride. It is then we hear of Colaba for the future time, as far as the railway is concerned. They were then 24 trains a day (8 Bandra, 3 Andheri and 1 Virar).



- |                                                         |                                                             |
|---------------------------------------------------------|-------------------------------------------------------------|
| (1) Down Local leaving Grant Road Station.              | (5) "Up" Platform, Grant Road Station.                      |
| (2) Trains Control Office, Grant Road.                  | (6) Interior of Grant Road "B" Cabin                        |
| (3) Passengers Exit. "Up" Platform, Church Gate Station | (7) Taking water at Borivli                                 |
| (4) Marine Lines                                        | (8) "15 Down" crossing South Bassein Bridge (local section) |

Henceforth it is a record of sustained progress and expansion – the continually growing task providing the fullest facilities for the train –travelling public. And meanwhile it is important to that Bombay City too is growing in trade and population – growing at a very rapid rate indeed. Consequently there is congestion and a scarcity of housing accommodation and the migratory trend of certain classes of residents is, naturally to the free open spaces towards the north. Hence further demands on the train service from Colaba to Virar.

In the year 1888, 9,865,000 people made use of the local service and by 1892 the Company were running 4 Virar, 1 Borivli and 27 Bandra locals each way daily. The 10-8 "fast" as it is now known, then left Bandra at 10-7 and reached Church Gate at 10-25, running three minutes faster than the present train, but at the same speed as the 19-45. The year 1900 records a further appreciable expansion when the daily trains were : 5 Virar, 7 Borvili, 3 Andheri and 29 Bandra locals.

But what is the situation to-day? What has the first twenty-three years of the twentieth century to record? We have seen that in 1888, 9,865,000 passengers were carried over the local section. Now the number is 45,266,000 passengers per year. These figures are the most convincing indicators of the enormous expansion of the service. To cope with this great passenger pressure now needs 168 local trains (i.e. 84 each way), and on the whole section there are 260 moves per day. Hitherto, it has been reckoned that approximately the traffic doubles itself every fifteen years, but this rate of increase evidently is now being exceeded.

The development of places along the 39-mile section of line and the increasing popularity of certain suburban localities, will doubtless result in still further swelling the volume of traffic. Dadar, Mahim, Parel, Worli and Dharavi are among the neighbourhoods, from which may be expected largely increased quotas of traffic. The growth of Khar, Santa Cruz, and other places outside Bombay Island will mean that these

areas also will become more and more important as contributories to the great stream of Bombay suburban rail-borne traffic.

### **AN INCREASE IN SEASON TICKET RATES AFTER FORTY YEARS**

Before proceeding to deal with the technical matters concerning the operation of the service as it exists to-day and the large programme of extending the present facilities to provide a still more frequent number of trains for the traffic now offering, it will not be out of place to refer briefly at this point to the action of the Railway Company last year in the introduction of enhanced season ticket fares.

It was inevitable that the announcement, when it was first made, should arouse a good deal of adverse criticism from the public, and considering the rates had not been touched for close on forty years it was hardly surprising that very strong influence should be brought to bear on the Company to reverse their decision. Any change that means we shall have to pay more either for services or goods is naturally bound to be unpopular, however sound and incontrovertible the reasons are for such change. But it could not have been expected that the B. B. & C. I. Railway and other Indian railways could have escaped the effects of the world-wide economic derangement caused by the late war and hence it may fairly be said that the enhancement of fares was simply a necessary action on the part of the Company to effect a readjustment of conditions to their true economic level. The line had to pay its way. Hit by the enormously increased expenses, obviously it could do this only by revising charges to such a scale that the passenger's fare and the cost of the Railway's service bore an economically reasonable ratio.

