Report to the Court of Common Council from the Improvement Committee, with Report from William Haywood, Esq., C.E., Engineer to the Commissioners of Sewers, in relation to the traffic of the City.

Jno Simon Esq FRS
with the Author's Compts

General Improvement of the City. of London.

REPORT

TO

THE COURT OF COMMON COUNCIL

FROM

THE IMPROVEMENT COMMITTEE,

WITH

REPORT from WILLIAM HAYWOOD, Esq., C.E., Engineer to the Commissioners of Sewers, in relation to the Traffic of the City.

Presented 22d July, 1869.

LAWRENCE, *Mayor.*

A Common Council holden in the Chamber of the Guildhall of the City of *London*, on *Thursday* the 22d day of *July*, 1869.

THE Improvement Committee did this day deliver into this Court a Report in writing under their hands, of further proceedings under the Reference of the fifteenth *February*, 1866, relative to a General Improvement Plan, and with Report from the Engineer to the Commissioners of Sewers in relation to the Traffic of the City; which was read.

RESOLVED, That the consideration thereof be adjourned, and it is Ordered that the Report be printed, and a copy sent to every member of this Court.

WOODTHORPE.

To the Right Honourable the Lord Mayor, Aldermen, and Commons of the City of London *in Common Council assembled.*

WE whose names are hereunto subscribed, of your Committee in relation to Improvements, DO CERTIFY that, in connection with the Reference to us of the fifteenth *February*, 1866, we reported to this Court on the thirty-first *May* in that year, that in our opinion it was desirable to enter into a comprehensive plan of improvement in the widening and formation of streets in the city, and that application be made to Parliament for power to levy an Improvement Rate of not exceeding sixpence in the pound, and also for the further continuance of the "London Coal and Wine Duties;" and such Report being agreed to by this Court, reference was made thereon to the Local Government and Taxation Committee, to obtain the necessary parliamentary powers as respects the Improvement Rate, and to the Coal and Corn and Finance Committee as respects the further continuance of the London Coal and Wine Duties.

In continuation of the subject, and upon request from the Local Government and Taxation Committee, we have directed our attention to such improve-

ments as might be suggested as desirable to be made within the city; such improvements to be paid for out of the proposed improvement rate; and in the first instance Mr. *Haywood*, the Engineer to the Commissioners of Sewers, has presented to us a detailed Report of his views generally upon the question. This Report, which has been before us some time, contains suggestions of a most comprehensive character, and information of great value upon almost every point connected with the important question of City Traffic, and must therefore be a great aid in the future discussion of the steps to be taken to meet the public requirements. We have therefore thought it desirable to lay such Report before the Court, and recommend that it should be circulated amongst the members.

All which we submit to the judgment of this Honourable Court. Dated this nineteenth day of *April*, 1869.

T. H. Fry.
George Shaw.
John Gale.
R. B. Whiteside.
John Pickering.
John C. Christie.
George Walter.
G. Silverside.
James Butcher.
M. McGeorge.

REPORT

TO

THE SELECT COMMITTEE OF THE
WORSHIPFUL THE COMMITTEE UPON IMPROVEMENTS OF
THE CORPORATION OF THE CITY OF LONDON

IN RELATION TO THE

TRAFFIC OF THE CITY,

AND

THE IMPROVEMENTS NEEDED IN THE PUBLIC WAYS.

BY

WILLIAM HAYWOOD, M. Inst. C. E., F.R.I.B.A.,
ENGINEER AND SURVEYOR TO THE COMMISSIONERS OF CITY SEWERS.

27th FEBRUARY, 1867.

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To the Special Improvement Committee of the Corporation of the City of London.

Guildhall, 27th February, 1867.

GENTLEMEN,

LAST year I received your instructions to submit to you, in writing, my views as to a general plan for the Improvement of the City of London: at that time I was engaged upon a similar consideratiou under a reference from the Commissioners of City Sewers, and on the 23d March last presented my Report to that body.

Since its publication that Report has been honoured by the notice of journals of the widest and most general circulation, as well as of those which are professional and scientific. I have also received, personally, the opinion of many who have read it, including members of my own profession and others, well qualified to form an opinion as to the correctness of the views therein expressed, and therefore I have had the advantage which results from the fullest publicity, and opportunity for the freest criticism.

A year also has nearly elapsed, during which period some of the conditions affecting the city traffic have been altered, and it has enabled me to make further investigation, and to carefully reconsider the matter; and with these advantages, I have now the honour to submit to you my opinion on the subject referred to me.

The Report will necessarily comprehend much of the information already set forth, but such explanatory and confirmatory information is added as the past year has enabled me to gather; and it should here be remarked that the result of this lengthened investigation has led to no material difference in my views, but, on the contrary, has for the most part strengthened and confirmed them; and it certainly has fully convinced me that those suggestions which have been thought by some to be too large and expensive will, even if carried out, barely be adequate to the future necessities of the traffic before their cost has been defrayed.

The Report is divided into ten sections, which are as follow:

1. Preliminary.
2. The Area, Population, Thoroughfares, and Traffic of the Metropolis.
3. The Great Centres of Traffic.
4. The Area, Population, Thoroughfares, and Traffic of the City of London.
5. The Great Streams of Traffic, and the Thoroughfares through which they pass.
6. The Probable effect upon the City, of Works already authorized or projected.
7. The Improvements recommended.
8. Incidental Considerations.
9. Summary of general Conclusions.
10. Concluding Remarks.

THE AREA, POPULATION, THOROUGHFARES, AND TRAFFIC OF THE METROPOLIS.

IMPROVEMENTS in the City of London should be laid out, not only in reference to the wants of the present day, but also, as far as possible, in reference to future requirements. In order to do this, inquiry must first be made into the extent and conditions of the traffic, the sources from which it arises, and the causes which generate it.

I must therefore refer to the Metropolis in its entirety, and shall be enabled to show that a very large portion of its inhabitants have the most direct interest in the thoroughfares of the City of London. One large class going to and from it daily, spending within its limits the largest portion of its active life, and earning therein its livelihood; another and still more numerous class going to it frequently, or visiting periodically one or other of the large marts which are within its boundary, or passing through it to other parts of the metropolis.

It is for the convenience of this vast multitude, a large portion of which resides in the metropolis because of its contiguity to the city, and, indeed, selects its residence mainly with the view to the facility with which the city can be reached, that improvements in the thoroughfares are principally needed, and this will be seen by the following statements:

The population of the Metropolis was, in

1801 - - - - - -	958,863
1811 - - - - - -	1,138,815
1821 - - - - - -	1,378,947
1831 - - - - - -	1,654,994
1841 - - - - - -	1,948,417
1851 - - - - - -	2,362,236
1861 - - - - - -	2,803,989

The population of 1861, was composed of

1,307,781	males,
1,496,208	females.
Total 2,803,989	

Of the males,

846,754	were above 15 years of age,
461,027	were under „
Total 1,307,781	of males of all ages.

From these figures, it will be seen that the total population of 1861 was three times that of 1801, it having trebled itself in sixty years.

By the same figures, it may be estimated that the metropolitan population doubles itself in about forty years, and this has been the rate of increase since the beginning of the present century. Those sixty years cover periods of commercial distress, political disaffection, long exhausting wars, famine and pestilence, and all those agencies which might have been expected to retard its growth, and this may therefore be fairly assumed as the rate of increase at the present day.

It was, indeed, calculated some years since by competent persons, that the population of the metropolis doubled itself still more rapidly (in thirty-nine years),

and it is probable this may actually be the case, for within the last twenty years a great migration from the Continent has set in; and it is one of the results of the increased facility of locomotion, that the aggregation towards the great centres of population, and especially to the metropolis, seems more determined than it was before the railway system reached its present development. It is unnecessary, however, to investigate the point more closely here, and for the purposes of this consideration, it will be sufficient to assume that the metropolitan population is now increasing at such a rate as will double it in forty years.

The question of population may, however, raise much speculation, leading to views adverse to those herein set forth, for such adverse views have been frequently expressed during the last thirty years (and probably at all times), but experience has hitherto been uniform in its contradiction of them. It is possible, no doubt, that they may at length be true, and that all other views as to the future of the metropolis may prove to have been false; but the practical method of dealing with a subject of this kind, is to use the experience which is clearly before us, rather than depend upon theories and prophecies which, however plausible, have hitherto proved fallacious.

Now the population in 1865 was computed to be 2,993,513, which, in round numbers, I will call 3,000,000, therefore in forty years from that date it may be expected to be 6,000,000; and it is for the wants of the future population, as well as for those of the present community, that provision in its highways must now be made.

It may here be remarked that the computation of the Registrar General, for the year 1866, gives 1,416,919 males, and 1,621,072 females, making a total of 3,037,991. That public officer has the best sources of information on population, and he clearly is of opinion that it still increases at the rate mentioned, and, consequently, in forty years hence the population may be expected to be 6,075,982; as, however, the computed population for 1865 (3,000,000) is a number easily recollected, and the largest number of observations on traffic given in the Report were made in that year, I shall adhere to it as a basis for most of the other computations and comparisons.

In 1851, the population was distributed in various degrees of density over the metropolitan area, as shown by the table given in the Appendix (Appendix A), which has been compiled from the Census Returns, and by which it will be seen that the rate of density in that year ranged from 1294 inhabitants on the square mile in the parish of Lewisham, to 185,751 on a square mile in the district of the East-London Union, the population in the East-London Union having 143 times the density of that in Lewisham.

In 1861 these proportions had changed, as may be seen from the table for that year (Appendix B), also computed from the Census Returns.

In 1861, therefore, the rate of density varied from 2443 on a square mile in the parish of Lewisham to 170,194 in the district of the East-London Union, the population in the East-London Union having then but 69 times the rate of density it had in Lewisham, instead of 143 times as in 1851.

In 1861, as compared with 1851, the density of population had decreased in 10 districts, and had increased in 26 districts.

Those which had decreased comprized some districts forming the heart of the metropolis, and of the six which were the most densely populated in 1851 there were five which had decreased slightly, and one only had increased, *but in no district was the population so dense as it was in the East-London District in* 1851.

In nearly all the other districts there had been a decided increase, a result natural and to be expected, for they are for the most part suburban, and include considerable areas of ground not built upon in 1851, and much which is also uncovered at the present time.

Some of those districts which constitute the centre of the metropolis may still be expected to increase in density, owing to the aggregation of the existing working population; but I do not anticipate they will reach the density which formerly existed in the East-London District, inasmuch as the demolition of property for

various public works will fortunately aid in preventing it, and there are other causes operating in the same direction. Upon the whole the tendency is to an equalization, but at the same time a slight lowering of the rate of density in the heart of the metropolis, and to an increase in density in the districts surrounding it.

But owing to the altered views as to sanitary requirements the population, which is increasing and spreading in the out-districts, will no longer dwell voluntarily, nor will general law allow them to dwell, in the compact masses in which the existing population still congregate in parts of the older districts. In 1854, Mr. Bazalgette and myself, when investigating this subject, so far as it affected the scheme for the interception of the sewage from the Thames, assumed the future density of the population in the yet uncovered area of the suburbs at 30,000 *per* square mile.

Upon further and more recent investigation, I believe this estimate must be somewhat altered, for of recent years there has been a tendency to build houses much higher than was formerly the custom. Thus, even whilst the law which regulates the widths of streets, and other of the physical conditions of dwellings, remains the same, the tendency must be to augment the density of population upon the areas occupied by it, and probably it will be near the mark if it be assumed at 50,000 *per* square mile.

Now should the population double itself in the next forty years, the mean annual rate of increase, calculating from 1865, during that period will be about 75,000, and at the expiration of thirty-nine years hence, perhaps forty or fifty square miles of open country will be covered, more or less, closely with houses, for the additional three million inhabitants which will then exist.

But there are other causes which have arisen of late years, tending largely to disperse and radiate that part of the existing population which is above the operative classes, the principal agency being the facilities for transit offered by railways. The tendency of that class, undoubtedly, is to seek cheaper residences and a purer atmosphere, and consequently to encroach still further upon the open area now surrounding the metropolis, so that probably sixty square miles of open country, if not a considerably larger area, will be covered and occupied by the time the population reaches 6,000,000.

For facility of access to the city a large portion of that population will settle down as near to it as possible. It is seen that the districts in the centre are already densely inhabited, and indeed the suburbs, within a radius of 2½ miles from Blackfriars Bridge, are now closely populated; therefore the thickly-populated area will annually extend further and further from the commercial centre, and the means of transit, unless ample provision be made at once, will be more and more difficult to obtain. As economy in time is of the highest importance to a commercial community, this difficulty must be obviated as far as possible, and should be well considered and arranged for at the present day.

Had the metropolitan authorities foreseen in past years this vast augmentation of population, they might have provided, at small comparative cost, larger and more convenient highways to meet the exigencies which have already arisen, or must soon arise. As matters stand, it is probable that relief must be sought mainly in the construction of lines of railway to carry the suburban traffic. These railways have been termed, not inaptly, "omnibus lines," as they carry that class of traffic which, previously to their introduction, had been carried mainly by omnibus, and they must be at least co-extensive with all the main lines of highway out of London, and what remains to be executed should be laid out upon a more complete and comprehensive system than has been hitherto attempted.

But although railway conveyance must soon be used to a large extent by all classes of society in the metropolis, and will no doubt supply in a greater degree the means of transit as the distance of the inhabited portion extends further from the city, it will never obviate the usage of other vehicles. For as the wealth of the metropolis increases, indifference to expenditure increases also, and the employment of cabs and carriages of other descriptions, which give convenience and

luxury that a railway cannot afford, will be still greater than at the present day. Although therefore railways must prevent the vast and rapid increase in public vehicles which otherwise would be an absolute necessity, still the vehicular traffic will increase, and it is for this that provision must be made in the highways and thoroughfares of the metropolis, and specially those which lead to or are within the city, or such as may relieve the city from traffic needlessly passing through it.

Indeed highways and railways should be considered together as one question, for, if made in combination, they may assist each other greatly. It is a subject so pressing, that not a day should be lost in entering upon the consideration. To delay, is to ignore the teaching of the last half century, and to diminish the chance of remedying the insufficiency in the thoroughfares, which is greater than in any metropolis or town in Europe.

It is not, however, needful to enter into this question in its fulness here. It is sought only in these preliminary remarks to draw attention to broad indisputable facts, which, in their future effect upon the metropolitan traffic, have never yet been sufficiently appreciated, to show the vast population which is in the advent, the large area of ground it must cover with its habitations, the increasing distance those habitations must be from the centre, the traffic which the population will generate, and the necessity which therefore exists for well-designed lines of highway to meet its requirements.

I now proceed to show how the City of London, in respect to traffic, will be affected by this population.

THE GREAT CENTRES OF TRAFFIC.

THERE may be said to be two centres of traffic in the metropolis, the Governmental centre and the Commercial centre; the one being at Westminster, the other within the City of London.

The Governmental centre comprizes also what may be termed the centre of pleasure. It comprehends the quarters inhabited by the nobility, gentry, and wealthy classes of England, and those attracted to the metropolis during the London season by parliamentary business or for amusement, and is thus localized by the position of the Royal Palaces and the Houses of Parliament. It has its own special traffic at all times, but its more important traffic has but a season, and that season is determined by the sitting of the Legislature.

The traffic (and particularly the vehicular traffic, which most affects the present consideration) is less uniform in daily numbers than in the city, more capricious in direction, and influenced by circumstances which do not much affect the industrial and commercial portion of the community.

Although it appears to be annually increasing during the sitting of Parliament, few of its thoroughfares are as yet seriously encumbered, except upon special occasions.

At other periods of the year it is augmenting with the general increase of population, and specially in the west and north-west, but this shows itself mainly upon those lines and in those directions which lead to the city.

There is necessarily a large traffic between the governmental and commercial centres, which takes place mainly by way of the Strand, or by Southwark Bridge, New Southwark street, and Westminster Bridge, and for which an improved route is now about to be provided.

At one or two other spots in this district improvements are needed, and provisions should at once be made for future requirements; but in its principal lines of thoroughfare the widths of the carriage-way are much greater than those in

the commercial centre, and upon the whole are adequate to their present requirements. This may be seen by reference to the following table:

Table showing Totals of Vehicular Traffic of every description, passing both ways at particular spots in certain metropolitan thoroughfares, between 8 a.m. and 8 p.m. (12 hours).

Situation.	Date.	State of Weather.	Width of Carriage-way at point of observation.	Total Number of Vehicles.
			ft. *in.*	
Whitehall, by Chapel Royal	July, 1865	Fine	85 6	11,793
Parliament street, Westminster, and King street, Westminster, contiguous and parallel streets	,,	Fine	39 2	9,276
		Fine	18 5	2,965
Strand, by Savoy street	,,	Fine	47 10	10,839
Regent street, South of Princes street	,,	Fine	52 1	11,343
Westminster Bridge	,,	Fine	56 8	11,609
Oxford street, East of Duke street	,,	Showery	51 9	8,597
Oxford street, West of Wells street	Nov., 1864	Showery	44 10	10,619
Piccadilly, West of Half-moon street	July, 1865	Fine	50 8	8,220
Bond street	Feb., 1867	Fine	29 7	4,315

The Commercial centre of the metropolis is the City of London, and the spot of most importance within its limits is the Bank of England, which is usually but erroneously thought to be the point to which all the traffic of the city gravitates; it is doubtless the point to which all commercial transactions must tend, and to which periodically most of the business men and many others must wend their way, but much of the city traffic either does not go to the Bank, or if so, only because there are at present no other main lines which public vehicles can take, excepting those which approach it, and these therefore still present, with all their incumbrance, the best route to and from the various places of business.

I shall now proceed to the consideration of the elements constituting the traffic of the City of London, and the conditions under which it moves within the city.

THE AREA, POPULATION, THOROUGHFARES, AND TRAFFIC OF THE CITY.

AREA.—The area of the city within the municipal limits is 631 acres, or nearly one square mile. According to the divisions of the Superintendent Registrar of Births and Deaths,

The area is	727 acres,
Deducting the water	67 ,,
There remains of land	658 ,,

This is 27 acres in excess of the true area of the city, and the population returns here used refer to the larger area. The areas and statistics of the thoroughfares must, however, necessarily refer to the true city area of 631 acres.

POPULATION.—The night population of the City of London was as follows, at the periods given:

In 1801	the number of	inhabitants	was	128,833
„ 1811	„	„	-	121,124
„ 1821	„	„	-	125,065
„ 1831	„	„	-	123,608
„ 1841	„	„	-	124,717
„ 1851	„	„	-	129,128
„ 1861	„	„	-	113,387

It was therefore nearly stationary for a period of fifty years, but at the last decennial period had decreased, and was perhaps lower than it had been for centuries.

