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PRELIMINARY REPORT

ON THE

DEATH RATE AND CAUSES OF MORTALITY OF THE POPULATION OF TRINITY CORPORATION TENEMENTS.

I have the honor to herewith submit to you a preliminary report on the death rate of the Trinity tenement population, with special reference to certain allegations and charges of the New York Board of Health in their report to the Tenement House Commission during the month of December, 1894.

In this report, as stated in the public press and subsequently verified by correspondence with the Board of Health, the charge was made and substantiated by statistics, that the mortality in Trinity tenements was in excess of the general mortality of the city, and that this excess was largely the result of the unsanitary condition of the tenements of the corporation of Trinity Church.

How far the Board of Health was justified in making use of a method of comparison for two death rates, based on essentially different populations, different not only in quantity but also in quality, and how far the Board of Health estimate of Trinity Tenement mortality and its true causes was at variance with actual facts will be made clear in the following pages, which will present in as brief a manner as possible the main result of my extended

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investigation into the mortality of the tenement population of the corporation of Trinity Church.

To make the result of this investigation as plain as possible to those not familiar with statistical methods and statistical fallacies, it would require an extended discussion of the principles and theories of vital statistics. To do this, in a brief report like this one, would curtail the more important discussion of the subsequent details, and I will therefore confine myself to the statement, that in the pursuit of this investigation I have rigidly adhered to the methods employed by the highest authorities on the subject of vital statistics, from Dr. Farr to Newsholme and Dr. Billings. The official reports of the New York Board of Health, as well as the report of Dr. Billings on the vital statistics of New York and Brooklyn, have been made use of in the tables of comparative death rates, which will form an essential feature of this report.

The charge against the sanitary condition of Trinity tenements consists in the main of the statement of the Board of Health, that the death rate of 1681 people living in 83 (not 148) tenements, the property of the Trinity corporation, located in three different wards of the lower part of the city, was 35 per cent. in excess of the general death rate of the City of New York for 1893. The actual death rate was stated to be 32.48 per 1,000 for Trinity tenements for the five years' period, 1889-1893, against a death rate of 24.01 per 1,000 for the City of New York.

Now we have here in this simple and innocent looking statement of the Board of Health the most astounding abuse of statistical method ever employed by a writer on statistics or the official of a Board of Health. I am familiar with the reports of nearly every Board of Health in this country and of most of the statistical offices in Europe, and can assert with all the emphasis it is possible to put in

words, that the method of the New York Board of Health to prove the unsanitary condition of Trinity tenements is contrary to the theory and practice of vital statistics. It is a method that has never before been employed by any recognized authority on the subject, nor one that will ever be made use of by any one who cares for his reputation as a statistician. A method, in short, in which two death rates are compared for two populations so essentially unlike in quantity and quality that the two populations compare with each other in such a disproportionate way that the fraction denoting the Trinity population can only be expressed by about one-tenth of one per cent. No writer on vital statistics, no official of a Board of Health has ever attempted to draw far reaching conclusions from such visionary premises. To make use of the method employed by the Board of Health of New York would be to invalidate all the results of statistical research; would be a direct refutation of the statistical law of large numbers, and would reduce the science of vital statistics to the basis of childish guesswork.

The fallacy involved in the comparison of two populations so essentially different in numbers, is plain. The law of large numbers eliminates the possibility of accidental occurrences and accidental influences in the death rate of the population at large, which is not the case in the calculation of a death rate based on small populations. If, for instance, the 326 suicides that occurred in the City of New York during 1894 were omitted in the calculation of the general death rate, this would only affect the rate per 1,000 by 0.17, but if the one suicide that occurred in 1894 among the population of Trinity tenements were omitted, this would affect the Trinity death rate by 0.43 per 1,000. Or in other words, 843 deaths could be omitted from the total mortality of the city before such an omission or element of error would affect the general death rate, to the extent as the acci-

dental omission of one death would affect the Trinity death rate. Now, in view of the fact that annually large numbers of deaths are re-distributed from the hospital mortality to the supposed locality or residence of the deceased (in the case of Trinity tenements in one year as many as fourteen deaths were thus assigned), it will be plain that the slightest error would effect a considerable change in the Trinity death rate. In one instance a death was assigned to a Trinity tenement though the deceased had not lived there for two years past. Such errors cannot possibly be avoided, I know; but that is just the very reason why death rates should not be calculated on small populations, or if done at all, only with utmost care and with due consideration of all the details that make up a death rate.

