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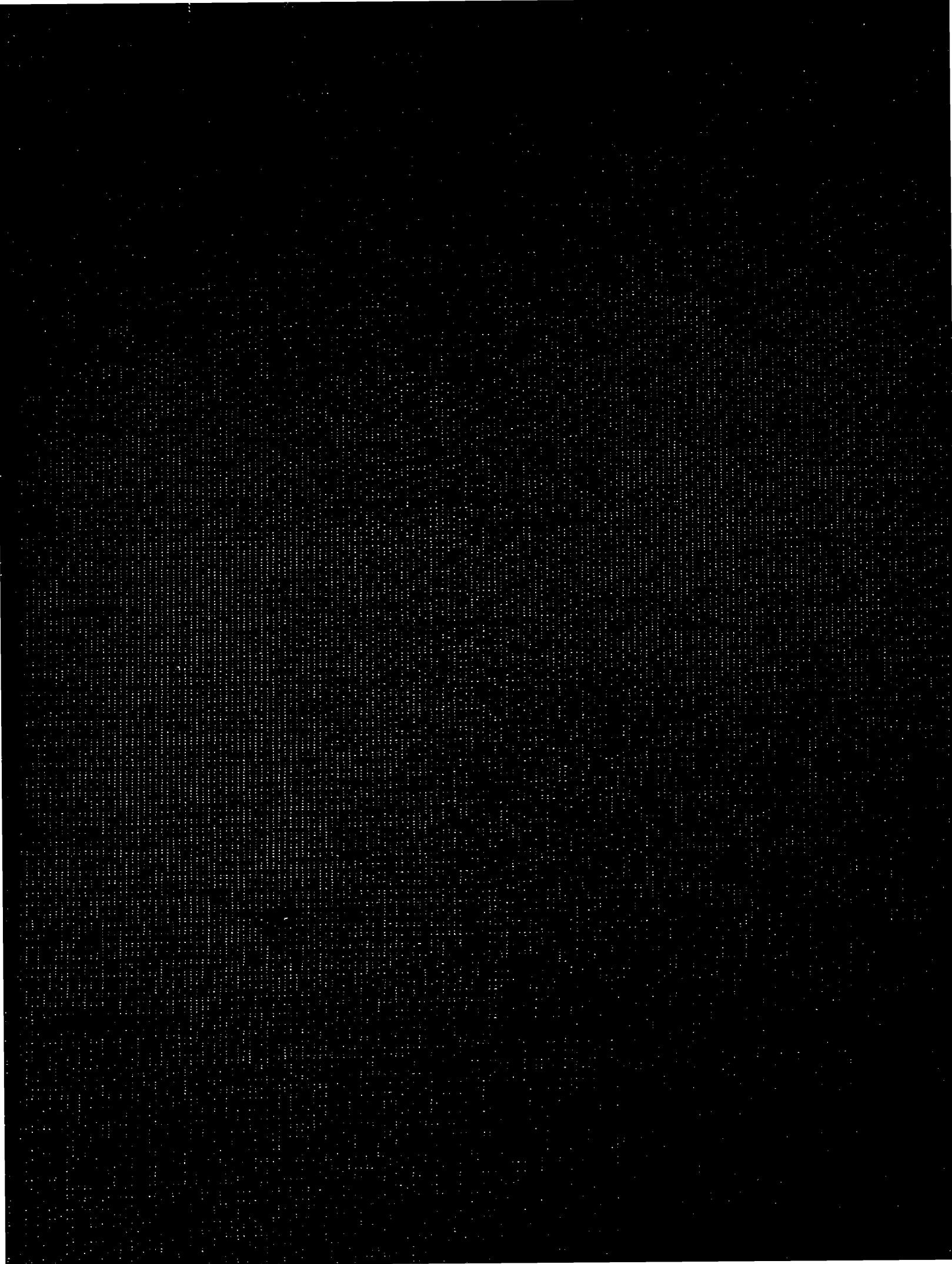
A Study of the Vital Statistics of Oxford, Massachusetts

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A STUDY OF THE VITAL STATISTICS OF
OXFORD, MASSACHUSETTS

BY

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F. H. Hopkins

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A STUDY OF THE VITAL STATISTICS OF

OXFORD MASSACHUSETTS

A THESIS

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Introduction.

Directly following the Civil War occurred a period of low vitality in the town of Oxford which lasted approximately thirty years, and it is chiefly concerning this period I have made this study. For the figures regarding population for the first eighty-five years I referred to a volume of vital statistics published by the state, and for those since 1850 I used the censuses of the United States and of Massachusetts. From a treatise on tuberculosis in Oxford written by Dr. Elliot P. Joslin I gained my facts upon this subject. The vital statistics of the town were opened to me thru the kindness of Mr. J. Darling, the town clerk. The historical statements I found in the "History of Oxford" written by Mr. George F. Daniels.

Location.

Halfway across the state of Massachusetts and about seven miles north of the Connecticut state line is located the town of Oxford. A long low valley framed in by chains of hills on the east and west and by hills on the north forms the central and largest part of the town. Oxford lies twelve miles south of the city of Worcester and four miles north of Webster, the two points thru which the majority of travel and transportation finds its way.

