

REPORT

OF THE

THIRD SANITARY INSPECTION DISTRICT. [SECTION A.]

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Sanitary Inspector.

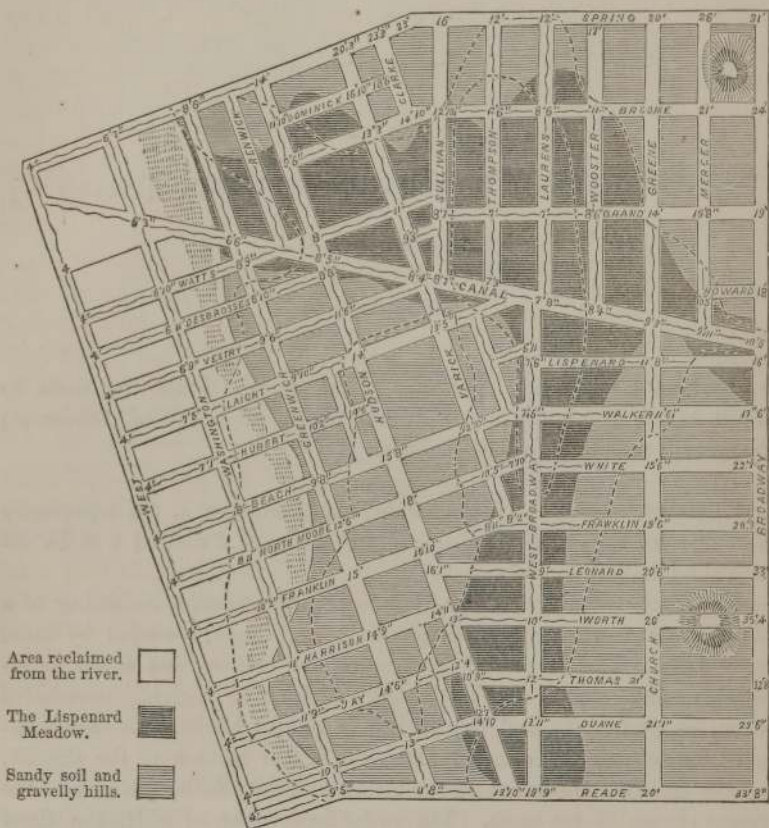
BOUNDARIES.—*North by Canal Street, east by Broadway, south by Reade Street, west by the North River. This District (Third, Section A) comprises the whole of the Fifth Ward.*

TOPOGRAPHY.—For completeness and convenience, the topography of the entire area of the Third District (*Sections A and B*) will be described under one head.

The topography of this district is somewhat peculiar, consisting of a depressed section of ground, originally swamp land, bordered by high, sandy hills. The original formation of the surface was easily ascertained, several maps of that section of the island as originally constituted having been preserved and republished in various works. The accompanying map shows the original formation of the surface of the district, and the ground reclaimed from the river, with the relative position of the present streets to the same. The rocky formations, of which the island is principally composed, are here depressed to a depth of from forty to eighty feet below the surface, thus forming a basin, which, where not occupied by high sand-hills, formed deep depressions, filled with more or less soft quagmire. These swamps were indeed so unsubstantial in places as to yield under the weight of the dirt dumped in to make firm ground for building purposes; necessitating, in some places, the making of new ground to the depth of forty feet. This was ascertained to be the depth of made ground before reaching the remains of the original deposit of mud, at the corner of Wooster and Grand Streets, where a well was sunk some years ago, an additional depth of thirty feet of the original deposits being passed through before the rock was reached.

SANITARY AND TOPOGRAPHICAL MAP OF THE THIRD INSPECTION DISTRICT.


THE FIFTH, AND A PART OF THE EIGHTH WARD.



EXPLANATION OF FIGURES, ETC.

The numbers at the intersections of the streets indicate the present elevation at those points above tide level.

The wavy line in streets and sections of streets indicates sewers into which the high-tide water flows.

The dotted contour line  indicates the line of demarcation between the section that is drained by sewers through which tide-water flows, and that section of the district in which the bottoms of the sewers are above tide-level.

The crests of the highest of the original hills are shown upon the right-hand margin of the Map.

