HEALTH IN ROCHESTER

1834-1911

George W. Goler, M.D.

H E A L T H

Rochesterville, before its incorporation as a city in 1834, was without a system of sewers. Its water supply came from private wells adjacent to vaults, manure and refuse heaps, or street wells near pools of muddy water on unpaved streets. Marsh and swamp land adjacent to the river provided abundant breeding ground for mosquitoes of the malarial variety. Indeed as late as 1841 it was said that the mosquitoes were so big they might best be substituted for the leeches then used in the almost universal practice of bleeding.

Appended to the Charter of 1844 there is an ordinance to organize a Board of Health, consisting of the Mayor, the City Superintendent and five "fit and suitable persons." That law provided that "the Board shall have power to enforce the laws against infectious disease; it shall cause diligent inquiry to be made with respect to nuisances and shall cause their removal. Upon the approach of epidemic diseases, or even upon its probable approach, it shall have power at public expense to provide a place or places fit and proper for the accommodation of the sick, and to make rules and regulations for their admission, reception and treatment. It shall employ physicians and nurses and provide food and medicines for the use of the sick. It shall require all physicians to report those sick with their names and places of residence." These in the main are the ordinances of the first Board of Health. There was no provision for the inspection of water or food or of the prevention of disease in the Health Ordinance.

The prevailing opinion of the day, that all disease was air-borne through some mysterious properties contained in the atmosphere, particularly in the spring and fall of the year or at night, kept the early residents of the city and their medical men from the real knowledge of the spread of disease by direct contact with infected persons, by infected food, or through the medium of flies, mosquitoes or other vermin.

A list of the infectious diseases found among the residents of the early city were cholera, smallpox, malarial fever, typhoid fever [penciled: typhus (?)], consumption, diphtheria, measles, scarlet fever, whooping cough, bronchitis and pneumonia, and a fatal form of brain disease chiefly attacking children, probably due to badly differentiated cerebrospinal meningitis, infantile paralysis, tuberculous meningitis and the terminal meningitis of the infantile diarrhoeas that were always to be found in large numbers during the summer months.

ASIATIC CHOLERA- The first epidemic of Asiatic Cholera occurred in 1832. Nothing is known of the number of cases that really occurred nor of the actual number of deaths; 118 deaths were reported. The people of Rochester had, through the papers and foreign news letters, watched the extension of cholera from the far East across Asia and into Europe and thence from the Dutch and French ports into England and its final arrival at Montreal. At this time we can hardly understand the fear this scourge inspired in the minds of the people of Rochesterville, as their meager news letters gave warning of the gradual

extension of the cholera from place to place. They were so disturbed, that when cholera made its appearance in Canada, they [Dr. Anson Colman was sent] sent Dr. Byron Coleman to Montreal to study the course and treatment of the disease. The medical profession of that day were, of course, divided and little could be learned because little was known, either of the cause or the manner of the spread of the malady.

In 1834 a small, but unknown, number of cases occurred and there were 54 deaths. In 1849 a still larger number of cases occurred; 160 deaths were reported. * In 1852 more than 700 cases were noted, over 400 deaths were reported, and doubtless there were many more. Later there were a few cases of cholera; this was the last of the great outbreaks of epidemic Asiatic Cholera; altho in 1854 steamers left occasional cases of cholera at the piers in Charlotte.

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*When the cholera came numbers of people left the city to find refuge from pestilence in the surrounding villages; some of them went to watering places, Watkins and Cuba. The poor seized a few of their scanty belongings and fled from one house to another in the hope of escaping the disease.

Dr. Edward Moore, in speaking of the fear engendered by cholera of 1852, said that at noon on a mid summer day he once stood on Main Street in front of the Court House and looking up and down the street as far as he could see, failed to see either a man, woman or child upon the street.

There is some testimony to the fact that there was a kind of temporary hospital for cholera patients in the neighborhood of Caledonia Ave. during the epidemic of 1834. In 1852 a cholera hospital was established on Stevens Alley corner High Street in a building used by the colored people as a church. This building was placed at the disposal of all classes by the colored people, and is a tribute to their kindliness and generosity; a fact which should not be lost to the memory of the present generation. In this temporary hospital, placed under the charge of Dr. Richard Gundry, 68 patients were cared for, of whom 24 died.

Cholera was, of course, a water-borne disease, though flies doubtless helped to spread it also. Many of the public wells supplying the citizens with water were centers around which numerous cases of cholera arose; just as some years later these, as well as private wells, became centers around which arose another epidemic of intestinal disease, typhoid fever, which was carried from house to house.

Many persons affected with cholera suffered from merely mild attacks of the disease with what was known as "choleraic diarrhoea", with only slight, sometimes no appreciable, illness. These people used the privy, to be found in every back yard, sometimes situated close to the well. Uncleanly in their personal habits, their boots became soiled with fecal matter, and in going to the well, the water splashing upon the outside of their foot covering washed the fecal matter which clung to their boots into the wells; thus, in the case of public wells, affecting a large number of people. A well situated on the north side of Main Street near the corner of Washington, adjacent to a swampy lot, was one of the chief points from which cholera infection spread, as later it was responsible for the spread of typhoid fever.

For many years after the outbreak of cholera in Rochester, epidemics of cholera in Europe seemed to be a real danger. When in 1885 cholera became epidemic in Europe, especially in Germany, a special meeting of the Board of Health was called, and all vaults were required to be cleaned in six days, because of the fear of cholera. Again in '92 there was a general clean-up of the town. Vaults were cleaned, disinfectants distributed

because of the fear of cholera which was in Europe. Hundreds of dollars worth of carbolic acid and chloride of lime, and other such useless disinfectants were bought out of the public funds and gravely placed by inspectors in a considerable percentage of 15,000 foul vaults which then dotted the surface of the city of Rochester. Even Charlotte was disturbed. A special committee, composed of the Health Officer of Charlotte, appeared before the Rochester Board of Health and represented that there was great necessity for making preparation for patients afflicted with cholera, and asked the city of Rochester if they would not construct a hospital for such patients at Charlotte. *

SMALLPOX- The preserved records of smallpox in Rochester have shown nothing recorded prior to 1869, except a statement that smallpox followed the Asiatic Cholera epidemic of 1832 "from a patient who had been permitted to lie in his room with the window open"!! It is to be noted that the ideas relating to

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*Dr. Charles S. Starr told the writer that in the early days his father often related the story of the two doctors named Smith, who lived on South Clinton St. near Johnson Park.

In the cholera epidemic of the late '40's one of them achieved considerable notoriety for his "successful treatment" of cholera. This Dr. Smith was so rough, both in his language and manner, that he was known as "Butcher Smith". He is said to have successfully treated a case of Asiatic Cholera in the algid stage, and the novel method of treatment was said to have saved the patient's life. The patient, after having endured the suffering and choleraic symptoms consequent upon the early stages of the disease, and having passed into what is known as the "cold stage"--a condition approaching collapse with cold extremities--and having, as in some cases, lost in 48 hours from 20% to 25% in body weight, was by this novel method of treatment packed in ice. Rumor said the patient recovered.

air-borne diseases were prevalent in the early days of Rochesterville, and that they are still maintained to a considerable extent. For, only recently it was stated over the signature of an official high in the sanitary service in the State, that the inhabitants of a district, through which a patient had been carried in a vehicle, had been exposed to infection through the air!

