

Wright (C. D.)

AN ANALYSIS

OF THE

POPULATION OF THE CITY OF BOSTON,

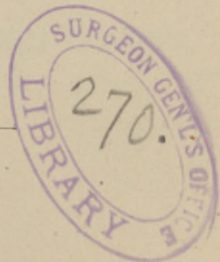
AS SHOWN IN THE

STATE CENSUS OF MAY, 1885.

BY

CARROLL D. WRIGHT,

CHIEF OF BUREAU OF STATISTICS OF LABOR.



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# POPULATION OF BOSTON.

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## CENSUS OF 1885.

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CITY OF BOSTON, EXECUTIVE DEPARTMENT, October 5, 1885.

SIR:—I am in receipt of your note informing me of the population of Boston on May 1, 1885, in accordance with the State Census of the present year. The figures, 390,406, do not meet the expectation of many, and do not, I believe, come up to your own estimates. Will you kindly put me in possession of such facts as you may have, and which are of general interest, bearing upon the recent enumeration.

Yours truly,

HUGH O'BRIEN,

*Mayor.*

Col. CARROLL D. WRIGHT, *Chief of Bureau.*



## Commonwealth of Massachusetts.

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BUREAU OF STATISTICS OF LABOR,  
COMMONWEALTH BUILDING, MT. VERNON STREET,

BOSTON, October 10, 1885.

SIR: — I have the honor to acknowledge the receipt of your communication of the 5th, in which you request that I put you in possession of such facts as I may have, and which are of general interest, bearing upon the Census of Boston as shown in the recent enumeration.

In response to this request, I respectfully submit the following statement of facts, with accompanying analyses relative to the movement of population in the city of Boston.

By the State Census of 1885, the population of Boston was 390,406, of which number 186,101 were males, and 204,305 were females, or 47.67 males, and 52.33 females, to each 100 in the population.

By law, this office is charged with the duty of taking and reporting the decennial censuses of the Commonwealth, and it is responsible to the Government and to the people that such censuses shall be substantially correct, and it is a pleasure always, when the accuracy of the enumeration is questioned, to give those interested the fullest explanation possible regarding the enumeration, and so it is now to furnish you and the people of Boston with such a complete statement that all may have the same opportunity I have to judge of the accuracy of the recent enumeration.

Such statements, however, do not involve any controversy, because controversy in such matters amounts to nothing, except to generate feeling; and further, because no re-enumeration of the population of Boston can either verify or invalidate the State's enumeration, for if the city or the State

should order a re-enumeration of the people of Boston during the present winter, it would not be the enumeration of May, 1885. Circumstances and conditions have changed since May, as they always do change between spring and winter in any metropolitan city. I have no doubt that if I should employ the same force of enumerators that were employed by this office last May, and with them take the census of Boston this winter, or now even, I should find several thousand more people than were found last May.

The statements herewith submitted cannot lead to controversy, for the further reason that my own estimates of the population of Boston, made prior to the enumeration, indicated at least 410,000 people residing in Boston. So, if the facts and analyses herewith submitted lead us to conclude that the recent enumeration was substantially correct, my own estimates, with those of others, must fall to the ground. But there has been a blunder somewhere, I am convinced, and the analyses will develop that blunder.

In taking the census of 1885 in the city of Boston, 89 different enumerators were employed in as many districts and sub-districts, and they were instructed to make the enumeration by what is known as assessment blocks, on plans and maps adopted by the Board of Assessors of the city. These assessment blocks, or minute districts, numbered 2,113. The primary object of adopting these minute districts was to enable this office to report to the City Government the number of people and voters residing in each assessment block, for the purpose of aiding the City Government in re-districting the city into wards during the year 1885, as provided by law. The result, in a census point of view, in adopting the assessment blocks established by the assessors, was to reduce the opportunity for errors in the enumeration to the minimum. The enumerators were selected as carefully as possible, approved by the Mayor and Aldermen, commissioned by the state, and sworn to the faithful performance of their duties, in accordance with law and instructions. They were to make a house to house canvass, and report the name, age, birthplace, nativity of parents, occupation, conjugal, political and physical condition, and other facts, for each man, woman and child residing in their respective districts on the first day of May, 1885, that day being the date indicated by

the constitution of the Commonwealth. After the performance of their duties the enumerators made oath to the accuracy and completeness of their work. The minor methods of enumeration adopted in this census reduced the liability to error still further. Many of the enumerators selected served under me in taking the censuses of 1875 and 1880. A few of those selected this year proved unworthy in some degree, and two died during the enumeration.