On the map the part unshaded represents the ground reclaimed from the river, being the greater part of the district outside of Greenwich Street. The surface represented in the marshy shading shows the extent of swampy ground, formerly called the Lisperard Meadows. This ground was very soft and boggy in its nature, being overflowed by water at high tides, and until filled in it was almost impassable. The amount of material required to fill in this swamp, and the enormous expense attending it, induced the authorities of that day to make the grade as low as possible, consistent with mere surface drainage. Portions of it have since been filled in and other parts will probably be soon raised in grade, thereby improving the drainage; but yet leaving a very large surface of low and badly-drained ground, especially near and north of Canal Street.

This swampy land was intersected by a sluggish stream of water, running from the pond, called the Collect, situated in the present neighborhood of Centre and Leonard Streets, and covering several squares of ground. This outlet followed nearly the line of Canal Street from Broadway, where it was crossed by a stone bridge, to the Hudson River, emptying therein. A branch of this stream on the line of West Broadway, drained the meadows in that direction.

The shaded portion of the map represents the solid ground, which was formerly somewhat irregular and picturesque in appearance, being high and hilly, rising on Broadway and Leonard Street to a height of near one hundred feet above the river. These high grounds have since been much lowered by grading down for building purposes; and the surplus dirt was used for filling in the swamp lands and the section reclaimed from the river. Part of one of the original hills can yet be seen in the grounds of the New York Hospital, which have not yet been reduced to the street grade. The hill that existed in the neighborhood of Broadway and Broome Street was also so high as to be cut down some forty or fifty feet, being below the bottom of some of the wells in the vicinity. The tongue of land between the Lisperard Meadows and the Hudson River was of less elevation, but was also more or less disturbed by the necessary grading of that part of the city.

DRAINAGE AND SEWERAGE.—The original sewerage of this district had a direct relation to the natural formations of the surface. As the meadows were filled in the original streams were carried through open box sewers, built of timber, following the lines of Canal Street and West Broadway. In the course of time, and from the growth of the city around them, these sewers became so offensive and dangerous that it became necessary to enclose them. This was done by building very large sewers, with comparatively flat bottoms, which remain to this day a continual

source of expense and nuisance. The bottoms of these sewers were laid with flat stones sloping to the centre; the sides were built of brick, perpendicular in direction, and some four feet in height; and from these side walls a low arch was thrown enclosing the sewer; the whole being covered with the street and pavement. Owing to this plan of building, the bottoms of these sewers are badly broken and cannot be thoroughly cleaned. All the other sewers of the district are built of brick or tile, being oval in shape and well adapted to their purpose; some of the smaller branch sewers being of earthen ware, moulded and burnt in sections. The district is pretty well sewered, and the streets needing it are being rapidly supplied.

STREET ELEVATIONS.—On the map I have given in numbers the elevation, in feet, of each street intersection above high-water mark, and have also indicated by wavy lines such streets in which the sewers, if built, would be entered by the tide at high water. This has, from the nature of the case, been arrived at by estimating the depth of the bottom of the sewer from the level of the surface of the street. Officers of the Croton Aqueduct Department, to whom I am indebted for much of the information contained in this portion of my report, inform me that my calculations are nearly correct. They informed me that in all cases where possible the bottom of each sewer is laid at a depth of thirteen feet below the level of the street. To this there are two exceptions: First. To drain a basin lying behind a ridge of land, it sometimes becomes necessary to build a sewer at a greater depth through the intervening ridge. Second. On approaching the rivers, and where the ground lies too low, as in a large part of the Third District, the sewer cannot be built at so great a depth. I have taken the estimate of thirteen feet as the proper depth of the bottom of the sewers, and have represented all the sewers in the streets having a less elevation above high water-mark, as being reached by the river water at high tide. When the river is above this level, it is well known that several of these sewers are entirely full of water, and unable to carry off the surface water in case of heavy rains; and consequently the streets and cellars in such localities are frequently overflowed. On several of these streets it has for the same reason been necessary to place traps, &c., on the sewer connections to prevent the flow of water back into the houses or cellars. By referring to the map it will be seen that tide-water runs up the sewer in Canal Street as far as Broadway, spreading north through Thompson and Laurens Streets as far as Spring Street, and through the other streets to a somewhat less extent; also running south through West Broadway as far as Thomas Street, there meeting the tide coming directly from the river. Adding to these facts the flow of tide-water into the