When speaking of the early infectious diseases and relating the number of cases reported, it is to be remembered that in the early days only those cases of infectious disease were reported that were very evident to the naked eye. It is doubtful whether cases of smallpox with a few points of eruption were ever reported, even tho ushered in by all the marked symptoms of the disease, such as pain in the back, violent headache, high fever and great prostration; and it is further to be remembered, that in a period when the value of vaccination was not fully appreciated and when illness was looked upon rather as a visitation of Divine Providence, many cases, even of such a disease as smallpox, were overlooked or neglected.

The records show that in 1869-70 only two cases of smallpox were reported. Again in 1870, 20 cases. In 1872 there were reported 44 cases and 10 deaths, according to the official records, tho the report of interments at Mt. Hope Cemetery alone show 32 interments. *

In the outbreaks of '72-'76 not all of the cases of smallpox were removed to Hope Hospital. When such cases were removed

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*Note--No records can be obtained from the other cemeteries.

to the hospital, the Board of Health provided for the warming, lighting, food, nursing and medical attendance of these patients. When they were cared for at the home, the Poor Department was requested to, and did, furnish the infected household with provisions, and in one case at least, it paid $25 to a member of the family for nursing the sick in the family.

Smallpox at this period was frequently concealed, and we find the Board in its meeting of Feby. 7, 1876, appointing a committee of three to consult with the City Attorney to consider the propriety of prosecuting persons who had been guilty of a violation of the law in concealing cases of smallpox.

The difficulties of diagnosis are set forth by Dr. Hovey, Health Officer, in a report to the Board Feby. '76. He found a man who had been sick with smallpox for two weeks and whose physician had failed to make a diagnosis. It was not until after the wife of the man came down with the disease and the Health Officer was called in that a diagnosis of smallpox was made.

At the end of the '76 outbreak at a final meeting of the Board of Health, a resolution of commendation to the Health Officer, Dr. Hovey, was adopted, and it was recommended that he be (and he was finally) paid $1,000 extra compensation.

In Jany. 1882 it was stated that there had been 54 cases of smallpox reported since 1875; five of these cases had resulted fatally.

The city remained free from reported smallpox until June 1894, when 3 cases were discovered in a family newly come to the city. Again there were five cases in one family in Feby. '97. In the

fall and winter of '98 and '99 there were 27 cases and one death.

The course of smallpox in the city is intimately related with that of vaccination and the conduct of Hope Hospital. The Boards of Health from the early 60's had been singularly alive to the value of vaccination as a preventive of smallpox. They had been made aware of the protecting value of vaccination through the return of soldiers from the Civil War, and the Board was in these early days remarkably fortunate in having among its members such distinguished sanitarians as the late Edward M. Moore, Joseph A. Biegler and Enoch V. Stoddard. We find the Board as early as April '69 adopting resolutions requesting the School Board to comply with the ordinance relating to the vaccination of school children. Again in '71 renewing the request, offering free vaccination and appointing physicians to make free vaccinations. In '71-'72 7800 vaccinations were reported by the Health Officer. In Jany. '77 vaccination of the colored people was provided for in a room in the City Building on Front Street. These vaccinations were paid for by the Board at the rate of 40¢ each. Again in '81-'82 vaccination was strongly recommended and to some considerable extent carried out by the direction of the Board. In Jany. 1882 in order to prevent smallpox it was decided "that schools are necessarily the most exposed point" and with the active co-operation of the Board of Education more than 9,000 vaccinations were made in the schools. Including schools, factories and dwellings, more than 18,500 vaccinations were made. Of these vaccinations it was stated that more than 11,500 were successful. Of course, a large number were made by physicians

among their families, and it was believed by the Board at that time, that considerably more than 30,000 persons had been affected in the campaign. Again in Nov. '85 a general vaccination was recommended. In Dec. '85 it was reported that 22,000 vaccinations had been made. Again in '86 a large, but unstated, number of persons were vaccinated. From 1896, altho vaccinations had been recommended from time to time, no systematic vaccinations were made. In '94 the vaccination of school children was again recommended, but the vaccination law was practically neglected by the Board of Education. It was stated on belief, that not more than 20% of the school children were vaccinated. In '99 no systematic vaccination having been undertaken for 14 or 15 years, and with 168 cases of smallpox reported throughout the State, it was believed that the situation was serious for Rochester. Then came the epidemic of 1902-3 with 1,000 cases and 100 deaths; for detailed information concerning which the reader is referred to the Health Reports and tables of Mortality for those years. Since 1903 Rochester has had a few cases of smallpox though an epidemic finding 40 cases occurred in the winter of 1911.

HOPE HOSPITAL- In the early sixties there was a hospital known as a "Pest House" on Clifton Street in the rear of St. Mary's Hospital. The buildings, afterward occupied as a contagious disease pavilion, were used to accommodate patients with smallpox, among them a number of soldiers returning from the Civil War. In 1868 a committee of the Board of Health was appointed for the purpose of selecting an eligible site for the erection of a pest house.

In the latter part of the same year a resolution was passed in the Board of Health, "That the mayor be empowered to employ a suitable person to act as the agent of the city in the purchase of such lands as the committee on the erection and the site of the pest house may direct and the expedience of the erection of such pest house". Two months afterward a site was selected on the river road in the rear of Mt. Hope Cemetery, the hospital to be known as Rapids Hospital. This name was subsequently changed by resolution in Dec. '68 to Hope Hospital.

The building consisted of an old two-story house on the south side of which two wards were erected capable of accommodating, when not overcrowded, 16 people. At the end of the ward was a single room 12 X 14 feet, with iron latticed windows for the purpose of isolating delirious patients. The hospital was without adequate out-buildings; the grounds were subject to overflow whenever the river rose--the approaches, both north and south, being frequently under water; a shallow well, about 10 feet from the house, was the only source of water supply.

In August 1870 a statement was made in the Board of Health that "The convenience for water is insufficient...and that it is very necessary that a well be constructed upon the premises" and that the fact be communicated to the Common Council, asking the Council to take action in the matter.

In June 1890 a committee of the Board, composed of Dr. J. A. Biegler, Dr. J. W. Whitbeck and Mr. Henry Howe, reported on the condition of Hope Hospital. They said: "The building is inferior to the demands that may be made upon it by a city the size of

Rochester. the capacity being 16 regular beds and two extra for special purposes." They called attention to the fact that no conveniences are supplied for those persons able to pay for the comforts to which they have been accustomed in their homes, and that "it behooves the Board to prepare not only for such persons, but for others, against the time of necessity." The committee believed that any expenditure for enlargement on the present building was unwise, because it would have to be removed in two or three years; but they did recommend the removal of the vault; a substitution of earth closets and that a bath ought to be put in before the next month. *

MALARIAL FEVER was not, as its name implied, a mal aria due to bad air; but, as we now know, was a mosquito fever; and a particular variety of malarial mosquito, bearing the organism of malaria within its body and capable of transmitting it to susceptible individuals, was doubtless brought in the baggage of early travelers by canal or wagon from the Atlantic shores, where the

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*"Before passing from the subject of smallpox your Health Officer begs leave to direct attention to Hope Hospital. This building was erected on scientific principles, especial attention having been paid by Dr. Langworthy, who planned it, to the proper ventilation of the wards. It is too small, however, as it can accommodate but twelve patients. Moreover, the male and female wards are not sufficiently separated, all that intervenes being a thin board partition, this even being incomplete, for it does not reach to the ceiling! The site was illy chosen. Built on low land, and flanked with marshes, the locality is far from a salubrious one. Beside this, the noise of railway trains crossing the river bridge, almost directly overhead, is a serious annoyance to the suffering inmates."