The Census is taken upon and recorded in the Superintendent Registrar's Divisions, and it includes those sleeping upon the river craft on the night of enumeration; the population given is therefore larger than what would be understood ordinarily by the term city population, but those sleeping in craft in 1861 being but $\frac{1}{4}$ *per cent.* of the whole of the population, the proportion is so slight as barely to affect these considerations; and as I have no means of making corrections at more than the last two decennial periods, I shall quote the Population Returns as they are given in the Registrar's district.

The population of 1861 was lodged in 13,431 houses, which is at the rate of $8\frac{1}{2}$ inhabitants to each house.

For the purpose of this night population, and of all the traffic which belongs to it, the thoroughfares of the city would be more than sufficient. It is obvious, therefore, that it is not for their accommodation that improvements are needed; and yet the smallness of the area of the city, and the smallness of its sleeping population in comparison with the whole metropolis, are not unfrequently dwelt upon by those who find it convenient to estimate the city's importance according to the space it fills in the Census Tables, and the number of square yards of ground it covers.

Nor is this sleeping population likely to increase materially, inasmuch as the demand for space for commercial purposes, and the construction of new streets, markets, and public buildings will gradually sweep away the houses which are the most densely inhabited. In their place will arise vast warehouses and structures, full of human life in the day, and all but tenantless at night; and each succeeding Census for many years to come may be expected to show some diminution. The traffic in the city is therefore not materially caused by, nor is it likely to be augmented by the sleeping population.

Since 1861 much property has been removed for the formation of the various metropolitan lines of railway, for the Holborn Viaduct, the New Meat Market, and other improvements; as nearly as I can ascertain, the number of buildings of all classes taken down is 1148, of which 617 were workshops and warehouses, almost tenantless at night, and 531 dwellings inhabited by the poorer classes. The property pulled down represented a sleeping population of between 4000 and 5000 persons, if not more.

Nor has the population thus displaced found lodgment in other parts of the city to any considerable extent, for the simple reason that that class of property does not exist which could accommodate them, and they must therefore have gone beyond the city boundary.

Further demolition will take place for the formation of the new street to the Mansion-house, and the extension of the metropolitan railways; and although other buildings will in time be erected, they will be almost exclusively devoted to the purpose of commerce, and therefore but a small return of the sleeping population which has been displaced may be anticipated.

It may indeed happen that the increased salubrity of the centre of the metropolis, resulting from improved sanitary measures, coupled with the greater height to which buildings are now carried, may result in a larger number of those em-

ployed in great commercial houses dwelling in the city; and there is opportunity for this, inasmuch as the height of the houses in the City of London are even now much exceeded by those at Paris and many continental cities; but it must be always remembered that the tendency of population is towards a country rather than a town life, and it seems not probable that this cause will materially tend to increase the resident population.

The present sleeping population, therefore, neither represents the daily active population, nor the vastness of the city in any respect, for it is mainly composed of the poorer labouring classes, or of those left in charge of the various premises, and year by year it will be less a representative of the city in any way, although its diminution will indicate the security the merchants and traders of the city enjoy in being able to leave with confidence their vast property to the protection of the city police.

The City Thoroughfares.

The area of the carriage-way is about -	390,260	sq. yards,
Of the footway - - - - -	309,018	„
Total area of public way - -	699,278	„

Public way constitutes, therefore, about 23 *per cent.*, or nearly one-fourth of the entire area of the city.

The public way is now composed of 913 thoroughfares and highways of various descriptions; *viz.*

Public ways having sufficient width for one line of vehicles,		
With thoroughfare - - - - -	194	
Without thoroughfare - - - -	117	
		311
Public ways having sufficient width for two lines of vehicles,		
With thoroughfare - - - - -	86	
Without thoroughfare - - - -	5	
		91
Public ways having sufficient width for three or more lines of vehicles,		
With thoroughfare - - - - -	68	
Without thoroughfare - - - -	2	
		70
Courts, alleys, &c., admitting pedestrian traffic only -		441
Total - - -		913

And in addition to these, there are 71 courts and places claimed as private property, but which are used by the public.

Therefore of the streets which are thoroughfares, and will admit of carriage traffic, there are

Of streets admitting one line of vehicles only - -	194
„ „ two ditto - - - -	86
„ „ three or more ditto - - -	68
Total - - -	348

The public ways may be further divided approximately as follows:

7 miles of main thoroughfare,
28 „ collateral thoroughfare,
15 „ minor streets and courts, alleys, passages, &c.

There were in 1860 altogether 48 points of inlet to the city, the total traffic of which was on certain days taken by the police:

Of these inlets	3	were bridges,
	33	had carriage-ways and footways,
	3	had footways only,
	6	were steam-boat piers,
	2	were water-side stairs,
	1	was a railway station.
Total -	48	

At the present time there are six additional railway stations which are inlets; but as no general enumeration of the traffic of all classes has been made since 1860, the details of which are in my possession, I shall hereafter refer to the traffic and the conditions affecting it as they existed in that year.

Traffic.—It should be borne in mind, in considering tables of traffic generally, that upon no two days is the traffic absolutely the same in any thoroughfare, but that it varies upon different days of the week, and is moreover largely affected by the seasons and the state of the weather.

Days of festival, holiday, or unusual out-door attraction also divert the traffic from its normal course, and the London season specially affects it at the western part of the metropolis. The temporary closing of contiguous, or sometimes even comparatively distant, thoroughfares also affects, for the time being, the vehicular traffic upon the routes, and therefore variations which, taken by themselves or in comparison, may appear contradictory, must be accounted for upon such grounds.

In a few instances the traffic to which I shall refer has been taken during the entire day of twenty-four hours, and for the interest which attaches to it I give the results; but as the great mass of the daily traffic takes place between the hours of 8 a.m. and 8 p.m., and it is during those twelve hours alone that the streets are impeded, the figures given must be understood in all cases to refer to the traffic during those hours only, unless special mention is made to the contrary.

The total number of persons entering the city upon a day in May, 1848, between 8 a.m. and 5 p.m. (a period of nine hours), was 315,099.

The metropolitan population in 1850 was 2,240,289, and may be assumed in 1848 to have been in round numbers 2,200,000; thus there entered the City of London, during a period of nine of the busiest hours of the day in 1848, a number equal to one-seventh of the whole metropolitan population.

In May 1860 (twelve years afterwards), the traffic was again taken, and it was found that during twenty-four hours the total number of persons entering the city was 706,621.

No means now exist of separating this return, so as to arrive at the number which entered the city between 9 a.m. and 5 p.m., and an exact comparison with the return of 1848 cannot be made. I take, therefore, the return between the hours of 7 a.m. and 7 p.m. in 1860 (twelve hours), when there entered the city 527,636 persons.

Now, in 1860, the metropolitan population was estimated at 2,829,130; therefore during twelve of the busy hours of the day, in that year, there entered the city a crowd of persons equal in numbers to nearly one-fifth of the metropolitan population.

And as the total number which entered during the twenty-four hours was 706,621, it was equal to one-fourth part of the whole metropolitan population.

Upon the consideration of these figures, I stated last year that probably about three quarters of a million of human beings entered the city daily. I was not then aware that a committee of the corporation was engaged in taking observations on the traffic and day population, but from their Return, which is now before me, it

appears that 170,133 persons come daily to the city, and pass the whole day at their various pursuits within it, making, with the residential or sleeping population, according to the last Census, a daily population of 283,520, and that the total number of persons of all classes entering the city and leaving it daily was 728,986.

It is evident therefore that a number of people, approaching three-quarters of a million, now enter and pass out of the city daily, leaving only its residential or sleeping population; and this vast daily influx is in numbers nearly equal to a fourth part of the whole metropolitan population, and is more than the combined population of the parishes of St. Marylebone, St. Pancras, Islington, Lambeth, and St. James, Westminster, as existing at the time of the Census in 1861.

Comparing it also with the population in the registration districts (not parliamentary boundaries) of some of the largest towns in the United Kingdom in 1861, it was equal to nearly three times the entire population of Liverpool, more than three times that of Birmingham, four times that of Manchester, and, added to the sleeping population, to more than the total population of Dublin, Edinburgh, and Glasgow combined.

And this, for the purpose of these considerations, is the population of the city, for although not residential, much of its waking existence is spent within the city limits, and it comprizes mainly the owners of the city property, and the creators of its wealth, importance, and traffic.

Proportion of Males to Females.—The bulk of the traffic is, as might be expected, composed of males.

The results of a few observations made on the foot traffic, between 10 a.m. and 6 p.m., in 1863, gave

At London Bridge - - - -	6	males to	1 female.
„ Temple Bar - - - -	5	„	„
„ Bishopsgate-street Without - -	4	„	„
„ Holborn Bars - - - -	5	„	„
„ Finsbury Pavement - - -	3	„	„

Other observations made upon the traffic in omnibuses at Temple Bar this year, gave six males to one female.

The mean of the observations may, perhaps, be taken at about five males to one female.

Looking at the proportion of females, this has not perhaps a very material bearing on the subject, as it is mainly numbers, and not sex, which determines the necessity for improvements in the city highways, although not only do females occupy more space, but they move more slowly along thoroughfares, accommodate themselves with less facility to the exigencies of the traffic, and, upon the whole, impede it more than the males do.

These observations are not conclusive, embracing as they do but few of the thoroughfares, but nevertheless it is probable that about five males to one female may be taken as an average, and it therefore follows, that of the 706,621 persons which entered the city in 1860, 588,851 were males, and 117,770 females; and as the total male population of the metropolis was then 1,325,268, those entering the city were equal in numbers to 44 *per cent.*, or somewhat less than one-half of the whole male population.

Proportion of Pedestrian to Vehicular.—Of those entering the city in 1860,

535,535	were pedestrians,
171,086	were passengers in vehicles.
Total - 706,621	

The proportion of those on foot to these in vehicles varied considerably, according to the character of the route; taking some of the principal inlets of the city the proportions stood as follows:

Table showing the proportions of those on foot to those in vehicles entering the city in May, 1860:

Aldgate	1 in vehicles to	3·39	on foot.
Bishopsgate street	1 „	1·76	„
Blackfriars Bridge	1 „	4·34	„
Temple Bar	1 „	2·69	„
Holborn Bars	1 „	1·15	„
London Bridge	1 „	1·76	„
Finsbury place	1 „	2·44	„

In bye streets, through which few vehicles pass, the proportion was very different. Thus, there was at

Artillery street	1 in vehicles to	17·71	on foot.
Golden lane	1 „	23·13	„
Leather lane	1 „	24·60	„
Skinner street / Bishopsgate street	1 „	23·32	„
Little Moorfields	1 „	22·95	„
Moor lane	1 „	34·52	„
Ropemaker street	1 „	14·16	„

The extremes were

Southwark Bridge	1 in vehicles to	0·59	on foot.
Harrow alley (Aldgate)	1 „	58·00	„

And the mean of the whole entering the city was

1 in vehicles to 3·13 on foot.

Vehicular Traffic.—The great and most irritating impediments in the streets occur to the vehicular traffic, therefore consideration must now be specially given to that branch of the subject; and as a general opinion upon this point may be the best formed by bringing to your notice the large increase in traffic which has taken place upon the thoroughfares of the city, despite the relief which has been given by the construction of new lines of streets and railways, I append a table showing the traffic at important points at periods fifteen years apart.

Table showing the number of Vehicles passing both ways at particular spots in certain streets within the City of London, between the hours of 8 a.m. and 8 p.m., upon certain days during the years 1850 and 1865.

Situation.	Width of Carriage-way at point of observation.	Total in Twelve Hours,		Increase since 1850 *per cent.*
		In 1850.	In 1865.	
	ft. *in.*			
Aldgate High street	57 6	4,754	8,376	76·18
Aldersgate street, by Fann street	30 8	2,590	3,936	51·96
Bishopsgate street Without	22 2	4,110	7,366	79·22
Blackfriars Bridge	28 0	5,262	9,660	83·58
Finsbury Pavement, by South place	41 7	4,460	6,715	50·56
Fleet street, by Temple Bar	23 8	7,741	11,972	54·65
Holborn hill, by St. Andrew's Church	35 3	6,906	9,134	32·26
London Bridge	35 0	13,099	19,405	48·14*
* Since Southwark Bridge was opened toll free.		48,922	76,564	56·50

By the foregoing table it seems that the mean increase of vehicular traffic at the eight principal city inlets was 56·50 *per cent.* in the fifteen years ending 1865, whereas during the same period the metropolitan population had but increased 33·62 *per cent.*; the rate of increase in vehicular traffic was therefore far greater than the rate of increase in the population of the metropolis.

It is true that the traffic at these eight inlets does not give an absolute proportion of the whole traffic of the city; but they are the inlets by which the external population mainly finds its way into the city: 69 *per cent.* of the whole vehicular traffic entered by them in 1860, and the proportion is probably about the same now, if the traffic on Southwark Bridge be included.

Southwark Bridge was opened temporarily free of toll in 1864, and now being permanently so, must be regarded as one of the principal inlets to the city. It has not been included in the foregoing table, as I have no precise information as to its traffic in 1850, and am unable therefore to use it for the purpose of comparison. It may be however stated that, in 1865, it appeared to have taken off about 3000 vehicles daily from London and Blackfriars Bridges; and if they be added to the number of vehicles which passed through the other eight inlets it will make a total of 79,064 vehicles, and show that the vehicular traffic at the main inlets had increased 62 *per cent.* in the fifteen years ending 1865.

The total number of vehicles which passed over the city bridges in twenty-four hours, according to the latest observations in my possession, was as follows:

London Bridge - -	25,960	vehicles in June, 1863.
Southwark Bridge -	1,094	„
Blackfriars Bridge -	10,653	„
Total - -	37,707	

Of this total 29,835, or 79 *per cent.* of the whole, passed over between 8 a.m. and 8 p.m., those being the hours during which the streets are most obstructed.

The traffic in other thoroughfares has increased also in a surprising degree, for many streets which were comparatively free fifteen years ago are now very frequently impeded by it. The following table of traffic, in streets not forming main lines of thoroughfare, will show the correctness of this statement:

Table showing totals of Vehicles passing both ways at particular spots in certain minor streets within the City of London, between the hours of 8 a.m. and 8 p.m., upon certain days during the years 1865 and 1866.

Situation.	Width of Carriage-way at point of observation.	Total in Twelve Hours.	Date of observation.
	ft. *in.*		
Barbican - - - - -	24 3	4,461	February, 1866.
Billiter street - - - - -	15 11	1,547	October, 1865.
Chancery lane - - - - -	21 0	2,965	February, 1866.
Coleman street - - - - -	26 9	1,424	March, 1866.
Crutched Friars - - - -	18 8	1,920	February, 1866.
Eastcheap - - - - -	23 3	5,178	June, 1865.
Fore street - - - - -	22 3	2,924	February, 1866.
Giltspur street - - - - -	32 9	2,340	February, 1866.
Gresham street - - - - -	29 10	4,506	October, 1865.
Hart street - - - - -	14 6	1,818	May, 1866.
Houndsditch - - - - -	24 4	3,632	July, 1865.
Lombard street - - - -	16 6	1,654	October, 1865.
Lower Thames street - - -	17 5	1,460	October, 1865.
Mark lane - - - - -	15 5	1,560	October, 1865.
Minories - - - - -	37 7	3,461	February, 1866.
Old Bailey - - - - -	21 10	2,411	November, 1865.
Queen street, North end - - -	15 1	3,471	November, 1865.
Threadneedle street - - - -	13 10	3,743	June, 1865.
Upper Thames street - - - -	23 6	2,781	November, 1865.

More details of the minor streets could be given, but it would be useless to do so, for the great total traffic is represented by that which enters the city, and the traffic in these collateral streets indicates but its circulation when within the city limits; one is, however, to an extent a corroboration of the other, and both show the vast business carried on in the city, and the increase in the traffic which is taking place.

PEDESTRIAN TRAFFIC.—When improvements in the thoroughfares are thought needful, it is the carriage traffic which receives the first consideration, and it must necessarily take priority, as it suffers the most from the want of space, not having the power of adapting itself to the exigencies which the pedestrian traffic has, and it is therefore unable to elude the obstacles to its progress.

In the city, however, the comfort of the pedestrians demands far more consideration than has hitherto been bestowed upon it; for it must be recollected that those which enter in vehicles are but one to every three on foot, and almost every one who comes to the city is at some period and place a pedestrian within it; and to make this evident some statistics of pedestrian traffic are now set before you.

It has been shown that, in 1860, 706,621 persons entered the city on one day, of which 535,535, or 75 *per cent.* of the whole were pedestrians; out of that number the following entered at the eight principal inlets to the city, at which the vehicular traffic has been recorded in a preceding page.

Table showing the Foot Traffic entering the city at its eight principal inlets in May, 1860.

Situation.	Aggregate width of both footways at point of observation.	Total Number of Persons,	
		In 12 hours, 7 a.m. to 7 p m.	In 24 hours, 7 a.m. to 7 a.m.
	ft. *in.*		
Aldgate High street	28 6	29,160	42,574
Aldersgate street	21 10	15,640	21,060
Bishopsgate street Without	19 6	23,500	34,160
Blackfriars Bridge	14 6	24,199	31,642
Finsbury Pavement	24 6	21,150	27,024
Fleet street, by Temple Bar	20 2	25,050	36,950
Holborn	23 6	29,770	41,610
London Bridge	19 4	41,949	54,128
		210,418	289,148

Thus, of the total daily foot traffic, 54 *per cent.* entered by the eight inlets named, and the proportion does not probably vary materially at the present day.

Now the footways of the main inlets at the city boundary are mostly wider than in other parts, yet during the busy hours of the day, at the points named, they are not more than sufficiently wide to admit of comfortable locomotion; indeed, at Fleet street, London and Blackfriars Bridges, they are most inconveniently crowded, and insufficient for their purpose.

This condition of foot traffic becomes much worse in the heart of the city, where the traffic is as great and the footways narrower, as may be seen by the following table:

Table showing the Foot Traffic passing both ways at particular spots in some of the principal thoroughfares of the city in 1867.