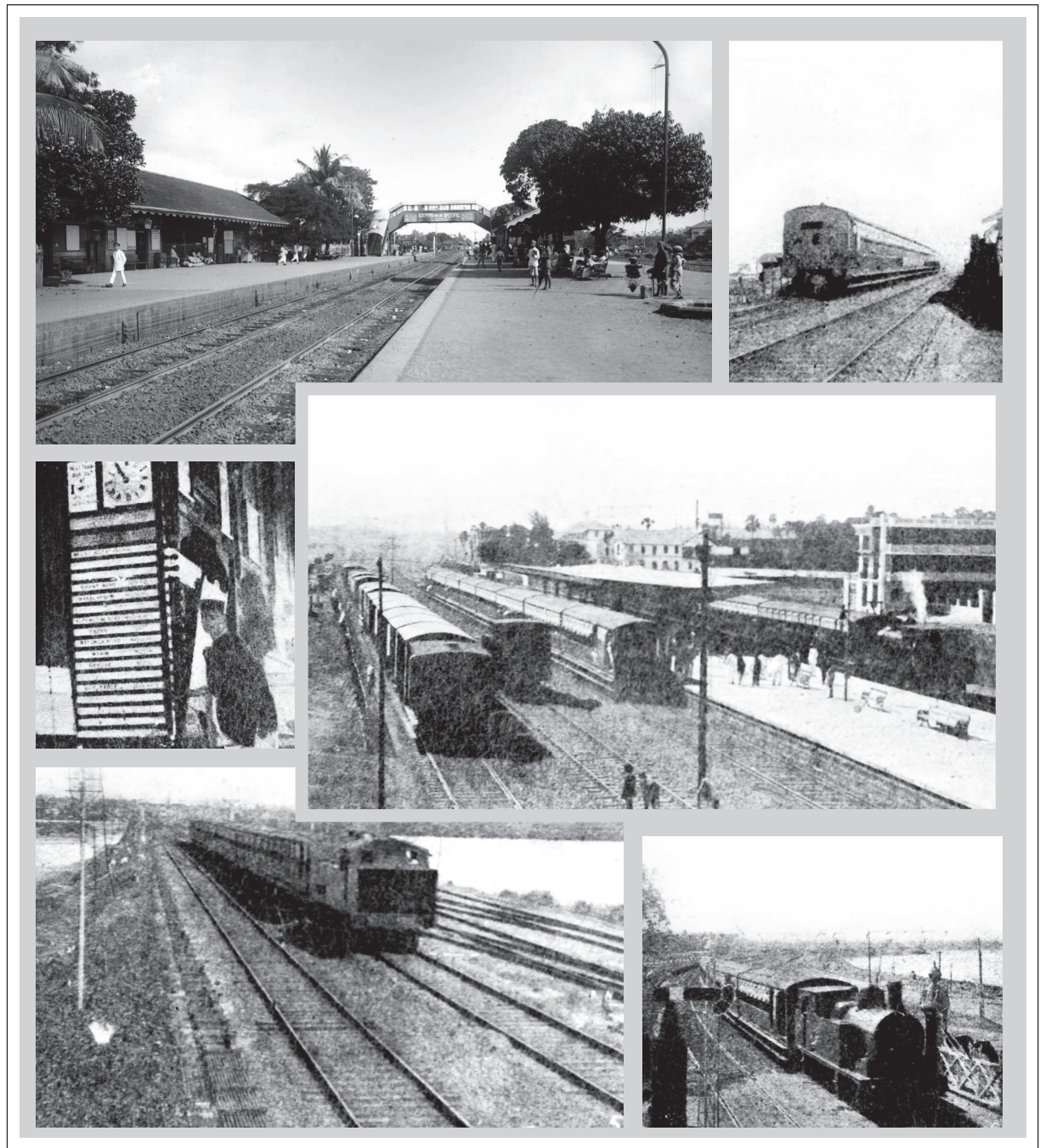
A study of the following figures will give the reader an idea of the extent to which the fares were increased at the time compared with the rates then prevailing:-

|                             | Present<br>monthly<br>season ticket<br>fares | Increase of<br>25%<br>Proposed<br>monthly<br>season ticket<br>fares | Present quar-<br>terly season<br>ticket fares.<br>(21/2 times<br>monthly ticket<br>fares | Proposed<br>quarterly<br>season ticket<br>fares.<br>(21/2 times<br>monthly<br>ticket fares |
|-----------------------------|----------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Colaba-Dadar (8 miles) –    | Rs. a. p.                                    | Rs. a. p.                                                           | Rs. a. p.                                                                                | Rs. a. p.                                                                                  |
| First Class                 | 3 8 0                                        | 17 0 0                                                              | 31 12 0                                                                                  | 42 8 0                                                                                     |
| Second Class                | 6 12 0                                       | 8 8 0                                                               | 16 14 0                                                                                  | 21 4 0                                                                                     |
| Third Class                 | 2 1 0                                        | 3 10 0                                                              | 7 4 0                                                                                    | 9 2 0                                                                                      |
| Colaba-Bandra (11 miles) –  |                                              |                                                                     |                                                                                          |                                                                                            |
| First Class                 | 16 8 0                                       | 20 12 0                                                             | 41 4 0                                                                                   | 52 0 0                                                                                     |
| Second Class                | 8 4 0                                        | 10 6 0                                                              | 20 10 0                                                                                  | 26 0 0                                                                                     |
| Third Class                 | 3 8 0                                        | 4 6 0                                                               | 8 12 0                                                                                   | 11 0 0                                                                                     |
| Colaba-Andheri (15 miles) – |                                              |                                                                     |                                                                                          |                                                                                            |
| First Class                 | 19 4 0                                       | 24 4 0                                                              | 48 4 0                                                                                   | 60 12 0                                                                                    |
| Second Class                | 9 10 0                                       | 12 2 0                                                              | 24 2 0                                                                                   | 30 6 0                                                                                     |
| Third Class                 | 4 4 0                                        | 5 6 0                                                               | 10 10 0                                                                                  | 13 8 0                                                                                     |
| Colaba-Borivli (23 miles) – |                                              |                                                                     |                                                                                          |                                                                                            |
| First Class                 | 22 8 0                                       | 28 4 0                                                              | 56 4 0                                                                                   | 70 12 0                                                                                    |
| Second Class                | 11 4 0                                       | 14 2 0                                                              | 28 2 0                                                                                   | 35 6 0                                                                                     |
| Third Class                 | 4 12 0                                       | 6 0 0                                                               | 11 14 0                                                                                  | 15 0 0                                                                                     |
| Colaba-Virar (39 miles) –   |                                              |                                                                     |                                                                                          |                                                                                            |
| First Class                 | 24 8 0                                       | 30 12 0                                                             | 61 4 0                                                                                   | 77 0 0                                                                                     |
| Second Class                | 12 4 0                                       | 15 6 0                                                              | 30 10 0                                                                                  | – – –                                                                                      |
| Third Class                 | 5 4 0                                        | 6 10 0                                                              | 13 2 0                                                                                   | 16 – –                                                                                     |