David Little, M.D.,
Health Officer.

April 1, 1872 (Annual Report)

disease prevailed. Fortunately, both the physicians and the people were beginning to become acquainted with a rational method of treatment for the disease in the administration of quinine; but the great expense of that drug, 3 to 5¢ a grain, prohibited the poor from getting a sufficient quantity of the drug to prevent their "shakes". *

TYPHOID FEVER was so closely associated with malarial fever that the two diseases were often confounded. Typhoid fever was a water-borne disease, and a large number of back-yard and street wells in close proximity to foul ditches and refuse piles made the contamination of these wells almost a certainty. Then the many

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*Notes and Reminiscences of the City of Rochester
By an Octogenarian, Rochester, N. Y. 1868

"This country was sickly, as all new lands are, particularly at the mouth of the river, where two or three sets of inhabitants died off, and indeed the whole country was infected with agues and fevers, and it is said the physicians of those days helped the destroying angel, by the then prevailing practice of bleeding and calomel, which is now happily gone to the tomb of the Capulets.

"A traveler was prospecting the country for a new home, when at the mouth of the river, he observed a man so wasted and thin, that but one man could look at him at a time, and asked about the reputation of the country as to health. 'Oh,' said he, 'it is not bad, pretty good, take it bye and large.' 'But, my friend, your appearance does not justify that opinion.' 'Oh,' said he, 'that is nothing, everybody must get acclimated you know.' 'How long does it take?' 'Oh, four or five years.' 'Well, how has it operated with you?' 'Well, the first year I had the shakes, that was pretty tough, I shook so that I split the beams of my house and did some other damage. Well, the next year I had the intermittent fever, I got through that pretty well,-a body must become hardened to the country you see,-then for about two years I had the bilious fever and then the lake fever, and I am now tapering off with the mud fever; I shall come out first rate yet.' 'Well, my friend, I have no disposition to go through the course your college of acclimation prescribes, so I will be going; do you think there is any danger of my being infected?' 'No, I guess not if you have a good horse, but you must make tracks I can tell you.'"

undiscovered mild cases of typhoid whose excrement was distributed about in the old vaults and the direct and indirect drainage of the vaults into the wells, made typhoid fever an almost universal disease. Indeed it was wide-spread to such an extent that the old doctors used to sit around the stoves in the back rooms of the old drug stores and wager boxes of cigars upon the number of typhoid fever cases they would have in the next year.

CONSUMPTION, BRONCHITIS and PNEUMONIA were of a particularly virulent variety, as was the case in many new countries were exposure, exceedingly laborious work, and a fear of bad air and night air led people to sleep and live in close, stuffy rooms. Some of these cases classed as consumption or as typhoid and malarial fever are rather interesting, as the history of them comes down to us in old letters and diaries. *

The great prostration accompanying the disease, when not followed by immediate death, the long convalescence, the cough, the continued fever, hectic flush, delirium, profuse perspiration

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*In the "Lives and Reminiscences of the Pioneers of Rochester and Western New York," by John Kelsey, we read of Mr. Abelard Reynolds, who "was sick three months in 1813, and was most of the time deranged. Dr. Brown remarks that it was no uncommon occurrence for persons attacked with ague and billious fevers, the prevailing diseases of the new settlements, to be deranged through the entire run of the complaint; that in his own case, even after he was supposed to have entirely recovered and was able to be about his practice and business, he was, in fact, utterly incapable of managing his affairs with propriety, and actually entered into some transactions which very much embarrassed him, and which, in the full enjoyment of his reasonable faculties, he would have reprobated in a moment."

and great weakness, leads us to believe that these cases classed as typhoid and so-called "typho-malarial" fever, consumption, pneumonia, bronchitis, were cases of mixed infections, where the prevailing fevers were engrafted upon the body already affected with consumption. These diseases affected adults, but children were by no means exempt from them. The child going painfully to school with a case of "Walking Typhoid" or in the cold stage of malarial fever, staggering to its seat wrapped in the teacher's blanket with the oncoming of the chill, and sent home with its recurring fever, was not uncommon. *

The early history of infectious disease is difficult to write. Sickness was so universal in the early days of Rochester that no especial attention was paid to it.

DIPHTHERIA and SCARLET FEVER were not treated as transmissible diseases until the early 80's. MEASLES and SCARLET FEVER were often confounded; whooping cough received scant attention; infantile paralysis, cerebro-spinal meningitis and tuberculous meningitis were not differentiated; and it is impossible to tell just how many deaths occurred from these diseases of children, because the deaths from given causes were not reported unless they occurred early in the disease. No attention was paid to the dangerous sequelae the throat paralysis and kidney disease of

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*In 1904 the Municipal Hospital was opened for the treatment of tuberculosis. Six hundred patients were received from that time until 1911, when the County Sanitorium was opened. The Municipal Hospital has since been used for the treatment of infectious diseases, diphtheria, scarlet fever, measles, smallpox, etc.

diphtheria and scarlet fever, the pneumonias and deafness of measles and whooping cough. Mild cases of these diseases received no attention; and, indeed, they were not made reportable diseases until the early 80's. A diphtheria epidemic appears in the health records in 1882, when 14 cases of diphtheria were noticed in Prospect Street, 8 of the persons died. In the decade of '80-'89 more than 1300 deaths occurred from diphtheria in this city. In the early 90's the news came of three important discoveries: First--the identification of the diphtheria bacillus. The first examinations of throat cultures for diphtheria were made by Prof. Dodge Oct. 16, 1894. Second--a plan perfected by O'Dwyer of New York for intubating the larynx through the mouth in cases of diphtheria that had formerly been subjected to the cutting operation of tracheotomy. Third--the discovery of a diphtheria antitoxin which could be injected into the bodies of persons affected with diphtheria, to supplement the work of the antitoxin already being generated in their bodies.

The influence of these three measures introduced into Rochester about 1895 is readily shown by the statistical table for diphtheria in the decade of 1890-99. Rochester was the second city in the country to begin the manufacture of diphtheria antitoxin, New York being first. This antitoxin was first made in the city by inoculating three fire department horses kept at the veterinary hospital on Driving Park Ave. The serum collected from their blood was sent to New York to be standardized, and antitoxin was ready for use May 23, 1895. This diphtheria antitoxin was distributed to physicians free of charge for poor patients, not without

some protest from manufacturers and dealers, however. The manufacture and distribution of free antitoxin was kept up by the city until the State Department of Health took up the work for the whole state. (Now all the antitoxin used for free distribution in the city and elsewhere in the state is made and furnished from Albany.) The fall in mortality from diphtheria would be much greater than that shown in the accompanying tables were the cases reported early and sufficiently large doses of antitoxin given.