Situation.	Width of Footway.	No. of Persons in 12 hours, 8 a.m. to 8 p.m.	Width of Footway.	No. of Persons in 12 hours, 8 a.m. to 8 p.m.	Aggregate width of both Footways.	Total No. of Persons in 12 hours, 8 a.m. to 8 p.m.
	ft. in.		*ft. in.*		*ft. in.*	
Cornhill, near St. Peter's alley -	N. side 7 10	20,220	S. side 8 2	23,440	16 0	43,660
Fenchurch street, W. of Philpot lane	N. side 6 11	21,520	S. side 7 4	24,160	14 3	45,680
Fleet street, by St. Bride's church -	N. side 8 3	34,560	S. side 10 4	27,480	18 7	62,040
Leadenhall street, W. of Lime street	N. side 8 2	18,620	S. side 8 2	17,600	16 4	36,220
Lombard street, by Gracechurch st.	N. side 4 6	18,700	S. side 9 9	12,020	14 3	30,720
Newgate street, by Panyer alley -	N. side 6 0	16,380	S. side 6 4	16,540	12 4	32,920
Poultry, by Chapel place - -	N. side 9 0	39,880	S. side 8 4	35,310	17 4	75,190
Queen street, by Pancras lane -	E. side 4 9	9,340	W. side 5 9	8,260	10 6	17,600
Threadneedle street, by Hatton court	N. side 4 2	10,940	S. side 4 2	11,080	8 4	22,020
Throgmorton street, by Angel court	N. side 5 2	13,440	S. side 5 10	4,840	11 0	18,280
Walbrook, by St. Stephen's church	E. side 4 3	7,440	W. side 4 10	9,620	9 1	17,060
Wood street, by Cheapside - -	E. side 2 6	7,560	W. side 2 7	7,040	5 1	14,600

The extent of pedestrian traffic within the city may be further illustrated by observations made partly in 1863, and partly in the present year, when the following numbers crossed over the carriage-ways at five of the principal points of crossing in nine hours, between 8 a.m. and 5 p.m., and in the direction shown upon the accompanying diagrams (Appendix C):

	Persons.
At the junction of Mansion-house street, Threadneedle street, Cornhill, and King William street, there crossed, in various directions -	56,235
At the junction of King William street, Cannon street, and Gracechurch street, by the King William Statue, there crossed over, in various directions - - - - - - - - - -	42,395
At the junction of Ludgate hill, Fleet street, Farringdon street, and New Bridge street, there crossed over, in various directions - -	37,075
At the junction of Cornhill, Leadenhall street, Gracechurch street, and Bishopsgate street, there crossed over, in various directions -	28,080
At the junction of Fenchurch street, Gracechurch street, and Lombard street, there crossed over, in various directions - - - -	30,390
Total (at five spots) - - - - -	194,175

The traffic during the remaining fifteen hours of the day is not known. It may, perhaps, be equal to that which passes during the nine hours recorded; but if 50 *per cent.* only be added, it gives during every twenty-four hours of the working day, a crossing traffic,

Near to the Mansion-house, of - - - - - - - -	84,352
Near to King William street, by the Statue, of - - - -	63,592
At the junction of Ludgate hill and Farringdon street, of - -	55,612
At the junction of Cornhill and Leadenhall street, &c., of -	42,120
At the junction of Fenchurch street, Gracechurch street, and Lombard street, of - - - - - - - - - -	45,585
Making a daily Total, during 24 hours, of -	291,261

If these tables are considered, it will be seen that the foot traffic is far more vast, numerically, than the carriage traffic, and its activity and circulation, in all parts, is more surprising.

Now, two adults of average size cannot pass each other, if walking straight forward on a 3 ft. 6 in. footway, without touching, and even when it is 4 feet wide, they, as a rule, should nothing prevent it, do not pass without one of them stepping into the carriage-way, where vehicles interpose, or, if the wheels of carts overhang the footways (a frequent occurrence), they with difficulty avoid jostling each other; such footways are therefore highly inconvenient, even in dry weather, but are still more so during rain, for an average umbrella is, when opened, 3 ft. 6 in. in diameter, and it should be borne in mind that, upon the average, there are quite three days in the week upon which rain falls, more or less, in London.

In such thoroughfares as the northern end of Queen street, where the footways are but from 4 ft. 9 in. to 5 ft. 9 in. in width, with a daily traffic of 17,600 over them; at the eastern end of Threadneedle street, where the average of each footway is but 4 ft. 2 in., with a daily traffic of 22,000 over them; and in Wood street, where the footways each rarely exceed 4 ft. 6 in., and are in one place but 2ft. 7in., with a daily traffic of 17,000 pedestrians, and the carriage-ways of which thoroughfares are also full of vehicular traffic, the inconvenience is great and permanent; it is, in fact, surprising that in these streets, thronged as they are both with vehicular and pedestrian traffic, that more accidents do not occur.

Indeed, in most of the streets in the centre of the city, the footways might be widened with advantage, whilst in a very large number an increased width is essential, not only for celerity of movement, but actually for safety; and of some thoroughfares it may be truly said, that if the whole of the carriage-ways were added to the footway, they would not together more than comfortably accommodate the pedestrian traffic.

Composition of Traffic.—Upon consideration of the foregoing figures, the vastness of the city traffic, both vehicular and pedestrian, will be appreciated, the conditions under which it moves within the restricted thoroughfares of the city will be understood, and the necessity for extensive improvements will be admitted.

Of the traffic, as before said, some passes through the city on its route to other parts of the metropolis, another portion stops but a short time within it, but the largest number of persons probably either remain some hours, or spend the whole day within its limits; and the reason of this vast aggregation will be readily understood if a minute's consideration be given to the nature and extent of the commerce and occupations for which the City of London has been found the most convenient centre and chief mart; for upon that spot which, on account of the smallness of its size, has been the subject of so much misunderstanding, is to be found such a congeries of public offices and commercial buildings as no where else exist upon so limited an area, and the public and private interests represented by them are unequalled in magnitude elsewhere in the whole world.

The Central Criminal Court and the Prison of Newgate are in the Old Bailey, the Law Courts are at Guildhall, the Bankruptcy Court adjacent to it, near to St. Paul's Cathedral is the Prerogative Court and Herald's Office, whilst the Temple (the most important of the Inns of Court) is at its western boundary.

The Custom-house is in Lower Thames street, the General Post-office and Money Order office in St. Martin's-le-Grand, the Trinity-house on Tower hill, St. Bartholomew's Hospital is north of Newgate street, the Metropolitan Fish market and the Coal Exchange are at Billingsgate, the Poultry and Hide market at Leadenhall street, the Meat market at Newgate (soon to be transferred, with largely increased size, to Smithfield), a Vegetable market is in Farringdon street, whilst the Auction marts, at which perhaps three-fourths of the whole of the property in the kingdom, when publicly sold, is disposed of, are in the vicinity of the Bank of England. Within the city also are St. Paul's Cathedral, and as many

as 74 churches, together with the important public schools of Christ's Hospital, the Merchant Tailors, the St. Paul's, and the City of London.

Almost centrally placed is the Bank of England, and within 400 yards of that structure are 94 other banks; indeed, of the 129 banks in the metropolis 112, or 87 *per cent.* of the whole, are within the city; immediately adjacent to them are the Royal Exchange and the Stock Exchange, the offices for various government securities, and those of the leading financial associations of the empire.

Within it are also the great centres of many special trades; the corn, the wine, the foreign fruit trades, and the colonial market are in the east; the silk and lace, the cotton, linen, cloth, and woollen trades are in the centre; the raw wool market lies to the north of the Bank, the wholesale stationery trade to the south of it; a great printing and publishing business is carried on between Paternoster row and Temple Bar, and a vast miscellaneous trade at the line of wharves extending from Blackfriars Bridge to Tower hill.

Almost the entire metropolitan business of some of these is carried on within the city, and of the others a very large portion of the whole. Thus of 199 wine merchants in the metropolis, who each pay duty annually on 4000 gallons and above, 167, or 84 *per cent.*, have offices in the city, whilst every large foreign wine and shipping house has also an office within it; and probably nine-tenths of the produce of the industries of Lancashire, Yorkshire, and the northern counties of England are disposed of within a small radius from St. Paul's. More than one half of the metropolitan publishers, including nearly all the largest and those the longest established, are within it, whilst the whole of the 14 London daily papers, representing a very large capital, have their head offices there.

Of the 17 telegraph companies the whole, with one exception, have their chief offices within the municipal area, and of the 45 foreign consuls and vice-consuls, 43 have their offices within it, and but two beyond it; there are also within the city six railway stations now open, and five others are authorized to be constructed.

It will now be seen that the traffic, for which increased convenience in the public ways is needed, is not due alone to the residential population of the city, but is generated mainly by that large section of the metropolitan inhabitants, to which the city is a place of daily or frequent resort.

The traffic varies also largely in its constituents, and comprizes all classes, from the highest to the very humblest in the social scale. Thus, there are 68 members of parliament who have offices within the city, and are to be found there daily throughout a large portion of the year, and many other members of parliament have business interests in the city, even although they nominally have no occupation there.

And of that large class who are directors of the commercial undertakings, which must have a home in the commercial centre, there were in 1866, 56 peers of the realm, 132 members of parliament, and altogether as many as 589 titled and distinguished personages, whose directorial duties brought them frequently within its limits.

It may be said that the city is the scene of the daily labour of hundreds of thousands, whose homes are in the metropolis, and even far beyond its broad area, and that within the city are the centres of the industry and commerce of almost the whole country. For, although there are other places in England which are the homes of special industries and of a special commerce, there is scarcely a manufacturer of note or merchant of celebrity in the whole nation who has not his office or his agent in the city, and does not, at times, personally go there, and it is this combination of interests that causes the vast traffic which daily fills it.

Yearly this traffic has increased, and yearly it may be expected to increase, for the same influences are operating which have created it; and if it should continue to augment only in the same ratio as the metropolitan population (and it has hitherto exceeded it), in twenty years hence, then, the daily influx to the city will be more than a million, and in forty years a million and a half of human beings; and therefore if for the wants of the present traffic alone improved thoroughfares

are needed, how much provision should be made for the future? The whole metropolis, and in a degree the whole of England, is indeed interested in this provision being made.

THE GREAT STREAMS OF TRAFFIC.

THE direction or set of the principal streams of traffic, and the lines which are most encumbered with it, must be now ascertained, and the improvements needed must be considered.

There are various currents of traffic in the City of London, but the whole may be said to move chiefly upon two lines,

Firstly. That passing between the North and South.

Secondly. That passing between the East and West.

These may be subdivided into several smaller streams of traffic, but however many the inlets to the city, the traffic entering by them, before it reaches its destination, is nearly certain to mix with one or other of the larger streams.

The direction and composition of the several streams of traffic, and the conditions under which they are formed, must therefore be inquired into.

THE NORTH AND SOUTH TRAFFIC.—This is divided into three principal streams: that which passes over London Bridge, that over Southwark Bridge, and that over Blackfriars Bridge.

LONDON BRIDGE.—This, with its approaches, is the most important, and constitutes a line which is more inadequate to the requirements of the traffic than any thoroughfare in the metropolis.

London Bridge is the only roadway across the Thames for the population of a great area, stretching far away into Middlesex and Essex on the north side, and Kent and Surrey on the south side of the river; it is true that part of this population might, with advantage, go to the river banks and cross over in boats, but the vehicular traffic must pass by the way of London Bridge.

East of a straight line drawn five miles to the north, and five miles to the south of London Bridge, are the following metropolitan districts:

On the North side,

Bethnal Green	Kingsland	Shoreditch
Blackwall	Limehouse	Stamford Hill
Bromley	Mile End	Stepney
Bow	Plaistow	Stoke Newington
Dalston	Poplar	Stratford
Hackney	Ratcliff	Upper and Lower Clapton
Haggerstone	St. George's in the East	West Ham
Homerton	Shadwell	Whitechapel.
Hoxton		

These districts, in 1861, had a population of 667,000.

On the South side,

Bermondsey	Greenwich	Peckham
Camberwell	Lee	Rotherhithe
Deptford	Lewisham	St. Olave, Southwark
Dulwich	New Cross	Sydenham.

These districts, in 1861, had a population of 282,000.

The combined population, north and south, was therefore 949,000, and is now probably fully a million, or in fact, one-third of the entire metropolitan population; and to this must be added districts to the west of the line and others further to the north, south, and east, for which London Bridge is the only highway over the Thames. In all of these the population is fast increasing, and in some of them faster than in any other districts of the metropolis.

The north-east and east will indeed probably be the home of much of the future industrial population, and the south and south-east will be equally occupied by those who form the great body of the commercial community of London. These will generate a vast traffic of pedestrians and quick-moving vehicles, whilst for miles down the river, on either bank, docks, warehouses, and manufactories are multiplying, and will create traffic of a cumbersome and slow character.

For the traffic of this great community, already equal to that of four of the largest towns in England, there is but one bridge or highway over the river, having a carriage-way 35 ft. in width, and two footways, each 9 ft. 6 in. wide, making together a total width of 54 ft. between the parapets.

In the year 1850 the vehicular traffic passing over London Bridge, between the hours of 8 a.m. and 8 p.m., was about 13,000; in 1860 it was 16,000, showing an increase of about 23 *per cent.* in ten years.

Now in September, 1860, the Brighton Railway Company opened its line to Pimlico, and much traffic which at that time passed over the bridge was diverted, and to this day it continues largely to prevent traffic from passing through the city.

In 1864 the South Eastern Railway Company's Extension to Charing Cross was opened; that also effected a diversion of traffic from London Bridge, and has continued to do so, inasmuch as at the present time three-fourths of the whole of the continental and Hastings traffic of that railway is booked at the Charing Cross terminus.

In 1864 also the Ludgate station of the London Chatham and Dover Railway was opened, and instantly developed a considerable traffic, including some of that which previously went over London Bridge.

New Southwark street was opened from the Borough to Southwark Bridge-road early in 1862, and to the Blackfriars road early in January 1864; it gave a shorter and unimpeded route to the west and north-west of London, and immediately developed a large traffic. Indeed the traffic in November, 1865, had reached 5700 vehicles, comprizing many that would have passed over London Bridge had this street not been formed.

On the 8th November, 1864, Southwark Bridge was opened toll free; previously to that date its traffic had scarcely ever reached 1000 vehicles daily (8 a.m. to 8 p.m.), but it almost immediately rose to 3000, and in November, 1865, had reached 4700 during the same hours; this is an increase of 3700 vehicles daily, a very large portion of which was doubtless taken away from London Bridge.

Thus we have had the Brighton Railway extended to Pimlico in 1860, the South Eastern extended to Charing Cross, and the London Chatham and Dover Railway extended to Ludgate hill in 1864, Southwark street completed, and Southwark Bridge made free of toll at the end of the same year, five events, each causing the diversion of much traffic from London Bridge; but nevertheless, in July 1865, the traffic upon London Bridge was 19,400, which was a larger number by 3000 than passed over it during the same hours of the day in 1860, and before either the railway extensions or the new street had been made, or Southwark Bridge had been opened toll free.

In another part of this Report I draw attention to the East-London Railway, which there is no doubt will also divert traffic from London Bridge; but it is evident that, notwithstanding the means of transit provided for it by railways or other facilities, the vast growing population to the north-east and south-east of the river will soon restore the traffic to its original quantity, and then increase beyond it.

At the present time the whole line from St. George's church in the Borough, to beyond Norton Folgate, is, with the exception of the wide part of Bishopsgate

street, so encumbered with vehicles during the busy hours of the day, that it is impossible to proceed along it at a rate of more than from four to five miles an hour, whilst between Liverpool street in the city, and Southwark street, the rate rarely exceeds three and a half miles *per* hour; and as the population increases, and the traffic gets greater, even this rate of progress will not be obtained.

NEW BRIDGE AND APPROACHES NEEDED..—*There is but one complete remedy for this, which is the formation of a new bridge, with suitable approaches, lower down the river than London Bridge.*

A bridge so situated, with approaches extending for a sufficent distance both north and south, would not only relieve London Bridge, but would relieve effectually the whole line of street, from the Elephant and Castle to Shoreditch church; it would also ease Eastcheap, Fenchurch street, Leadenhall street, and therefore most other thoroughfares of the city east of the Bank, would prevent in a large degree the conflict which is caused by the east and west traffic, where it crosses the north and south traffic, afford great facilities for increased business, and be an immense convenience to a vast increasing population.

I am aware of the great interests which would be interfered with by the construction of this bridge, and of the large sum of money which would be required, although I believe that the cost is exaggerated in the minds of most persons; for it must be recollected that the districts through which the approaches would have to be made are not for the most part as yet of a valuable character, but whatever the interests may be, and whatever the cost may be, sooner or later a bridge or tunnel must be built lower down the river. Nothing else will effectually relieve London Bridge at the present day, and nothing else will satisfy the requirements of the vast population which within the next generation will exist east of it. This necessity ought now to be boldly faced, and not postponed until the period when its construction will involve double the outlay now needed, however great that outlay might be.

The widening of London Bridge, by throwing out footways on either side, should be adverted to. This is physically practicable, although it could only be carried out to the utter destruction of the architectural effect of one of the finest bridges in Europe; it would not, however, help the difficulty of the traffic, as it is upon the approaches to the bridge on each side where the obstruction mainly takes place. At both of those spots there is the confluence of several streams of traffic: the carriage-ways, it is true, are there not quite so narrow as the bridge itself, but they are subject to carts standing to load and unload, which the bridge is not, and therefore widening the bridge would be useless, unless the approaches were made wider also.

The proposal so to widen London Bridge is, indeed, but one of those poor expedients by which it is sought to procrastinate larger and better improvements, in order to reduce immediate expenditure to the smallest amount, the result being that, although the difficulties may be for the time somewhat eased, yet the expenditure, which is ultimately inevitable, is augmented; such expedients are wanting both in a breadth of view and in true economy, but the metropolis abounds in such instances.

The approaches include, on the south side of the river, the whole line from St. George's church in the Borough, to the bridge, and on the north side, the southern branch of King William street, and the whole of Gracechurch street and Bishopsgate street within; the cost of widening these thoroughfares alone would go very far towards constructing a new bridge and approaches.

It is, however, fundamentally an error to make streets and bridges of very great width; large streets are more costly, they are also in one respect inconvenient, they lead to concentration of traffic, and if stopped or impeded (as at times they must be), the public inconvenience is very great. Diffusion and not concentration of traffic, should be the object in devising the thoroughfares of large towns—alternative lines give the most convenience—and, as a principle, it may be said that it

is far better to have two bridges, each of 50 feet in width, than one of 100 feet in width, even if the cost were greater for the two than the one.

It must, however, be understood that 50 feet is not here advocated as the proper width for either roads or bridges; for although there is undoubtedly, under present usages, a width in London streets beyond which inconvenience, rather than convenience, ensues, yet no absolute rule can be laid down for the widths of streets and bridges in the metropolis, but each must be governed by the local conditions affecting it.