In June last, when most of the enumerators had completed their canvass, I aggregated the unverified returns of those who had completed their work, and added to the number thus obtained the population of the unreported districts, as indicated by the census of 1880, and found, greatly to my surprise, and much to my disappointment, that the population of Boston was represented by a figure between 386,000 and 390,000. This result determined me to make every effort to satisfy myself that no material errors had been made in the enumeration. The use of the assessment blocks, or districts, 2,113 in number, enabled the office to scrutinize carefully the work of the enumerators. The chief liability to error in taking the census lies in the omission to enumerate part of a street, place or alley way. To this opportunity to error we directed our most careful attention, and every assessment block in the examination of the enumerators' returns was checked off. In every instance where an enumerator proved inefficient, or did not seem to comprehend his instructions, we aided him with expert special agents, or with the services of enumerators who had completed their work. Thus before the public became at all nervous over the disappointing total of the population of Boston, I had satisfied myself of the substantial accuracy of the enumeration, and every step taken to investigate it, and to study the movement of the population of the city in the past has solidified such conclusion.

In every instance but one where complaints have been made by individuals that their houses had not been visited by the enumerators, careful examination of the returns has disclosed the fact that they had been, and all the facts of the people residing there taken. In the single exception, which was the case of a vacant house visited towards the last of May, the party living in a suburban town, our agents were looking the matter up when complaint was made. So far, then, Mr. Mayor,

as the methods of the enumeration are concerned, I see no reason to come to any conclusion other than that the population as stated is substantially correct.

But, in addition to these facts, the history of the population of the city is equally conclusive. As part of this history I submit a table exhibiting the population of Boston proper at various periods and of all those annexations which have influenced population. This table is taken from a work entitled "The Social, Commercial and Manufacturing Statistics of the City of Boston," a work which I had the honor to prepare, under the direction of the committee of printing in 1882, for the City Government. By this table one can see the growth of the original town as compared with that of annexed territories, and of the whole combined. This table was carefully prepared at the time, for the facts shown by it had not been collectively stated in any other document or publication. I have, for the purpose of this communication, extended the table to include the facts for 1885.

The work referred to was written in August, 1882, and on page 10, I find that I had fallen into the usual error of estimating the population on the basis of polls returned by the assessors, and by such estimate I stated that in round numbers the population at that time, August, 1882, must have been 400,000, and after making such statement I used the following language :

"The growth of the city proper has been quite as steady as that of the annexed territory ; but the indications are that the point has been reached beyond which the population will not grow to any great extent, and the increase in the future must take place in annexed localities. The extension of the mercantile interests is constantly encroaching upon the population of the central portions of the city ; these encroachments are now nearly overcoming the natural growth of the city proper. It is therefore reasonable to expect that the population of Boston proper will remain quite stationary in the future."

With this table before us we can examine the movement of population by decades or half decades. Beginning with 1855, and taking the facts for each half decade since and including the present year, as we have had a quinquennial census since then either by the State or Federal Government, we find that