The surrounding towns are, on the north Auburn, formerly known as Ward, on the west Leicester, Charlton and Dudley, on the south Webster, and on the east Douglas, Sutton and Millbury. According to the grants of the English settlers much of the land which now composes the neighboring towns primarily belonged to Oxford. In December 1731 "Dudleys six thousand acres excepting Paul Dudley's farm of a thousand acres" were set off for the new town of Dudley. The District of Charlton was set off January 1755 and in April 1778 the Parish of Ward, now Auburn was established part of the land taken from Oxford; and in 1832 the town of Webster was set off from Oxford with two thousand five hundred acres. Somewhat counter balancing these

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dismemberments have been a few annexations. In 1731 and 1734 the farms of Kingsbury, Learned and Dudley were annexed, the latter containing one thousand acres. Besides these, parts of Charlton were annexed in 1789 and in 1809 and a part of Sutton was annexed in 1793. The South Gore was taken by Oxford in 1807 and the North Gore, containing seven hundred and thirty-eight acres was annexed in 1838.

Prior to the completion of the branch railroad between Norwich and Worcester thru Oxford in 1840 communication was carried on exclusively by means of team, as the canals did not pass thru the town and the rivers were not of sufficient size to support navigation of any importance. The trade from Oxford and the surrounding towns largely radiated towards Worcester. A small amount was carried on directly with Boston and Providence, but because of the distance this was necessarily of small importance. For a long time after Oxford received the benefits of a railroad the towns to the east and west suffered from the lack of means of transportation, and even at the present time these towns are struggling under the disadvantage of their isolation. This condition causes such trade to center in Oxford as could not as easily reach any other market.

The growth of industries in Webster, especially the mills of Samuel Slater resulted in another branch rail-

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road connecting this point with Worcester. Oxford fortunately being located between these two centers also received advantages of this line which is now owned and managed as a part of the Boston and Albany Railroad system. The Norwich and Worcester line has come under the control of the New York, New Haven and Hartford system. During the last decade of the nineteenth century an electric car line was put into operation between Worcester and Webster passing through Oxford.

Of great importance to the town are its rivers because of the industrial advantages they contribute. Running as they do from the hills and higher ground down into the much lower valley, they furnish a great deal of power which may be devoted to manufacture. The most important is the Maanexit River which enters the north-western section of the town and flows southward to the west of the village supplying power to several mills. Joining this stream below the center of the town is the Little River which after coming across the west border, supplies power to two industries. Another stream flowing down the east side of the valley joining the Maanexit still further to the south. A tributary to this small river is dammed up into a pond back in the hills and supplies the power for the single remaining grist mill. At present most of the industries

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have installed other forms of power which they use along with the water power.

The village lies upon ground which is low as compared with the higher surrounding hills, and is about five hundred feet above sea level. The atmosphere is by no means a dry one, and catarrh and other throat troubles are frequent. The invigorating effect, such as Herbert Spencer would attribute to a higher and dryer climate is proportionally small as may be easily recognised in coming to Oxford from a more favorable locality. There is considerable social life in the town but very little in the line of dances such as require superfluous expenditure of energy. However the town shows, on the other hand a progressive nature in so far as the upkeep of property is concerned. Unpainted houses or barns are scarcely to be found in the town and those which are in dire need of paint or repair are by far the exception. For the most part lawns are kept mown and trimmed during the summer, giving the town as a whole a good appearance.

The soil is of a heavy, black, fertile type which would naturally give agricultural pursuits an important place. Unfortunately, however during the summer months very little rain falls in the vally. This phenomena is due to the high hills to the west of the town which time

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and time again succeed in obstructing the course of low hanging thunder clouds and cause the rain to be diverted sometimes toward the south and again towards the north. In either case depriving the thirsting land of the valley of its much-needed rain.

The town with its broad, level, well-kept main street bordered on both sides by grass plots and large elms: and with its level fields, surrounded by high rolling hills is a most attractive locality to those who have become acquainted with it, and is a most desirable location for residence in so far as natural beauty is concerned.

Population.

In order to understand the variations in the population in any locality many things must be taken into account because of changing internal and dynamic external conditions. It is an advantage to consider the population to be composed of three classes, firstly those who derive their living from agriculture, secondly, those who live upon the income of their wealth, and finally, those engaged in trade or manufacturing, either as entrepreneurs or as laborers.

The study of a permanent population in Oxford date back to the incoming of the English in about 1700; these first settlers were certainly predominately of the first class. At the time of my first figure, 1765 with its population of 890 the majority were still farmers. Industry was slight and was nearly entirely carried on as spare time employment by the farmers, and in nature was such as brick-making, shoe-making, etc. Commerce was also of small importance. Land was presumably all taken up and was cleared and cultivated to the extent profitable. Consequently there could be only little increase in population in this class until methods of agriculture should be improved, until land became more valuable, allowing the still poorer

grade of land to be cleared and brought under cultivation, and until there came an increase in market calling for the profitable forms of agricultural outputs. These factors have been in operation during the entire period thus allowing for a more or less steady increase in population which may not be accounted for directly by other economic changes.

The second class usually own their homes and may not be expected to change their residence very extensively to or from the town. Their wealth makes them independent of local conditions for their livelihood.

The third class is the one to which the variations in population in Oxford may be attributed. Prosperity brings them and depression drives them away, and it is largely among this class that I look for explanation of the changes in the census figures.

Attraction of an industrial class may be explained by the many advantages, of which by no means the least important is the abundant water power from the rivers which flow from the hills to the much lower valley. Also it has had as good conveniences of transportation as possible, isolated as it is from available water routes. Stage lines existed between this point and Boston as early in history as 1824, and New York in 1826. The Norwich and Worcester railroad was completed in 1840, giving Oxford advantage of one

of the earliest railroads.