Southwark Bridge.—Of this bridge and its approaches it may be said that, lying between London and Blackfriars Bridges, the traffic, which naturally accrues to it from the south is but small, and from the north is not so large as that which contributes to the traffic of the two other city bridges. The vehicular traffic which passed over it on one day in February, 1860, was 616; on another day in April 1864, 1165; in November, 1865, after the removal of the toll, it was 4766; and the last observation in March, 1866, was 4113 vehicles between the hours named. This increase of traffic includes much of that which would otherwise have passed over London Bridge and Blackfriars Bridge were it not toll free; in fact, it may be said to take from those bridges, and principally from London Bridge, about 3000 vehicles daily.

When the new street from the Thames Embankment to the Mansion-house is formed, the shortest and most direct route from the Elephant and Castle to the Bank, and all places north of it, will be by Southwark Bridge, and this may tend somewhat to increase the traffic over it, but it is a question whether it would do so, excepting in a very trifling degree.

On the other hand there has been, since new Southwark street was opened, a considerable vehicular traffic over the bridge going westwards, and which would be greater if the northern end of Queen street were not so impeded; but so soon as a new line of thoroughfare from the Bank to Westminster, by way of the Thames Embankment, is completed, this particular traffic will take the newer and shorter route, and will not pass over Southwark Bridge, and by so much its traffic will be reduced.

The gradients of its approaches are at one place on the Surrey side but 1 in 24, and on the northern side but 1 in 18; and as the gradients in Queen street are at one spot 1 in 23, and are indeed not good except for a very short portion of its length, they will always be objectionable to the heavy traffic, and will thus prevent the bridge being used as much as it would be were the inclinations better.

The gradients are of course not so objectionable to the light and quick traffic, which is the description of traffic that now suffers the greatest inconvenience from the crowded state of London Bridge. It is therefore the light traffic chiefly which has passed over Southwark Bridge since the toll has been removed.

The maximum of the relief it will afford to London Bridge has, I think, therefore been nearly, if not quite obtained; its traffic will doubtless go on gradually increasing for some time, but it will be in no greater proportion than the general rate of increase of traffic over the three bridges, due to the areas and population they respectively serve.

It is not probable, therefore, that the opening of Southwark Bridge toll free will ever be so great a relief to London Bridge as some persons have anticipated, unless by the agency of Police regulations enforcing its usage.

Nevertheless, situated as it is in the midst of so dense a population, with its ever increasing traffic, and forming as it does the only highway over the river, between Blackfriars and London Bridges, it is well that the corporation has agreed to purchase it, and open it free of toll.

Indeed, as a principle, there ought to be no toll bridges in the metropolis; directly the necessities are so great that another bridge is needful, it should be built out of the metropolitan funds; and with regard to the existing toll bridges,

as far as to and including Vauxhall Bridge, they should be purchased, and the toll be taken off as speedily as possible, so as to give the metropolitan traffic its natural selection of route, and ensure the greatest possible diffusion.

The northern approach to Southwark Bridge is Queen street, of which the portion between Cannon street and Cheapside is but 26 feet in width, and is now greatly impeded with traffic, both pedestrian and vehicular. The street should be made 50 feet wide throughout its entire length, which is the width of its southern end between Cannon street and Thames street, and it would then form a valuable approach to Cannon street and the new street to the Thames Embankment, as well as to Southwark Bridge.

Blackfriars Bridge.—This is the only remaining highway within the city for the traffic between north and south, and for this the new bridge now being constructed will be adequate. The same may be said of the Blackfriars-Bridge road, which is its southern approach, and of New Bridge street and Farringdon street, which form its northern approach.

The vehicular traffic upon this bridge during twelve hours on one day, in 1850, was but 5200, and had risen to 6800 in 1860, being an increase of 31 *per cent.* in ten years. It has risen still more rapidly since that period, having reached as many as 10,700 vehicles during twelve hours in November 1865. This traffic will probably remain for some time nearly stationary when other metropolitan railway stations are opened, but it will ultimately go on increasing.

Much of its traffic is gathered from or goes by the lines of Fleet street and Ludgate hill, where it mingles with the direct east and west traffic (to which further allusion will be made), and of that portion which turns eastward much of it proceeds by way of St. Paul's Churchyard to St. Martin's-le-Grand.

Other Thoroughfares.—The two remaining thoroughfares in the city which conduct the traffic between the north and south of the river, are Moorgate street and Aldersgate street, both of which are adequate to their present requirements, the difficulties of their traffic beginning only when it meets or mixes with the currents going east and west.

With regard to Moorgate street, however, it has perhaps already the maximum traffic which it can bear, having regard to comfort, public convenience, and economy of time, and any material increase will bring it into the category of impeded thoroughfares; for in all streets, when the traffic exceeds a certain quantity in relation to their width, public inconvenience at once ensues. This street leads directly to the Bank, and should afford every facility therefore for the unimpeded movement of the quick vehicular traffic.

Princes street, which is a continuation of Moorgate street, is still narrower, and has still more traffic. The only mode of relieving this thoroughfare and Moorgate street would perhaps be by forming a new line of carriage-way in the direction of Southwark Bridge; and this might be accomplished by widening Basinghall street and Ironmonger lane, terminating the improvement opposite to Queen street. If Queen street were also widened, this would enable the traffic to reach Southwark Bridge with ease, and would form a direct and shorter line from Islington to the south of London; this will be further alluded to in connection with the widening of Moor lane.

The East and West Traffic.—The traffic which passes into and through the city from the west may be divided into two streams, which ultimately lead to and pass the Bank. These may be termed generally the north-west and south-west lines of traffic.

The traffic of the north and north-west is collected by the line of Oxford street and Holborn, and includes that from the districts which lie upon and beyond Bays-

water, Edgware, Tottenham Court, and Gray's Inn roads, and a large district lying to the south of the line of Oxford street.

These districts comprize a large area of residential property of the better class, inhabited mainly by those whose business brings them to the city frequently, if not daily.

This traffic enters the city at Holborn, passes through Skinner street and Newgate street, and meets the traffic of Islington and Clerkenwell at the western end of Cheapside.

The purely western traffic is collected mainly by Piccadilly, and is joined at Charing Cross by the south-western traffic coming from Westminster and the districts on the river banks, which lie beyond the line of Victoria street.

From Charing Cross the united streams of western and south-western traffic pass along the Strand, enter the city at Temple Bar, and pass through Fleet street, Ludgate hill, and St. Paul's Churchyard; then, with the exception of that portion which leaves the stream at Cannon street, this traffic also arrives at the western end of Cheapside.

Now the whole line from Temple Bar to Cheapside is insufficient for its vehicular traffic; the line from Holborn hill to Newgate street is less so; but Newgate street itself is so overcharged that it is already evident it should have been widened to 70 feet instead of 50 feet.

These two streams of western traffic, each of which is too great for the channel through which it passes, then meet, and are compressed at the western end of Cheapside into the one channel not very much wider than either of them separately, and thence the united stream struggles through the Poultry towards the Bank, throwing off or receiving, mixing and clashing with the collateral and local traffic which meets it at right angles from the streets north and south of Cheapside.

At the Bank a diversion takes place, one portion going by way of Leadenhall street and Fenchurch street, the other turning off by King William street to Eastcheap and London Bridge.

Although somewhat relieved by this, yet eastward of the Bank the line of streets is barely sufficient, and the extreme difficulty and confusion recommences at the eastern ends of Cornhill and Fenchurch street, and also of Cannon street, where the concentrated north and south traffic of London Bridge meets the east and west traffic at right angles; and from thence to the city boundary, both on the Leadenhall street, the Fenchurch street, and Eastcheap lines, the carriage traffic through the busy hours of the day is frequently congested.

The traffic coming from the east enters the city at Aldgate, and proceeds by Leadenhall street, Fenchurch street, or Eastcheap (but principally by the first of these thoroughfares), across the city towards the west, by the lines of thoroughfare just described, mixing with the western traffic, and with it constituting what is denominated the east and west traffic, for which it may be said the whole of the lines of thoroughfare from Temple Bar and Holborn to Aldgate Pump are inadequate.

Until within the last ten or twelve years, Cheapside and the Poultry were the only thoroughfares which were generally encumbered; they still retain their pre-eminence in this respect, but the whole way from Temple Bar to St. Paul's is now frequently in little better condition; yet Cheapside and the Poultry have had special relief afforded them by the widening of Cannon street, and the opening of Cannon-street West.

Cannon-street West was opened throughout in 1854. In 1863 it had, during twelve hours daily, a traffic of 5200 vehicles, and in 1866 it had 5700 vehicles. This line of thoroughfare must therefore be a great relief to Cheapside and the Poultry.

Now the railway extensions and the street improvements, which have before been referred to as having kept down the increase of traffic on London Bridge, must also have relieved the east and west lines through the city, and therefore many sources of relief have been opened to them within the last few years.

Nevertheless, in 1865, the vehicular traffic had, since 1850 (fifteen years), increased at Temple Bar 54 *per cent.*, at Holborn 32 *per cent.*, and at Aldgate 76 *per cent.*, nor, unless ample alternative lines are provided, does there seem any probability that it will not continue to increase.

The improvements which are needed to meet these exigencies are two new broad lines of thoroughfare between the east and west of the city.

The new street from the Thames Embankment may be considered as one of those lines of thoroughfare, and it will suffice as a relief for the western and south-western traffic to a certain point, but the north-western traffic will not be affected by it, nor will any of the thoroughfares east of the Bank be relieved by it.

An Additional New Street needed.—Complete relief can only be afforded by the formation of an additional arterial line of thoroughfare through the city. Nothing else will permanently relieve Cheapside, the Poultry, and the eastern lines of public way. The formation of such a street, although in itself costly, would render needless many minor improvements, which otherwise must be carried out; would open up and render valuable property in districts now comparatively valueless; afford additional facilities for reaching the railway stations in the city; reduce the inconvenience when other thoroughfares are stopped; enable the agency of the police, in the direction of traffic, to be largely dispensed with, and would be the best, the most permanent, and certainly, in the long run, the most economical improvement which could be effected.

Minor Streets.—Having dealt with the two fundamental wants of the city traffic, which are the formation of a new bridge, with north and south approaches, and a new and wide east and west line of thoroughfare through the city, the minor requirements must be considered; so numerous are they, that it is difficult to select the most pressing, for indeed it may be almost said there is scarcely a thoroughfare in the heart of the city which might not be widened and improved, with both local and public advantage.

Of the subordinate lines lying east and west, Lower Thames street is gorged for sixteen hours out of the twenty-four, and the same may be said of a large portion of Upper Thames street during some part of the day; that line of street accommodates however but its own special traffic; the Commissioners of City Sewers have already laid down a line for its improvement; but the funds at their disposal are inadequate, and year by year the value of the property increasing, it has rendered the accomplishment of the improvement more difficult, and at the present rate of progress, it will not be completed during the present century.

The remaining through line, east and west, is that of Long lane, Barbican, and Chiswell street, which is barely sufficient at present, and yearly becoming less so; the large influx of traffic to the new market in Smithfield will shortly render an improvement still more needful, and either the whole line named should be made 60 feet in width forthwith, or another line of thoroughfare striking north-west towards the Old-street road beyond the city boundary, should be formed to take off some of the traffic.

Turning to collateral streets, such as Chancery lane, Fetter lane, the Old Bailey, Queen street, Gresham street, Houndsditch and others leading between the main east and west lines, the whole are more or less obstructed daily.

The same may be said of that large class of streets in the centre of the city, which lie at right angles to the main line running east and west, such as Wood street, Bread street, and others. Within the last ten or fifteen years, some of these occasionally afforded relief to the main thoroughfare, when encumbered with vehicular traffic; but they are now impeded with that which is due alone to the business carried on in them. Many of them are only wide enough for a single carriage, and this alone renders them comparatively useless to the general public.

With regard to improvement in these streets but little need be said, as it will be admitted that most of them need it. The improvements contemplated to some of them will be alluded to in a subsequent section of the Report; but it may be observed, that the value of the property and trade interests in them is so vast as entirely to preclude the possibility of affording relief for the general traffic by widening them, and the remedy must therefore be found by providing other outlets.

THE PROBABLE EFFECT UPON THE CITY, OF WORKS ALREADY AUTHORIZED OR PROJECTED.

I MUST now consider those improvements and alterations which have either been recently completed, are in progress of construction, or are authorized and may, when made, be expected to affect the traffic of the city; these are as follows:

1. The Thames Embankment and the new Street from Blackfriars Bridge to the Mansion-house.
2. The Building for the Courts of Justice Concentration.
3. The removal of Middle row, Holborn.
4. The Holborn Valley Improvement.
5. The Formation of the new Dead Meat Market at Smithfield.
6. The Formation of the new Bridge at Blackfriars.
7. The widening of Thoroughfares now being gradually effected by the Commission of City Sewers.
8. The Formation and Extension of Railways, *viz.*
   - The South Eastern and Charing Cross Railway.
   - The Great Eastern Railway.
   - The East London or Thames Tunnel Railway.
   - The North London Railway.
   - The Metropolitan Railway Extension to Tower hill.
   - The London and North Western Railway.
   - The Metropolitan District Railway.
   - The London Chatham and Dover Railway.

1. THE THAMES EMBANKMENT AND THE NEW STREET FROM BLACKFRIARS BRIDGE TO THE MANSION-HOUSE.

This line of thoroughfare will afford an entirely new route between the City and Westminster. It will relieve the line of the Strand, Fleet street, Ludgate hill, St. Paul's Churchyard, and, in a minor degree, Cheapside and the Poultry. Its efficacy in this respect will, however, depend to a considerable extent upon the Police regulations which may be enforced. It will also take off some of the traffic which now goes westward by the way of Southwark Bridge.

This street, which is to be 70 feet in width, was designed by the Metropolitan Board of Works to terminate by a junction with Mansion-house street, *&c.* at a point where it is but 48 feet in width, and therefore it will not relieve that thoroughfare, but on the contrary, will tend still more to disturb and confuse the traffic at the point of junction. With the view of obviating this, the Commissioners of City Sewers have commenced the widening of Mansion-house street, and the Metropolitan Board of Works having refused to contribute towards the cost of this work, which is practically the termination and completion of the new street laid out by them, the expense will be thrown upon the city, as if it were a mere local improvement.

2. The Courts of Justice Concentration.

The formation of this building close to Temple Bar will, if the Guildhall Courts of Law be closed, take from the main thoroughfares some of the traffic which now finds its way from the west and north-west to Guildhall during the sittings, but, on the other hand, the traffic from the east and north-east will have a greater distance to go through the city to reach the new courts.

Upon the whole, it is not probable that the traffic of the city will be materially affected by the alteration of site except in the immediate vicinity of Temple Bar, the thoroughfares near to which will require more than ever to be widened; the removal of property for the new building will afford a good opportunity for effecting this.

3. The Removal of Middle Row, Holborn.

This will diminish the inconvenience at the Holborn entrance of the city, but it will in no respect ease or affect in any way the traffic when once within the city.

4. The Holborn Valley Viaduct.

This may be briefly described as consisting of a viaduct forming a broad and nearly level street, 80 feet in width, between Hatton Garden and Newgate street, following nearly the present line of Holborn hill and Skinner street, and crossing Farringdon street by a bridge, at the angles of which are flights of steps affording means of communication to pedestrians between the two levels; there are also two approach streets, to enable the carriage traffic to pass between the upper and lower levels.

It will relieve the city from a dangerous and inconvenient line of thoroughfare which for half a century has been condemned, and will therefore ease the traffic within the city, by affording an easier and more ample road than at present exists; but it will neither take from nor add to the amount of the traffic which collects at the west end of Newgate street, nor will it in any way affect the traffic east of that point.

One of the approaches to the Viaduct is laid out so as to give direct access from the southern end of Hatton Garden to the New Meat Market at Smithfield, and it will therefore give a direct and convenient line from Holborn across to Long lane, and thence to the north-east of London.

5. The Formation of the New Dead Meat Market in Smithfield.

To this market, when built, will be at once transferred the whole of the business of Newgate Market, and there can be but little doubt that within a few years afterwards nearly the whole of the business of Leadenhall Market and Whitechapel will be transferred there likewise. It will thus become the centre of a vast trade, bringing traffic to it in all directions.

For the traffic approaching it from the west and south-west of London, the new street just described, leading from Hatton Garden, will form an adequate thoroughfare.

The approaches to it from the north and south will be also sufficient, but the difficulty of transit, which is already experienced in the whole line of Long lane, Barbican, and Chiswell street, will be increased by the special market traffic that will be thrown upon it; this will render it necessary to widen those thoroughfares.

The removal of Newgate Market will, but in a very small degree, relieve the traffic of Newgate street, for, excepting at one or two short periods during

the year, most of its special trade is away, before the great daily tide of traffic sets in.

Indeed, as the area of Newgate Market will, shortly after the erection of the New Meat Market, be applied to other commercial purposes, those purposes will generate a traffic of their own which will take place at all periods of the day. It is a question, therefore, whether the removal of the market may not lead to more local impediment to the traffic in Newgate street generally than at present is created by the market.

The completion of the widening of Newgate street is now projected by the corporation.

6. New Blackfriars Bridge.

This bridge will be wider, and will have better gradients than the old bridge, which will render transit over it easier and more expeditious than at present; but beyond this the benefit will not extend.

7. The Improvements now being effected by the Commissioners of City Sewers.

Of the improvements which are being effected by the Commissioners of City Sewers, and which are spread over the entire city, the most important are as follow:

Widening the eastern end of Leadenhall street, to a width of 50 feet.
" " " Fenchurch street, to a width of 50 feet.
" Newgate street throughout, to a width of 50 feet.
" Upper Thames street throughout, to a width of 35 feet.
" Ludgate hill throughout, to a width of 60 feet.
" Mansion-house street, to a width of from 57 to 74 feet.
" Poultry, north side.
" Fenchurch street, west end.
" Gracechurch street, in the centre.
" Lombard street, east end.

The advantage of these improvements is self evident, as they are all in thoroughfares in which great inconvenience is at present felt, owing to their inadequate width, but none of them, when completed, will render the ultimate execution of larger works unnecessary.

The Commission has also laid down lines for widening and improving the following thoroughfares, and is gradually carrying out the improved lines:

Basinghall street.
Lime street, south end.
Liverpool street, throughout.
Seething lane, west side.
Threadneedle street, north side.
Throgmorton street, west end.
Tokenhouse yard, west side.

Negotiations are also pending for minor improvements in many places, but which are not worth while enumerating here.

Since 1851 the Commissioners have effected improvements, varying in extent, in 94 different places within the city; and upon most of the lines above referred to some frontages have already been set back; but owing to the great rise in the value of property, the completion of the leading thoroughfares enumerated will certainly require nearly a million of money; unless therefore other funds are applied in addition to those now at the command of the Commission, it seems probable that the present century will not see these improvements carried out.