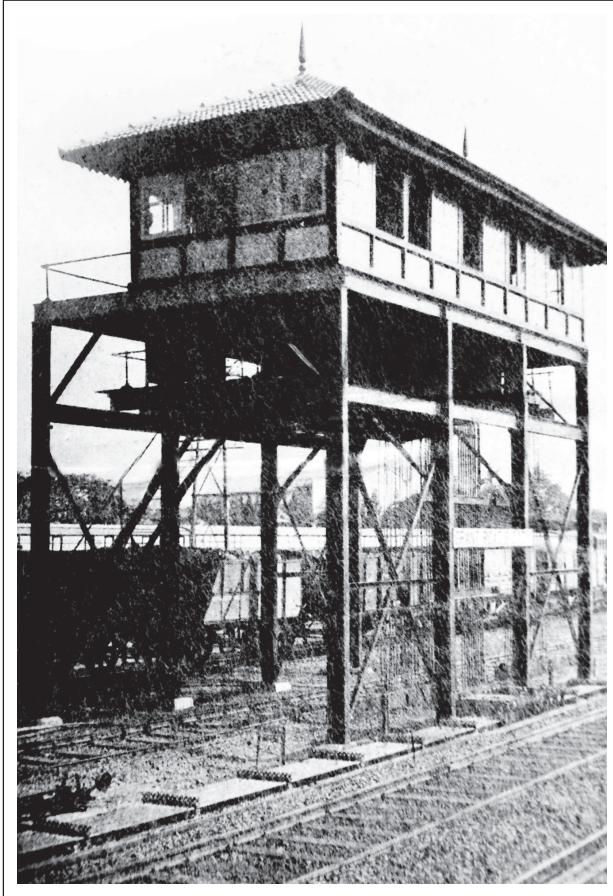
In reply to the representation by the Government of Bombay appealing against the increase it was pointed out by the Agent that although suburban services are admitted to be very crowded during the rush hours, it may be clear that in face of the probable early alteration steam to electric traction the Railway Administration has not spared money in making increments with a view to bettering, as far as it is possible the conditions of travel by the increase in the number of trains during the peak periods by 25 per cent. "This fact " as the Agent pointed out, " is stated as a reason for enhancing the fares because it is incumbent on the administration to meet requirements as far as it is physically possible, but it does stand to the credit of the administration and no objection on these grounds should be held valid." The general situation as it existed then was clearly defined in a note which is republished below:-

"In the past ten years the passenger traffic on the Bombay suburban section of this Railway has grown out of all proportion to the existing capacity of the lines and the rolling stock available for use, and the extent of the increase in traffic can be more easily determined by the fact

that the "train mileage" during this period shows an advance of nearly 30 per cent. In the interests of the general efficiency of the service and for the benefit of the travelling public, it has become evident that steps must be taken to improve matters, and with this object in view many proposals and schemes have been evolved from time to time to effect the essential improvements for providing a better service, but which, unfortunately have not materialised owing to lack of funds and other causes. The remodelling of the terminus at Colaba, the inauguration of track-circuiting between Bandra and Colaba and the addition of two rakes to the authorised stock of the line, has relieved the situation up to a point, but it will need a much more ambitious programme before any appreciable results can be obtained. Such a programme is now under consideration and will be carried out, it is hoped, within the next five years as time and funds permit; but meanwhile it is evident that some means must be adopted to afford immediate relief to the travelling public and a more punctual and better all-round service. With this object in view many further important works have already been taken in hand, including the