branch sewers, and in all the sewers within two to four squares of the river, it will be seen that *two-thirds of the sewer surface of this district is reached by salt water*. All the sewers of the Third District empty into the slips between the wharfs along the North River, with the single exception of the Canal Street sewer and its connections, which empty at the head of the long pier at the foot of Canal Street, and in deep water. This system of emptying the sewage into the slips is a prolific source of offence to the senses and of disease to the district, and also keeps the city at continual and great expense for the necessary dredging to keep them navigable and prevent their filling up. The Croton Aqueduct Department, however, is desirous of correcting this, by building sewers along the river front, to cut off the present sewers, and carry their discharge to certain points, as at the Battery, &c., where their contents can be at once thrown into free currents of deep water, thus avoiding these difficulties. This system regards the sewage as of no value, but the time will probably soon arrive when some plan will be desirable to save it and make it valuable.

Influence of Topographical Characteristics of this District on Health.—

The influence of the peculiar formation of this district upon the public health has been marked. Those portions reclaimed from the swamp and river being undesirable for a good class of population have been consequently built upon by an inferior class of buildings, and occupied by people too ignorant or indifferent as to consequences to seek to avoid them. The observations of physicians and sanitary officers, however, have shown that such sections of the city are, in case of epidemic diseases, *always the first to be attacked*, and that they invariably present the greater number and more severe class of cases. During the various epidemics of fevers, cholera, influenza, &c., that have visited this city, these sections have furnished a very large proportion of the patients, and a still larger proportion of the fatal cases. During the recent and present prevalence of typhus and typhoid fevers, I have noticed that the number and severity of cases have borne a direct relation to the *nature of the ground upon which they occurred*. Our hygrometers, which have been in constant use in the worst sections of this district, indicate more than twice the amount of moisture in the atmosphere given by the standard instrument kept at the Eastern Dispensary. Such diseases as cholera infantum, fevers, &c., especially of children, always prevail most extensively in such moist localities, not to speak of rheumatism, scrofula, and pulmonary diseases, which are generally recognized as being specially dependent upon exposure to cold and wet.

STREETS.—The streets of the Third District are laid out, more or less, at right angles with each other—running north and south, or east and

west. They vary in width from forty to eighty feet, except Canal Street, which is much wider. The greater number of the streets are paved with cobble stones; and, at the time of this survey, were found in pretty good repair, except West Street and its immediate neighborhood, which is considerably lower than the proper grade, and is in very bad order. Those sections of the different streets, however, where there are tenant-houses, are always wet and filthy from garbage and slops that are thrown into the street. Broadway, Washington, Greenwich, and Worth Streets, in their full length, in this district, have been repaved with the trap-block pavement; and portions of Desbrosses, Reade, Duane, North Moore, and Jay Streets, have been similarly paved. It is to be hoped that this kind of pavement will, as soon as possible, replace the cobble-stone pavement, as it has proved to be not only by far the most durable, but it is much more easily kept clean, and does not accumulate in the interstices such a quantity of the foul matters of the streets. The connection of civic cleanliness with civic health is too evident to be questioned at this day. Under my own observation in this district,* the widening and repaving of various streets have been followed by the most marked improvement in the health of not only those streets, but of the whole immediate neighborhood. It is true that the population of this section was greatly diminished by these improvements, but those that remained have not shown half the proportional amount of sickness, although of a class more subject to disease than the original residents.

SQUARES.—The number of squares in the Third District is 74. Of these 32 are in a good, 25 in a mixed, and 17 in a *bad* condition, as regards sanitary considerations. I report as *bad* those squares in which, from the character of the soil, buildings, and population, more than the average amount of disease prevails. Those squares are regarded as mixed in which the same causes prevail to a partial extent, or where, from the encroachments of business property, or from other causes, the population is mostly removed. All others are regarded as being in a good sanitary state.

INHABITANTS.—The population of the Third District has undergone, and is now undergoing, great and rapid changes. Originally settled by a native-born population, the greater numbers of residents are now of foreign birth, or children of foreign parentage. The colored population, formerly so numerous in the Fifth Ward, has almost disappeared, a few scattered tenant-buildings—not more than twenty-five in number—containing all that are left. The large number of houses of prostitution west of Broadway, for which this district was, not long ago, so notorious,

* The Inspector has been sixteen years connected with the New York Dispensary, and daily engaged in professional duty in this part of the city.—Edron.

is also rapidly disappearing from this section of the city, their former inhabitants being replaced by foreigners, and they, again, being soon crowded out by the encroachments of mercantile business.