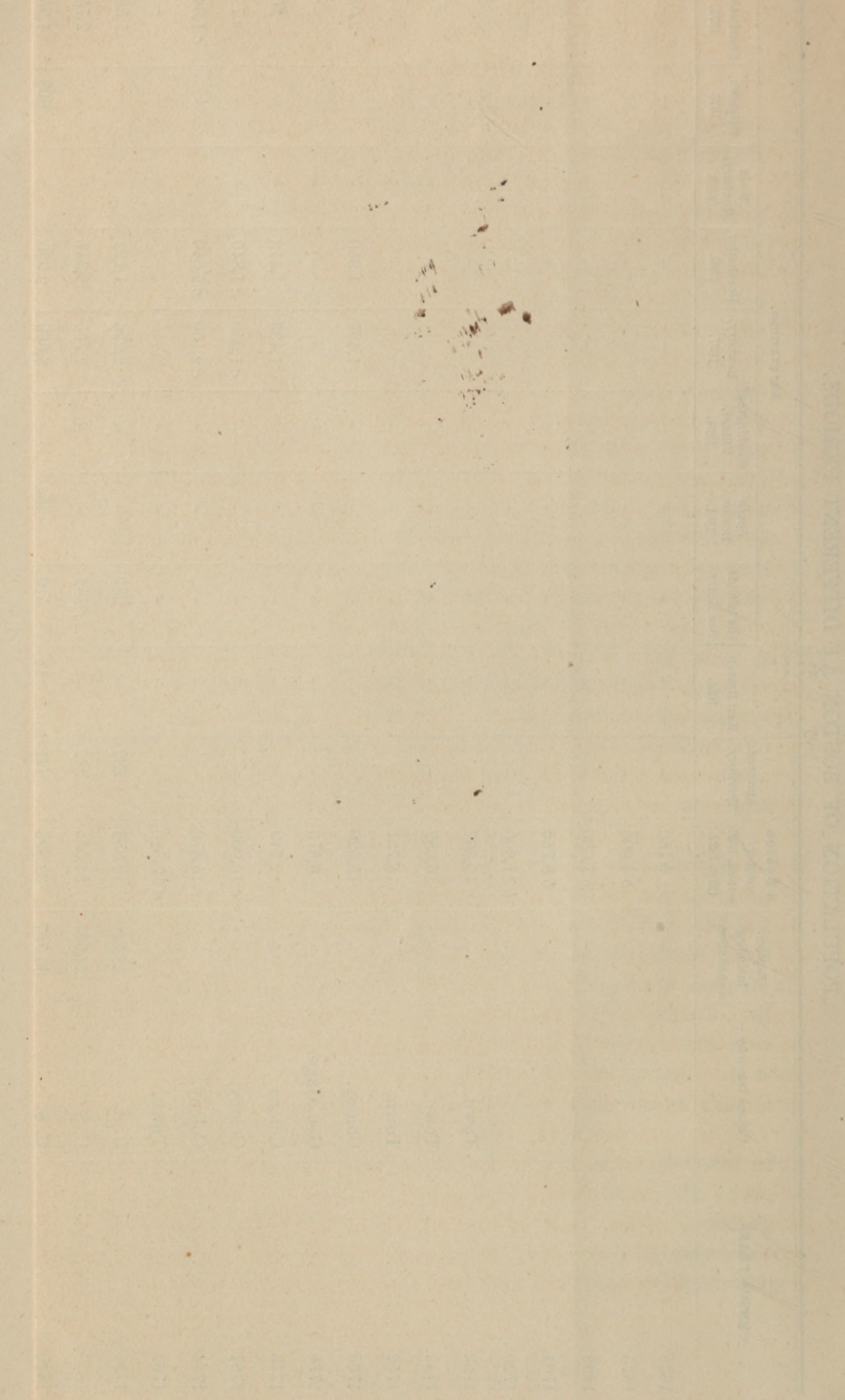


POPULATION OF BOSTON AT DIFFERENT PERIODS.