Dr. Billings has so plainly expressed his opinion on this point that I cannot do better than quote his own words: "It may be well to caution those not familiar with statistical methods and statistical fallacies that all death rates or ratios given must be considered in connection with the actual numbers from which they are derived, because in many cases it will be found that extraordinary and unusual ratios are due merely to the smallness of the data from which they have been calculated (Report on Baltimore and Washington, p. 9). Newsholme in his work on Vital Statistics advises that all districts with a population of less than 3,000 should be excluded from the general calculation (p. 136). The same writer in his chapter on statistical fallacies refers as follows to the fallacy involved in the method employed by the Board of Health. "General results from a large aggregation of facts" (such as the mean death rate for the City of New York, 1890-94) "may be safely applied to a similar aggregation of facts" (like the mean death rate for the years 1885-90, for instance), "but their application to single cases is full of danger." Again, on the

same point, he remarks: "The neglect of the precaution that the phenomena or event dealt with shall be strictly comparable, has given rise to the most valid objection which has been urged against the use of the numerical method in medicine" (p. 297).

These fundamental laws of vital statistics are so well known to those engaged in the field of statistical compilation and research, they have been so frequently referred to time and again in the reports of the Board of Health from 1866 to 1892; that no excuse can be offered for their violation in the report of the Board of Health to the Tenement House Commission.

But not alone was there a violation of the fundamental principles of vital statistics, but there was an absolute misrepresentation of fact in that the death rate for Trinity tenements for 1889-93 was compared with a death rate for the City of New York based on a fictitious population. The death rate for the city was based on a population estimated on the basis of the police census of 1890 against an actually enumerated population of Trinity tenements in 1893. Instead of comparing the death rate for Trinity tenements for 1889-93, with a mean city death rate for 1889-93, calculated by a conservative and well-known method (Dr. Farr's formulæ), on the basis of the census of 1890, a fictitious death rate of 24.01 was made use of, which has no existence in fact. It is always better to understate a death rate than to overstate it. There are other elements in the vital statistics of a city of far more importance in the study of sanitary progress than the death rate. A death rate being necessary for a variety of purposes, such a death rate should be calculated with the utmost care and precaution, and not be based on a population estimated by a method nothing short of mere guess work. Such methods cannot be sufficiently condemned under any conditions, but more

would have been considerably less, as they will actually prove to be, in the figures and statements which will follow.

Instead of comparing the death rate for Trinity tenements with the death rate for the city in general, the Board of Health should have made use of either of four methods, all of which have been made use of by the writer, to trace, if possible, whatever reasonable ground there may be in the charge of the Board of Health that the tenements of Trinity Church are in a highly unsanitary condition.

First. The Board of Health could have compared the Trinity death rate with the death rate of District A, Ward 8, as shown by the Board of Health tenement census in 1891. This census contains detailed death rates for tenements in each ward and the different sanitary districts of each ward. By locating the Trinity tenements in their respective sanitary districts a local death rate could have been calculated for Trinity tenements, which would have been a fair method of comparison. According to an actual enumeration of the population of Trinity tenements on January 1, 1895, there were found to be living some 2,298 people in the 148 tenements which are the property of Trinity Church. Of these 1,108 were living in District A of Ward 8. The total population of this district in 1890 was 10,872; hence the Trinity element of the population of this district is about 10 per cent., a proportion large enough to admit of it being used in a local comparison of death rates. In the table below I give the details for the Trinity population and the tenement population in general for the year 1891, the only year for which a census of this kind has been published by the Board of Health (see Annual Report, 1891, page 217):

District A, Ward 8th.