8. Railways.

The most important alterations in the set of the traffic will, perhaps, be effected by the formation of the railways either authorized, in the course of construction, or recently opened.

The South Eastern and Charing Cross Railways have now a terminus on the southern side of Cannon street, adjacent to Dowgate hill, and a large hotel is nearly completed in connection with it.

This extension was expected to relieve London Bridge of much footway traffic, as well as a considerable amount of omnibus and cab traffic, and especially the latter on rainy days; hitherto this expectation has not been largely realized, although I have but little doubt that, as time rolls on, the traffic to and from the terminus will be considerably increased.

London Bridge, King William street, and the eastern part of Cannon street will therefore be benefited by it; whether it will ultimately increase materially the vehicular traffic in Cannon street generally is uncertain; it already has done so to some extent, but upon the whole it does not appear to me that it will materially relieve the lines of thoroughfare running east and west through the city, which are now most impeded with vehicular traffic. Cannon street is at present adequate to all the traffic which goes through it, and will carry still more.

This terminus, however, will gradually be found to be a great benefit to the city, and therefore a metropolitan benefit, and it will create a great footway traffic in its vicinity, the most obvious want of which will be improved and most direct access to the north and the neighbourhood of the Bank. The two thoroughfares leading from Cannon street to the Bank (Walbrook and St. Swithin's lane) are nearly always choked with vehicles, but the new street from Blackfriars Bridge to the Mansion-house will afford relief in this respect when it is open. Of Walbrook it may be said that if its whole surface was composed of footway pavement, it would not more than comfortably accommodate the pedestrians which will pass through it, and for this reason alone it needs widening.

The Great Eastern Railway is to have its terminus in Liverpool street, and necessarily a large portion of the traffic which now goes to its terminus at Shoreditch, will be transferred to that street.

The East London Railway (Thames Tunnel line) will be formed immediately beneath the Great Eastern Railway at Liverpool street. It will be a valuable link of the Metropolitan Railway communication, and will divert some of the heavy and obstructive traffic from London Bridge and the city thoroughfares east of the bridge, and will, I anticipate, throw out branches, and ultimately have a traffic equal to any other railway in the metropolis.

The North London Railway has a terminus in Liverpool street, which was opened in 1865. Since that time it has developed a large traffic, and has had the effect of taking away many passengers from Fenchurch street.

The Metropolitan Railway will also have a station on the southern side of Liverpool street.

This group of stations and termini will generate a great pedestrian traffic, and some vehicular traffic.

The East London and Metropolitan, being both subterranean, will have exchange stations beneath the surface; and the contiguity of the Great Eastern and North London to the Metropolitan, will practically put them almost into actual intercommunication, for the mere crossing of the road, or turning to the right or the left, will enable travellers to proceed in numerous directions by other lines, whichever may be the railway by which they arrive at Liverpool street, and this will practically confine much of the traffic within the limits of Liverpool street itself.

Liverpool street is arranged to be widened to 60 feet throughout, and the thoroughfares immediately adjacent to it, leading north-west, are in width ample for the existing traffic, and capable of accommodating more. The foot traffic will

therefore be easily dispersed; but Bishopsgate street is at present over-crowded with vehicular traffic, and the new stations, especially the Great Eastern, will tend to make worse the over-crowding upon that portion of the line which leads to London Bridge.

The London and North Western Railway Goods Station, north of Eldon street, will, when completed, bring much traffic into that thoroughfare, and to provide for this Eldon street, the northern side of which is beyond the city boundary, should have been made as wide as South street, which is its western continuation. It is however now too late to contemplate this, the building having been erected.

The Metropolitan Railway, with its extension to Finsbury Circus, and the Southern Connecting Line or District Railway joining the Thames Embankment Railway, will run round three-fourths of the entire city, and will have stations at Aldersgate street, Finsbury Pavement, Liverpool street, Aldgate High street, Great Tower street, Cannon street by Dowgate hill, beneath the South Eastern Railway, and Blackfriars Bridge, beneath the London Chatham and Dover Railway. In all, at seven stations within the city.

A traffic, mostly pedestrian, will be directed to each of these stations. I do not anticipate that they will create much vehicular traffic, excepting on rainy days, and not very much even on those occasions.

The London Chatham and Dover Railway, with its station south of Ludgate hill, has not materially added to the vehicular traffic in that neighbourhood, and since its junction with the Metropolitan Railway, it has doubtless reduced somewhat the traffic in Farringdon road and street, and on Blackfriars Bridge, and, although it is not perceptible, has doubtless taken off some traffic from London Bridge.

When the present authorized lines are constructed there will be thirteen stations in the city, and no part of the entire city will then be more than one-third of a mile, and a few parts will be more than a quarter of a mile from a station. The intercommunication between the lines will enable passengers to reach most parts of the metropolis from any one station; the trains will be so frequent that no one will think of consulting time-tables, and although the speed may not be great, when compared with average railway speed, it will be double that of ordinary omnibuses, within a radius of two or three miles of the city. The consequence will be that each station will become the centre which will attract most of the passengers within its radius. The approaches to each of these stations should therefore be made adequate, if not already so; but in most cases the immediate approaches, when all the stations are opened, will be found sufficient, provided adequate main lines of thoroughfare are made within the city.

With regard to the authorized and existing lines generally, it may be said that they will, when completed, be of the utmost value to the city, and they have already supplied a public want which must have been severely felt, and it is manifest from the fact that the railway stations within the city had between 60,000 and 70,000 passengers daily at the end of 1865; but the present convenience is but slight when compared with that which will be given when the whole of the lines are complete, and every great trunk railway which radiates from the metropolis has the means of bringing passengers into the heart of the city.

The Metropolitan Railway Company has this year applied to Parliament for an extension of time for the completion of their railways through the city; and there are, unfortunately, other indications that some years will in all probability elapse before every link of this important chain of metropolitan railway communication will be united. In the interests of the public this delay is very much to be regretted.

It was many years after the necessity existed before the railway companies became convinced that one great want of the metropolis was railway communication with the city. The benefit which has already accrued by it is now, however, fully appreciated, and no company can rest until it can offer its traffic the same facility as other lines. This necessity of communicating with the city will, I believe, result in further railway accommodation being projected, and it will be

for the corporation to take care that new lines or extensions be so laid out as to afford the maximum of public convenience with the least destruction of valuable property, and whether, at the same time that the railways are constructed, improvements in the highways in their vicinity cannot be economically effected.

Yet with all this convenience, and much as it will distribute traffic, the formation of new streets and the widening of others will undoubtedly be necessary, for facility of locomotion stimulates and augments traffic of itself; and thus, without reference to the increase in the metropolitan population, a larger traffic to and from the city may be anticipated at once to accrue, whilst the augmentation of the population will likewise create additional traffic and add to this mighty influx to the city, and it is this increase, never yet sufficiently appreciated, for which improvements in the city thoroughfares are needed.

There is some corroboration of this view in the fact that, although so much *through* traffic has been taken away from the city, and at the end of 1865 the city railway stations had, as before stated, between 60,000 and 70,000 passengers daily, yet the traffic in the streets had increased, and during 1865 the London General Omnibus Company carried 1,357,645 more passengers than it did in 1864.

Projects now before Parliament affecting the City of London.

On the projects this year before Parliament I have already reported to the Commissioners of City Sewers. Those which the most closely affect this consideration consists of Bills having for their object an extension of time for the completion of the authorized metropolitan railways. There is one however which deserves special notice, and which is for the formation of a subway for omnibuses beneath the river from Tower hill to the opposite shore; of this it may be said, that if built, it will undoubtedly be largely used and be a public benefit, but that neither this or any similar construction can obviate the necessity for a new bridge east of London Bridge.

The new street projected by the corporation from Hatton Garden to Farringdon street, is described in the section treating of the improvements recommended.

IMPROVEMENTS RECOMMENDED.

Having drawn attention to the future increase in the metropolitan population, the traffic it will generate, and the way it will affect the city, having also considered the alterations in the traffic which may be anticipated from works now authorized or projected, and having laid before you the present as well as the probable future exigencies of the city in respect of its thoroughfares, it remains for me to point out the measures by which improvement may be best effected.

These improvements are of three classes,

1. The formation of new lines of thoroughfare.
2. The widening of existing lines of thoroughfare.
3. Minor improvements.

I assume it is granted that the two most urgent metropolitan wants are the relief of the traffic of the north and south line by way of London Bridge, and that of the east and west line, from the western end of Newgate street to the city boundary at Aldgate; and to these I first address myself.

New Bridge and Approaches.—For the relief of the north and south traffic on London Bridge, I propose that a new bridge should be constructed further down the river. The best situation for this is either west of the Tower, by Great Tower hill, or east of the Tower, between that structure and the St. Katherine's Docks.

For the immediate purpose of the city traffic, the western side of the Tower is perhaps the best, but looking at the whole circumstances, including the important one of approaches, the eastern side is preferable.

On the north the approaches to the city may be almost said to be formed, for when the traffic is once on Tower hill, it could move either east or west by the existing thoroughfares, as the streets between the heart of the city and its eastern boundary would be relieved of a large portion of the vehicles which now struggle through them from the London Bridge line, and which would then go by the way of the new bridge, but Postern row should be entirely removed, the gradients improved, and a broad level street formed between Great and Little Tower hills; a new street should also be formed, commencing at Little Tower hill and stretching northwards to a junction with Whitechapel High street, opposite to Commercial street, at the point where the new street leading to the Commercial road is now being made by the Metropolitan Board of Works. At the same point it will be presently seen that a new street running from east to west through the city is proposed to start.

On the south the approaches for whichever site is adopted must extend, at the very least, to Bermondsey street, but should be carried in a straight line as far as to the Old Kent road, at the point where Great Dover street and Bermondsey New road join it; but the best and most comprehensive measure would include the extension of the approaches in a straight line to Camberwell, somewhere in the vicinity of Camberwell Green.

By these roads, an almost direct line would be formed between Shoreditch and the Old Kent road, Camberwell, and Peckham, and the whole of the traffic which lies directly to the north-east and south-east of the city, including nearly the whole of the heavy warehouse or dock traffic, would cross the river by that road.

There will be no difficulty in forming this bridge, with good gradients.

It would be an interesting inquiry, if time admitted, to ascertain the distance needlessly traversed annually by vehicles and pedestrians, owing to the want of a bridge lower down the river than London Bridge. Many ingenious calculations of a similar nature have been made, of the loss of time consequent upon the inadequacy of the thoroughfares in the city of London and other parts. It has been given in evidence before a Government Commission, that the loss incurred in carriage traffic alone on Holborn and Ludgate hills, represented 100,000*l.* annually, and that calculation was made twenty years ago, when the traffic was much smaller than it is now. But no calculations yet made upon such subjects would show anything approaching the immense loss of time, loss of labour, and loss of money, which the absence of another bridge imposes upon the traffic and population on the north-east and south-east of London, which it has already been shown comprizes one-third of the whole metropolitan inhabitants, and will probably shortly include a still larger proportion.

The cost of this work would doubtless be great, principally on account of the compensation to the wharfingers between the Tower and London Bridge; but the wharf property would not be valueless, even if vacated by its present occupants, and the removal of the special trades now carried on at these wharfs and adjacent premises, even if it were a necessity to any large extent, would leave room for the expansion of other businesses for which the site is adapted. This would, of course, greatly reduce the ultimate cost, but it is probable that after compensation had been awarded, it would be found that much of the wharf business could be carried on as heretofore.

Billingsgate Market might, if needful, be transferred to another site lower down the river; but it is worthy of consideration whether the present site for a metropolitan fish market is the right one, and whether it need be on the banks of

the river at all, for two-thirds of the whole supply of fish now comes to London by railway, and a still larger proportion could come by the same means; indeed, the present vegetable market in Farringdon street seems to me a more central and suitable site for a fish market than Billingsgate.

The sea-going steamers might not be able to go higher up the river than the St. Katherine's Docks; but even if they could not, the inconvenience would be very great, looking at the facilities which will soon be afforded by metropolitan railways; indeed it would be found quicker and more convenient to a large number of travellers to find their way to a comparatively quiet and unobstructed spot lower down the river, than to struggle towards the wharves through thoroughfares so impeded with traffic as Upper and Lower Thames streets and their approaches.

It is further probable, that if the wharves for sea-going steamers were lower down the river, direct junctions would be made between them and the various railways, and consequently the transfer of passengers with their luggage between the railways and the boats would be made with a rapidity, a convenience, and a freedom from extortion, to which, under the present condition of things, they are quite unaccustomed.

I am, however, quite aware that formidable trade interests would be disturbed, and that a section of the public must suffer some inconvenience; but after all, it resolves itself into a question of compensation, and nothing more, and sooner or later such disturbance is inevitable, unless the growth of the population east of London Bridge can be stopped.

A Bridge to Open.—A bridge might be constructed with a central compartment to open, so as to admit the passage of vessels up and down the river at certain stages of the tide, or it might be open to the public only from seven in the morning to seven at night, which are the hours when the great pressure is felt upon London Bridge.

A Tunnel.—Another mode would be to construct a tunnel at one of the spots named; but if really convenient approaches were made to it, it would be more costly than a bridge, and it would not afford the complete convenience that a bridge would give.

But the formation of either a bridge, which could only be periodically used, or of a tunnel in lieu of a bridge, can only be regarded as half measures, such as have been too frequently carried out in the metropolis, and which are unworthy of its vast population and of its vast wealth.

Steam Ferries might be useful lower down the river, but could hardly be used as a means of relief to the traffic of London Bridge. For at the spot where a bridge is needful, the river is so crowded with shipping and with quick-moving steamboats, that the management of the large pontoons, which would be necessary, could only be attended with very great inconvenience, difficulty, and danger. Steam ferries are, indeed, but the expedients of a poor traffic and a small population.

The subject of the relief of London Bridge has necessarily been to me a matter of consideration for many years, and I am convinced that the construction of a bridge with suitable approaches, forming a new highway across the Thames at or about the spot indicated, will alone materially and permanently relieve London Bridge and its approaches, both north and south. Sooner or later such a highway must inevitably be formed. It is never likely to be constructed with so little public inconvenience or so economically as at the present time, and in the interest of a future generation, which will have to pay part of the cost, as well as of the present generation, it should be commenced forthwith.

A NEW EAST AND WEST STREET.—I propose a new street, seventy or eighty feet in width, commencing at the eastern end of the Holborn Valley Viaduct, by St. Sepulchre's church, and terminating at Whitechapel High street, close to Commercial street.

It would start from the western end of Newgate street, and be carried eastward across King Edward street and St. Martin's-le-Grand, north of the General Post-office. It would then proceed across Noble street, Wood street, Aldermanbury, Basinghall street (north of Guildhall), and Coleman street to Moorgate street, at a spot about 250 yards north of the Bank.

Thence across Little Bell alley and Draper's buildings to London Wall at the end of Blomfield street, and then by way of London Wall and Wormwood street (the northern side of which streets would become part of the northern side of the new street) to Bishopsgate street within; thence, still proceeding eastwards, it would cross Houndsditch and Petticoat lane, and proceed to its junction with Whitechapel High street, near to Commercial street.

Immediately opposite to this termination will commence the new street projected by the Metropolitan Board of Works, from Whitechapel to the Commercial road, and the two streets would be a continuation of each other in a nearly straight line.

The total length of this new line within the city would be 2000 yards; beyond the city, 266 yards; making a total of length of 2266 yards.

The present distance by the existing line is, from the western end of Newgate street to the city boundary, 2200 yards; thence to Whitechapel road, at the end of Commercial street, 183 yards; making a total distance of 2383 yards.

The difference in length of thoroughfare from St. Sepulchre's church to Whitechapel would be, therefore, in favour of the new route by 117 yards.

The gradients would be excellent, the worst being but 1 in 57, and that but for a short length only; indeed, for all purposes of traction, the street may be considered as level.

This street would take the largest portion of the north-west and north-east traffic which now passes through the centre of the city from Newgate street to Aldgate.

It would give additional outlets to Aldersgate street, Noble street, Wood street, Aldermanbury, Basinghall street, and Coleman street, and render further widening in those streets unnecessary.

As it would ease the traffic in Noble street, Wood street, and Aldermanbury, and the adjacent streets, it would therefore relieve the whole line of Gresham street and Lothbury.

It would relieve Cheapside, and thus render any extensive improvement in that thoroughfare needless, and that which relieves Cheapside will also, in a degree, relieve Queen street, Bread street, Wood street, and all the collateral streets running north and south from that thoroughfare.

And although it would be beneficial to widen the Poultry, it would relieve that thoroughfare of a large part of its traffic.

It would convert the narrow part of London Wall and Wormwood street (which must otherwise be widened) into a broad thoroughfare, and thus, in connection with Police regulation, free Bishopsgate street within and Threadneedle street of part of the traffic which now encumbers them, and would aid in dispersing the eastern traffic which may arise, owing to the terminus of the Great Eastern and other railways being brought to Liverpool street, as it would but be 110 yards from that street, where, at a future day, there will be stations or termini of four different railways.

It would also relieve Houndsditch and Aldgate High street, by opening up a new thoroughfare between the docks and the warehouses in the neighbourhood of Houndsditch.

It would ease the traffic to and from all the railway stations lying to the north of it.

In respect of distance, therefore, the new route would be superior to the existing

one; in respect of gradient it would be as good as the present route; in respect of line it would be for all practical purposes straight; and upon the whole therefore it would be superior to the existing line from Newgate to Whitechapel, being shorter, straighter, and of greater width.

In laying out this line of thoroughfare I tried to avoid public buildings, as well as buildings of large commercial importance, but found it impossible to do so entirely.

Its formation would involve the destruction of Christ's Hospital, the Money Order office in St. Martin's-le-Grand, and several large commercial buildings, and it would cut through a large quantity of miserable property at the extreme east of the city.

CHRIST'S HOSPITAL.—Sooner or later Christ's Hospital must be removed from its present locality. It will be a matter of regret to the citizens to see an institution of which they are proud, and which has existed within the heart of the city for centuries, removed from its precincts; but, nevertheless, it is but a question of a few years, and this institution will most certainly be placed elsewhere, even if it be not removed for the formation of the projected street.

It will indeed be difficult to give reasons why it should not be removed, if public necessity requires it, for it is not like a hospital in the usual signification of that word, which is of value in a locality, because of the uses to which it can be applied upon emergencies, and it is not a day school which, for convenience of the scholars, should be within a reasonable distance of their homes. It already has a branch establishment in the country, where the younger boys are reared, and it would be almost an unmixed benefit to the other youths (carefully as they are tended in their present city home) if they were removed to a suburban site.