CENSUS YEARS.	Census taken by—	Boston: Including Annexations	a Boston proper: Settled, 1630; City, 1822.	Annexed Territory.	East Boston, 1636.	The Islands, See Notes.	South Boston, 1804.	Washington Village, 1855.	ANNEXATIONS.						
									Dorchester, 1889.	West Roxbury, 1873.	Brighton, 1873.	Charlestown, 1873.	Roxbury, 1867.		
1638	.	-	b 150	-	-	-	-	-	-	-	-	-	-	-	-
1675	.	-	b 4,000	-	-	-	-	-	-	-	-	-	-	-	-
1698	.	-	b 7,000	-	-	-	-	-	-	-	-	-	-	-	-
1704	.	-	b 6,750	-	-	-	-	-	-	-	-	-	-	-	-
1720	.	-	b 11,000	-	-	-	-	-	-	-	-	-	-	-	-
1722	Town,	-	10,567	-	-	-	-	-	-	-	-	-	-	-	-
1742	Town,	-	16,382	-	-	-	-	-	-	-	-	-	-	-	-
1752	Town,	-	15,731	-	-	-	-	-	-	-	-	-	-	-	-
1765	Colony,	-	15,520	-	-	-	-	1,487	1,360	-	-	-	-	2,031	-
1775	Gen. Gage,	-	6,573	-	-	-	-	-	-	-	-	-	-	-	-
1776	Colony,	-	2,719	-	-	-	-	1,433	1,513	-	-	-	-	360	-
1781	Colony,	-	c 10,000	-	-	-	-	c 1,650	c 1,840	-	-	-	-	c 725	-
1784	Colony,	-	c 15,870	-	-	-	-	c 2,150	c 2,060	-	-	-	-	c 1,340	-
1789	Town,	-	d 17,880	-	-	-	-	-	-	-	-	-	-	-	-
1790	U. S.	18,320	18,038	282	-	282	-	2,226	1,722	-	-	-	-	1,583	-
1800	U. S.	24,937	24,655	282	-	f 282	-	2,765	2,347	-	-	-	-	2,751	-
1810	U. S.	33,787	32,896	891	18	519	354	3,669	2,930	608	4,959	608	4,959	6,591	-
1820	U. S.	43,298	-	-	-	-	-	4,135	3,084	702	6,591	702	6,591	-	-
1825	City,	58,277	56,003	2,274	24	264	1,986	-	-	-	-	-	-	-	-
1830	U. S.	61,392	-	-	-	-	-	5,247	4,074	972	8,783	972	8,783	-	-
1835	City,	78,603	72,057	6,546	607	344	5,595	-	-	-	-	-	-	-	-
1840	U. S.	e 93,383	85,475	7,908	1,455	277	6,176	-	-	-	-	-	-	-	-
1845	City,	114,366	99,036	15,330	5,018	292	10,020	-	-	-	-	-	-	-	-
1850	U. S.	136,881	113,721	23,160	9,526	325	13,309	-	-	-	-	-	-	-	-
1855	State,	160,490	126,296	34,194	15,433	f 550	16,912	g 1,319	18,469	4,812	21,700	4,812	21,700	-	-
1860	U. S.	177,840	133,563	44,277	18,356	f 1,000	24,921	-	25,137	9,769	25,065	9,769	25,065	-	-
1865	State,	192,318	141,083	51,235	20,572	f 1,300	29,363	-	28,426	10,717	26,399	10,717	26,399	-	-
1870	U. S.	250,526	138,781	111,745	23,816	f 1,700	39,215	-	34,753	12,261	28,323	12,261	28,323	-	-
1875	State,	341,919	140,669	201,250	27,420	1,927	h 54,147	-	50,429	15,788	33,556	15,788	33,556	-	-
1880	U. S.	362,839	147,075	215,764	k 28,381	m 1,545	56,369	-	i 57,123	17,890	33,731	17,890	33,731	-	-
1885	State,	390,406	147,151	243,255	k 29,280	m 2,139	61,534	-	65,965	20,717	37,673	20,717	37,673	-	-

NOTES ON PRECEDING TABLE.

- a. By Boston proper is meant the territory of Boston, independent of all annexations.
- b. Estimates made in the years named. Those for 1675 and 1698 were probably too large.
- c. Estimates based on censuses of polls.
- d. Estimate based on actual number of houses in 1789, and average persons to house, as shown by U. S. census of 1790.
- e. By the State census of May, 1840, the population of Boston was 84,401. Mr. Shattuck, in his report on the census of Boston for 1845, shows clearly that the U. S. State census of 1840 was incorrect.
- f. Estimated.
- g. Included also in the population of Dorchester in this year. After 1855 Washington Village is included in South Boston.
- h. The population of South Boston could not be stated definitely for 1875, because the wards including South Boston also included a part of Boston proper. The figures given are very close, however.
- i. The territory of Roxbury and Dorchester was not kept intact by ward boundaries in the ward division of 1875; it is therefore difficult to give the exact population of each district by census of 1880. The figures given are the result of very careful study of the population by census enumeration districts, of which there were 208 in Boston for the U. S. census of 1880.
- k. The population as usually given in census tables includes that of the islands in the harbor.
- m. For the separate islands as follows: 1880; Breed's, 152; Deer, 851; Galloupe, 5; Rainsford, 187; Long, 49; Lovell, 5; Spectacle, 53; Thompson's, 106; Fort Independence, 13; Fort Warren, 112; Fort Winthrop, 12. 1885; Breed's, 348; Deer, 1,145; Galloupe, 6; Rainsford, 204; Long, 81; Lovell, 7; Spectacle, 61; Thompson's, 122; Fort Independence, 11; Fort Warren, 129; Fort Winthrop, 25.