	Population, 1891.	Deaths, 1891.	Death Rate.
All tenements.....	7,064	201	28.45
Trinity Tenements.....	1,108	24	21.66
Difference in favor of Trinity tenements.....			6.79

This table illustrates in a forcible manner a just and impartial method that could have been made use of by the Board of Health in a comparison of the mortality of one selected class of tenements with another in the same locality, inhabited by about the same class of population, subject at the same time to the same local conditions. This method would be preferable to any other, but for the fact that the time element is too short, and other methods will be made use of to ascertain whether the favorable conditions shown here for Trinity tenements in 1891 can be traced for other years. In the table which follows I have brought together the death rates for a selected class of tenements, mostly in the lower part of the city, with the tenements of the Corporation of Trinity Church. The table has been compiled from the *Real Estate Record and Guide* of recent date, and is based on official reports of the Board of Health:

*Comparative Death Rates of Selected Tenements.***A.**

	Population, 1893.	Deaths, 1889. 1893.	Death Rate, 1889. 1893.
41 selected tenements.....	4,079	154 296	37.8 72.6
83 " Trinity tenements..	1,681	47 57	27.9 33.9
Difference in favor of Trinity tenements (per 1,000) ..			9.9 38.7

B.

	Population.	Deaths. 1889. 1894.	Death Rate, 1889. 1894.
22 selected tenements, 1893....	1,227	58 63	45.8 49.7
148 Trinity Tenements, 1895 ..	2,298	58 86	29.6 37.4
Difference in favor of Trinity tenements (per 1,000) ..			15.2 12.3

Handwritten calculations:

$$\begin{array}{r} 2296/6800 \quad | \quad 296 \\ \underline{4596} \\ 22040 \quad 782 \\ \underline{20682} \\ 13580 \end{array}$$

We have here four comparative death rates, all of which are strictly comparable with Trinity tenement death rates, and all of which, without exception, show in favor of the tenements of Trinity Church by differences from 9.9 per 1,000 to 38.7 per 1,000, or by from 36 to 114 per cent.

The above rates for selected tenements are by from 58 to 202 per cent. in excess of the general city death rate, and by from 36 to 114 per cent. in excess of the Trinity tenement death rate, differences so enormous that it seems almost incomprehensible that, in view of all the recent discussion on the subject, nothing should have been said about the death rates of these tenements, which have a population of about 5,300, instead of 83 Trinity tenements, with a population of only 1,681.

The third method which could have been employed, and which is preferable for the main reason that a period of six years is taken into account, instead of single years, as in former tables, would have been to compare the mortality in Trinity tenements in District A, Ward 8 (in all other districts the Trinity element is less than 3 per cent., and therefore not large enough to admit of being compared with local death rates) with the death rate of this district for the period 1885-90, as stated in the report of Dr. Billings on the health of this district. This has been done in the following table, which contains the details of population and mortality for the district in general and Trinity tenements in particular:

Mortality of District A, Ward 8.

	Population.	Deaths.	Mean Death Rate.
District A, Ward 8, 1890...	10,872	1885-90..2,105	31.39 ✓
Trinity Tenements, 1895...	1,108	1889-94.. 191	28.72 ✓
Difference in favor of Trinity Tenements.....			2.67 ✓

In this table two death rates are compared which are not exactly for the same periods, but for the present purpose it may be assumed that the mean death rate of this district for 1885-90 would not differ materially from the mean death rate for 1889-94. On account of the want of detailed information from this district for the years 1891-4 it is not possible to calculate a death rate for 1889-94 in the manner as the death rate for 1885-90 was obtained by Dr. Billings. According to this table there is again a showing in favor of the Tenements of Trinity Church, though the difference is less than it was for the year 1891.

The third and less reliable method would have been to compare the mortality of the Eighth Ward (in which most of the Trinity Tenements are located) with the local death rate of the Eighth Ward for the five years 1889-93. This would have been a justifiable method on the part of the Board of Health, since the mortality of the Eighth Ward is made up at the office of the Board from week to week as the deaths are reported. The method is less reliable, however, since there is a want of confidence on the part of the Board of Health in the United States census population of the Eighth Ward in 1890 and on the part of the writer in the police census of 1890, as well as in the Board of Health estimate of the population for 1890 and 1892. In the Board of Health report for 1890 there are two statements of the Eighth Ward population. On page 171 of the report the Police census is quoted, giving a population of 41,890. On page 156 of the same report the Board of Health estimates the population at 36,963. The United States census for 1890 gave a population of only 31,159. Finally, in the report for 1892 the population of this ward is estimated (p. 26) at 44,745. Now, if the estimate of 1890 was correct or nearly correct, then there has been an increase in the population of this ward during two years of