The report of MEASLES is by no means trustworthy, because many of the deaths from measles are reported under bronchitis and pneumonia, which is frequently the terminal disease.

It has been noticed that infectious diseases tend to recur in cycles, especially diphtheria, scarlet fever, measles, whooping cough, cerebro-spinal meningitis and infantile paralysis.

SCARLET FEVER is one of the remarkable examples of a cyclical disease. The epidemic of 1875, when Scarlet Fever was reported to have killed more than 300 persons, * is an example of the terrible mortality sometimes attending infectious diseases. The large mortality in '75 becomes less significant when compared with the large number of people who lived with the sequelae of the disease impressed deeply upon their bodies. Eye, ear and throat affections, diseases of the kidneys and the nervous system were among the late consequences of the disease. Indeed, if the years taken

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*Mt. Hope Cemetery records only.

from people's lives by such an epidemic disease could be measured, it would be found that a large percentage of the expectation of life had been destroyed. These epidemic diseases are largely economic losses. The losses are not alone in the immediate deaths caused by epidemic disease, but rather in the limitations of life and in the increased difficulty of pursuing the ordinary occupations by the inroads made on the senses of vision and hearing, and upon the bodily welfare of the individual. Physical life is shortened or made harder and the mental operations of the individuals affected by disease often become slower. The result of disease, therefore, is to shorten life, to make it less valuable, to make the burden of invalidism greater, and also to affect the life of the generation that is to come.

INFLUENZA became epidemic in the latter part of 1890. Many were sick and not a few died. How many really died of influenza we do not know, because the deaths from influenza were reported as due to diseases which affected the respiratory, circulatory, digestive and nervous systems. *

VITAL STATISTICS- While in England regular bills of mortality had been collected, beginning with the Great Plague of 1665, and many of the towns in the New England states had been

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*Rabies was epidemic among animals in Rochester and vicinity in 1901-2. Two fatal cases occurred in men.

collecting such bills for a century, no provision was made in Rochester for the collection of vital statistics until 1857, when a statement in the daily paper "The Democrat" appeared, that "The public are indebted to Dr. W. H. Briggs, Health Officer, for the first full report of city mortality ever given us." Thereafter the newspapers published monthly mortality tables and summarized the reports of the Health Officers.

Prior to the year 1876, marriages or deaths were not kept in the city as part of the city records. If it was desired to know where or on what date a child had been born, when a marriage had taken place, or when and where a death occurred and from what reported cause, there was no central place at which this information was even likely to be obtained. Churches kept their more-or-less complete registers, which were usually registers of christenings rather than of births; and where the christenings and baptisms did not occur until some time after birth and the child had died in the meantime, no record could be found of its birth. Lists of marriages were sometimes kept by the clergymen; deaths were recorded in the registers of the cemeteries, and in some cases the undertakers, even in later years, had private cemeteries where no records whatever were to be found of the decedents buried there.

In 1876 the Bureau of Vital Statistics was opened in the Health Office, and by virtue of his function as Health Officer Dr. B. L. Hovey was the Registrar of Vital Statistics. In that year it was found that the death certificates were returned by persons not physicians; that midwives and others did not report births; that undertakers brought certificates to the Health Officer

DEATHS IN ROCHESTER, N. Y.

Year	Jan.	Feb.	Mch.	Apr	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Population	Rate
1857	78	76	115	118	120	72	81	121	135	112	66	60	1,154	45,807	25.3
1858	86	70	92	91	85	76	57	139	85	67	52	82	980	46,473	21.
1859	61	92	92	124	84	74	87	127	108	93	68	73	1,083	47,537	22.8
1860	78	87	102	86	78	66	81	105	94	65	73	65	980	48,204	20.3
1861	76	64	89	72	77	80	80	106	100	82	86	82	994	46,751	20.5
1862	74	72	89	85	111	105	100	160	135	95	85	105	1,216	49,298	24.6
1863	91	71	110	84	91	62	78	155	120	87	65	103	1,137	49,845	22.8
1864	78	85	93	98	108	93	94	204	238	124	80	61	1,354	50,392	26.8
1865	68	73	93	59	77	79	92	119	138	124	78	69	1,069	50,940	20.9
1866	63	66	70	70	72	49	87	79	83	74	83	57	853	53,229	16.2
1867	46	54	89	84	97	82	81	112	97	112	77	91	1,022	55,518	18.4
1868	89	94	96	70	69	65	100	119	77	95	56	83	1,013	57,807	17.5
1869	71	62	93	77	84	73	101	117	140	113	107	76	1,114	60,096	18.5
1870	75	64	85	87	94	92	119	122	113	99	87	82	1,119	62,385	17.9
1871	98	88	107	86	87	69	123	132	90	89	68	75	1,112	66,253	16.7
1872	105	111	153	156	109	99	173	197	175	117	114	110	1,619	70,120	23.
1873	122	110	150	117	117	104	152	158	140	114	85	117	1,486	75,987	20.
1874	104	87	110	97	100	80	99	175	146	123	97	122	1,340	77,854	17.2
1875	172	153	176	196	144	159	190	190	211	133	132	142	1,998	81,782	24.2
1876	147	138	164	137	117	116	116	189	173	152	97	112	1,658	83,250	19.6
1877	102	87	93	120	119	103	143	142	133	91	103	107	1,343	84,779	15.8
1878	100	87	88	105	121	101	115	148	153	95	110	106	1,329	86,308	15.3
1879	127	106	135	140	105	112	145	142	93	100	131	125	1,471	87,838	16.7
1880	150	127	153	151	139	106	169	169	111	146	158	130	1,711	89,368	19.1

DEATHS IN ROCHESTER, N. Y.