In order to substantiate the belief that it was this third class that are involved in the population fluctuations in Oxford I have compared the figures of two adjoining towns, Sutton and Charlton, which have no adequate means of transportation and are not endowed with industrial advantages to so great an extent. These two towns are on the other hand better adapted for agriculture and are consequently populated chiefly by the farming and leisure classes

Variations in these two towns do not correspond with those in Oxford which I shall try to correlate with economic conditions. Showing the agricultural growth of a larger community in which land of the best quality still remained and transportation facilities were still to be improved, are the figures of unchecked growth of the county of Worcester. During unprosperous periods at least this growth must be nearly entirely attributed to reasons pertaining to agriculture, such as the improved methods of farming, the growth of markets and the opening up of new country by means of roads and railroads.

In the following table of population figures these relating to Charlton are worth especial notice. The census of 1800 was 2120 and has never been more than 60 higher than this. This subject has been studied and written up

in a thesis by C.L. Percy a former student at Clark University.

Table 1.

Census Figures.

Year.	Oxford.	Charlton	Sutton.	Worcester Co..
1765	890	739	2138	-----
1776	1112	1310	2644	-----
1790	1000	1965	2642	56,807
1800	1237	2120	2513	61,192
1810	1277	2180	2660	64,910
1820	1562	2134	2056	73,604
1830	2034	2173	2186	84,355
1840	1742	2117	2370	95,313
1850'	2380	2015	2595	130,789
1860	3034	2047	2676	159,659
1865	2713	1925	2363	-----
1870	2669	1878	2699	192,716
1880	2604	1900	3105	226,897
1890	2616	1847	3180	280,787
1900	2677	2000	3328	346,787
1905	2927	2089	3173	362,668
1910	3361	2032	3078	399,657

The considerable increase during the decade prior to

the Revolutionary War and the decrease shown by the next census figure presumably shows the effect of the war. The Tory element had pushed back into the country away from the coast where the eruption was impending.

From 1790 to 1830 there was a constant growth in the town according to each census. Topographical conditions were favorable and small industries were started. Samuel Slater had been persuaded to establish a mill in a section of Oxford, now included in Webster.

The census of the following decade indicates a decrease of more than one-sixth of the population or of 292 people. There were several causes. During this period a section in which Slater's mill was included, was dismembered from Oxford, but on the other hand considerable land was annexed with people enough to in part at least have balanced those in the disjointed territory. A cause effecting the industrial class was the business depression beginning in the year 1836 which stifled the small industries. The numbers that agriculture would support was limited and many were forced to go where opportunity made them a better offer. During this decade the rich, fertile Ohio River Valley was opened to immigrants and its inducement drew many people away from Oxford.

The next decade shows several changes in conditions

in town resulting in a rapid growth in the census figures of 1850. The Norwich and Worcester Railroad was completed at the outset, thus aiding transportation and to an extent giving rise to trade from Sutton and Charlton, two neighboring towns which had not gained any especial advantages in methods of transportation. The shoe industry was beginning to develop. The decrease in Charlton population during this period probably shows that some of the growth in Oxford came from the neighboring town. The same conditions in Oxford continued from 1850 to 1860 with the same spectacular growth.

The census figure of 1865, at the close of the war shows a fall, due to an extent to deaths of many of the 293 men who were in the army, but this will not explain all of the decrease. Economic conditions were at a poor status and were doomed to be at a near stand-still for the following thirty years. The decline in population was continuous until 1880 when it reached the lowest point in its fall. A slight increase was shown by the census of 1890.

The increase in the census of 1900 was slight, but evidences of a new period of progress were beginning to appear. An electric car line had been constructed in the preceding decade connecting Oxford with Worcester and Webster. New industries were beginning to expand; the

chief example of this was a box and lumber company. Other companies began to grow in the production of cotton, shoes, woolen and satinet goods.

The new century however is the period in which progress truly comes into evidence. Industry once again came to a high point and in the decade 1900-1910 population advanced to the highest point in the history of the town.

In the year 1914 with its nation-wide depression in business, Oxford began to show signs of slackening in its growth. Under stress of conditions the shoe factory has practically closed down, a felting concern has changed hands, and other businesses are running on part time. This condition long continued is certain to cause a fall in population. At present it is evident that there is an increase since the number of male polls assessed in 1914 was 914 while in 1910 with its population of 3361 there were only 883 polls assessed.

The characteristics of the population in Oxford have been similar to those in any other New England village of the same type. The permanent settlement was made by the English and soon the population became largely American born, predominately of English extraction. This condition is true at the present time, altho since about 1840 foreign elements have composed a considerable percentage

in the population. Conditions in Ireland resulted in a large Irish immigration toward the middle of the nineteenth century and consequently the laboring class in Oxford became strongly tinted with Irish. The large families of these immigrants form an important element in the native born population at present. The Irish were thrifty and progressive and were ready to be crowded out of the common laboring class into something better. We find the Canadian population appearing to a small extent before 1860 and after this date they have come in increasing numbers, especially since 1900. There is a new element with still lower standards of living, the Greeks and the Polanders who are appearing but slightly as yet in Oxford. The Canadians apparently are less progressive than the Irish and instead of being ready to be forced out of the common laboring class are in competition with those of lower standards.

There were in 1905 out of 2927 inhabitants 2327 native-born Americans and 600 foreign-born peoples or slightly over 20% foreign-born. Those whose parents were both native-born numbered 1409 or about 50% of the total population.