7,782, or of 3,891 per annum, which if continued for a decade, would more than double the population of this ward by the end of the present century. In view of the fact that the actual deaths have fallen off considerably during the last few years, the sanitary improvement of this ward must have been extraordinary, so remarkable in fact that estimating the population for 1894 on the basis of the New York Board of Health estimate for 1892 at 52,527 we have a death rate of only 16.51 per 1,000. Or expressed in tabular form we have the following remarkable result:

		Deaths.	Rate.
Population, 1890	36,963*	1,287	34.82 ✓
“ 1892	44,745†	1,272	28.42 ✓
“ 1894	52,527‡	867§	16.51

Of course such an enormous increase in the population of the Eighth Ward, as well as such an exceptionally low death rate, are utterly impossible. The calculation is only made for the purpose of illustrating the method employed by the Board of Health in the estimate of the population of the Eighth Ward, a ward which, like other sections of the lower part of the city, has shown little or no increase in tenement building operations during recent years. If we, however, estimate the Eighth Ward population on the basis of a mean of the four different estimates, we have a population of 38,704, which, however, in the writer's opinion, still considerably overstates the reasonably possible condition. The application of this estimate of the Eighth Ward population, with comparative death rates for Trinity Tenements, is made in the following table:

*Board of Health report, 1890.

†Board of Health report, 1892.

‡Estimated on increase 1890 to 1892, 7,782.

§Reported mortality compiled from weekly statements.

8th Ward, 1889-1893.

	Deaths.	Av. Mortality.	Mean Death Rate.	
Estimated mean population.....	38,704	6,033 ✓	1,209 ✓	31.25 ✓
Trinity Tenement population...	1,522	229 ✓	46 ✓	30.22 ✓
Difference in favor of Trinity Tenements.....				1.03 ✓

Although the death rate for the Eighth Ward is based on the most favorable estimate of the population, the death rate again shows in favor of the Trinity Tenements. If I had based the Eighth Ward death rate on the United States Census or on the Board of Health estimate for 1890, the difference in favor of Trinity Tenements would have been much greater. Thus on the strength of four independent methods of investigation, the same conclusion is arrived at, that the mortality in Trinity Tenements is not only not in excess of the local death rate, but, to the contrary, from 1.03 per 1,000 to 38.7 per 1,000 below the death rate of selected tenements of the same ward or the same sanitary district. If we summarize the four methods of calculation, we have the following result, in which, for the sake of argument, the total Trinity death rate as well as the mean city death rate are included:

Summary of Comparative Death Rates.

	Trinity Tenement Death Rates.	Difference (per 1,000).
Tenement census, 1891.....	28.45 ✓	21.66 ✓ in favor T. T. 6.79 ✓
Selected tenements, 89-93..	72.60 ✓	33.90 ✓ " 38.70 ✓
" " , 89-92..	49.70 ✓	37.40 ✓ " 12.30 ✓
U. S. census report, 85-90..	31.39 ✓	28.72 ✓ " 2.67 ✓
8th Ward estimated pop....	31.19 ✓	30.22 ✓ " 1.03 ✓
General city death rate, 89-93.....	27.37 ✓	32.48 ✓ against T. T. 5.11 ✓

This table forcibly illustrates the great injustice done the Corporation of Trinity Church through a

charge of great gravity based on absolutely nothing but the merest guesswork. It is plainly shown in the above table that only by such methods as have been employed by the Board of Health in comparing the Trinity death rate with the assumed city death rate for 1893 could the excess of 35 per cent. be made plausible. But it is hardly necessary to enter into any argument of this kind to prove absolutely the false and unjustifiable charge of the Board of Health. The fact can be demonstrated, on the strength of official records, that the charges of an excessive death rate, the due consequence of unsanitary condition, are absolutely without the shadow of a foundation; that in fact the condition of Trinity Tenements *in this respect* is superior to that of the Eighth Ward in particular and the city in general. This is made possible through a thorough analysis of the causes of the Trinity Tenement mortality for the six years 1889 to 1894.