- |                                                |                                                |
|------------------------------------------------|------------------------------------------------|
| (1) Andheri Station.                           | (4) Matunga Station.                           |
| (2) Down Local between Colaba and Church Gate. | (5) Up 10-9 Bandra-Church Gate                 |
| (3) The Train Indicator at Church Gate Station | (6) A Down Local at Church Gate level crossing |



Grant Road North Cabin

construction of 5 additional rakes which are now in course of completion, and the quadrupling of the tracks between Mahim and Parel on a temporary alignment, a work which it is expected will be finished within the course of a few weeks. Moreover, at the end of the current year the position will be still easier when the locomotives now on order have been placed on the line and the plans devised for increasing stabling accommodation and extra terminal facilities have been carried out.

"It will be seen from the foregoing remarks that whilst the Company is fully alive to the urgency of providing adequate facilities and comfort for their passengers, they must protect their own interest by considering whether the revenue derived from their traffic on the Bombay local section is now, or will be, when more extensive facilities have been provided, in any way, commensurate with the enormous capital expendi-

ture that these development schemes will involve. The answer in both cases is decidedly in the negative. There is a difficulty, however, in arriving at a definite conclusion on what it actually costs to work in suburban section as all ways and works includes station expenses and personnel between Colaba and Virar are employed jointly for the local and main line traffic, goods and passenger trains included. In spite of this discrepancy, however, the statement has been compiled giving figures that will testify quite clearly for all practical purposes that the local service barely covers, if at the working expenses and the cost of maintenance.

The statement referred to shows the receipts on the local section from ordinary year by year since 1914, the receipts from ticket fares for the same period, and the earnings year by year since 1914 derived from local section as compared with the average cost of hauling a coaching train per mile on the entire system. Having quoted the figures the note adds:-

"From the above statement it will be observed what an enormous increase there has been in the cost of hauling a coaching train per mile during the period 1914-21, and in addition to this, the expenditure on station staff on the Colaba-Virar section shows an increase from Rs. 2,36,000 to Rs. 6,63,000 for the same period. Again, the average receipts on the local section are Rs. 3.28 per train mile as compared with the main line traffic which shows Rs. 5.57 per train mile."

## REMODELLING SCHEMES AND THEIR EFFECT ON TRAFFIC OPERATION

The railway world were very interested some time ago in the successful efforts made on the Great Eastern Railway (England) to increase and improve the traffic facilities over their London and suburban sections and it was acknowledged at the time by those intimately concerned that the Signalling and Interlocking improvements were a most important factor in



- |                                                                                                                       |                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(1) Central Cabin Colaba Terminus.</p> <p>(2) Fast and a Slow "Up" Local leaving Bandra Station simultaneously</p> | <p>(3) Bandra Causeway, looking towards Bandra.</p> <p>(4) An "Up" Local approaching Wodehouse Bridge Colaba</p> <p>(5) A Down Virar Local arrives at Bandra</p> |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|