TENANT-HOUSES.—Nearly all the houses remaining in the district have been altered for tenant-houses, or are now occupied as boarding-houses, or for business purposes. Large tenant-houses, which accommodate more than six or eight families each, are comparatively scarce, there only being about forty of such character. All others reported as tenant-houses, are small in size, the greater number being altered from private residences, or occupied by several families, without alteration. Most of the large tenant-houses are located in the neighborhood of West Broadway, from Leonard to Thomas Streets, or near Greenwich Street; the others being scattered throughout the district.

I have reported 450 houses as being tenant-houses; being such houses as contained three or more families. With the exceptions noted, these were formerly occupied as private residences, or by two or three families; but, with the changes of population, the greater number of them have been filled with as many families as there are rooms to accommodate them, many of the families having no other sleeping-apartment than that occupied as the kitchen and living-room. In some of these houses the Croton-water and waste-pipes have been introduced, but in most of them the Croton-water is introduced only to the court-yard, or area. In other respects these houses remain as built long ago for private families. As a consequence, ventilation is very imperfect, from the doors between rooms being always closed; water-closets are too few in number, and filthy, from being used by so many persons; and the houses become more and more dilapidated, until many of them, in the neighborhoods where business is encroaching, are in part or entirely unfit for human habitation.

NUMBER AND CLASSIFICATION OF THE HOUSES.—Including the 450 noted as tenant-houses, there are 1,244 dwelling-houses in the district, 95 of them being rear buildings. The larger number of those not noted as tenant-houses are occupied for boarding-houses, there being comparatively few which can properly be reported as private houses. Many of the objections relating to tenant-houses also apply to the boarding-houses, except that the latter are kept in a more cleanly condition. Still, they are necessarily overcrowded and deficient in most of the accommodations needed for a perfect state of health in the occupants.

There are also many buildings occupied for stores, offices, &c., in which a family is living who take charge of the building, keep the passages clean, &c., which I have not reported as dwelling-houses. There are also several buildings occupied by fire companies, in which some of the

members always lodge, which are not included as dwellings. The actual number of the population of the district I made no effort to ascertain, as the time allowed was too limited, and I had none of the necessary facilities for such investigation. The figures given in the last United States Census would be very incorrect, as the changes produced since that was taken, by the encroachments of business property, &c., have been very rapid and extensive. There is no doubt, however, that the average number of inhabitants to each house would be high, as would be expected from my statements in regard to the character of the population. From the same reasons, no investigation has been made in regard to the number of people occupying basements and cellars—a subject needing investigation, and which would repay full and careful inquiry.

LIQUOR STORES.—There are 341 places in the Third District in which liquor is retailed, including groceries, restaurants, and hotels and dram-shops. This is a very large number in proportion to the population, being one to less than four (1 to 3.65) dwellings. However, it must be remembered that, owing to the situation of the district, large numbers of their patrons are from outside the district. Thus a great many of the liquor-saloons are located along or near the river, and are almost entirely supported by boatmen and persons employed along the docks, &c.; many other saloons are located on the line of Broadway, Canal Street, and other thoroughfares, which derive a large support from the transient population and persons employed in the stores in the neighborhood.

BROTHELS.—I report 81 as the number of buildings occupied exclusively as houses of prostitution in this district. This number is probably below the truth, from the difficulty of ascertaining, with the means at my disposal, which houses were thus occupied. I have also not included in the number a large number of houses occupied only in part for such purposes. It is a well-known fact that in many of the tenant-houses of this district such persons occupy suites of apartments interspersed with those of the respectable laboring-classes, and frequently difficult to be distinguished from them, except upon a more searching investigation than this survey could give. During the last few years, a large proportion of the more notorious brothels have been removed from this district to the upper parts of the city, the houses being now occupied by the laboring-classes, or for business purposes.

STORES AND COMMERCIAL WAREHOUSES.—There are 283 buildings in this district occupied exclusively for commercial purposes. There are also 294 small stores, of various kinds, occupying parts of buildings. Of these 29 are meat and vegetable markets exclusively, there being no large market-building in the district; although Clinton Market, at the foot of

Canal Street, is just north of this southern section (A) of the Third District, and Washington Market, at the foot of Fulton Street, is not far removed, both of them being largely patronized by the residents of this district. There are also 87 groceries, of which nearly all sell liquor, and many deal in meat and vegetables.