Sanitary science does not concern itself so much with death rates as with the actual causes of mortality. Certain diseases, commonly called filth diseases, are recognized as preventable, and the chief duty of a Board of Health - in fact, the very reason for the existence of a Board of Health - has been and is, to check the spread of such diseases, and finally, as has been done in the case of smallpox, and is now being done in the case of diphtheria, to reduce the mortality from such diseases to a minimum, if not to entirely exterminate them.

The five principal filth diseases are smallpox, scarlet fever, diphtheria, measles and typhoid fever. These diseases are recognized as preventable, and sanitary science claims as its highest reward the diminution of the death rate due to these causes.

Unsanitary conditions of dwellings, filthy habits of the occupants and filthy occupations of the population are to-day recognized as being the chief causes in the propagation, if not in the production, of the

above named filth diseases. It is, therefore, but fair, that any charge as to the unsanitary condition of Trinity Tenements should be investigated along the line followed in all other investigations of this sort, namely, that the charge should be sustained by such facts as would prove that in Trinity Tenements the mortality due to such causes was in excess of the local mortality from the same causes.

It is principally for this purpose that the mortality is compiled, according to cause, for each house, street and ward, to enable the student of vital statistics and sanitary science to trace directly the local cause of an excessive death rate. In the tenement census of 1891 the Board of Health followed Dr. Billings in the method used for the census report for 1885-90, and for each sanitary district, tenement death rates are given which are a fair index of the prevailing causes of the mortality. This having been a satisfactory method for the Board of Health census of 1891, why was not the method employed to sustain the charges against the tenements of the Corporation of Trinity Church? Solely and only, because it was not possible to prove the asserted excess of the mortality in Trinity Tenements. Solely and only, because the very facts in this case condemn the statement that the mortality of Trinity Tenements is the result of unsanitary conditions in which these tenements are claimed to have been kept for a number of years past. This assertion of mine is easily proved, and I below give a statement of the actual mortality according to cause for the six years 1889-94. It should be understood that these causes have been obtained by actual transcript of all death certificates at the Health Office having reference to the deaths in the Trinity Tenements during the past six years. This table is the most interesting, the most complete, and, therefore, the one most deserving of careful consideration:

Causes of Mortality in Trinity Tenements.

	1889-1894.
Smallpox	1
Measles	8
Scarlet fever	6
Diphtheria	9
Whooping cough	5
Typhoid fever	2
Cerebro-spinal fever	3
Diarrhœal diseases	34
Syphilis	1
Septic diseases	8
Influenza	8
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Total zymotic	85
Parasitic diseases	3
Dietetic diseases	1
Consumption	72
Other constitutional	19
Premature birth	1
Old age	7
Total nervous system	53
Total circulatory system	31
Total respiratory system	96
Total digestive system	27
Total urinary system	25
Total diseases of parturition	3
Total integumentary system	1
Suicide	5
Accident	15
Debility and marasmus	15
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Aggregate total	459

This table may be condensed in the manner that the actual mortality is expressed in the ratio per 100,000 of population and at the same time be com-

pared with similar death rates for the Eighth Ward and the city at large:

	1889-1894.		1885-1890.
	Trinity Tenements.	Ward Eight.	City of New York.
Measles.....	58.02 ✓	48.64 ✓	45.67 ✓
Scarlet fever	43.51 ✓	53.25 ✓	52.19 ✓
Diphtheria and croup.....	87.03 ✓	192.52 ✓	181.63 ✓
Typhoid fever.....	14.51 ✓	22.53 ✓	24.27 ✓
Diarrhoeal diseases.....	246.59 ✓	307.22 ✓	316.85 ✓
Consumption.....	516.19 ✓	499.74 ✓	391.75 ✓
Pneumonia.....	420.65 ✓	319.51 ✓	287.89 ✓
Diseases of nervous system....	384.39 ✓	310.29 ✓	241.96 ✓
Diseases of urinary system.....	181.31 ✓	208.91 ✓	173.72 ✓