the increase of population from 1855 to 1860 was 30,790; between 1860 and 1865, 21,130; between 1865 and 1870, 23,876; between 1870 and 1875, 49,417; between 1875 and 1880, 20,920; between 1880 and 1885, 27,567. The average increase for the six half decades named was 28,865. It will, therefore, be seen that the gain during the last half decade was quite up to the average gain for the half decades since 1855. This fact, certainly, indicates that no great error was made in the recent enumeration. The gain during the last half decade too has been greater than in any other half decade mentioned, except for those between 1855 and 1860, and 1870 and 1875. Between 1870 and 1875 there was an abnormal growth not only in the city, but in the State. The revival of industries, great bodies of immigrants coming in, the speculative fever, all conspired to increase our population beyond the normal rate.

In examining the growth by different parts of the city we find that in the period between 1855 and 1860 the city shows a gain of 10+ per cent, while during the next five years, 1860 to 1865, the gain was but 8 per cent. No territory had been gained by annexation except in the early history of the city. Population was seeking the suburban districts, and the ratio of increase was becoming less each year. Between 1865 and 1870 Boston gained 23 per cent in population, a gain almost entirely due to the annexation of Roxbury in 1867, and Dorchester in 1869, both rapidly growing suburbs. East Boston and South Boston made gains, but the city proper during this period not only did not grow, but on the contrary actually lost more than 1 per cent of its population. Between 1870 and 1875 the total gain was 36+ per cent, but this large gain was mainly due to annexation and to the growth of recently annexed territory. Charlestown, West Roxbury and Brighton came within the city limits in 1873, and 56 per cent of the total gain of the city's population was due to this source, and 21 per cent to growth within the districts of Roxbury and Dorchester. Since 1875 no new territory has been gained, and the capacity for expansion is therefore confined to the city area as now defined. Between 1875 and 1880 the city gained 6+ per cent in population, but 55+ per cent of the total gain took place in the four districts of Roxbury, Dorchester, West Roxbury and Brighton. Between 1880 and 1885 the total gain of the city

was 7+ per cent, a larger ratio of growth than was shown in the previous five years; but 61 per cent of this growth, however, was in the four districts just named. The city proper shows no material change. Charlestown, although during this last period, 1880 to 1885, showing an increase of 3,942, has practically reached its limit of expansion. This is also true of East and South Boston. The increasing ratio of growth in Roxbury, West Roxbury, Dorchester and Brighton as compared with the growth of the city, as a whole, indicates the direction of the future growth within the present city limits, while the inspection of growth in each census period since 1855, in connection with the causes of the exceptional increase between 1865 and 1875, clearly indicates the fact that any rapid increase of population must be based upon future annexations. The territory of the four most rapidly growing districts, namely, Roxbury, Dorchester, West Roxbury and Brighton, is 77+ per cent of the whole territory of Boston, and it is in this part of the territory of Boston that future gains must be made. Out of 27,567, the total growth of Boston between 1880 and 1885, 16,891 was in these four districts. These facts relative to the aggregate growth of Boston offer most excellent corroborative evidence of the completeness of the recent enumeration.

Boston, or its population rather, is not comprised within its territorial limits. In 1875 the population within a radius of eight miles from the State House was 480,419, or 29+ per cent of the whole population of the State; in 1880, 28+ per cent; in 1885 it was 573,833, or 29+ per cent of the whole population of the Commonwealth. These percentages indicate clearly that relatively Boston's population keeps up to the highest mark, even with the enormous growth of the half decade preceding 1875.