FACTORIES.—There are 151 manufactories and workshops of various kinds in the district, many of them occupying only parts of buildings, used otherwise for trade or residences.

Of these 6 are sugar-refineries, &c.; 11 boiler and machine shops; 26 carpenters, joiners, and box manufactories; 2 large coffee and spice mills; 2 distilleries; 1 brewery; 3 oil and lard works; 12 blacksmith and wheelwright shops; 2 tobacco and snuff manufactories; 5 smoking and provision establishments; 14 artificial flower, feather, and leaf manufactories; and the remaining 67 are manufactories of various kinds, too numerous to be particularized.

STABLES.—There are 108 stables, or ranges of single-stall stables, in this district. Of these 68 contain each less than 5 horses, or 202 horses in the aggregate; and 40 contain each 5 or more horses, or 383 in the aggregate. These stables are scattered pretty generally over the district, there being few squares without one or more of them. There are certain neighborhoods, however, which contain a large number upon a small area. Such is the neighborhood of Greenwich Street from Desbrosses to Vestry Streets, where 3 squares contain 16 ranges of stables, accommodating 117 horses. Also, in the neighborhood of West Broadway from Beach to Worth Streets, where 6 squares contain 19 stables, with 163 horses. Most of the larger stables are kept in a quite cleanly and comfortable condition, but the greater number of small stables are crowded together, and their surroundings are frequently neglected and uncleanly. In regard to the influence of stables upon the public health, I think that I have, in many cases, traced to their influence (especially when occupied by sick and disabled horses) an earlier invasion and increased prevalence of such diseases as scarlatina and diphtheria. However, further investigation and much more extended observation over a larger field, is necessary to decisively settle this point.

NUISANCES.—There are no slaughter houses, gas manufactories, or bone and fat-boiling establishments in or near the immediate neighborhood of this district, in any manner or degree influencing its health. Such causes as do produce such influence are connected with the topography, character of the population, and condition of the piers, slips, and sewers, which we have already noted.

PUBLIC BUILDINGS.—Of public buildings there are but few. There is one Police Station-house on Leonard Street, badly arranged for the

health of its occupants, both as regards its own internal arrangements and its immediate surroundings. There is a large hospital with several buildings, known as the New York Hospital, on the square bounded by Broadway, Worth, Church, and Duane Streets. These buildings are finely situated, both as regards the location of the ground and their internal arrangements for the comfort and health of the inmates. A detailed report is unnecessary in this place. There are only two church edifices in this district; both front on St. John's Park, and both are well located for light and ventilation. There are also two Mission Churches occupying lofts of buildings otherwise used for business purposes; and a floating chapel for seamen and others at the foot of Laight Street. As regards School Buildings, there is one large Ward School on North Moore and Varick Streets, with an extension running through to West Broadway. This school is of the first class, accommodating nearly two thousand pupils. There are two Public Primary Schools, one occupying a building erected for that purpose on Greenwich Street between Desbrosses and Watts Streets; the other occupying a building altered from a private residence in Varick Street near Canal. Both these buildings are badly arranged for ventilation and light, having windows, &c., only on front and rear. There is one Primary School for colored children on Franklin Street, between West Broadway and Hudson Street, occupying a small two-story building erected for a dwelling-house, and necessarily badly arranged and ventilated for such a purpose. St. John's Episcopal Church has also connected with it a Parish School, occupying a building in the rear of the church. Two Mission and Industrial Schools occupying lofts of stores, badly arranged but occupied only on certain days, complete the list of free schools in the district. There are 19 Hotels in the district, varying in size and capable of accommodating from 25 to 250 lodgers each at one time. Many of these being altered from private houses are badly ventilated and miserably arranged for hotel purposes.

PARKS.—The Third District cannot be said to have any public parks. St. John's Park, bounded by Hudson, Laight, Varick, and Beach Streets, is a private square not belonging to the city, and kept closed to all except the occupants of the surrounding houses, &c. This park, however, in connection with the grounds surrounding St. John's Church, and those belonging to the New York Hospital, are kept in the cleanest and best manner, and are valuable breathing spots for this section of the city.