Year	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept	Oct.	Nov	Dec.	Total	Pop.	Rate Per M
1881	156	126	159	160	158	136	195	179	195	158	129	150	1,901	90,000	21 1
1882	134	125	169	145	158	167	180	196	157	145	124	135	1,835	100,000	18 3
1883	126	121	137	168	149	143	183	224	144	134	114	126	1,769	105,000	16 8
1884	141	103	136	136	125	126	131	204	181	144	125	137	1,689	105,000	16 0
1885	176	131	164	150	159	133	166	207	151	160	150	154	1,901	105,000	18 1
1886	170	133	153	148	130	131	178	237	215	169	139	155	1,958	120,000	16 3
1887	155	176	167	177	155	156	291	166	158	177	144	162	2,084	120,000	17 3
1888	177	158	157	159	168	135	221	250	189	171	122	151	2,058	120,000	17 1
1889	159	177	177	169	150	135	263	217	172	154	140	166	2,079	130,000	15 9
1890	237	162	189	208	191	146	223	214	201	169	146	179	2,265	138,327	16.3
1891	160	206	180	206	201	185	227	256	212	189	181	302	2,505	138,327	18.1
1892	296	214	243	221	229	163	253	257	233	208	234	200	2,751	144,384	19.1
1893	234	230	189	249	204	195	234	245	206	178	177	238	2,568	150,000	17 1
1894	195	162	170	154	178	185	252	223	168	163	164	167	2,181	150,000	14.5
1895	228	224	210	219	204	158	216	191	157	175	176	194	2,382	155,000	15 3
1896	186	140	199	183	171	219	262	196	178	178	177	212	2,301	155,000	14 8
1897	200	179	223	190	168	167	187	179	154	144	125	160	2,076	160,000	12 9
1898	174	177	199	216	185	158	203	160	187	178	173	181	2,191	160,000	13.6
1899	239	196	204	205	159	170	229	203	166	200	154	161	2,286	160,000	14.2
1900	173	168	223	278	200	147	201	220	172	175	143	172	2,272	162,436	14.0
1901	261	222	221	220	185	159	186	171	179	184	192	205	2,385	162,608	14.7
1902	179	173	176	188	208	170	179	212	180	188	196	254	2,303	162,608	14 2
1903	210	180	193	228	209	210	217	213	173	195	243	254	2,525	162,608	15.5
1904	254	263	267	268	220	210	201	192	218	187	192	198	2,670	170,000	15.7
1905	215	238	264	272	245	183	244	253	215	220	227	221	2,797	170,000	16 4
1906	236	238	238	289	264	212	231	242	223	226	220	255	2,874	182,000	15.7
1907	291	272	131	291	216	233	201	278	237	240	216	222	2,858	200,000	14.2
1908	277	259	245	260	227	205	210	240	244	238	200	202	2,807	200,000	14 0
1909	271	215	291	263	281	242	250	235	257	231	217	279	3,062	200,000	15.3
1910	318	252	333	262	239	230	252	275	266	280	240	265	3,212	218,000	14 7
1911	282	291	314	292	300	217	295	251	288	242	233	268	3,273	220,000	14.8

DEATHS FROM INFECTIOUS DISEASES.

Year	Diph.	Meas.	Scarlet Fever	Typhoid Fever	Whoop'g Cough	Variola	Cerebro Spi. Meningitis	Tetanus	Bron. Pneum.	Tubercu-losis
1871	11	0	25	34	13	9	1	0	.....	.....
1872	24	7[illegible]	20	80	4	31	99	0	.....	.....
1873	43	[illegible]	6	54	2	3	14	0	.....	.....
1874	37	[illegible]	38	45	5	0	9	0	.....	.....
1875	137	8	3[illegible]6	49	3	6	10	0	.....	.....
1876	138	5	66	44	21	8	17	0	.....	.....
1877	38	0	5	30	0	0	7	0	.....	.....
1878	53	0	19	23	6	0	3	2	.....	.....
1879	95	0	21	24	4	1	12	0	.....	.....
1880	158	20	39	28	9	1	9	0	.....	.....
1871-1880	Mt. Hope interments only.									
Total	734	55	545	411.	67	51	181	2	.....	.....
1881	191	6	19	41	13	0	11	7	196	289
1882	139	5	15	35	2	2	9	3	196	250
1883	54	27	8	52	4	0	11	1	208	276
1884	81	11	4	43	11	0	0	0	171	276
1885	156	0	13	32	0	0	0	0	188	252
1886	168	0	21	34	15	0	0	0	189	250
1887	177	23	8	50	5	0	0	0	191	324
1888	110	3	4	59	1	0	0	2	182	320
1889	100	3	2	49	41	0	0	4	330	310
1890	72	11	11	50	7	0	0	2	352	317
Total	1,248	99	96	445	99	2	31	19	2,103	2,873
1891	135	1	17	52	15	0	0	4	346	292
1892	270	1	62	72	12	0	0	2	285	328
1893	145	2	55	60	3	0	0	3	345	290
1894	112	6	23	58	4	0	0	3	300	299
1895	52	6	3	22	28	0	0	0	273	238
1896	75	17	14	26	5	0	0	0	223	305
1897	69	4	17	35	5	0	0	1	230	242
1898	42	1	8	22	21	0	10	3	259	267
1899	53	7	19	30	2	1	15	3	294	245
1900	46	8	11	30	20	0	0	1	268	266
Total	989	53	229	407	118	1	25	20	2,832	2,832
1901	21	7	4	31	6	0	0	4	301	263
1902	12	0	11	19	6	77	0	5	211	202
1903	113	23	11	22	13	24	0	2	262	234
1904	94	1	35	29	1	0	0	1	310	273
1905	99	28	23	19	19	0	24	2	366	291
1906	97	7	20	31	6	0	41	1	291	282
1907	64	5	13	30	18	0	36	3	444	291
1908	47	11	19	23	4	0	14	6	342	312
1909	18	35	18	18	24	0	9	0	307	305
1910	35	9	46	30	11	0	9	2	439	333
Total	600	126	200	252	108	101	133	26	3,263	2,766
1911	89	14	52	23	24	0	6	1	293	284

BIRTHS REPORTED IN ROCHESTER, N. Y.

Year	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept	Oct.	Nov	Dec.	Total	Pop.	Rate Per M
1881	127	102	150	134	158	94	137	133	111	120	148	122	1,536	90,000	17.0
1882	157	151	162	152	216	158	201	222	201	203	221	184	2,228	100,000	22.2
1883	203	163	244	201	217	176	212	212	203	202	249	180	2,462	105,000	23.4
1884	218	225	195	185	138	224	172	188	168	149	135	229	2,226	105,000	21.2
1885	173	143	156	153	144	194	158	194	173	175	139	153	1,955	105,000	18.6
1886	182	138	206	160	144	180	148	218	141	199	115	157	1,998	120,000	16.6
1887	242	158	169	150	175	93	261	180	147	224	188	197	2,184	120 000	18.2
1888	147	190	161	167	135	193	151	181	172	158	183	120	1,958	120,000	16.3
1889	216	192	197	160	180	178	150	160	149	167	85	152	1,995	130,000	15.3
1890	154	204	129	144	151	146	153	179	123	193	119	135	1,830	138,327	13.2
1891	168	155	184	169	126	163	192	156	173	160	207	199	2,052	138,327	14.8
1892	244	197	232	229	256	314	226	218	218	188	242	223	2,767	144,834	19.2
1893	231	225	229	155	226	169	211	240	223	217	191	267	2,588	150,000	17.2
1894	267	238	240	199	258	227	235	293	244	214	220	238	2,873	150,000	19.1
1895	260	209	197	223	186	162	240	179	224	253	186	294	2,613	155,000	16.8
1896	208	163	203	263	405	389	283	251	334	262	266	143	3,170	155,000	20.5
1897	234	235	277	209	233	240	250	212	278	230	223	219	3,044	160,000	19.0
1898	240	200	214	219	200	208	225	190	225	200	208	100	2,519	160,000	15.7
1899	215	198	205	198	196	200	200	205	201	200	203	200	2,484	160,000	15.5
1900	195	157	321	280	205	210	260	269	245	243	224	252	2,901	162,436	17.9
1901	207	206	242	280	220	237	241	272	283	215	224	287	2,914	162,608	17.9
1902	248	256	230	240	266	233	263	232	261	250	200	229	2,908	162,608	17.9
1903	240	232	240	250	240	250	250	263	220	275	250	275	3,041	162,608	18.7
1904	190	280	280	300	240	295	200	200	454	270	300	256	3,115	170,000	18.3
1905	230	322	307	280	250	360	250	378	250	300	270	376	3,473	170,000	20.4
1906	230	255	300	300	320	324	344	300	360	300	325	442	3,800	182,000	20.8
1907	232	360	400	350	400	370	270	405	360	240	325	373	4,135	200,000	20.6
1908	234	353	414	300	425	400	300	361	415	350	325	516	4,483	200,000	22.4
1909	266	326	370	300	430	375	300	483	384	375	347	420	4,356	200,000	21.7
1910	440	382	323	525	460	436	473	438	387	425	414	417	5,120	218,000	23.0
1911	399	416	477	421	516	478	468	451	445	416	418	440	5,345	220,000	24.2

MARRIAGES.