We have here the most complete refutation of the charge that the mortality in Trinity Tenements was caused by unsanitary conditions. We have here the most convincing proof that whether the death rate be high or low the asserted unsanitary condition of the habitations cannot be proven on the strength of the Board of Health death rate. To the contrary, the above rates prove that those very diseases, to which is attributed the high rate of city mortality in general, are less prevalent in Trinity Tenements than in the Eighth Ward or the city at large. More convincing proof could not be asked for; but there are still further convincing facts to sustain the assertion, that the death rate of Trinity Tenements is not excessive and not enhanced by unsanitary conditions.

But before I consider the additional evidence in support of the last table I will say a few words in regard to the death rate from consumption and pneumonia. These are, on the whole, slightly in excess of those given for the city at large or the Eighth Ward; but this excess is due to the fact that the average age of those living in Trinity Tenements is higher than of the Eighth Ward or city population in general. That is, the population of young people under 21 is less in

Trinity Tenements than in the population in general. This is proved by the following table, which shows the percentage of decedents for each group of ages for the city at large (1889-1892) and for the tenement population of the Corporation of Trinity Church.

Percentage of deaths at certain age groups to total mortality:

	Under 5 Years.	5 to 25.	Over 25 Years.
Trinity Tenements, 1889-1894..	33.1% ✓	7.8% ✓	59.1% ✓
City of New York, 1889-1892..	42.0% ✓	10.5% ✓	47.5% ✓

This table is compiled according to a method frequently employed by the New York Board of Health and is of some value, though not absolutely reliable. The figures, however, are in part supported by the following table, which gives the mortality of children under 5 years per 1,000 living at the same period of age, and which proves that the child mortality is less in the Trinity Tenements than in the Eighth Ward or the city in general:

	Trinity Tenements.	1885-1890.	
		Ward Eight, District A.	City of New York.
1889-1891.....	101.01 ✓		
1892-1894.....	87.80 ✓		
1889-1894.....	99.70 ✓	118.03 ✓	109.48 ✓

These two tables prove that the mortality under 25 years is relatively lower in Trinity Tenements than in the city at large, and that the child mortality is considerably less in the Trinity Tenements than in either District A of Ward Eight or for the entire city. In view of the well-known fact that the mortality from consumption is greatest during the ages, period 15 to 45, the excess in the mortality from this disease is explained on this ground. For the City of New York, according to Dr. Billings, the death rate from consumption for persons 15 to 45 years of age was 471.81 per 100,000

of population (Census report, p. 34). If a rate were obtainable for the Eighth Ward, it would, without question, show a still higher rate and therefore but a slight difference from the rate for Trinity Tenements if both rates were based on population of the same average age. On the strength of these statements, the assertion is therefore warranted that the mortality in Trinity Tenements is first, not in excess of the local death rate; second, only about 18 per cent. instead of 35 per cent. in excess of the city death rate, and finally that those causes of mortality which are justly attributed to filthy and unsanitary conditions are less prevalent in Trinity Tenements than in the city at large or the Eighth Ward in particular.

It now only remains for me to call your attention to a few more facts which are deserving of notice, in that they will add additional support to the assertions thus far made.

During the six years, 1889-94, there occurred 344 deaths from smallpox in the city, but only one death from this cause occurred in a Trinity tenement during the same period. During the year 1892 the disease was epidemic in the Eighth Ward, 20 deaths occurring in this ward alone, but only one death occurred in Trinity tenements. During the six years, 1889-94, there occurred 2,239 deaths from typhoid fever, but only two deaths from this cause occurred in Trinity tenements; 3,708 deaths from measles, but only 8 in Trinity tenements; 4,939 deaths from scarlet fever; but only 6 in Trinity tenements, and 10,086 deaths from diphtheria, but only 9 in Trinity tenements. During the two years, 1891-92, 2,797 deaths were due to diphtheria in this city, but not one death from this cause occurred in a Trinity tenement.

Now if these tenements were in such a filthy and unsanitary condition, how was it possible that in view of the great prevalence of all classes of filth

diseases in the city, and the Eighth Ward in particular, but very few deaths were due to those causes in the tenements of the Corporation of Trinity Church?