PIERS AND SLIPS.—The piers, wharves, &c., fronting the Third District, are generally in a dilapidated and neglected condition, though a few occupied by steamship lines are kept in very good order, being enclosed with sheds and gateways. All the piers, however, being built of

wood, necessarily furnish a large amount of decaying vegetable matter, which is known to be a prolific source of disease. The slips, in consequence of receiving the sewage of the district and surrounding parts of the city, are generally foul, and the undoubted source of much sickness. I have seen a number of cases of severe disease, such as fevers, congestions of the brain, liver, &c., induced by bathing or getting overboard in the slips of this district.

PREVAILING DISEASES.—The prevailing diseases of the Third District during the past year have been as follows: Small-pox has prevailed more extensively than for many years back. One centre of this disease was in the neighborhood of West Broadway, Thomas, and Leonard Streets; and another centre at Greenwich, Watts, and Desbrosses Streets; with scattering cases over the whole western part of the district. Typhus and typhoid fevers have been prevalent over the whole district, but more particularly in the neighborhood of the lower half of West Broadway, and between Greenwich Street and the Hudson River. The remitting fever of children has been as usual almost universal in the tenant-houses of the district, more especially during the Spring and Fall. Diarrhoeal diseases, including cholera morbus, &c., commenced early in the season in the immediate neighborhood of the Hudson River, gradually spreading thence over the whole district. These diseases affected nearly every house and family coming under my observation as Visiting Physician for the New York Dispensary. This curious fact of this class of disease, commencing on the western border of the city and thence gradually spreading toward the eastern side, has been noticed in other parts of the city. Scarlatina, erysipelas, and kindred diseases, were prevalent early in the season, but disappeared as warm weather advanced. These diseases were more or less prevalent in tenant-houses in proportion to the crowding of their population, cleanliness, &c. The amount of sickness in different houses of the same neighborhood is very various, in some cases being not more than twenty per cent., and in others reaching as high as two hundred per cent. per annum. It is difficult to account for this on a superficial examination, but the character, occupation, temperance, cleanliness, &c., of the inhabitants of neighboring houses vary greatly, and are a pretty close indication of the amount and kind of prevailing sickness to be found in any particular house. Different houses vary greatly also as to their facilities for ventilation; the number of inhabitants in basements and on first floors; the location and care of water-closets, sinks, cesspools, &c.; their connection with smoking and provision establishments, and other kinds of business locations; the width, cleanliness, and kind of pavement in the streets; the proximity of the

river; the character of material and state of repair of the building itself and its accessories; the arrangement of the rooms, bedrooms, and halls; and various other causes of interference with health. A thorough investigation into all such particulars would be necessary to arrive at any just or valuable conclusions in regard to the causes of disease and death. A large number of such searching investigations have been made and are now making under the direction of the Council of Hygiene and Public Health of the New York Citizens' Association, and cannot fail to give valuable results when fully tabulated and compared.*

* The Map or diagram on opposite page has been prepared to illustrate, more distinctly than could be done by words, the intimate connection of one of the small-pox and typhus fever centres of the Third District with the wholesale dry goods section of New York City. The largest wholesale establishments for the sale of dry goods on this side of the Atlantic Ocean are here seen to come in immediate contact with the tenant-houses of the worst class, and which are infested with small-pox and typhus fever. The diagram also shows that two freight depots and the principal passenger depot of the Hudson River Railroad Company are in the same close association with these nests of infection. In the region immediately surrounding that represented on the map are also situated several hotels, and a large number of boarding-houses, whose inmates are thus in danger of personal contact with these diseases at any moment.