But if these reasons do not tell, there is one which will infallibly make its way, *viz.* the growing want of space for the commerce of the city. It is want of room for the transaction of the business of the metropolis by that great swarm of human beings (soon probably to exceed a million) which daily enter the city, which has resulted in the great fact, that the value of the ground upon which Christ's Hospital stands is now so great that its sale would not only furnish the funds to rebuild the school and its appurtenances upon some other site, but would leave a surplus towards its endowment.

With regard to the Money Order office, it can easily and usefully be added to the Post-office establishments now to be erected in Newgate street and St. Martin's-le-Grand, and its removal can involve no expenditure beyond its reconstruction elsewhere and the cost of the site.

The formation of the street will involve the appropriation of a portion of but two churchyards, and it is not to be apprehended there will be much difficulty with regard to them, for the Commissioners of City Sewers have in recent years had the entire concurrence of those interested in various city churchyards in appropriating the whole or portions of them for improving the public ways.

Portions of the churchyard of St. Andrew's and St. Sepulchre will soon also form part of the site of the Holborn Viaduct, now in course of construction (but for those churchyards the corporation has to pay). Many instances therefore now exist of the appropriation of city churchyards for public improvements, and should not the corporation meet with the disinterested cooperation of the parochial authorities for the public benefit, they would at most but have to pay for the space required as secularized vacant ground.

The districts inhabited by the poor towards the eastern part of the city would be benefited by the new street, for it would open up and improve them: the removal of the dwellings would also be a great benefit, for in many cases it would be impossible for the inhabitants to go to worse quarters. There is much misunderstanding upon this subject, and I have ventured to make a few remarks upon it at a subsequent part of this Report.

I may add, in conclusion, that circumstances in relation to changes of property may arise, which would render some trifling deviation from the line of the new street needful, and it would certainly be improved if four churches close upon the proposed line could be removed.

Minor Improvements.—I have now to suggest improvements of a secondary character, some of which will be needed under any circumstances, while others will not be necessary if the larger measures just recommended are carried out.

The selection of this class of improvements is a matter of difficulty, for of the streets which are thoroughfares for but one line of carriages, fully two-thirds should be widened so as to admit of, at least, two vehicles passing each other. And, as before observed, there is scarcely a thoroughfare in the heart of the city that does not need widening.

To recommend a general widening of every thoroughfare would of course be absurd, and I therefore select such as will afford the best measure of general improvement, and which there may be some probability of being executed.

Bouverie street should be continued southward to the Thames Embankment.

Fleet street should be widened on both sides, from Chancery lane westward; at Temple Bar a circus should be formed, in the centre of which the Bar might be allowed to remain, thus retaining that ancient entrance into the city without its being any longer a hindrance to the traffic; and here the formation of the Courts of Justice should be again referred to. In their vicinity there will undoubtedly be a large traffic, and as powers are taken to stop up the whole of the thoroughfare between Old Boswell court, Pickett street, and Chancery lane, ample provision should be made in lieu of them; indeed it is most earnestly to be desired, that the opportunity presented by the removal of the property between Chancery lane and Pickett street will not be lost sight of, but that improvements adequate to the importance of the traffic will be effected by widening both the carriage-way and footways adjacent to the new Law courts.

Last year I stated my opinion that a street leading from the Holborn Valley Viaduct, at its western end towards Blackfriars Bridge, was needed; since then the corporation has deposited plans for the formation of such a street, beginning in Farringdon street, close to Fleet street, and terminating opposite to Hatton Garden; by this street the traffic from Blackfriars Bridge will have direct access to the north-west of the metropolis, and the whole lines of Fleet street, Fetter lane, and Chancery lane will be materially relieved.

The Old Bailey should be widened on its western side, and opposite to it on the southern side of Ludgate hill, a new street in continuation of it should be made to the authorized new street leading from Blackfriars Bridge to the Mansion-house. This latter improvement is now proposed to be partially effected by the London Chatham and Dover Railway Company; but arrangements should be made by which the street should have a greater width than is contemplated by them. This street would provide a line of thoroughfare from Blackfriars Bridge to Smithfield and the northern parts of the city, and would relieve Ludgate hill of some of its traffic.

Should this not be carried out, a new street, beginning in Farringdon street, near to Ludgate street, and terminating at the northern end of the Old Bailey, might be formed with advantage in lieu of Fleet lane, but the gradients could not be so good as are desirable. The formation of this line of street has already been under the consideration of the Improvement Committee.

St. Paul's Churchyard.—The property facing St. Paul's Churchyard, on both sides of St. Paul's school, should be set back to an improved line of frontage.

The railing should be removed from around St. Paul's Cathedral, and the carriage-ways widened; the carriage traffic might then be allowed to pass on its northern as well as the southern side. A plan for this improvement was prepared by me and laid before the Commissioners of City Sewers in 1850, and is now again under their consideration.

How much earlier than the year 1770 it was considered desirable, I do not know; but in that year an Act was passed, giving certain powers to the Commissioners of Sewers of the City of London, and among its clauses is one which states that "whereas it would be a great accommodation to the public, without any "diminution of the beauty of the cathedral church of St. Paul, if the ground in "the west front were laid into the street, it shall be lawful for the said Commis-"sioners to treat and agree for the same." Now if this was deemed a necessity at that time, how much greater is the necessity now?

Indeed, it seems remarkable that any portion of the railing around the cathedral should be allowed to remain; much of the space inclosed on every side is now needed for the traffic, and few can entertain a doubt as to the increase in architectural grandeur to the cathedral by its removal. Not a single sustainable reason can be adduced in favour of its retention, nor one against its removal; and although it is not improbable that the sites of some of the churches and churchyards in the city may be sold for commercial purposes, and be built upon, yet there is not the remotest probability that an inch of ground around St. Paul's cathedral can ever be disposed of for such purposes, or that the smallest edifice will be raised between the cathedral and the present line of railings which now impede the traffic and obscure the architectural effect of this great national monument.

The houses standing at the end of Paternoster row, looking eastwards along Cheapside, should be removed so as to admit of a straight thoroughfare across from St. Martin's-le-Grand to St. Paul's Churchyard. This, with the improvements last named, would give a good line of thoroughfare from Aldersgate street to the western end of Cannon street.

The railings of the Post-office in St. Ann's lane and Foster lane should be set back, so as to widen and improve those thoroughfares respectively, and ease the outlet of Gresham-street West.

Among other improvements which are much needed are—

The widening of the north end of Queen street, from Cannon street to Cheapside, for the reasons given in a previous page.

The widening to 60 feet of the whole line of Long lane, Barbican, and Beech street within the city, and Chiswell street without the city.

The widening of Duke street, Smithfield, as an approach to the New Meat Market.

The widening of Jewin street in two places, and taking off that corner of it which is nearest to the church of St. Giles, Cripplegate.

The widening of Moor lane, and opening a communication for vehicles northward into Type street, although desirable, would not of itself be of great advantage to the city; but there is a plan now before the Metropolitan Board of Works by which it is proposed to make certain alterations in existing streets northwards of the city, so as to form a line of carriage-way from a point near the old church, Islington, to the end of Type street; and this, in conjunction with the widening of Moor lane, would give a new and shorter route to Islington than by the line of Finsbury Pavement and the City road, and would be a very good improvement.

If, as before said, in addition to this, Basinghall street and Ironmonger lane were widened, it would form a direct line of road from Islington to the Elephant and Castle by Southwark Bridge, and this would ease the traffic in Moorgate street and Princes street, King William street and London Bridge, and perhaps might be said to constitute an important metropolitan improvement.

I do not place this improvement upon a par with some of the more important ones here proposed, but in view of the increasing population and traffic both north and south of the Thames, it is important to utilize to the fullest extent every means of crossing the river, and such a direct through route as is here laid down could not fail to be of much utility.

The completion of the widening of Gresham street on its northern side between Basinghall street and Lothbury, and the portion opposite to the church of St.

Lawrence Jewry. These two improvements would very much facilitate the traffic of Gresham street, which is now much impeded.

The widening of the northern end of Aldersgate street at its junction with Barbican.

The widening of Bishopsgate street, from Sun street up to Norton Folgate.

The opening of the western end of New Broad street into Blomfield street for carriage traffic.

The formation of a new street for carriage traffic through the churchyard of St. Botolph Bishopsgate, as a communication between Bishopsgate street and New Broad street.

The widening of Middlesex street and its continuation into Bishopsgate street, terminating opposite Sun street. This would give a very valuable line of street for the large amount of traffic going in the direction of Finsbury which now uses Houndsditch.

The widening of the Poultry on its northern side, that being the proper side to take down, both pecuniarily and for the purposes of traffic, and also in an architectural point of view.

The widening of Wormwood street and the eastern end of London Wall, which thoroughfares are now oppressed with traffic; this will however be effected if the new east and west line of street suggested through the city be made, as they will, in fact, then form part of that street.

The widening of Walbrook on the western side. This would provide a good and direct thoroughfare between the railway station in Cannon street and the Bank, in place of a narrow street which now exists, and which is always choked with traffic.

Small and economical, but very useful improvements may also be effected by widening portions only of thoroughfares which now admit of but one line of vehicles so as to enable two carriages to pass at certain points of them, as—

By forming a lay-bye on the site of the churchyard in Abchurch lane.

By forming a lay-bye on the site of the churchyard in Laurence-Pountney lane, and opening a carriage-way into Laurence-Pountney hill.

By forming a lay-bye in Botolph lane, and connecting George lane with Botolph lane by a line of carriage-way.

By forming a lay-bye on part of the churchyard of Nicholas lane.

By forming a lay-bye in London Wall on the site of the churchyard of St. Alphage.

By forming a lay-bye in Ironmonger lane upon part of the churchyard of St. Olave Jewry; but this would not be necessary if the widening of Ironmonger lane was made.

By opening a carriage communication between Bevis Marks and Duke street.

That class of improvements remains to be noticed which consists in the rectification of the lines of frontage in streets and places where larger improvements are not contemplated, or are not necessary. Many improvements of this class have already been effected by the Commissioners of City Sewers, but the application of the principle should be largely extended.

There is scarcely a street in the city which is not very irregular in its line of frontage; in most of them, also, there are frequent projections beyond the general line which are more or less obstructive to the traffic, and detrimental to the architectural effect.

It is indeed painful to reflect how much has been lost to the public for the want of some such course; take Lombard street, for example: in that thoroughfare, within the last fifteen years, numerous buildings have been erected which, from their magnitude, their costliness, and architectural merits, would do credit to any city in the world, and yet there is scarcely one so placed in relation to its neighbouring structures, that it either does not mar their effect, or is not itself injured by them. I by no means desire the perfect uniformity of alignment or of façade, which seems the present aim in most continental cities, but had a few of the most

salient projections been removed, a few angles rounded or canted off, and a few curves modified, all of which might have been done with the loss to the owners of but very little ground, the general traffic would have been eased, the locality specially benefited, and the street would have presented an architectural beauty, equal to many of the most lauded streets in Europe.

The Commissioners of City Sewers are, at the eastern end of this street, carrying out such a line, and I think that when complete it will, by contrast with other parts of the street, show most forcibly the correctness of this opinion.

Cannon street is another illustration: it is a good thoroughfare, and on its line are many fine buildings, but the irregularity of the line of frontage on the northern side, and the contraction of both outlets, diminishes the convenience of the traffic, and destroys its architectural effect; and the same may be said, in a degree, of almost every main line in the city, and indeed in the whole of the metropolis.

To remedy this in future, as far as is now practicable, plans to a large scale should at once be made of all the city streets. Lines of improvement should then be laid down upon them, and whenever a building is removed the new line only should be built up to.

This system should be adhered to strictly, and the plans be worked to without deviation. By such means, in the course of twenty years, with the large changes which during that period must take place in city property, a very appreciable improvement might be effected at a comparatively small cost. But to be effectual, I repeat, it must be carried out unhesitatingly.

INCIDENTAL CONSIDERATIONS.

1. The Obstacles to Improvements.
2. Improvements effected by Private Enterprise.
3. Injury to those dispossessed of their Property.
4. The Demolition of poorer Dwellings.
5. The Steam-boat Traffic.
6. Bridges and Subways.
7. Police Regulations.

THERE are subjects incidental to a consideration of the improvements needed in the city and the metropolis, upon which it may be desirable to make a few remarks.

THE OBSTACLES TO IMPROVEMENTS.

The formation of a new line of street is frequently opposed by those owning property or carrying on business in the existing main lines, upon the supposition that the diversion of the traffic will be injurious to their interests.

Should this even be the case, it must be observed that no individual has a right in the public traffic; and moreover, when the traffic reaches such an extent as to create public inconvenience and loss, diversion is inevitable, and is generally foreseen and calculated upon many years before it takes place.

In the majority of cases, however, no fear need be entertained of injurious consequences, for it is rarely any street improvement is carried out in London until

business is actually suffering for want of relief for the traffic; and at the present time the impeded condition of the main lines of city street is undoubtedly a hindrance and impediment to the business within them, and the diversion of some of the traffic would therefore be a benefit to all, for every facility of intercourse with the city which is afforded to the metropolitan population tends to increase the traffic; and the actual business in the streets so relieved, in all probability, will be greater after the relief than it is at the present time.

When new lines of streets in the metropolis are planned, it has frequently happened that they are spoiled at some point by obstacles which should not be allowed to interfere with them; the impediments are usually the existence, upon the proposed lines, of public buildings, or the estates of great public bodies, or men of great parliamentary influence, or they are the result of some small economy, practised in the midst of a large expenditure.

Such influences, it is believed, brought the northern end of Regent street to its ugly junction with Portland place, nearly spoiled the line of the Thames Embankment at its western end, and has hitherto prevented the formation of the very best, and indeed the only fitting line of access from Trafalgar square to that noble thoroughfare—will leave in the middle of the new street from Blackfriars Bridge to the Mansion-house, which is to be 70 feet in width, a length of 170 feet, with a width of but 50 feet—and proposed to leave the same line of thoroughfare pinched to a width of 48 feet near to the Mansion-house.

In the city the chief obstacles formerly were the churches which, being numerous, were in the way of every line of street which was projected. In some cases they were removed, as for the formation of London Bridge and its approaches, and the streets in the vicinity of the Bank of England, and the result was that most satisfactory lines of thoroughfare were formed. But where they are allowed to remain, and the streets were planned so as to avoid touching them, the thoroughfares have been utterly spoiled, of which an example is Gresham street.

The churches are still almost as numerous as ever, and it is all but impossible to plan a new street, or to improve an existing one so as to avoid them. But for large and important improvements there would be perhaps less difficulty in effecting their removal than formerly was the case, for it has been shown that the residential population is decreasing, and the congregations in most of them are exceedingly small, and many churches could well be dispensed with. New lines of thoroughfare in the city therefore should not be injured in plan, because of the existence of churches upon the line which they ought to take.

In laying down the line of the new east and west street suggested, I have nevertheless carefully avoided churches, so as to obviate objections being raised to it on this ground, but may repeat it would be advantageous if four churches adjacent to the line were removed.

Improvements Effected by Private Enterprize.

The formation and maintenance of the streets and highways in the towns of England is entrusted to the local governing bodies; in one or two instances only have their formation been effected by a department of the government, and the funds for the improvements are always raised either from special dues, or by local taxation.

In a few cases recently this custom has been departed from, and parliament has sanctioned the formation of streets and roads by private companies. In other instances where similar powers have been sought, the opposition of local bodies has been mainly instrumental in preventing them from obtaining parliamentary sanction.

So long as the local governing bodies provide and maintain thoroughfares sufficient for the public necessities, no reasonable grounds can be given for allowing their function to be in any degree interfered with. If, on the contrary, the

thoroughfares of a town are insufficient, and it is found impossible or thought inexpedient to raise the funds necessary for their improvement, it is difficult to give a valid reason against the same form of enterprize being allowed to do the work, which has at its own risk, and subject to general as well as special legislation, laid out the iron roads of the country, and constructed many of its most important bridges.

All that appears to be requisite is that the object of the promoters of such enterprises should be well defined, and such as can be clearly shown to be beneficial to the public; and then, if companies can be found, who are willing to undertake them, giving guarantees both of the honesty of their intention, and their capacity to carry out what they undertake, and subject to the reasonable control of the local authorities, it may be difficult to find sustainable objections to their undertaking such works.

It might, indeed, sometimes even be a convenient and economical course if the local governing bodies were to agree to aid the promoters of plans for public improvements by monies out of the public rates; nor would there generally be difficulty in so regulating such grants, that the ratepayers and the public would be gainers.

Private companies have been allowed to undertake works of local improvement with or without subvention, at Paris, Brussels, Milan, Florence, and other places, and it is said beneficially, as far as the public is concerned; and it certainly is desirable in London, where the want of improvement is so much felt and the difficulty of finding the funds so great, that this subject should have the fullest and most liberal consideration.

It is not however to be anticipated that, under the present system, and having regard to the great compensations so frequently awarded by juries, any very extensive or important public improvement will be at present derived from private enterprize.

Injury to those Dispossessed of their Property.

It is not unfrequently said that great hardship is inflicted on those who are removed from their premises for public improvements. Now there is no doubt that there are, and must be, individual cases of loss and hardship to the owners and inhabitants turned out; but, on the other hand, it is well known that the eviction frequently becomes the means of handsome remuneration to others.

It frequently happens that when property is scheduled, vendors will only part with it at augmented prices, that auctioneers advertize the fact of its being scheduled in their bills of sale, apparently with the view of enhancing its market value, and it not unfrequently occurs that property is leased and sublet in a way and at rentals surprising to those acquainted with its value previously; and taking it altogether, that the largest number of people who are deprived of their property are by no means to be so much pitied.

That they are to be pitied appears, however, to be a feeling which has taken possession of the public mind, and to this must largely be attributed the great compensations so frequently awarded to claimants by juries and others; the result of this already is that the cost of public improvements has been greatly increased, and it will tend seriously to retard them in the metropolis, unless the ratepayers are much more heavily taxed for them than they have been hitherto.

Removal of Poor Dwellings.

There is considerable misapprehension as to the results of the demolition of the houses of the poor which has taken place of late years in London.

The property pulled down in most cases consisted of tenements situated in courts, alleys, and *cul-de-sacs* of the narrowest description, admitting the least

quantity of light and air compatible with the existence of human beings. The dwellings were for the most part old and filthy, and with no adequate space for those constructions necessary for health and decency; they were in many cases dilapidated and all but worn out, had in brief every structural defect, and were radically unfitted for human dwellings.