The female population has for many years remained persistently in excess of the male. According to the 1905 census there were 1518 females and 1409 males.

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The colored population in the town is not large. In 1905 there were 17 which is about the present number. Before 1860 the highest number recorded is 8, but in that year there were 26, in 1865 there were 23, there were 44 in 1890.

Conjugal conditions in Oxford in 1905 are seen in the following table.

Table 2(a).

Conjugal Conditions in Oxford.

	Male.	Female.	Total.
Single	770	761	1531
Married	590	601	1191
Widowed	46	147	193
DIVORCED	3	9	12

The average size of the family is seen in the following table.

Table 2(b).

Average Size of Family.

Year.	Average Size.
1865	4.30
1875	4.25
1885	3.89
1895	3.87
1905	3.98

Tuberculosis in Oxford.

This subject has been studied by Dr. Elliot Joslin, and I have gained most of the facts presented here from a pamphlet published by him upon the subject.* His figures which ended in 1905 I have brought up to date.

When we consider Oxford as a comparatively clean and well-kept country town with a population which has never exceeded its present standing of a little over thirty-three hundred, we are inclined to anticipate a relatively low death-rate from consumption. This impression is especially strong when we find that nearly a third of the inhabitants have their homes along the broad main street, surrounded for the most part are the houses with spacious lawns. The chief industries which are farming, shoe manufacture, cotton, woolen and satinet cloths production and box making should not call for as many cases of the disease as the kinds of occupations found in many other localities. Unfortunately we do not find such a good state of affairs to exist despite the good environments and occupations. The records of the town show that between the years 1844 and 1914 out of 3424 deaths there are 539 attributed to tuberculosis.

*Boston Medical and Surgical Journal. Vol.153, Number 16, Pages 436-441. October 19, 1905.

In this study from town records errors are likely to exist as is the case with any statistical study. Dr. Joslin, who has devoted considerable time to this study mentions several cases. In one instance he finds a man's death attributed to heart-failure and upon inquiry it was found that tubercle bacilli had been known to have existed in his sputum a few months prior to his death and that he had signs of infection in both chests. On the other hand a case was reported as consumption which was doubtful. On the whole the errors probably very nearly balance, thus making the working figures practically true. Another source of error would essentially arise from infected people moving to the town but undoubtedly the general determination will be nearly corrected by those who have become stricken with the disease in Oxford and have gone away.

In the study of the population of Oxford a rapid growth appears between 1850 and 1860. This latter year as well as being the largest in population in the history of the town until 1910, also is the year with the most deaths from tuberculosis. Records show 21 deaths, but after close study Dr. Joslin states his belief that there was no less than 27 deaths from this single cause. A conservative calculation, on his part is that there were at least 100 cases of the disease in the town that year, and that not less than

200 others living in close contact or caring for those stricken. Comparing these figures to the population, there was one case of the disease to every 30 inhabitants and one person out of every 15 who were constantly exposed. Considering some of the conditions of the time we find practically the whole population in close juxtaposition with the plague. Three saloons stood with open doors inviting the stricken and well alike to partake at their bars to mingle with and in each case to be served by a consumptive attendant. The town meetings which were undoubtedly long and excitable affairs, directly prior to the war were a matter of diversion for those who could get out of doors. Hours of such mingling of sick and well in a foul, close room with undoubtedly the sputum carelessly distributed upon the floor, could hardly exist without a disastrous effect upon a few if not many. Somewhat better were the churches from the standpoint of cleanliness, altho the prevalence of the disease among worshippers undoubtedly contributed largely to the melancholy type of their religion.

The fact that the death-rate from tuberculosis is large in a country town of the type of Oxford is surprising but it is alarming to find that the death-rate has exceeded the average of that of the entire state. Naturally we should expect the condition proven to exist in France

by statistics to exist in Massachusetts; that the death-rate from the disease should be less in the smaller towns.

Table 3.

Deaths and Death-rate from Consumption in Oxford,
in 5 Year Periods. 1851-1914.

Year Periods.	Total deaths From T.B.	Death-rate from T.B. per. 10,000 Pop.
1851-1855	41	31.6
1856-1860	64	43.7
1861-1865	87	60.5
1866-1870	43	31.2
1871-1875	59	42.0
1876-1880	40	28.7
1881-1885	42	33.8
1886-1890	32	25.7
1891-1895	30	23.9
1896-1900	25	19.7
1901-1905	19	12.9
1906-1910	12	6.1
1911-1914(4 yrs.)	12	8.9(1910 cen- sus)

In the above table there appears considerable variation in the figures of the five year groups. This is somewhat due to dealing with such small numbers.

It is interesting to correlate these figures with conditions of their respective time. The period 1861-65

with its rate of 60.5 shows an advance from the 43.7 of the previous period. This simply shows the rate of death from this cause, but we have no way of obtaining the number of cases in town; they may not have increased, in fact the decline in death-rate from tuberculosis to 31.2 in 1866-1870 apparently gives evidence that the disease was not upon the increase. There are at least two causes for the increase in deaths in 1861-1865. First, economically, industry was at a low ebb during the war and people scarcely had the necessities of life. Second, from a psychological standpoint, the worry about the war and about members of the family and friends at the front resulted in the shortening of the lives of many. The period 1866-1870 brought relief to these conditions and a decrease occurred. After a slight increase in the next period a drop followed in 1881-1885. From this time forward a more or less steady decrease occurs. With this decrease we must correlate the discovery of the tubercle bacilli by Robert Koch in 1881, which date marks the end of the darkest ages of the disease.