Year	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept	Oct.	Nov	Dec.	Total	Pop.	Rate Per M
1881	40	44	33	47	76	105	51	55	78	72	80	43	724	90.000	8 05
1882	70	64	35	72	99	96	64	68	83	95	112	52	910	100.000	9 10
1883	70	55	69	80	98	106	70	78	50	139	107	107	1,038	105.000	9 88
1884	51	88	45	66	98	105	85	61	84	106	74	99	962	105,000	9 16
1885	49	47	43	78	70	70	60	50	120	155	72	65	919	105,000	8 75
1886	54	57	49	59	65	105	47	120	123	89	89	64	921	120,000	7 67
1887	84	66	66	85	93	135	102	73	99	103	118	119	1,143	120,000	9 52
1888	115	105	93	130	74	112	93	61	92	123	73	94	1,165	120,000	9 70
1889	81	75	51	71	112	92	83	90	89	119	124	10	1,077	130,000	8 20
1890	65	75	65	89	107	133	63	113	113	118	99	67	1,107	138,327	8 02
1891	83	91	84	119	85	121	126	83	85	105	126	184	1,292	138,327	9 35
1892	125	124	53	78	86	112	77	76	173	84	121	124	1,237	144,834	8 72
1893	81	70	83	97	110	144	89	86	102	129	128	100	1,219	150,000	8 12
1894	85	81	56	92	103	97	95	78	64	93	158	119	1,121	150,000	7 47
1895	97	86	43	63	135	123	106	53	166	133	117	101	1,223	155,000	7 24
1896	169	73	44	101	150	182	63	80	128	113	123	86	1,312	155,000	8 46
1897	67	96	78	97	88	157	68	83	126	142	108	92	1,202	160,000	7 51
1898	84	79	51	100	105	135	100	80	100	145	110	90	1,179	160,000	7 36
1899	85	100	65	125	105	175	125	90	95	98	100	96	1,259	160,000	7 86
*1900	144	110	94	100	85	170	122	112	571	179	151	140	1,978	162,436	12 02
1901	100	93	85	124	101	194	104	114	188	142	140	107	1,492	162,608	9 20
1902	96	89	85	152	139	235	116	116	146	261	156	129	1,720	162,608	10 6
1903	116	109	75	120	122	163	140	124	173	200	133	160	1,635	162,608	10 0
1904	90	140	100	140	100	254	130	100	190	200	156	140	1,740	170,000	10 2
1905	136	100	113	124	100	373	134	168	210	173	160	191	1,982	170,000	11 6
1906	115	115	90	140	140	392	143	160	170	200	190	184	2,039	182,000	11 2
1907	116	126	122	198	140	330	120	160	127	170	300	300	2,215	200,000	11 0

*During 1900 there were about 700 marriage certificates collected dating backover 20 years.

improperly made out. Two years later, in 1878, a register of marriages was added, and for the first time in the history of the city a central place for the registration of marriages was provided. As far as can be learned, the Health Office was at first to be the custodian of certificates of birth and marriage, and in the case of death did not, as now, issue a burial permit. The permits to bury were issued from the cemetery authorities. *

From time to time in 1881-2-5 and -6 and frequently thereafter, the attention of physicians, midwives and clergymen was asked to the necessity for more promptly, clearly and carefully reporting and returning matters relative to births, marriages and deaths. Up to the present time the marriages and deaths are well reported, but recorded births are from 10% to 15% short of their actual number.

(Table of Vital Statistics)

NUISANCES, VAULTS, SCAVENGERS, ETC.- The early Boards of Health tried, often in vain, to remove some of the nuisances from the streets of Rochester. In 1868 a resolution was carried in the Board "to remove all manure boxes from the streets, alleys and lanes." Just what was to be done with the manure is not, however, clear. The city was dotted with vaults, refuse piles, manure heaps, etc. Scavengers plied their trade between 11:00

[1878?]

*Since, marriage licenses have been issued by the City Clerk and marriage certificates collected by that official.

p.m. and 5:00 a.m. All refuse collected in barrels was dumped from land on the east and west side of Court St. bridge, rented at a cost of $50 per month. This scavenging was carried on irregularly during the 60's and 70's; and in '73 a proposal was made for using vault contents as a fertilizer. The practice of dumping into the river matter obtained from vaults was gradually discontinued, and as the land immediately adjacent to the city became converted into trucking land, material from the vaults was used as fertilizer. We thus escaped fouling the water of the river; but the night soil on land was brought with disease, such as typhoid fever, to our tables on green vegetables. The care of night soil was carried on in a very irregular manner by scavengers, who could get a license for the asking. One of the reasons for carrying night soil out to the adjacent farms was due to an injunction obtained in 1869, restraining the city from dumping night soil in the river at the site of Whitney's mill. Rules and regulations were made in 1876, providing that the night soil should not be dumped within the city limits; but for a long time the material was dumped in the neighborhood of Bay, Clifford and Norton Streets and in outlying western and southern towns. In the early 90's nearly all the towns joined in prohibiting the dumping of night soil within their limits. The city was thus reduced to the necessity of providing a place for dumping its refuse. The towns would take all the horse and cow manure they could get; but they would not receive human excrement.

In 1895 a census was made of the vaults, and it was ascertained that there were more than 15,000 to be found in the city.

List of Vaults, Well, etc. in Rochester Nov. 1, 1891

	P.V.	W. C.	Wells	Cows	Chickens
1st Ward-	85	566			
2nd "	293	456	2		4
3rd "	389	953	7	3	22
4th "	268	577	34	1	19
5th "	639	815	5		62
6th "	350	836	17	6	18
7th "	658	694	89	7	96
8th "	1578	637	90	19	181
9th "	626	512	44	3	52
10th "	315	718	15	8	48
11th "	1185	859	88	1	134
12th "	419	1769	45	24	127
13th "	567	384	72	1	105
14th "	958	398	123	18	218
15th "	902	368	129	11	169
16th "	868	612	84	4	141
17th "	1946	446	216	96	579
18th "	1013	614	102	67	300
19th "	1380	683	78	42	355
20th "	1043	314	174	23	173
	15484	13261	1414	334	2803

(Table)

For some time before the introduction of Hemlock Water in 1876 and the systematic extension of public sewers, which began about that time, the vault nuisance had become very acute and occupied a large part of the attention of the Boards of Health up to 1895. When a public water supply and sewers were being introduced, vaults were sometimes connected with the sewer; and in '77 it was provided that vaults were not to drain into sewers, unless water was permitted to flow through them. Even as late as '85, when vaults were cleaned, they were to be disinfected (?) with 10 lbs. of copperas in each vault.