It has been feared that by their removal greater overcrowding has taken place in other districts. This is an error, for although it may be true that the dwellings in them are now more crowded than formerly, still it is impossible that they can be more so than were the houses which have been demolished; for, generally speaking, there was in the older and poorer dwellings a lodger or family resident in each room, and in the houses to which they have removed there may be the same density of occupation, but no more, as the sanitary laws and the supervision of the local authorities would prevent overcrowding if it were attempted.

The conditions of the newer dwellings are, however, widely different; for the most part they are in streets or places three and four times the width of the courts and alleys destroyed, and are therefore lighter; they almost invariably have windows back and front, the rooms are higher, and they are therefore better ventilated; the houses are newer and better drained, they mostly have yards or open spaces in the rear, in which the water-closets are built, and where cisterns for the storage of water can be placed without chance of contamination, if moderate care be bestowed upon them; thus, even if the tenements, room by room and house by house, are as full as the older tenements, yet, acre by acre, the density of the population must be less, and upon the whole the physical conditions of the dwellings are infinitely superior to those destroyed.

Perhaps some trifling increase in rent has to be given for these newer tenements, but that is a matter which cannot be helped, nor, looking at the improved conditions of a working man's existence at the present day, is it much to be deplored. And taking it as a whole, I believe no greater benefit has been bestowed upon the community than the destruction of the great mass of miserable tenements in which the poor congregated in the heart of the metropolis, and it will be almost an unmixed benefit if all of the same class that remain are destroyed likewise.

River Steam-boat Traffic.

Considering the advantages which the river route between the east and west of the metropolis has in attractiveness, and might possess in respect of celerity of transit and convenience, it is surprising that no successful effort has yet been made so to organize the steam-boat traffic as to obtain from it the full measure of benefit which it is capable of affording.

Improvements have certainly been made of late years in the steam-boat piers, yet there is still scarcely one with a commodious, comfortable waiting-room, nor have arrangements been made to ensure the minimum loss of time at them, neither are they sufficiently public, nor is there, in many cases, good access to them for either vehicles or pedestrians.

The boats also are not of the handsome, cleanly, and convenient kind, which should be made compulsory, and which would render them attractive to passengers, as well as more remunerative to their proprietors than they ever yet have been, or are likely to be, in their present condition.

There is no reason why the steam-boats might not be replete with every convenience, and if proper approaches for vehicles were made to the piers, they would unfailingly induce a vast number of passengers to use them who at present never think of doing so; and this will be more the case as the population thickens westward up the valley of the Thames, and the distance between the homes of the people and the city increases. It must be recollected that in all probability nothing will ever compete with steam-boat locomotion in respect of cheapness, and therefore the governing authorities should try in every way to make the Thames a highway of greater value to the public than it now is.

Indeed, looking at the rapid extension of the population westward, the immediate embankment of the Thames far westward, would ultimately be found one of the best and most economical metropolitan improvements, as it would not only be made to afford a splendid line of road on either side, but it would, under proper arrangements, facilitate the usage of the river itself, and largely increase the convenience and means of transit between the city and the western parts of London.

Bridges and Subways across Public Thoroughfares.

Amongst the remedies suggested to palliate the inconvenience resulting from a large traffic, are the construction of bridges above and subways below the streets. These have been suggested publicly at least every three months during the last ten years, and a few remarks explanatory of the conditions attending their construction and usage, which appear to be but little understood, may not be out of place here.

Bridges over Streets.

There must be a clear height of eighteen feet above the entire width of the carriage-way.

Their width would depend upon the traffic expected to pass over them, but ten feet would probably be the least that should be given to them, for their construction could scarcely be justified unless they were expected to be largely used.

They should be strong enough to sustain great weights and unequal loading, for they will be subject to be densely and unequally loaded.

As sightseers and idle people would congregate upon them, they would require a policeman to be constantly present to ensure circulation and order.

As the construction of inclines, to arrive at the level of the bridge, would be an impossibility in the city, and indeed in most other places where they would be likely to be useful, access to them must be hadby staircases; and as the bridge surface would be nineteen feet above the level of the pavement, thirty-eight steps would have to be ascended and the same number descended by those using them.

Circular staircases would take the least room, but would occupy ground in the most inconvenient manner; moreover they are unfitted for public traffic, inasmuch as the treads next to the newel being narrow, accidents would inevitably result.

Staircases on a different plan would occupy still larger space, which in the city can neither be spared from the footways or carriage-ways; and even if they could be built in the public ways they wonld be a nuisance, and specially so to the inhabitants in their immediate vicinity, who would suffer pecuniary loss from them.

Therefore it would be needful to acquire sites by taking houses upon either side of the street, and forming the staircases within them up to the level of the bridges; ample room could be obtained by this mode, but at the crossings where they would be most useful: the property in the city is of a most valuable nature, and the cost of the bridges would therefore be exceedingly great.

Lastly, although these bridges need not disfigure the thoroughfares of the metropolis, like the hideous railway structures which in some places span them, it may be said that no bridge, however handsome, over a public-way is desirable.

Subways beneath Streets.

Making allowance for the pavements, gas-pipes, and the covering of the subways, a depth of about 5 feet 6 inches must, in the main streets, be allowed to the soffit of the covering; to this eight feet should, at the very least, be added for the height, making the floor of subway 13 feet 6 inches below the level of the street. This depth would, in the majority of cases, cut the sewers in two; and although

this might generally be obviated by their reconstruction, it could only be at a large cost, and by much public inconvenience.

This depth would involve a descent and ascent of twenty-seven steps by those using them.

The difficulty of finding room for staircases is the same as for the bridge, but the cost would not be quite so great, and the subways would not be a nuisance to the inhabitants immediately adjacent.

They might be ventilated, but in all cases they must be lighted by gas, and a policeman must always be present, or nuisance might be committed in them, and they might become a lurking place for thieves.

Upon occasions of rain the police would with difficulty be able to prevent their being used as places of shelter, and they would be filled with people. It is difficult to say how this could be prevented, except by closing them upon such occasions.

Bridges would be readily found by strangers, but they would be under the disadvantage of being more difficult to use on account of the greater number of steps. Subways, on the other hand, especially if made but eight feet in height, would not be inviting thoroughfares, but old or infirm people would undoubtedly prefer them to the bridges, and upon the whole subways would afford the public the convenience of crossing safely, with less objection than bridges.

But the questions arise—Are they necessary? Will they be much used if constructed? and will they lessen the number of accidents? A few observations will aid in coming to a conclusion on these points.

From a return made by the City Police for the year ending 30th September, 1862, there were 171 accidents in the city by people being run over. On an analysis of the return, it appeared that 5 died from injuries received, 54 were severely injured, 93 were slightly injured, 13 were not injured, and 6 were cases in which injury was not reported.

It also appeared that 52·05 *per cent.* of the whole number, or more than half, occurred to children, or to adults between the ages of thirty and forty.

The greatest number of accidents occurred in the streets of the greatest traffic, comprizing some of the widest, thus:

King William street had	14	or	8·19	*per cent.*	of the whole.
London Bridge - -	13	or	7·60	„	„
Holborn hill and Bridge	23	or	13·45	„	„
Bishopsgate street within and without - -	16	or	9·36	„	„
Ludgate hill - -	7	or	4·09	„	„
Fleet street - - -	6	or	3·50	„	„

Which gives 79 or 46·19 *per cent.* of the whole number as occuring in those seven thoroughfares.

From a calculation based upon the observations of the crossing traffic at important points, I found that an accident occurred to one person in about every six or seven millions of persons crossing; the danger therefore at those crossings is not great, but they are the very spots at which subways would seem to be specially desirable, if anywhere.

It is probable, however, that accidents of a trifling nature occur annually, which escape the observations of the police; that there is risk, great inconvenience, and nervous anxiety to many there can be no doubt, but whether subways or bridges would remedy this in an apppreciable degree is a question.

Now one of the land arches of London Bridge spans Thames street, and on either side of King William street, at that spot, are broad, well-lighted flights of steps connecting the upper with the lower level; persons desirous of crossing King William street, and avoiding the chance of accident, have only therefore to descend the steps on one side, cross beneath the bridge, and ascend the other steps. This thoroughfare has been formed for forty years, must be extensively known, and, for the purpose of this consideration, it may be considered as a subway.

For nine hours on one day the number of those who used the steps for this purpose, as well as those who crossed over the carriage-way, within a short distance of the steps, disregarding the risk they incurred, were counted, and it was found that 67 availed themselves of the steps, whilst 3382 crossed over the carriage-way of King William street.

This may not be conclusive, for the spot is somewhat peculiar, but it goes far towards corroborating my opinion that subways would be but little used, especially as the greatest number of accidents occur to adults in the vigour of life, and children, neither of those classes being likely to consider very closely the risks incidental to crossing streets.

The old, the infirm, the cautious, and a few others might use them, and avoid the risk which others incur; but it is by no means certain that infirm or aged people would use them largely, for there is nothing more objectionable to that class than staircases, and thousands of them would risk crossing the carriage-ways, waiting for a favourable opportunity for doing so, rather than face the staircases of either bridges or subways; besides, the steps of bridges or subways would fully one half of the year be neither quite dry nor quite clean, and it is far from improbable that as many accidents would occur from slipping and falling down the staircases as now occur by crossing the carriage-ways.

Nevertheless, if a convenient spot can be found where a large expense for the formation of staircases has not to be incurred, and where the crossing traffic is large, it may be expedient to give subways a trial; but my belief is that their value, tested by the number of people using them, would be very small indeed.

The best mode of relieving the traffic from the difficulty of crossing is to erect halting or resting places in the middle of the carriage-ways. This has already been done to a very large extent in the city, and in recent years in many other parts of the metropolis.

Police Regulations in respect of Traffic.

In all the large capitals of Europe there are regulations for the guidance of traffic. In our own country they have hitherto been but slight, and it may be said that when strict police regulations are needed here, and the free selection of route is denied to the traffic, it is in itself a proof that the thoroughfares are inadequate, and that loss is thereby accruing to the community.

It usually also implies a condition of traffic which is eminently destructive to the pavements, and therefore expensive; it involves the more frequent relaying and stopping up of the streets, andthus periodically increases the public inconvenience, and it moreover hinders effective surface cleansing.

The enforcement of police regulations is always difficult, as it is resented by the public, and requires also the special attention of a police force, and is therefore expensive. This is particularly the case in the City of London, where a large number of police are so employed; indeed, it was until recently the only place in the metropolis where the police paid much attention to the traffic, excepting on special occasions.

Thus inadequate thoroughfares are not only inconvenient, but are expensive to the public, lead to police regulations which impede the free and natural course of the traffic and business of a community, and are repugnant to the spirit of the age.

Evidence may at the present time be adduced in support of these views by reference to the Traffic Bill now before the Houses of Parliament. By it the hours during which coals can be delivered are to be much restricted, and it is computed, by one who has unusual opportunity of forming a sound opinion on the subject, that it will result in the price of coals being increased to the consumer as much as 2*s*. 6*d*. *per* ton, involving a total loss to the metropolitan inhabitants of between 400,000*l*. and 500,000*l*. annually.

Now this is more than double the proceeds from the Metropolitan Coal Tax, and it would evidently be better for the metropolis to submit to be taxed addi-

tionally, to improve its thoroughfares, and thus render a Traffic Bill needless, than lose the same amount annually by submitting to an obnoxious police interference.

It may be anticipated, however, that police regulations of wider scope than those now enforced will be exercised in the metropolis; but it nevertheless is wisdom to make such improvements in the streets as shall diminish, as far as possible, the necessity for police interference.

SUMMARY OF GENERAL CONCLUSIONS.

I HAVE now endeavoured to set before you the following points bearing upon the subject of the improvements needed in the thoroughfares of the City of London:

1. That the metropolitan population, in 1865, was about 3,000,000, and in forty years from that date will be doubled, or 6,000,000.

2. That the residential or sleeping population of the city was, in 1861, 113,387, and is likely to diminish; but that the day population, composed of those to whom the city is the place of daily or frequent resort, and which is upwards of three-quarters of a million, in addition to its sleeping population, is, for the purpose of this consideration, the true population of the City of London.

3. That the traffic of the city has for many years been increasing in a greater ratio than the increase of the metropolitan population.

4. That in 1848 a traffic, equal in numbers to one-seventh of the whole metropolitan population, entered the city during nine of the busiest hours of the day.

5. That in 1860 a traffic, equal in numbers to nearly one-fifth of the whole metropolitan population, entered the city during twelve of the busiest hours of the day; and that a traffic, equal in numbers to one-fourth of the whole metropolitan population, entered during the twenty-four hours.

6. That the portion of the traffic which enters the city daily, and which is chiefly composed of males, is equal in numbers to nearly one-half of the whole male population of the metropolis.

7. That the traffic now entering the city daily approaches three-quarters of a million, and in forty years hence will probably be a million and a half of human beings.

8. That the bulk of the metropolitan population selects its residences with the view to the facility with which the city can be reached; that it is they who constitute mainly the city traffic; that it is for their convenience chiefly that improvement in the thoroughfares of the city is needed, and not for the residential or sleeping population.

9. That the population needs now, and hereafter will still more need, improved means of transit to the city, and that these should be provided by a well-arranged system of suburban highways and railways, which ought to be considered and determined without delay.

10. That within the city there is hardly a leading thoroughfare which is equal to the traffic that passes through it, and that many subsidiary streets are inconveniently crowded with their own special traffic.

11. That the only remedies for the congested condition of the traffic of the city

thoroughfares are the formation of new thoroughfares, and the widening of those now existing.

12. That the most prominent difficulty of the traffic is the incapacity of London Bridge, with its approaches on both sides, and that this can only be remedied by the construction of a new bridge, with good approaches east of London Bridge.

13. That the second great difficulty of the traffic is the incapacity of the main thoroughfares running east and west, near to the Bank, and that this can only be remedied by the formation of a new thoroughfare traversing the city north of, yet contiguous to, the Bank.

14. That general improvement is, moreover, needed in many of the city thoroughfares, and especially in those in respect of which recommendations are herein made.

15. That plans to a large scale of the streets in which improvements are desirable should be prepared, that lines of improvement be laid down thereon, and to those lines all premises should be set back when opportunities present themselves.

16. That improved approaches to the steam-boat piers should be afforded, and increased facilities given, with the view of utilizing the Thames as a highway.

17. That the necessities of the city in respect of improvements are greater than in other parts of the metropolis; that the whole metropolis is interested in those improvements being carried out; and that the city therefore has prior claims to any other parts of the metropolis in respect of the funds raised for public improvements.

18. That looking to the future as well as to the present necessities, and having regard to the probability of the cost of present improvements being in a degree imposed upon a future generation, they should be planned and carried out upon the broadest and most comprehensive scale, and that such a course is the most economical one.

19. That subways and bridges for street crossings would, where most needed, be very costly, would be but little used, and would but little, if any, diminish the number of accidents which take place.

20. That more stringent police regulations with regard to the traffic are needful.

CONCLUDING REMARKS.

In the preceding recommendations I have either confined myself exclusively to the thoroughfares within the city, or suggested only such improvements beyond its limits, as appeared necessary for the relief of its immediate traffic.

But it should be recollected that the whole of the main highways leading to the commercial centre have now, for a distance of two or three miles from it, a very large traffic, and that exigencies in respect of them likewise must soon arise; the improvement of those lines of thoroughfare, or the formation of others leading to the centre of the metropolis, as well as of those subsidiary lines by which the fast-growing suburbs are to communicate with each other, should no longer be left to the chance arrangements, or the caprice of individual landlords, but should be the subject of the earliest consideration of the local governing bodies in the metropolis.

All such considerations have been omitted from this Report, as it was not necessarily my duty to advise upon them here, and also because whatever may be the present and the future wants of the suburbs, the city thoroughfares and the direct approaches to the city are, by reason of their present condition, and by the supreme interest which the whole metropolis has in them, entitled to the earliest attention, and the first expenditure.

I have endeavoured to suggest improvements commensurate not only with the present wants, but also with the necessities of the future population; for to plan and execute half measures, or such as are merely palliatives, the results of which may, perhaps, scarcely be felt a dozen years hence, would not be sufficient, nor would it be just to those who may hereafter have to contribute towards their cost, —to it has been the recent custom, and one which no doubt will be adhered to in future,—to impose a portion of the expense of present improvements on the future generation. I therefore have suggested improvements of a comprehensive character, and in two cases, such as undoubtedly will go far to meet the requirements of a greatly augmented population, and specially in the interest of the future population, these larger improvements should be carried out at once, for, owing to the conditions of property upon their line, their execution will perhaps cost in fifteen or twenty years hence double what they now would cost, whatever that outlay might be.

And in conclusion, I repeat that which cannot be too fully impressed upon you, *viz.*, that the population of the metropolis doubles itself in forty years, and that the traffic towards the city appears to increase in a still greater ratio, and again state my belief that, large as some of the improvements herein suggested may seem to be, they will be scarcely adequate to the public necessities by the time the metropolitan population is doubled.

I have the honor to remain, gentlemen,

Your most obedient servant.

WILLIAM HAYWOOD.

APPENDIX A.

Table showing Area, Population, and the Number of Persons to the Square Mile in certain Metropolitan Districts, in the year 1851.