If we extend the area and include the population within the radius of 12 miles, which population constitutes the real Boston, we meet with similar confirmation. In 1875 such population was 603,909 or 36+ per cent of the population of the State; in 1880 it was 36+ per cent; in 1885 it was 728,327, or 37+ per cent of the State's population; a gain of 124,418 in ten years, and this is Boston's real gain. If we take the population of the present territory of Boston alone, in its relation to the total population of the State, we find a series of percentages

entirely in harmony with one's observation of the growth of Boston. This observation leads one to conclude that a great commercial and manufacturing city like Boston must, sooner or later, reach a point in its population when the ratio of its population to the State must begin to recede. In 1855 the population of the present territory of Boston was 19.1+ per cent of the whole population of the State. In 1860 it was 20.1+; in 1865, 21.2+; in 1870, 20.0+; in 1875, 20.6+; in 1880, 20.3+; in 1885, 20.1+; the latter percentage being exactly the same as that of 1860. These percentages indicate that by the recent enumeration the population of the present territory of Boston holds up to its uniform proportion of the whole State.

It is assumed by many that by the ratio of population to polls at any given period, the population at a subsequent period may be very fairly determined; this is done by multiplying the number of polls of the subsequent period by the ratio of population to polls in the previous period. Let us examine this matter carefully and see if we have not all been taking a mathematical and theoretical census, rather than a real one.

We are enabled in the following table to give the poll returns both by assessors and census enumerators from 1865 to 1885, inclusive. This table comprehends the polls for the present territory of Boston:—

YEARS.	Polls as Returned by Assessors.	Polls as Returned by Census.	Pop. to each Poll, as by Assessors' Returns.	Pop. to each Poll, as by Census Returns.
1865, . . . . .	51,085	69,666	5.25 +	3.85 +
1870, . . . . .	68,322	-	4.28 +	-
1875, . . . . .	85,243	95,537	4.01 +	3.57 +
1880, . . . . .	93,820	106,537	3.86 +	3.40 +
1885, . . . . .	112,140	116,133	3.45 +	3.36 +
Averages, . . . . .	-	-	4.17	3.54 +

It will be seen by the foregoing table that in each instance by dividing the total population of the present territory of Boston

by the total number of polls returned by the assessors and by the census enumerators, a decreasing quotient is obtained. This quotient derived by dividing the population by the total number of polls returned by the assessors in 1865 was 5.25+, and this decreases to 3.45+ in 1885. If, on the other hand, we take the quotient derived by dividing the total population by the total number of polls reported by the census enumerators in each of the years named, we commence at 3.85+ in 1865, and decrease to 3.36+ in 1885. A very remarkable uniformity of ratios of population to polls in the one case, and a very remarkable want of uniformity in the other. How this occurs, is a question which presents itself to us. It should be borne in mind that in each of the years named the polls have been returned by assessors and by enumerators for May 1. In 1865 the census enumerators returned by name, residence, and all the other facts called for in the census, 18,581 more polls than were returned by the assessors of that year for the territory now within city limits. In 1870, the United States census made no designation by age or otherwise, by which the polls could be obtained. In 1875 the census enumerators returned 10,294 more polls than were returned by the assessors. By the United States Census of 1880 the male citizens of Boston, 20 years of age and upwards, numbered 12,717 more than the polls returned by the assessors for the same year. But this number for 1880 as returned by the census is somewhat too large, because it includes males exempt as polls. In 1885 the census enumerators returned 3,993 more polls than were returned by the assessors. It will be noticed that as the census years progress the number of polls returned by the census enumerators in excess of those returned by the assessors decreases.