There is no doubt but that the introduction of Hemlock Water and sewers had much to do with the installation of water closets in many of the new houses. We find, for instance, in March 1885 the Department of Public Works reporting 6827 water closets and 756 urinals in the city. One of the great difficulties, however, was the old houses; for wherever a water closet was installed in the house the old vault was often allowed to remain as a nuisance.

In the early 90's the abolition of vaults was well under way; sewers and water mains had been extended and Rochester began to take on the semblance of a real city. Many of the old vaults were abolished; manure heaps began to disappear; cows were excluded from the city; pigs no longer roamed the streets, either in the city or outskirts; geese and ducks were excluded, save from the north-east section, where citizens were permitted to violate the law by keeping them; and chickens and the lusty rooster are still tolerated along with the insanitary horse.

Aside from these nuisances there were the old quarries, notably those on Genesee Street, Frost Ave. and North Goodman Street, which were allowed to remain, notwithstanding the law against them. The soap works, which had been distributing their nauseous odors, the old road and tenement houses with their foul rooms and dirty halls were then to be found, and some of them are still with us.

GARBAGE was first systematically removed in July 1873 in accordance with a resolution introduced into the Board of Health. * For 1 1/2 years prior to that time some irregular attempts had been made to control the private collection engaged in the collection of garbage for the purpose of feeding pigs in the suburbs, and also

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*"Since July 1, 1873 the removal of kitchen garbage has been conducted by the Board of Health. Prior to this time, no system under municipal direction, existed and the community depended entirely upon private gatherers.

"The present plan of removing garbage and offal is unsystematic and irregular, and entirely inadequate to meet the requirements of good sanitary government. It is, therefore, recommended that a thorough system of collection of kitchen garbage and offal be organized in accordance with the above resolve. Mr. William B. Geddes was appointed Superintendent of Public Health to superintend the men and teams employed by the Board of Health in the removal of garbage; also to oversee the doings of the Health Inspectors. Men and teams were employed, (6 men, 6 teams and 6 boys) at the following rates:

Man and team $5 per day; boys $1 per day each.

From July 1st to December 20th, the work progressed; and although not in all instances performed as satisfactorily as could be desired, yet for the most part it was well attended to, and the people were generally relieved of a very serious nuisance. The Board of Health are desirous, with the concurrence of the Common Council, to prosecute the work during the coming season, and it is confidently expected that it will be carried out in such a manner as to give general satisfaction to our citizens."

William F. Morrison,
Clerk Board of Health

April 1, 1874
(Annual Report Board of Health)

within the city limits.

It is on or about that date that Mayor Wilder, as President of the Board of Health, introduced a resolution for the removal of filth, requiring the Board to hire teams and men and to dump the filth into the river. The dumping places at that period being Court Street bridge or that portion of the river below the falls, near the point now occupied by the R. W. & O. Station. The operation was found to be too expensive, and the Common Council by resolution requested the Board to discontinue collecting garbage. The Board, however. objected to carrying out the direction of the Council, contending that they were the guardians of the public health, and that one of the objects of the Board was to protect public health by the removal of garbage. Originally from six to seven teams were engaged in the collection of garbage. At this time the number of teams was reduced to four, two on each side of the river, and the drivers were paid at a varying rate of from $4 to $5 a day.

From 1873 to 1893 garbage and night soil were collected and thrown into the river or dumped on lands in the surrounding towns; and when, finally, the towns refused to receive the city's wastes they were dumped in the outskirts to lie in decomposing masses until the farmers got ready to plow the wastes into the land.

From 1893 to 1900 garbage was collected and disposed of by contract in a very satisfactory manner.

At the beginning of 1900, under the operation of the White Charter, the collection of garbage passed into the newly organized Department of Public Works. From 1900 to 1905 garbage was collected and disposed of by the Department of Public Works at a cost of [blank]. In 1904 or 1905 the Mayor directed the City Engineer and the Health

Officer to examine the works of the Penn Reduction Co., operating plants in Philadelphia and elsewhere. A contract was entered into with the company for the collection and disposal of garbage for $60,000 per year for five years. The company built a disposal plant on the west side of the river flats near the R. W. & O. R. R. bridge, and for five years the collection of garbage was carried on in a comparatively satisfactory manner and has been disposed of with comparatively little nuisance.

WATER- The authorities of Rochester were early interested in getting a supply of pure water into the city for domestic purposes. They also emphasized the necessity for a supply of water to flush the sewers. In the 60's and 70's the miasmatic theory of disease prevailed here as well as elsewhere, and men thought that disease was either borne by the air or else it came out of the soil. In the first instance they thought it was necessary to keep the air free from odors; and in the second it was thought unwise to stir up the soil in warm weather, either in the spring, summer or autumn, because by digging in the soil the miasms of disease were conveyed to the air, and epidemics accordingly occurred. This fear of polluting the air by miasms from decomposing material, recalls a resolution passed by the Board of Health in the summer of 1880, requiring the Executive Board to prevent private individuals from wetting down the streets, "because at this season of heat it favors fermentation in the organic refuse in the streets."

All through the stormy history of Rochester's struggle for water, it will be found that men were nearly as much interested in getting water for flushing sewers as for domestic use.

Prior to the introduction of Hemlock Water into the city in 1876 the domestic supply of the citizens was obtained almost exclusively from wells. Some of these were public wells situated near the street curb; one of them located at Reynolds and Hunter Streets being notorious for a considerable epidemic of typhoid fever traced to its source in 1874. When Hemlock water was brought to the city in 1876 it was sought to abolish many of the wells, but the effort was attended with considerable difficulty; the people having become accustomed to the use of water flavored with sewage and the drainage of vaults and manure heaps, they objected to the comparatively flat taste of the Hemlock water; and also to the expense of installing it. They also objected on the ground of the dangers said to exist from lead poisoning on account of the almost universal use of lead pipe in conveying the water from the street mains to the houses. *

In 1877 at a meeting of the joint committee representing the Executive Board and the Board of Health, Prof. S. A. Lattimore was engaged to make a chemical and microscopical investigation of Hemlock Water. In a report to the Board of Health, Sept. 29, 1877, Dr. Lattimore said: "Until medical science has demonstrated the specific cause of typhoid fever, or other zymotic diseases, by the organic germ or inorganic poison, chemical science cannot be fairly challenged to show where it is or is not, or to identify it. Yet in nearly every case (of typhoid fever) intelligently investigated, such diseases have been communicated to large numbers of

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*See table page 17 1/2 [following p. 16, this copy] for number of wells remaining in 1895.

persons by SOMETHING IN THE WATER." * He further showed in his report that "of 50 cases of typhoid fever or closely related diseases "ALL OF THOSE PATIENTS EXCEPT TWO USED WELL WATER." Fifteen years after this report was written, there were still more than 1400 wells in the city of Rochester on premises where access could be had to Hemlock water.