But furthermore, if we consider the mortality of 1894, we find still more convincing evidence of the unfairness and injustice of the charges against the sanitary condition of Trinity tenements. During the past year there were 156 deaths from smallpox in the city; but not one death from this cause in a Trinity tenement. There were 541 deaths from scarlet fever, but not one death from this cause in a Trinity tenement; 325 deaths from typhoid fever, but none in a Trinity Corporation tenement; 215 from cerebro spinal meningitis, and not a single death from this cause in a Trinity tenement; and yet in the face of all these facts, perfectly familiar to the Board of Health, from whose official records these data have been compiled, the charge is made and attempted to be sustained by statistics that an excessive mortality in Trinity tenements was traceable to the highly unsanitary condition in which it was asserted these houses were being kept. Filth may not be the cause of disease, but it certainly has been proven to be a condition of disease, and if the statements in regard to the sanitary condition of Trinity tenements were true, the mortality returns would present an entirely different character. As a natural consequence we should find an excessive prevalence of just such diseases as have fitly been called filth diseases but which have been proved on the authority of the Board of Health records not have been excessively prevalent in Trinity tenements during the 5 years, 1889-94. We have recently been informed that the present death rate of New York City was the lowest on record for 75 years, but nothing has been said about the fact that there was an increase in the mortality from small-pox, diphtheria and measles and but a very slight de-

crease in the mortality from scarlet and typhoid fevers and diarrhoeal diseases. The decrease in the mortality was among those causes over which the Board of Health has little if any control, and therefore the falling off in the actual mortality is less the work of the Board of Health than the result of other natural causes and possibly to an actual decrease of the population during 1894.

One word in conclusion in regard to the statement that some of the Trinity Tenements are "Hot beds of disease." This statement was made at the time with special reference to consumption. I have carefully tabulated the mortality from this cause for each tenement for the six years, and find only three instances in which three deaths from consumption occurred during the six years under observation in any one house. It is far too early at the present stage of our knowledge of the cause of consumption to advance any claim or propose any theory on such insufficient evidence. Consumption among the poor is increased chiefly through the combined influence of hereditary predisposition, environment, occupation and indifference to personal hygiene. If the suggestions of the Board of Health for the prevention of this fearful malady were respected and obeyed there is no doubt but that the mortality could be greatly diminished. But how can the poor avoid "sleeping in the same room occupied by one who has consumption" if that one room is the only one they can afford to rent, or how can the poor consult the family physician regarding the social relation of persons suffering from suspected consumption* when they are unable to even consult the "physician" behind the counter of a drug store? Well has the Board of Health said "that the means for the prevention of consumption lie largely within the power of the affected individual." Why, then, at the same time,

* Circular on Consumption—N. Y. Board of Health.

place all the blame for the prevalence of this, as well as all the other preventable diseases, on the wrong shoulders? But, as I have said before, there is no evidence whatever of any excessive prevalence of this disease in a single one of the tenements of the corporation of Trinity Church.

I have far exceeded my original purpose to make this report a very brief one, yet I have only been able to present some of the most important phases of the problem under discussion. In a final report which is to follow, details will be presented and supplementary data will be included which it has not been possible to introduce here. Enough has been said, however, to dispose at once and forever of the charges made against the sanitary condition of Trinity Corporation tenements and I sincerely trust that those most interested in the truth in regard to these charges will find in these statements, all of which are based on actual facts derived from official sources, sufficient proof to refute charges which were, as has been shown in these statements, based on nothing but statistical guess work. I will conclude my report with a recent utterance of the editor of the (London) *Lancet*, in which a somewhat similar attempt at false statistical method was condemned with the following timely remark: "We have so strong a conviction of the powerful influence that our national system of mortality statistics has exercised on the progress of public health in England, that we think it to be of the first importance that public faith in these statistics should not be weakened by ambiguous term, by false method and by unsound deduction."

Very respectfully yours,

FREDERICK L. HOFFMAN.

ACTUARIAL DEPARTMENT, PRUDENTIAL INS. CO.,
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Presented to the
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