This is owing to the increased efforts of the able chairman of the board of assessors to secure accuracy; but there are very many influences which prevent the assessors from securing a full and complete list of the polls, influences which do not operate to prevent the census enumerators from securing such complete list. There is hardly a town in the Commonwealth, either under the recent census or in the past, where the number of polls returned by the census enumerators has not very greatly exceeded the number returned by the assess-

ors. This could be easily explained, but it is not essential; it is no reflection on the assessors of the cities and towns of the Commonwealth that the number of polls returned by them should be almost invariably less than the actual number. The reasons are legitimate to a large extent. The result, however, is that in various localities an attempt is usually made to build up a population, based on the ratio of population to polls. In the case of Boston the ratio of four has been used, and this ratio secures a population of 448,560, as the population for 1885. Why not take the ratio of 1865, when we could easily secure, mathematically, a population of 586,235; for the ratio of 1865 would be just as legitimate as that for 1875. The average ratio for the five census periods named, according to the assessor's returns, is 4.17; while, by the census enumerator's returns, such average is 3.54. Which ratio shall we take? If we take 3.54, which is the fairest ratio, because it is the result of successive census enumerations, and it is by the census enumerations only that the proportion of population to polls can be secured, the population for Boston for 1885 would be 396,975; a figure a little too large, because the ratio is too large, it being an average, yet a figure which probably indicates more nearly the population of Boston at the present time than any other.

If it should be asked why the ratio decreases, I would answer, because the proportion of males to females increases. In 1865 the proportion of population to polls, according to the census enumeration, was 3.85, larger than it has been since. The percentage of males to the whole population was 46.52+; of females, 53.47+; while in 1880 the percentages had shifted to 47.47+ males, and 52.52+ females; and in 1885 to 47.67+ males, and 52.33+ females. In 1875 the excess of females in Boston was 17,395, while in 1885 the excess was but 18,204; showing that through some industrial influences, and perhaps the building of great works by the city, employing large numbers of males, the proportion of males to the whole population is increasing. This, of course, decreases the proportion of the population to polls. In percentages this is shown to be .22 gain in the percentage of males to the whole population, as compared with 1875, and a loss of .21 in the proportion of population to polls, as shown by the last table, between 1875

and 1885. These facts clearly indicate that any estimated population, based on the proportion of population to polls, is only approximately correct, when the quotient is derived by dividing the total population shown by the census by the total number of polls returned by the same census. The harmony of the preceding statements proves mathematically that there is nothing inharmonious between the results of the recent enumeration and the actual facts in the case, especially when it is remembered that, so far as polls are concerned, this office is in possession of the full record of facts relating to each poll by name.

It is intimated that the death rate of Boston indicates that the recent enumeration was inaccurate. This suggestion has no particular significance, but it may be well to consider it.

The death rate per thousand for the present territory of Boston since 1855, and for census years only, has been as follows :—

1855,	.	.	.	.	.	.	23.6+
1860,	.	.	.	.	.	.	22.7+
1865,	.	.	.	.	.	.	22.5+
1870,	.	.	.	.	.	.	23.5+
1875,	.	.	.	.	.	.	26.1+
1880,	.	.	.	.	.	.	23.6+
1885,	.	.	.	.	.	.	24.7+

or an average for the seven periods named of 23.8+. If we take the death rate per thousand for Boston on the actual territory which it controlled at the same dates we find the following results :—

1855,	.	.	.	.	.	.	25.4+
1860,	.	.	.	.	.	.	24.6+
1865,	.	.	.	.	.	.	23.6+
1870,	.	.	.	.	.	.	24.3+
1875,	.	.	.	.	.	.	26.1+
1880,	.	.	.	.	.	.	23.6+
1885,	.	.	.	.	.	.	24.7+

or an average for the seven periods named of 24.6+.

It is perfectly evident that there can be no real death rate established for any year other than a census year. This being the case, there is nothing in the foregoing death rates to indicate alarm as to the population of Boston in May, 1885. Death rates computed for the years intervening between



census periods have been somewhat misleading. Prior to 1875 or 1876 (if my memory is faithful in this matter), the death rates for the State were accurately determined for the census years, and the rates for intervening years computed on the total population of the previous census. This gave an appearance of constantly increasing rates from a census year up to the year preceding the next census.