The large decrease in numbers of deaths from this disease is a welcome fact to the people of Oxford. The year 1906 in which not a single death occurred from this cause is the one most encouraging to those fighting the disease.

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The changes in the character of the population has been much the same in Oxford as in any other New England town of the same type. The changes in composition has always been gradual; probably at no time during the last sixty years has the foreign element formed over 20% of the population. The following table of nationalities of people dieing of tuberculosis seems to show no especial tendency of immunity or of weakness to the disease.

Table 4.

Nationality of Those Dieing from Tuberculosis.

American	401
Irish	43
Canadian	39
French	1
New Brunswick	3
Swede	1
German	3
Scotch	2
Indian	1
Colored	13
Not given	12
-----	--
Total	539

The death rate from tuberculosis among people born of foreign parents are not easily obtained, but if they were, I should look for a significant distribution among the 401 given as American. From mere observation it is evident that the American citizens of Irish extraction are especially susceptible to the disease.

Occupation seems in no way to give a key to the situation. Each trade has its victims.

Table 5.

Occupation at Death of Victims in Oxford
1844 to 1914.

Housework	166
Shoemaker	40
Farmers	33
Mill Operators	27
Laborers	25
Mechanics	15
Store Keepers	7
Teachers	5
Servants	4
Carpenters	3
Masons	3
Various	30
Under 10 yrs of age	47

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Table 5(continued).

Over 10 yrs. occupation unknown	134
Total	539

An interesting study is involved in the distribution as to age of death.

Table 6.

Age and Sex.

Age.	Males.	Females.
Under 1 yr.	15	12
1 to 10	8	11
11 to 20	27	37
21 to 30	58	74
31 to 40	33	48
41 to 50	40	33
51 to 60	32	18
61 to 70	27	24
71 to 80	12	16
81 to 90	3	4
93		1
Unknown	6	

Especially high is the death-rate between the ages of 21 and 30, the period in which the young couple were trying to live on the husbands meager wages.

With seventy-four deaths, this period proves itself to be particularly hard upon the young wife, who is spending much of her energy in bringing up a family. There appears in the table thirty-six deaths above the age of seventy. Especial investigations into the individual cases brings forth the following explanation. In thirty cases where the residences were discovered, seven had had relatives die of the disease and ten others lived in homes in which deaths had previously occurred from consumption. The nature of the life in the country furnishes another reason for late deaths from the disease, even of those who had become infected earlier in life. The out-of-door life upon the farms and the country surroundings tend to prolong life and to slacken the course of the disease.

In the total the female excess may be in a measure attributed to the fact that they live less out of doors than the male population. Also there has been constantly a slight excess of females in the population of the town. The women have moreover taken up the duty of nursing those already infected with the tubercle bacilli, and thus have exposed themselves to a greater extent to the disease than have the men.

The economic loss to the community has been great,

for more than 50% of the deaths have been confined to the age groups between 21 and 50, the years in which a man is an important economic unit to the community.

Among the children included in the table it was discovered that in 31 cases in which the homes could be traced 24 had died in houses in which had been other cases of the disease. In many cases the disease had not been contracted from relatives but non-relatives showing there not to have a hereditary weakness but simply carelessness, and neglect of the safety of the child in regard to afflicted neighbors and visitors.

The town is constituted of some 600 houses, of which 211 have been found to have harbored 371 cases of tuberculosis out of the 539 which constitutes the study. The greatest number occurring under one roof was 5 and that has been the number in four different houses.

Table 7.

Distribution of Deaths from Tuberculosis as to Houses.

No. in ea. House.	No. of Houses.	Total Deaths.	% of Total Houses.	% of Total Deaths T.B.
1	118	118	19.66	23.13
2	49	98	8.16	19.21
3	25	75	4.16	14.17
4	15	60	2.50	11.76
5	4	20	.66	3.92

It may be anticipated that poverty and tuberculosis will be closely correlated. A study of the tax rolls in Oxford show that of 144 consumptives who died during the period 1884 to 1904, only a total of 317.85 dollars was levied upon them the year proceeding their deaths. In Oxford it is difficult to find any definite criteria to base a judgement of the financial standing, or to find how much support the town has given to cases of consumption, altho frequently it appears to have paid the funeral expenses.

The prevalence of consumption in Oxford is decreasing as I have shown, directly prior to the Civil War every thirtieth person in town had the disease. At the present time the cases are extremely rare. During the period 1844 to 1914 the rate of mortality from this cause has dropped from 38 to 8.9 to the ten thousand population, or more than 75%. The last four years with the rate 8.9, using the figures of the 1910 census, is a little above the 6.1 of the period 1906 to 1910.

Since Kock's great discovery in 1881, the most marked decline has occurred in tuberculosis. The disease has been scientifically attacked since the discovery of the danger of the sputum as a carrying agent of the

contagion. A decided change in custom has also been an agent to bring about better and more sanitary conditions. The old idea of keeping the home dark and un-necessarily damp and dreary by closed shutters and drawn shades has given way to the more sensible desire to keep the rooms sunny and cheery, altho wallpaper and carpets may fade; for this also exterminates the tubercle bacilli. Also the fashion of the past of being a pale and veiled belle has given way to the more healthy desire to be sunburned and tanned. Out of door life is encouraged by nature study. Verandas and piazzas have become fully twice as common within the last 20 years.