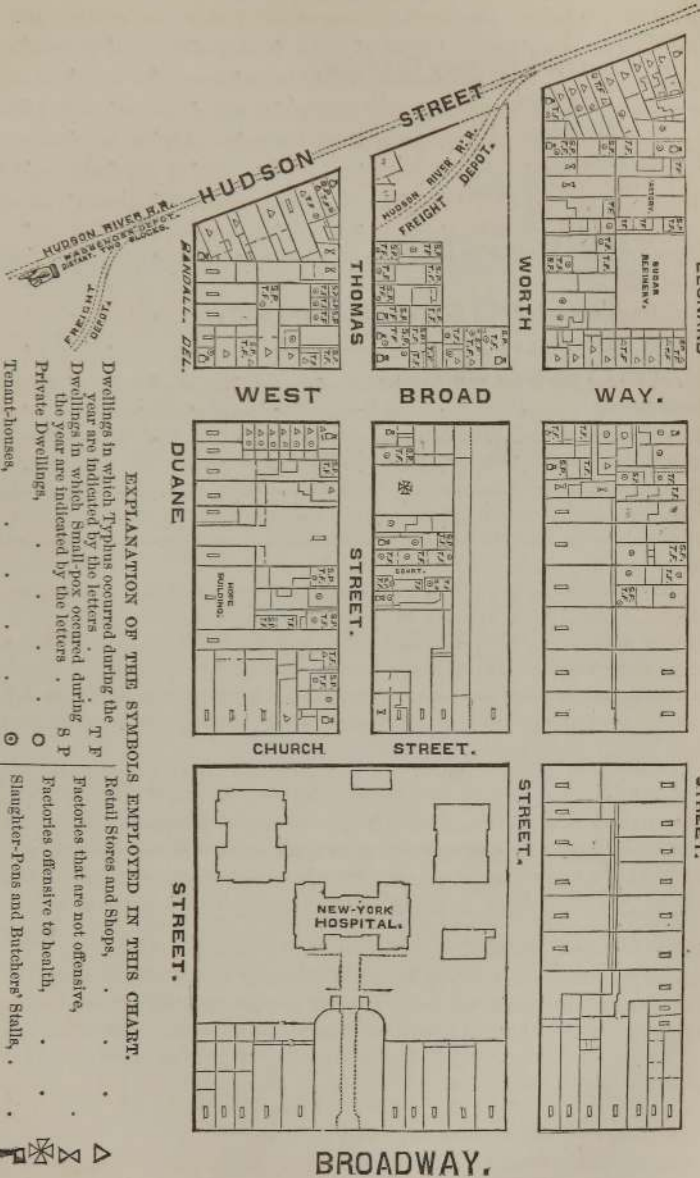
West Broadway, running through the very centre of the district, is traversed by five different lines of city railway cars, with an average of five cars passing every minute, and carrying millions of passengers yearly by the very doors of these houses. Broadway, at but a short distance removed, is the principal thoroughfare of the city. Hudson Street on the west is also a leading route for city travel; and the cross streets of the district are traversed daily by multitudes to reach various lines of steamboats, cars, and steamships, which leave the city opposite this point.

All this large amount of daily travel passes through a region always containing cases of typhus fever, and largely infested with small-pox. Is it any cause of surprise that cases of these diseases are here contracted, to be carried to distant sections of the country, there to develop themselves to the surprise and alarm of whole neighborhoods? It is also well to remember that several large livery stables are located in the immediate neighborhood, whose vehicles it is well known are frequently employed to carry persons suffering from these diseases to hospital, or to attend at funerals. These vehicles are, perhaps, immediately afterwards driven to the various car and steamboat lines to secure passengers, who are thus exposed in the most dangerous manner to these diseases. Could the intelligent community but realize the danger to which they are thus exposed whenever they visit the city, certainly they would insist that some measures should be taken for their safety and that of the large section of the country under the immediate influence of this city. It seems certain at present that the residents of the city cannot or will not protect themselves. The map illustrates the prevalence of these diseases for only one year, from November 1st, 1863, to November 1st, 1864.*

* For explanation of the *symbols* employed to designate the purposes for which each building in the squares is at present occupied, see remarks at bottom of the diagram.—*ERROR.*

[At the time the Sanitary Survey was commenced, this region was infested with diseases as here indicated.]

A REGION OF TYPHUS AND SMALL-POX.



EXPLANATION OF THE SYMBOLS EMPLOYED IN THIS CHART.

- Dwellings in which Typhus occurred during the Year indicated by the letters T F
- Dwellings in which Small-pox occurred during the Year indicated by the letters S P
- Private Dwellings, ○
- Tenant-houses, ●
- Drain-shops, ☐
- Hotels and Lodging-houses, ✕
- Mercantile Warehouses, □
- Factories that are not offensive, △
- Factories offensive to health, ▽
- Slaughter-Houses and Butchers' Stalls, ⊠
- Stables for Horses or Cows, ⊡
- Churches and Chapels, ⊕