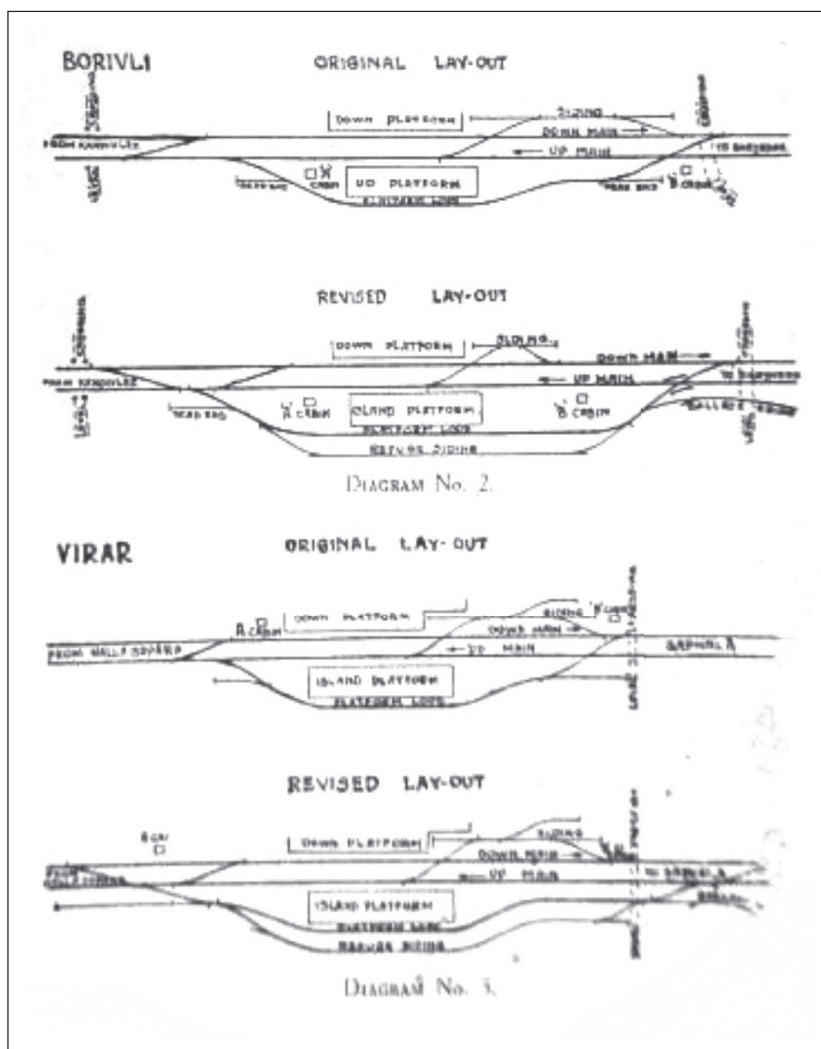
achieving the good results that were obtained. To a lesser extent perhaps, but none the less important for all that, the B. B. & C. I. Railway have not been behind in making improvements to meet the particular needs of its own local service between Bombay (Colaba) and Virar.

Railway officials in England little realize that the local traffic operating over the Bombay local section is almost equal in comparison with many of the heavier steam suburban services operating from London and the larger provincial towns, and a review of the past ten years' working will suffice to illustrate what developments have been made to make the service as efficient as possible. That the policy has been directed on progressive lines with the object of providing a more modern and convenient service for the public and with less publicity than is customary nowadays in regard to an

undertaking of such magnitude as the B. B. & C. I. Railway Administration, cannot be denied. In the past the public who have patronised the Bombay local service have had little or no information put before them of the amount of work which has had to be undertaken by the Administration to improve the travelling facilities for conveying them to and from their homes with the regularity which they demand. From the point of view of operation, the first essential improvement to be effected in order to afford any appreciable measure of relief was the remodelling of the various local termini along the section. For example, the northern local termini were first tackled in 1913 when Borivli station was remodelled, and to give the readers an opportunity of

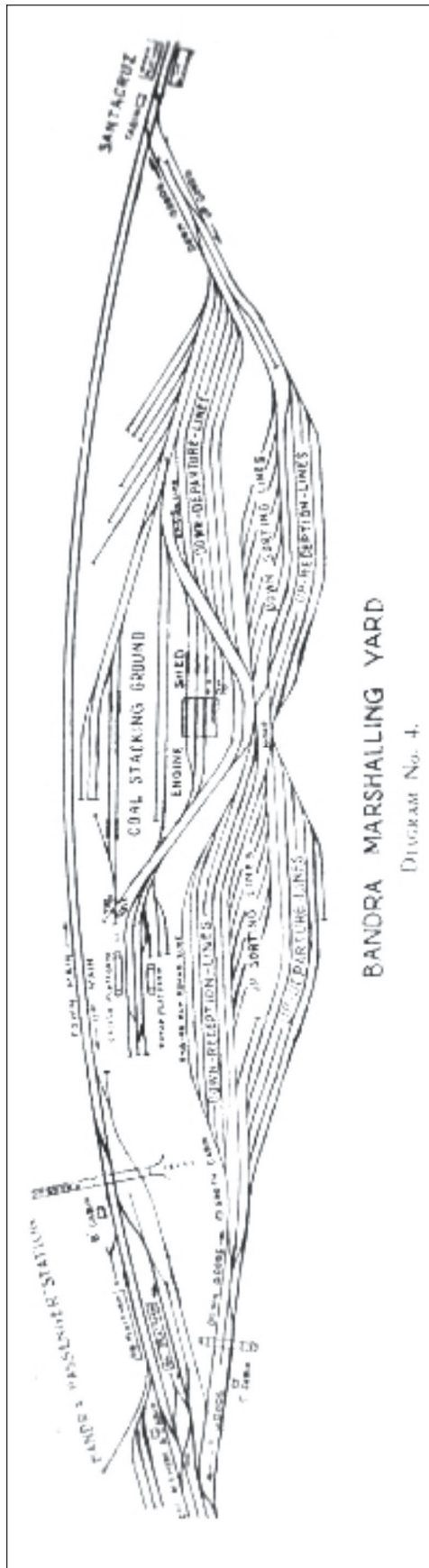
studying the question intelligently some rough sketches are published illustrating the former and the improved arrangements at Borivli and at Virar.