The general rise in the standard of living that has occurred during this period has become a formidable force against consumption. Houses are better; a large percent. having adequate plumbing whereas sick and well alike had previously to use cold, unsanitary out-buildings. This change was dependent upon the installation, in most cases, of a running water supply in the town during the summer of 1906. A large percent of the houses are now heated by a central, up to date plant rather than by an oxygen eating stove set up in each room, even in rooms in which people slept with closed windows. The

air in the homes of many is now insured against too rapid contamination by the use of electric lights instead of oil burning lamps. Food, on the whole is better and clothing more suitable for the changes in season. The health is better taken care of against colds and other diseases. An adequate pharmacy supplies necessary drugs and besides the doctors there is a district nurse maintained. With greater familiarity with tuberculosis and with the aid of the state laboratory the disease is much earlier diagnosed, and beside the protection offered to members of the family, the patient also is offered a better opportunity to attack the disease and to effect a recovery.

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Deaths.

The statistics in Oxford from 1860 up to the end of 1914 show 2864 deaths. The causes have varied over a large field as would be found in the study of any locality. A large number were caused by tuberculosis, old age, and among the children cholera infantum, and occasionally epidemic of diphtheria and typhoid. The deaths from typhoid fever came to a sudden decrease with the installation of a good public water supply. In locating these deaths, they were largely in mill villages at the northern section of the town, in which most unsanitary conditions existed, and where wells were frequently so located that drainage might enter from out-houses and from surface sewerage. Stillborns on the contrary have been on the increase; since about 1900 they have formed an alarming percentage of the deaths. This increase is correlated with the mill growth of the town, and the increase in population of the lower class.

In order to avoid the yearly variations in the study of death rates I have, in drawing up the following table, taken the average number of deaths for the five years of which the census year was the middle, and have compared this with the census figures for population.

Table 8.

Death Rates.

Years	Total	Average per yr.	Rate per 1000 pop.
1863 - 1867	282	56.4	20.7
1868 - 1872	321	46.2	17.1
1873 - 1882	222	44.4	16.9
1883 - 1892	247	49.4	18.8
1893 - 1902	256	51.2	18.9
1903 - 1907	287	57.4	19.5
1908 - 1912	289	57.8	16.8
1913 - 1914	121	60.5	*17.5

* 1910 census.

The decline in the last two figures is probably accounted for somewhat by a rapid growth in the population due to immigration of people of ages 18 to 35 among whom relatively few deaths have occurred.

In studying the average age at death I found a marked improvement.

In the following table I have correlated the increase in the average age at death with a similar set of figures, worked out for the State of Rhode Island by Bailey in his volume, entitled "Modern Social Conditions"

Table 9.

Number of Deaths, Sexes and Average Age at Death
Compared with Average Age at Death in Rhode Island.

Years	Total	Male	Female	Ave. Age	R.I. Ave. Age.
1861-1865	307	150	157	29.2	29.32
1866-1879	215	101	114	37.9	32.42
1871-1875	249	123	126	41.5	30.16
1876-1880	248	126	122	37.3	31.21
1881-1885	245	111	134	42.2	33.99
1886-1890	237	115	116	46.3	33.42
1891-1895	247	108	139	45.6	33.96
1896-1900	257	134	123	45.6	34.53
1901-1905	274	141	133	43.9	-----
1906-1910	276	138	138	46.2	-----
1910-1914	241	115	126	46.2	-----

The reason for the increase in the average longevity of life is undoubtedly due to the improvements in the science of medicine and surgery, and also in the better conditions of living which decreases the deaths which result from unsanitary and unhygienic environments, and to the lack of proper medical attendance. Examples of these changes are seen in the many cases of appendicitis successfully operated upon and the disappearance of deaths attributed formerly to inflammation of the bowels.

In another section of this work I show the disappearance to a large extent of deaths from tuberculosis.

In order to show the distribution of the ages at death I have worked out the following table.

Table 10.

Distribution According to Age.

Year	Under 6 mo.	6 mo. to 24 yrs.	25 yrs. to 49 yrs.	50 yrs. to 74 yrs.	75 yrs. upwards.
1860-64	45	129	72	50	28
1865-69	25	66	43	49	39
1870-74	12	80	48	70	38
1875-79	17	95	35	60	51
1880-84	29	53	45	45	59
1885-89	24	62	26	56	64
1890-94	25	51	38	76	64
1895-99	35	40	43	67	54
1900-04	60	47	23	85	66
1905-09	57	37	28	89	65
1910-14	52	39	33	102	73

In order to avoid the difficulty of comparing this table because of the different number of deaths for each period I have reduced it to percentages.

Table 11.

Distribution of Ages at Death in percentages.

Years	Under 6 mo.	6 mo. to 24 yrs.	25 yrs. to 49 yrs.	50 yrs. to 74 yrs.	75 yrs. Upwards.
1860-64	13.9	39.7	22.3	15.4	8.6
1865-69	11.3	29.7	19.3	22.1	17.6
1870-74	4.8	32.3	19.4	28.2	15.3
1875-79	6.6	36.5	13.5	23.3	19.6
1880-84	12.6	22.9	19.5	19.5	25.5
1885-89	10.4	26.7	11.2	24.1	27.6
1890-94	9.8	20.2	14.9	29.9	25.2
1895-99	14.7	16.7	18.0	28.0	22.6
1900-04	21.3	16.7	8.2	30.2	23.5
1905-09	20.7	13.4	10.1	32.2	23.5
1910-14	17.4	13.0	11.0	34.1	24.4

As the table shows there has been a considerable increase in the deaths under six months within the last twenty years. These are also the years in which the industries have flourished and in which an extensive mill population has appeared. The important change is evident in the higher age groups. The table shows a decrease in deaths at the ages of six months to forty-nine years, from over sixty per cent of the deaths in 1860-64 to less than twenty per cent in the years 1910-1914; while for the same period the increase in the per cent of deaths above fifty years of age has been from

twenty-four to fifty-eight, more than doubled.