Looking at all the years between 1866 and 1875, inclusive, when the death rates were computed as stated, for Boston for territory existing at the time of the computation, and as shown by the 34th Registration Report, we find the following:—

1866,	. . . . .	22.7
1867,	. . . . .	23.
1868,	. . . . .	25.
1869,	. . . . .	24.9
1870,	. . . . .	24.3
1871,	. . . . .	23.5
1872,	. . . . .	32.3
1873,	. . . . .	31.4
1874,	. . . . .	22.8
1875,	. . . . .	26.1

or an average for the decade of 25.6.

Since 1875 or 1876 computations have been made for the years between census periods on an estimated population, which estimated population, as previously shown, in almost every instance has been too large, and consequently the death rate as computed on such estimated population has been too small. The death rates shown in the first table are for census years only, and those in the second table presenting death rates in Boston computed on territory existing at periods of computation are the true figures on which to base conclusions.

If we turn to the statistics of births and marriages we shall find by the former that the census enumerators have returned nearly 60,000 too many people, while by the test of marriages the enumeration was exact. Thus by the various bases which may be used to take a slate-and-pencil census in one's office without the aid of a corps of enumerators, Boston is given a population in 1885 numbering all the way from about 330,000 to 565,000, according to one's ambition or previously expressed opinion. Which result shall we take? That derived from partial enum-

erations, and vacillating ratios of population to something else, or shall we take the sworn results returned by 89 enumerators working constantly under the control of a central office, and drop all ratios and opinions? As a statistician I prefer the latter course, feeling responsible always for a substantially accurate enumeration, but not for an absolutely perfect census, for the difficulties in the way of census taking in a large city preclude the latter.

This statistical analysis of the population movement in Boston is quite sufficient to lead me to abandon the estimates made prior to the recent enumeration. In addition to such considerations it should be remembered that Boston is a great mercantile and manufacturing centre, its prosperity developing rapidly, but it should be remembered also that the rapidity of development of the city in commercial or industrial ways retards the growth of population to a great degree. Every time an advance is made along a street by the extension of business houses, the families living there are crowded out. They may move to other parts of the city, or locate in the suburbs; in either event, there is only a shift of population and not an increase. The transfer of great manufacturing establishments from the city to the country carries large numbers of families, or if the transfer is made within the city limits, there is simply a change of location in the population interested in the establishment.

I remember that in taking the Federal Census of 1880, I discovered a loss in one ward, but found upon investigation that the removal of one establishment from that ward to another in a distant part of the city, had carried with it over 1,000 people. This increase in the population of the part of the city to which the removal was made, apparently indicated growth.

The city, too, lays out new streets and avenues, tearing down rookeries and crowded tenement houses. Every such improvement displaces a large number of families who seek a residence either in some other part of the city, or in the suburbs. Thus the building of a large number of houses, often referred to as an evidence of an increase of population, may not mean any increase whatever. If 200 families are crowded out of their old locations by improvements, or by the encroachments

of trade, there is immediately a demand for 200 new tenements which makes it appear that the population is increasing rapidly, when there is no increase. This argument of new houses is often used as unanswerable; but, it is, Mr. Mayor, frequently otherwise. Even in a country town a new house or a dozen new houses may not indicate an increase of one in the population, as it may be a result of improved financial condition of one of two families formerly living in the same house. The building of new houses is an indication of prosperity and increase, but not positive evidence of increase. This retarding influence of the increase of trade and of manufactures will be felt more and more as their extension becomes more rapid. The character of the manufacturing which comes here, also has a great influence upon the character of the population. It may mean an increase of the number of polls comparatively, or it may mean an increase of the proportion of females to males, in either event throwing out of proportion any previously obtained ratio. Immigration too has fallen off, and this has been felt in the whole state, and yet Massachusetts keeps her growth fairly up to the gain in newer states. We have nothing to complain of when we examine facts.

Your Honor will pardon me I know for this extended communication. It was needed by all the considerations in the case, and to my own mind was necessary, because I have far more interest in statistical accuracy than I have in opinions, whether expressed by myself or by others, and the foregoing statements lead me to abandon my own estimate, and to conclude that the population of Boston in May, 1885, as it has been stated at 390,406, was substantially correct. I believe further verification will make no material changes.

I am, very respectfully,

Your obedient servant,

*Carroll D. Wright.*  
Chief.