Following the completion of these stations attention was directed to the design of a hump shunting yard at Bandra, a step which was rendered necessary owing to the inadequacy of the goods accommodation at Dadar Junction, Carnac Bridge Goods Yard and Grant Road Goods Yard. The location of the new goods yard was finally determined by the opening of the Mahim Link connecting the B. B. & C. I. Railway main line and the Bombay Port Trust Railway. A brief study of Diagram No. 4 will give some idea of the extensive accommodation that was provided for under this new scheme.



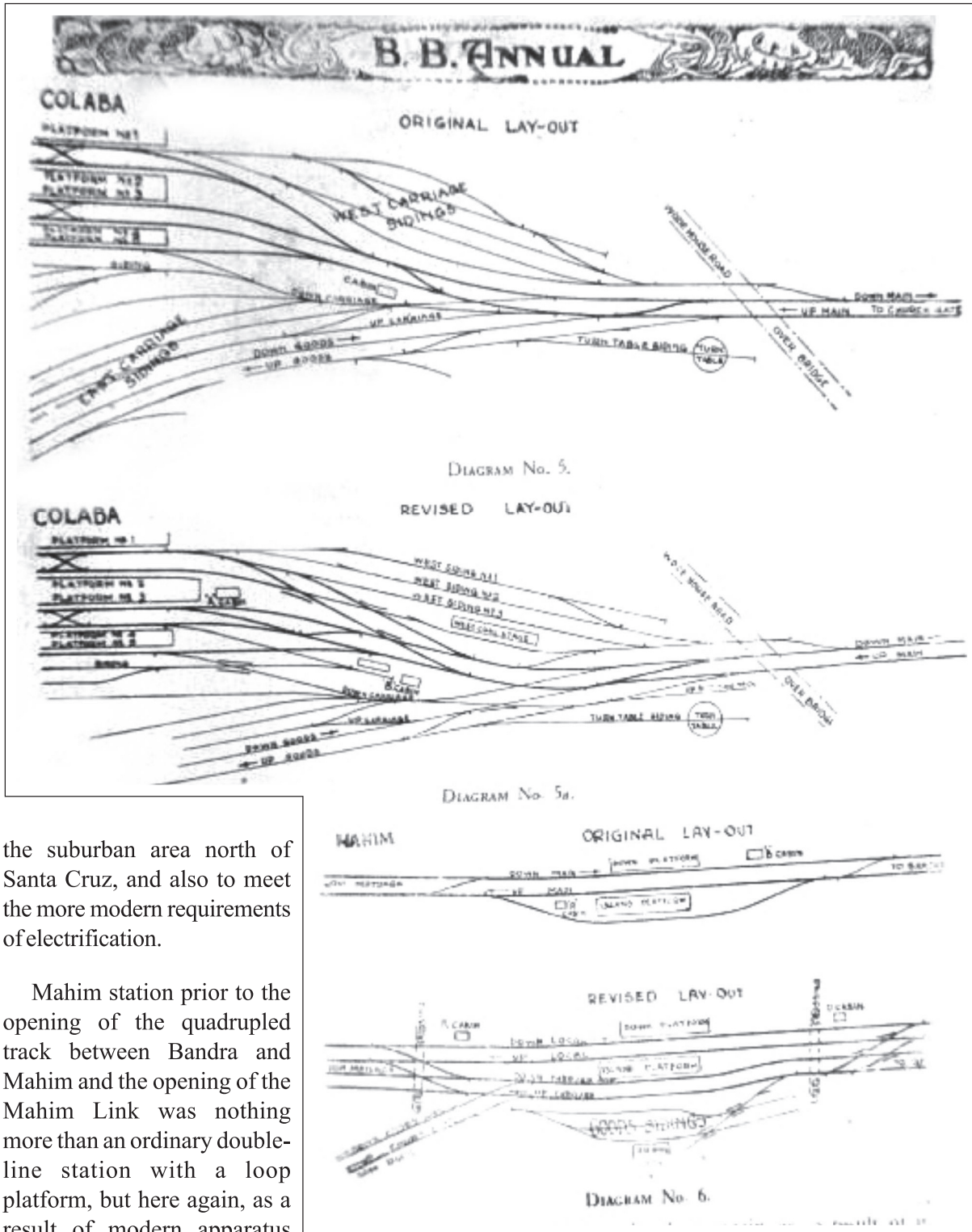
Although the facilities for goods traffic within the Bombay area were materially improved by the opening of this new yard in 1916 it also afforded a considerable measure of relief to the local system and thereby indirectly enabled the Railway to improve the existing local service to some extent.