The oldest age appearing in the death records is one hundred and eight, of a male born in Ireland. There were several others, all female who reached the century mark. One of the number was a Nipmuck Indian, the last of the native tribe of this locality. The age ninety was frequently reached.

A yearly cycle was prominently in evidence in the death ages. At the beginning of the calendar year the majority of deaths were among the higher numbers. Towards summer in each year the ages were less and many children were among the deaths. During August and September cholera infantum became more prevalent according to the records, and during the last of September diphtheria seemed to take many children. As the year drew towards its end the ages again began to average higher. In general the principle was made evident that the cold weather takes the older people, and that the hot weather takes the babies.

Births.

Between 1861 and 1914 there occurred in Oxford 3439 Births. The records on the whole were good but I found some evidences of carelessness between about 1870 and 1875. However after carefully following later entries my figures I believe are not sufficiently out of the way to cause any discrepancy in the results shown in the tables.

In regard to twins I paid no especial attention, since their frequency was not sufficient to warrant any conclusions. Possibly such cases have occurred on the average of once a year and apparently they were pretty evenly divided between both male, both female, and one each.

I have not taken any figures upon illegitimate births. They did not appear very frequently in the records; undoubtedly I could have found many cases of children coming in a short period after marriages but not in any alarming proportion of the total.

In regard to distribution between male and female I found that the two sexes were closely divided. Some years showed one sex far ahead but in the total they averaged up; probably these yearly variations were simply due to chance in dealing with small numbers.

Table 12.

Births in five Year Periods, Yearly Averages, and
Sex Distribution.

Years	Number of Births.	Average per Year.	Number of Males.	Number females.
1861-65	347	69.4	168	179
1866-70	340	68.0	179	161
1871-75	370	74.0	191	179
1876-80	287	57.4	139	148
1881-85	228	45.6	121	107
1886-90	246	49.2	122	124
1891-95	223	44.6	104	119
'96-1900	289	57.8	134	155
1901-05	352	70.4	178	174
1906-10	414	82.8	204	210
1911-14	343	85.7	173	170
----	---		---	---
TOTAL	3439		1713	1726

The number of births to the thousand population in Oxford I have prepared by comparing the normal birth of the year in which the census was taken with the population of that year. This normal I determined from the five year period, of which that figure was the central figure.

Table 13.

Birth-rates in Oxford.

Years	Total Births	Census Fig. for Mid. Year.	Birth-rate per 1000 Pop.
1863-1867	328	2713	24.5
1868-1872	346	2669	25.9
1878-1882	247	2604	18.9
1888-1892	232	2616	17.7
1898-1902	326	2677	24.3
1903-1907	369	2927	25.2
1908-1912	432	3361	25.7
1913-1914	175	*3658	23.9

To gain the last figure in the census column, which I have marked with a star I considered the same rate of increase to have occurred since 1910 as is found between that date and 1905, then I found the mean of the two figures that I worked out for 1913 and 1914.

It is interesting to compare the birth-rate with the censuses in the above table. The first figure of rate is probably a little lower than would have been found had it not been for the Civil War. The following figure is somewhat higher, presumably nearer the normal rate for that period. The third figure shows a decided fall along side of which is a marked dropping off in the population, which

shows the portion of the population leaving to be either of higher vitality or of the proletariat with their usual greater tendency to have children. Also among the emigrant body were the younger population thus leaving the older portion as may be seen always to be the tendency in the small towns. The next period shows the fall in population to have stopped but the birth-rate still continued to drop. The table shows both sets of figures to be on the increase between 1898 and 1912.

The following table shows the changes in parentage at birth, within the last fifty-five years.

Table 14.

Years.	Parentage of Births.			-One Amer.	Each- Amer. Other.	Other Coun- try.	Total
	--Both Parents-- Amer.	Irish.	Canadian.				
1860	40	26	---	--	2	10	78
1861	52	15	---	--	4	10	81
1862	40	26	4	--	2	10	82
1863	31	14	7	--	2	5	59
1864	35	13	5	--	3	5	62

1910	42	1	21	24	2	8	98
1911	37	--	14	14	5	4	74
1912	44	--	19	16	1	14	94
1913	46	--	15	22	3	6	92
1914	48	--	10	16	4	5	83

During the earlier and the latter part of the period 1860-1914 the births ran far in excess of the deaths, but for the fifteen years between 1880 and 1895 the number of deaths in the town was greater than the number of births. The entire period shows the births to be far ahead of the deaths.

Table 15.

Deaths Compared with Births.

Years.	Total Deaths.	Total Births.	---Excess---	
			Deaths.	Births.
1861-1865	307	347	--	40
1866-1870	215	340	--	125
1871-1875	249	370	--	121
1876-1880	248	287	--	39
1881-1885	245	228	17	--
1886-1890	231	246	--	15
1891-1895	247	223	24	--
1896-1900	257	289	--	32
1901-1905	274	352	--	78
1906-1910	276	414	--	138
1911-1914	241	343	--	102
Total	2790	3439	----	649

The decreasing death-rate and the relatively high birth-rate at present promises a good balance in the future.