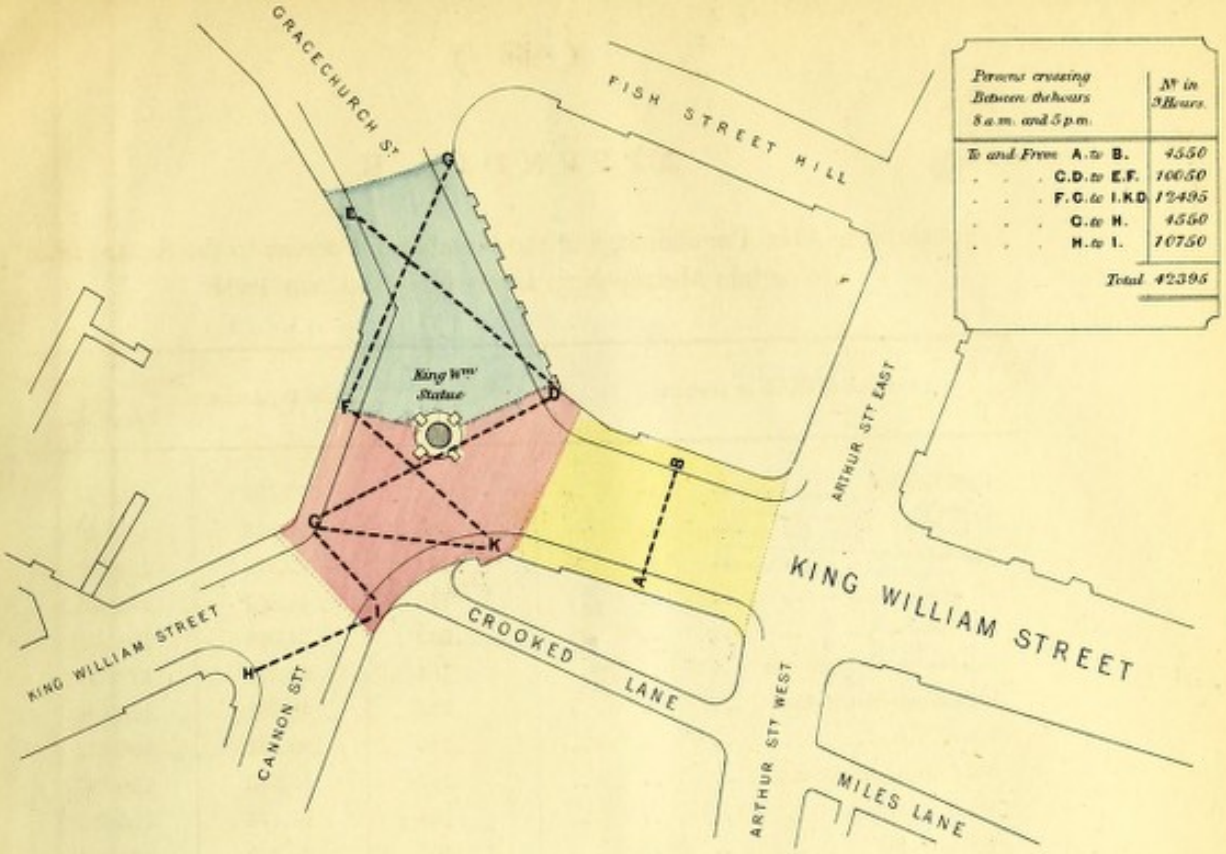
Name of Parish or District.	Superficial Area in Acres.	Total Population.	Number of Persons to the Square Mile.
East London	153	44,406	185,751
Strand	174	44,460	163,531
St. Luke	220	54,055	157,251
Holborn	196	46,621	152,232
St. James, Westminster	164	36,406	142,072
St. Giles	245	54,214	141,620
West London	136	28,790	135,482
St. George-in-the-East	243	48,376	127,410
Whitechapel	406	79,759	125,728
St. George, Southwark	282	51,824	117,615
Clerkenwell	380	64,778	109,100
Shoreditch	646	109,257	108,242
St. Saviour, Southwark	250	35,731	91,471
London, City	434	55,932	82,480
Bethnal Green	760	90,193	75,952
St. Olave, Southwark	169	19,375	73,373
Marylebone	1,509	157,696	66,882
Newington	624	64,816	66,478
Stepney	1,257	110,775	56,401
St. Martin-in-the-Fields	305	24,640	51,704
Westminster	917	65,609	45,790
Bermondsey	688	48,128	44,770
Chelsea	865	56,538	41,832
St. George, Hanover Square	1,161	73,230	40,368
Pancras	2,716	166,956	39,342
Lambeth	4,015	139,325	22,209
Islington	3,127	95,329	19,511
Rotherhithe	886	17,805	12,861
Greenwich	5,367	99,365	11,849
Kensington	7,374	120,004	10,415
Poplar	2,918	47,162	10,344
Hackney	3,929	58,429	2,518
Camberwell	4,342	54,667	8,058
Hampstead	2,252	11,986	3,406
Wandsworth	11,695	50,764	2,778
Lewisham	17,224	34,835	1,294

APPENDIX B.

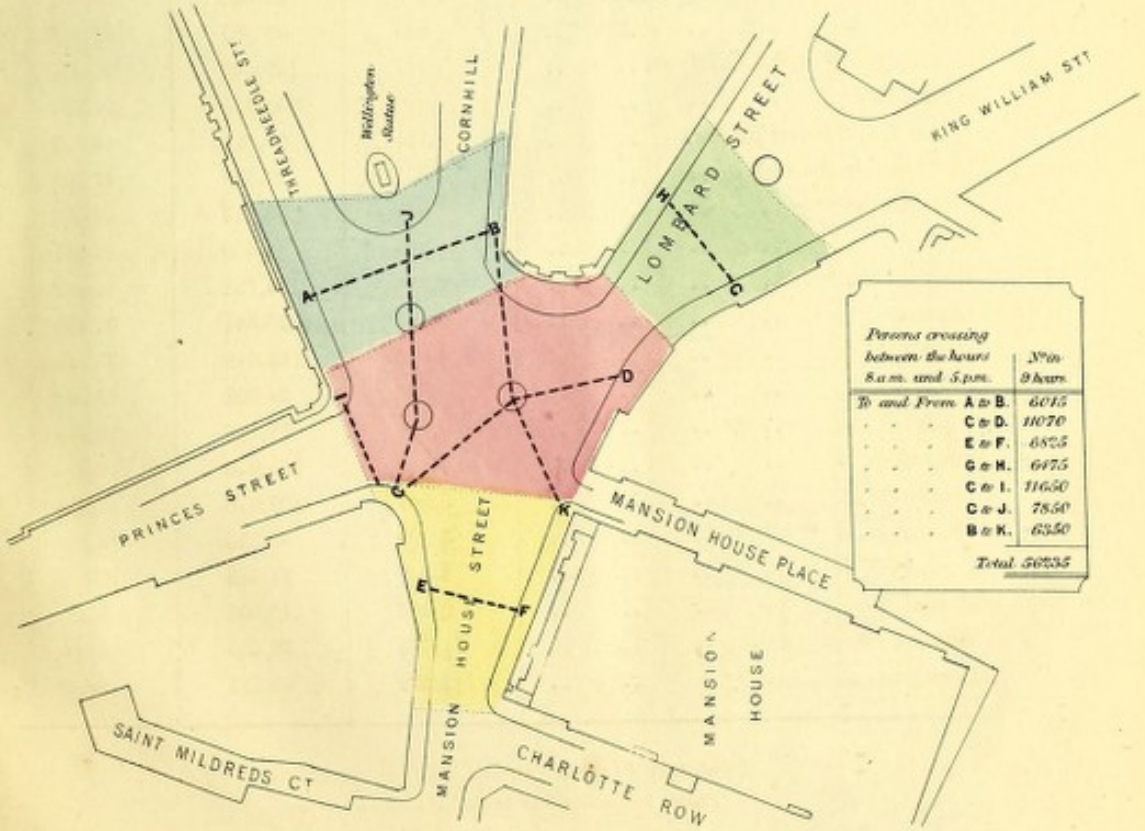
Table showing Area, Population, and the Number of Persons to the Square Mile in certain Metropolitan Districts, in the year 1861.

Name of Parish or District.	Superficial Area in Acres.	Total Population.	Number of Persons to the Square Mile.
East London	153	40,687	170,194
St. Luke	220	57,073	166,030
Strand	172	42,979	159,921
Holborn	196	44,862	146,488
St. Giles	245	54,076	141,259
St. James, Westminster	164	35,326	137,857
St. George-in-the-East	243	48,891	128,766
Shoreditch	646	129,364	128,162
St. George, Southwark	282	55,510	125,980
West London	138	27,145	125,889
Whitechapel	406	78,970	124,484
Clerkenwell	380	65,681	110,620
St. Saviour, Southwark	250	36,170	92,595
Bethnal Green	760	105,101	88,506
Newington	624	82,220	84,328
St. Olave, Southwark	169	19,056	72,164
Marylebone	1,509	161,680	68,572
London, City	434	45,555	67,177
Stepney and Mile-End Old Town	1,257	129,636	66,004
Bermondsey	688	58,355	54,283
St. George, Hanover Square	1,161	87,771	48,383
St. Martin-in-the-Fields	305	22,689	47,609
Westminster	917	68,213	47,607
Chelsea	865	63,439	46,937
Pancras	2,716	198,788	46,842
Islington	3,127	155,341	31,793
Lambeth	4,015	162,044	25,830
Rotherhithe	886	24,502	17,698
Poplar	2,918	79,196	17,369
Kensington	7,342	185,950	16,209
Greenwich	5,367	127,670	15,224
Hackney	3,929	83,295	13,568
Camberwell	4,342	71,488	10,537
Hampstead	2,252	19,106	5,429
Wandsworth	11,695	70,403	3,852
Lewisham	17,224	65,757	2,443

Printed by Arthur Taylor, 39, Coleman Street,
Printer to the Honourable City of London. 1869.

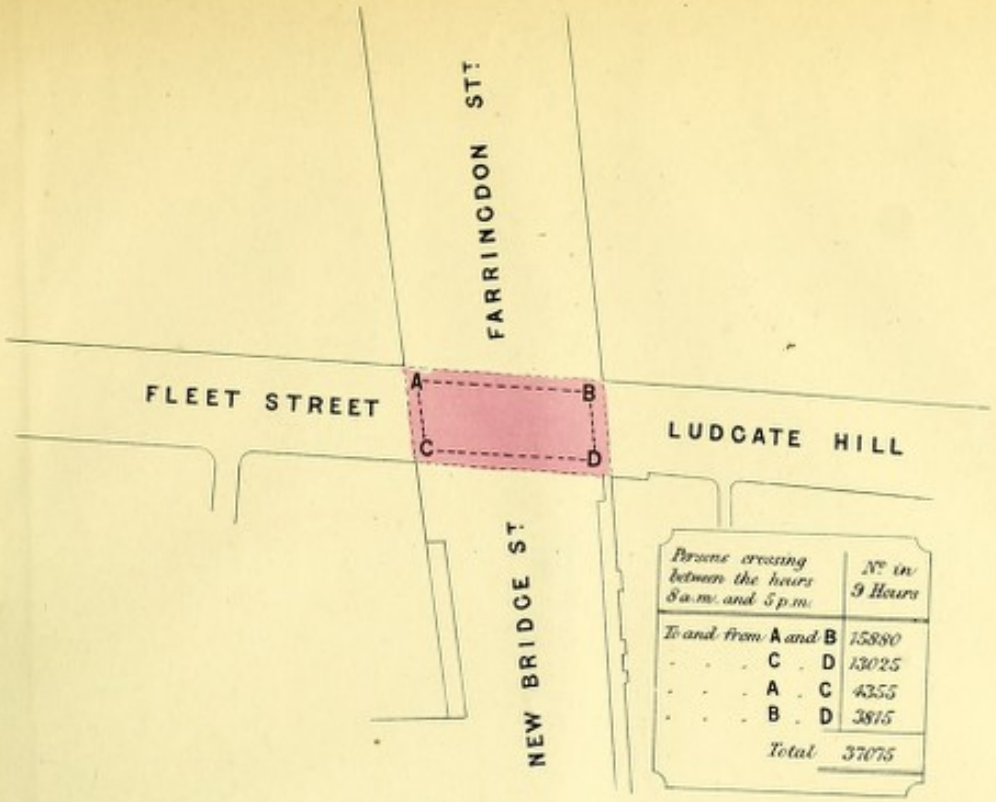


Persons crossing Between the hours 8 a.m. and 5 p.m.	Nº in 9 Hours.
To and From A. & B.	4550
. . . C.D. & E.F.	10050
. . . F.G. & I.K.D.	12495
. . . C. & H.	4550
. . . H. & I.	10750
Total	42395

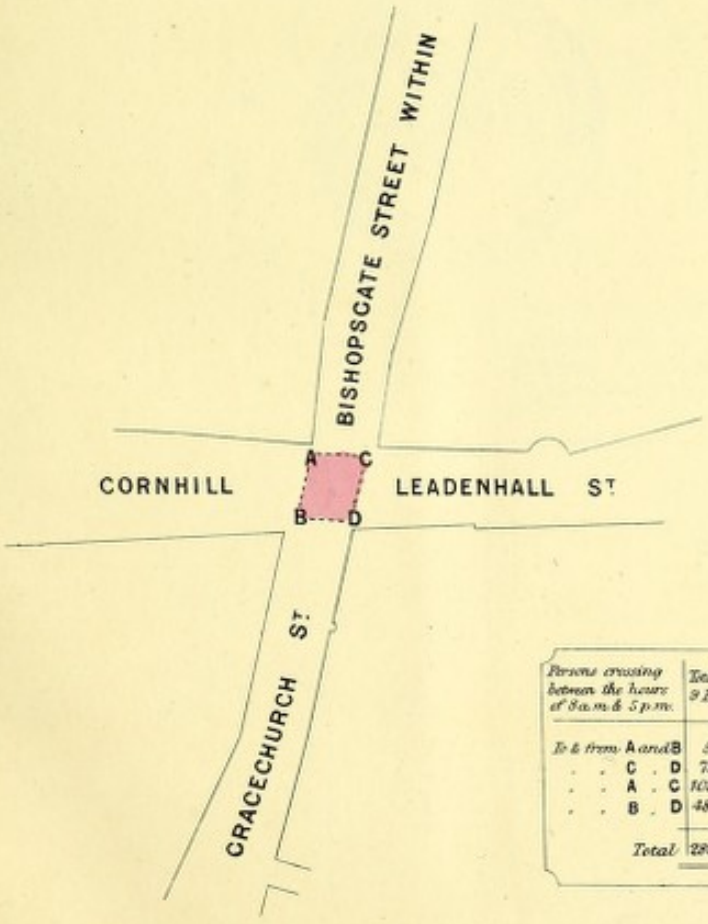


Persons crossing between the hours 8 a.m. and 5 p.m.	Nº in 9 hours.
To and From A & B.	6015
. . . C & D.	11070
. . . E & F.	6825
. . . G & H.	6475
. . . C & I.	11650
. . . C & J.	7850
. . . B & K.	6350
Total	56235

W. Haywood
Surveyor
March 1864

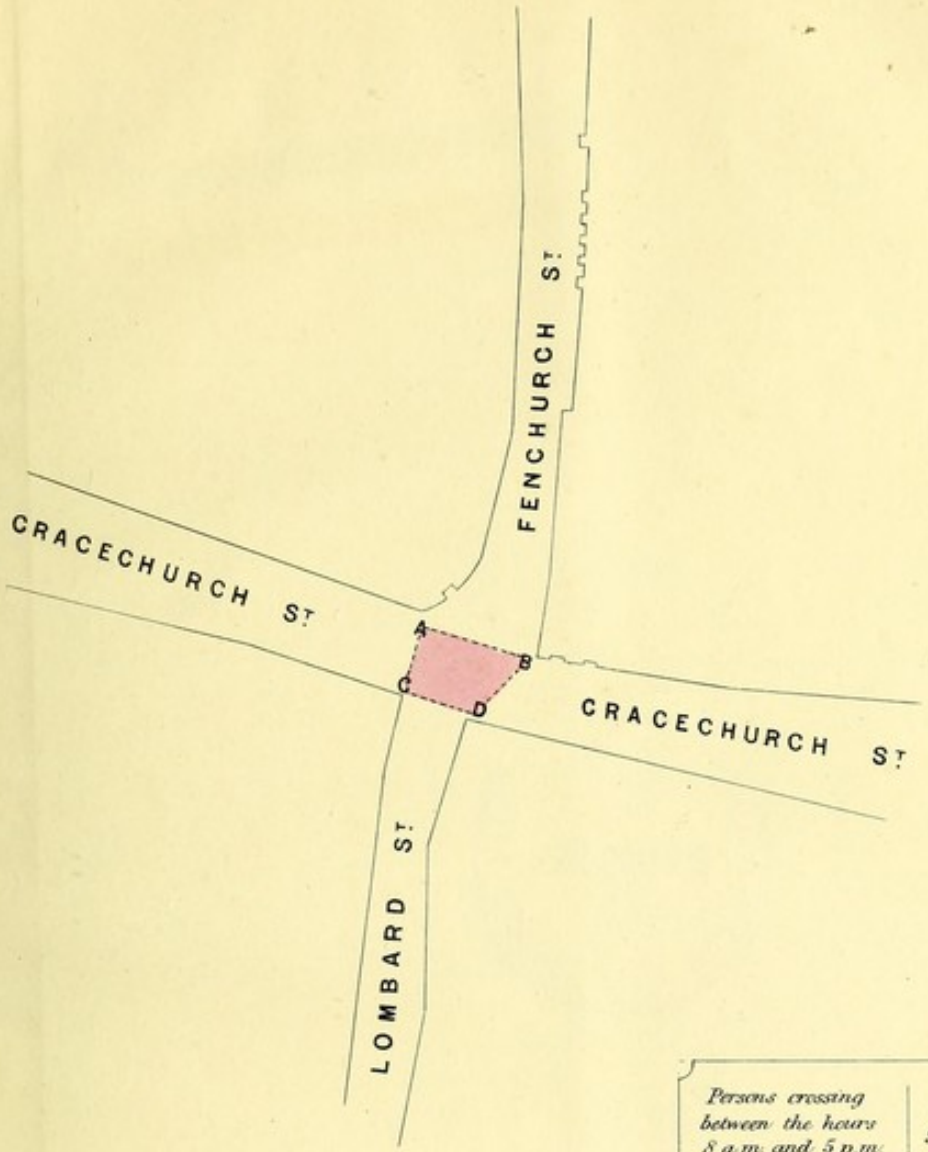


Persons crossing between the hours 8 a.m. and 5 p.m.			No. in 9 Hours
To and from	A	and B	15880
. . .	C	. D	13025
. . .	A	. C	4355
. . .	B	. D	3815
		Total	37075



Persons crossing between the hours of 8 a.m. & 5 p.m.			Total of 9 Hours
To & from	A	and B	5120
. .	C	. D	7530
. .	A	. C	10535
. .	B	. D	4895
		Total	28080

Jno Haywood
Guildhall
March 1867



Persons crossing between the hours 8 a.m. and 5 p.m.				Nº in 9 Hours
To and from	A	and	B	9820
. . .	C	.	D	8280
. . .	A	.	C	8230
. . .	B	.	D	4060
				30390

W. Haywood
Guildhall
March 1874


Plan to accompany the Report made to the
SELECT COMMITTEE OF THE WORSHIPFUL THE COMMITTEE
UPON IMPROVEMENTS OF THE COMPORATION OF THE
CITY OF LONDON.
February 27th 1867
By Mr. HEYWOOD, M.I.C.E. [illegible] & SURVEYOR
to the Board of Commissioners of City Sewers
NOTE.
The Brown Tint shows Improvements effected by the Corporation of the City of London.
The Red Tint shows Improvements now done by the Corporation and now being carried out by them.
The Green Tint shows Improvements authorized by special Acts of Parliament and now being carried out.
The Black Tint and dotted lines show the Railways existing or Authorized.
The Blue Tint shows Improvements suggested by Mr Heywood in his report of this date.
RIVER THAMES
William Heywood
Feby 1867