Quadrupled tracks between Bandra and Mahim stations were the next development and this section was completed and opened for goods traffic in May 1917 and for passenger traffic in October 1920. It was realized also in 1919 that it was necessary to relieve the local tracks between Mahim and Dadar of all goods traffic and as a temporary arrangement a third line was constructed for this purpose. Obviously this was merely a temporary arrangement until such time as funds would permit of a further addition to the tracks of this section and eventually this third-line system was converted into a quadrupled track in March 1922. Meanwhile, the ever-pressing demand for a better local service made it essential that the Traffic Department should press for further facilities, as a result of which the existing alignment of temporary quadrupled tracks for passenger service between Parel North Cabin and Mahim was undertaken and opened for passenger traffic in May 1922. There is no question that these quadrupled tracks have afforded an immense relief to the operating of the local system during the peak services.



Colaba also received attention during the period under review. Month after month it became more and more evident that the station yard and signalling arrangements were totally inadequate to deal with what was required of them until at last in 1920 a scheme for remodelling was sanctioned, and it is of interest to compare the original design of the yard with the additional accommodation and lay-out provided under the new scheme (vide Diagram Nos. 5 & 5a).

In precisely the same way Grant Road station had to be tackled, and in November 1915 it was possible, without very extensive alterations, to effect many comparatively slight alterations and thus improve the conditions of traffic working without much extra expense. At the present time schemes for the remaining terminal stations (Andheri and Bandra) are under preparation and these are now being designed so as to meet the anticipated increase of suburban traffic due to the efforts of the Bombay Development Department to open up



the suburban area north of Santa Cruz, and also to meet the more modern requirements of electrification.

Mahim station prior to the opening of the quadrupled track between Bandra and Mahim and the opening of the Mahim Link was nothing more than an ordinary double-line station with a loop platform, but here again, as a result of modern apparatus and remodelling, it is capable of fulfilling every thing that is required of it for the amount of traffic prevailing. (Diagram No. 6).

### TRACK CIRCUITING AND INTER-LOCKING WITH IMPROVED LOCK AND BLOCK WORKING

Within the period under review probably the

most progressive move in the development of signalling apparatus over the complete section was the installation of Track Circuiting and the improvements effected in the Lock and Block working. On three successive occasions these proposals were put forward for consideration, but it was not until 1920 that the authorities were convinced that the initial expense was warranted by the enormous advantages that would be derived from their introduction. Figures have been already given in this article showing how enormously the capacity of the local section has been increased by the adoption of this new system, but this is not all. In addition to the increased capacity, the factor of safety has not been overlooked. The alterations carried out in the working of the Lock and Block system and the great advantages of having visible indications in signal cabins by the movement of indicators showing when the tracks are occupied cannot be over-estimated. The value of these improvements from a practical point of view is testified by the amount of reliance which the cabin staff place in them and further evidence of it is noticeable in the remarks of the staff at joint enquiries into accidents and such-like irregularities in working.

Naturally the adoption of this scheme involved an entire remodelling of the signalling arrangements between Colaba and Bandra. There is very little outward sign of the enormous amount of detail working underlying these improvements – an additional signal or two, here and there, the provision of which has enabled the trains to move, say, a quarter of a mile further towards their destination. But it is this "quarter mile" of forward movement which has effected such a considerable saving in the running time from one station to another and it is ..... to see that the traffic staff have made ..... of the opportunities thus afforded. It is .....matter to frame schemes of this nature, to the ..... requirements of the Traffic Department, naturally must bear in mind the element of human error, and at the same time keep the expenses within reasonable limits so that the

additional facilities afforded will prove to be economical propositions. If this is not attended to the scheme will ultimately defeat its own object by increasing the revenue liability to meet interest charges on a large capita expenditure, thus swallowing up the receipts which are likely to accrue from the introduction of more modern appliances.

And then finally there is the Senior Government Inspector to be consulted who, in his endeavours to watch the public interest and safety, criticizes the introduction of new schemes very thoroughly. At times, it may appear that the Senior Government Inspector's interest often involves duplication of work, particularly where the interest of public safety has not been subordinated in any way. This idea, however, should not be accepted as it is admitted in England, where the Board of Trade act in more or less the same capacity, that a salutary control is thereby exercised over such matters.