Marriages.

There is apparent less variation in marriages in the town between 1861 and the present than in deaths and births. Complicating factors in this study were the marriages of out-of-town people in Oxford and marriages in which one party came from another town.

In regard to the ages at marriage the results I gained show no very great change yet they were regular and came as might be expected. In considering the ages I took only first marriages because of the infrequency of the others during at least part of the period I studied. Beginning with the Civil War time I found the average age for both sexes rather high, undoubtedly due to the war in part directly and to the disturbed economic condition. During the following few years the average age falls in the case of both sexes and then a slight and more or less steady increase is seen to occur. The last few years shows a slight fall in the male age, due undoubtedly to the influx of peoples of lower standards. The average ages of both sexes have been held down during the entire period by the immigrant portion of the population. The postponement of marriage on the part of the offspring of the older stock in Oxford is strongly in evidence.

Table 16.

Average Ages At First Marriage for Male and Female.

Years.	Male.	Female.
1861-1865	26.9	23.7
1866-1870	26.2	22.8
1871-1875	25.0	21.2
1876-1880	25.6	21.9
1881-1885	24.2	22.1
1886-1890	26.0	23.4
1891-1895	27.0	22.7
1896-1900	27.2	22.9
1901-1905	26.6	23.2
1906-1910	26.1	23.0
1911-1914	25.9	23.5

The comparative numbers of first and later marriages are of some slight interest. A very large number of unions in which one or both members had been married before between 1866 and 1870 shows the effect of the war. In regard to the women many had become widows thru their husbands having been killed in the army. The death-rate had been high in Oxford during the preceding period consequently opening the way for many later marriages. Disturbed economic conditions resulted in marriages in many cases without doubt in order to strengthen financial conditions.

Following this period came a time when there was little progress in the town and during this lull in activities there appeared a decrease in the total marriages but especially in these other than the first. During the last few years since business conditions have been improving there has been an increase in later marriages.

Table 16.

Distribution of Marriages as to First and Later in Each Sex.

Years.	Total.	--First Marriages--		--Later Marriages	
		Male.	Female.	Male.	Female.
1861-1865	97	76	81	21	16
1866-1870	140	101	110	39	30
1871-1875	107	87	94	20	13
1876-1880	95	79	86	16	9
1881-1885	95	82	83	13	12
1886-1890	115	98	107	17	8
1891-1895	94	79	86	5	8
1896-1900	134	108	116	26	18
1901-1905	149	129	133	20	16
1906-1910	149	131	126	18	23
1911-1914	119	98	103	21	16

Somewhat of a drop appears in the marriage-rate during the 1870s and the 1880s, the period in which industry was upon a low level, and in which a fall occurs

in the population and in the birth-rate.

Table 17.

Marriage Rates in Oxford.

Years.	Total Marriages.	Census Fig. for Mid. Yr.	No. Marriages to 10,000 pop.
1863-1867	135	2713	98.52
1868-1872	108	2669	80.92
1878-1882	96	2604	73.73
1888-1892	108	2616	82.57
1898-1902	133	2677	96.00
1903-1907	151	2927	103.17
1908-1912	157	3361	93.42

To gain these rates I found the average number of marriages for one year from the five year group of which the census year was the middle; with this number and the census figure I found the rate.

Conclusions.

Following the Civil War there came a period of decline in economic conditions in Oxford. This fact is evidenced by the constant decline in population until 1890 when it began to show signs of increasing. Naturally the town suffered from a selective process, the most progressive stock going to other towns leaving those of less vitality.

During this period in which prosperity and vitality were lacking the birth-rate fell; in fact over a period of fifteen years it was less than the death-rate. With the improvement in conditions in Oxford since about 1890 and with the increase in population there has appeared an increase in the birth-rate. Illigitimacy is not frequent.

Marriages have shown a peculiar trait. Second and third unions were common immediately after the war among both sexes, and has recently again become frequent but during the period in which population was at a low point they were comparatively infrequent. Ages at marriage averaged relatively high during the Civil War time; then decreased for about a decade. Since then the average female age has steadily increased; the averages of the males increased until the re-growth of population when it

began to slightly fall.

The study of deaths proves most instructive. The average age at death has shown a most remarkable steady increase. There are more infant deaths under six months of age per hundred deaths now than in 1860. Between the ages six months and forty-nine years there has been an amazing decrease, while at ages above fifty there has been an increase. In the death-rate there has been a rather regular decline from 20.7 per 1000 population in 1865 to 16.8 in 1910 the last year for which accurate figures are available.

Tuberculosis has been one of the large causes of deaths, but the percentage due to this cause has been steadily reduced. The Civil War period claimed the most deaths for a given time from this disease due most probably to the war. The prevalence of the disease in certain homes and families lead to the assumption that the spread is due to close and careless contact as well as to susceptibility because of hereditary weaknesses. The present day change in mode of living, namely a belief in fresh air and sunshine and with better care of oneself and with increased scientific knowledge is evidently conquering the plague. It is apparent that neither nationality nor trade may be considered influential in any very

great extent in this study in Oxford. The females have been more commonly afflicted with the disease, and regarding this fact it must be considered that their lives have a tendency to be more confined to indoors and that the care of members of the family already stricken with tuberculosis usually falls to the lot of the woman.

The population of the town is at present at its highest point, and providing economic conditions remain as favorable as they now are the number of inhabitants will not decrease as the unemployment is not great. The percentage of foreign born population is only slightly over twenty.

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