### **THE USE OF TELEPHONE TRAIN CONTROL**

Illustrations of many excellent specimens of signal construction on this Railway have appeared in this journal from time to time and it is difficult to select any particular work of special interest or novelty in this line for publication in this article. The policy of the B. B. & C. I. Railway is to eschew novelty since it is already difficult to obtain funds for complicated Signalling apparatus, except of the simplest nature, and, therefore, the system now in vogue has been evolved so as to meet the average requirements and not entail the employment of superior staff for their operation and maintenance. It will be readily acknowledged by those with any experience in this particular branch of railway working that the labour involved in the organisation of efficient working on a busy section is a work of no mean order. On the average there are not less than 200 train movements during the 24 hours between Colaba and Bandra, and the number of lever movements

required to operate this traffic would not be less than 30,000 per diem. Moreover, when it is borne in mind that the operation and maintenance of the present system is effected entirely by the Indian staff the results are all the more creditable and speak highly for the staff and the supervision exercised by the Administration itself.

Another improvement recently introduced over the local section and what might be more correctly termed the New Traffic Watch Dog, is the installation of Telephone Train Control. By the adoption of this system some years ago it has been found that the movement of trains has been very greatly expedited and the records of time-keeping which are reproduced elsewhere speak for themselves. Not only this, but the introduction of train control has given increased confidence to the traffic staff themselves in handling the dense traffic prevailing during the peak periods and has at the same time ensured a greater element of safety. Apart even from these advantages, the moral effect of telephone train control on the staff at out-stations and signal cabins is a factor in itself which must contribute largely towards justifying its installation.

### **INSURANCE**

There is perhaps one aspect of signalling which does not appear to have been fully appreciated, and that is the " insurance " of its application. Most people nowadays insure their lives and those who can afford to do so reap the benefit. Apply this policy to the signalling and safety first requirements of a railway and it will be found that the total amount of capital spent on such desirable purposes is comparatively much less than what is spent in the ordinary way on insurance policies. This is not, however, an article dealing with insurance policies. Time will prove that with the faster and more frequent local services contemplated under the schemes for Electrification and Quadrupling the cost of

insurance as represented by signalling must necessarily increase, but if the expenditure on these objects will provide the public with a train service remarkable for its immunity from accident, delays and irregular working, generally, it will have more than justified the outlay.

It is only to be expected that assistance from outside sources will eventually come to the aid of the Railway in keeping down the initial cost of signalling and interlocking when power for operating these appliances becomes a necessity over their heavy traffic sections, and in this respect Bombay and the surrounding district will have pre-eminent opportunities. With the extension of the large hydro-electric schemes already completed and still under construction there would appear no reason why Bombay should not become one of the most electrified cities in the world, particularly so far as the railways are concerned. It is towards this period that we are looking forward to assist in making up-to-date stations and signalling an economic proposition. The old Indian axiom that labour is cheaper than power will then be reversed and power will come into its own. In the distant future it is conceivable that the B. B. & C. I. Railway will have installed up-to-date power signalling, automatic signalling, train control, train indicators or even escalators which to-day make the electrical railways in London, probably the finest in the world.

### **A WISE, WATCHFUL AND SUCCESSFUL POLICY**

What the future has in store for the B. B. & C. I. local and suburban service even the most knowing can only vaguely conjecture. We have already seen that the service has developed with modern Bombay of the past half century; and it may be anticipated with confidence that the service will continue to grow and that the expanding scale of its transit facilities will

always be commensurate with the needs of the growing suburbs and great city which it serves.

As a vital arterial communicative outlet the pressure on its services must apparently continue to increase with the growth of those "Outer Bombay" settlements on the line between Bombay and Virar. Once these suburban places are fully developed and their amenities realised they must certainly lure away from the city in increasing numbers people in quest of quiet and " wild sweetness." amid surroundings of hill, palmgrove and sea – and people too in search of cheaper homes, cheaper living and greater freedom.

Even if in the near future 400 acres be added to the Fort area; even if practically the whole of Back Bay is eventually " won " from the sea, and if, besides, various other material additions continue to be made to Bombay City's building area – all this can hardly check to any very

considerable extend the northward trend, the growing popularity of the suburbs on the line of the B. B. & C. I. Railway, towards the extreme north of the Island towards Mahim, Bandra, Andheri and even further on to Borivli and beyond.

These prospects and probabilities are, needless to note, watched and appreciated; and so those responsible for the control and direction of the system must necessarily " think big " a scheme on an extensive scale, always looking to the time ahead when there may be needed still more locomotives, still more carriages, still more trains still faster and more frequent trains – more capacious stations and different methods of working.

Such is now, and such has been for half a century the wise, watchful and successful policy of the " B. B. & C. I. Railway Company."

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