With the wider use of Hemlock water for domestic purposes, the number of cases of typhoid fever materially decreased, and the wells began to disappear. An ordinance passed in '76 prohibiting wells within 20 feet of premises was rescinded, and in '89 an ordinance was passed requiring wells in bad condition to be closed where there was access to Hemlock water. Again in '92 an ordinance was passed prohibiting water from wells to be used for domestic purposes. The Board of Health at this period was, however, seriously handicapped by the action of the citizens at Hemlock lake in retaining lands on the lake shore for residential purposes, and in 1892 a resolution was passed by the Board of Health to inspect the shores of Hemlock Lake and its dependencies and to report to the Board any violation of existing rules for the preservation of the sanitary condition of the water supply. In 1898 the Lehigh Valley R. R. proposed to run a line and establish a resort for excursions at one end of the lake. The residents of the village of Springwater. 4 miles from the lake, signed a petition to the governor in asking him to veto a bill passed by the legislature, providing for the sanitary protection of the waters of Hemlock Lake. Then, and even later,

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*Italicized in original.

teams gathered ice on the frozen surface of the lake, and even as late as 1905 a member of the Assembly from Livingston County, introduced a bill into the Assembly to legalize fishing in Hemlock Lake, a body of water from which 200,000 people then got their water supply.

For the past seventeen years efforts to protect the water have been made by weekly examinations, both chemical and biological; by a patrol of the shores of the lake, and through the purchase in large part of the lake bed and of the lake shore 200 feet back from the water's edge. The water has only once been found contaminated at its source in the same period, and that was in March 1903, during an exceedingly warm period when the temperature in the middle of the month went above 80 degrees on the watershed of the lake. The accompanying rain washed much refuse from the village of Springwater and the neighboring hills into the lake and its tributaries, with a resulting contamination indicated both chemically by the presence of excessive nitrates and biologically by the presence of colon baccilli.

Once, too, in 1910, the water supply was contaminated in the city, when the fire mains carrying Holley or river water were carelessly connected with the Hemlock pipes.

Hemlock water is excellent water; but to insure the safety of Rochester it is required to either remove the village of Springwater and expel residents from the lake shore and its tributaries, or to filter the water. *

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*Three times within as many years unreported cases of typhoid have been found on the Hemlock watershed.

MEAT INSPECTION- In June 1876, the Clerk of the Board of Health was directed to notify all persons removing butchers refuse from meat markets *, "that after July 15th they will be required to do the same in air and water-tight boxes". In 1884 a resolution was adopted, requesting the Common Council to enact and enforce an ordinance pertaining to the conduct of the markets of the city. In 1891 the Board of Health requested that the health authorities of the surrounding towns notify the city authorities whenever diseased hogs were brought into Rochester; and a further resolution was offered advertising a reward of $20 for the arrest and conviction of any person offering diseased meat for sale. This resolution was passed because of the appointment by the Common Council of a meat and milk inspector.

Most of the meat coming into Rochester is western beef that has already been inspected; but a good many hog, veal and sheep carcasses and old cow beef is brought to the city for sale after having been killed on farms or in slaughter houses adjacent to the city. Such will be the condition of affairs until we have a public abbatoir where all food animals may be slaughtered and inspected before their meat is sold for food.**

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*In 1890 there were 192 markets and ten slaughter houses within the city limits.

**A public abbatoir was recommended to the Board of Health by Dr. S. A. Lattimore more than 40 years ago.

It is to be remembered that while meat is said to be responsible for more sickness than any other article of food, and that the necessity for real scientific meat inspection has never been provided for locally slaughtered meat, at the same time, if the public demand absolutely disease-free meat, such meat would cost $1 or $2 per pound.

MILK- In 1869 a resolution was passed by the Board of Health: "That His Honor, the Mayor, and the Health Officer be requested to visit the dairies in the vicinity and to ascertain to what extent cattle are diseased, and to report to this Board at their earliest convenience." The next month the Health Officer made a report on the diseases prevailing among cattle, and one of the Health Commissioners offered a resolution that if the Health Officer deemed it necessary, he should prepare a report on the diseases of cattle and cause the same to be published in the daily papers.

See Report of Health Officer 1883. Mentions Milk Inspector 1882.

From 1870 to 1890 many complaints were made of cow and barn nuisances within the city. In April 1883 the Board went into secret session "relating to the cow nuisance"; and it was thereupon decided that the owners be notified to remove all cows. Cows were the subject of complaints and resolutions of various kinds for the next twenty years.

On April 13, 1893 an amendment to the Health Ordinance was passed relating to keeping and vending milk and permitting brewer's grains to be used as feed "if they are fed from clean troughs."

In April 1891 F. R. Eilinger was appointed Milk and Meat Inspector by the Common Council, and ordered to report to the Board of Health for duty.

May 14, 1891 an ordinance was passed relating to the sale of milk within the city. Milk sold for 5¢ a quart at that time. There were then 491 vendors licensed and numbered and it was

estimated that 48,000 quarts of milk were sold in the city, 80% of it by 277 dealers. As there were a large number of small dealers keeping from one to 15 cows within the city, the number of milk producers and vendors at that time was considerably larger than at present, when the practice of keeping cows within the city has practically been stopped. But 20% of the milk at that time was shipped into the city. During the first year there were 510 inspections made and 29 analyses, of which 12 showed milk below standard. There were 6 convictions and $110 imposed in fines; over 5,000 pounds of meat confiscated and one fine of $50 imposed. The number of markets was 192 and there were 10 slaughter houses.

In May 1893 it was estimated by the report of Milk Inspector Eilinger, that 50,000 quarts of milk were sold in the city. The number of milk routes had been reduced to 353 as against 491 of the year previous. 45% of the city's milk was furnished by 173 producers within the city and small adjacent towns within a radius of a dozen miles. Within the city at the time, there were 377 cows kept for the purpose of producing milk for sale. Of the total number of cows kept in Rochester and within nearby towns, more than 1800 cows were fed largely on brewers' grains. During the year more than 1200 inspections were made, 40 complete analyses conducted, 17 samples were found adulterated. Later in the same year inspections were extended, and in August the Milk Inspector reports having visited some 30 farms in Irondequoit and Brighton. It was reported that the stables upon these farms were all clean and in those of recent construction particular

attention had been paid to light, ventilation and drainage. The facilities for handling and storing milk were poor; a barrel sawed in two and filled with ice and water, or a trough constructed so as to receive the water from a spring, answering the purpose of a milk house. Some well constructed milk houses were noticed.

The Board noted the presence of tuberculous cattle in the neighborhood, and a committee consisting of Dr. Mallory and Mr. W. E. Hoyt, was appointed to investigate the subject. Nothing further was done until July 1894, when a communication was received from the recently formed State Tuberculosis Commission relating to the work of the State Board of Health in its examination of tuberculous cattle in this vicinity. In December 1898 many tuberculous cattle were found in the vicinity. One Goldstein had a herd of 22 cows that were manifestly tuberculous. The Board was asked to issue an order requiring the owner to have the cows tuberculin tested. At the same time Dr. R. M. Moore proposed an ordinance requiring that all cows within the city be inspected annually by a competent inspector or veterinary "as to whether the cows are afflicted with any disease whatsoever." In June 1899 Dr. Moore introduced an ordinance providing that "30 days from the date of the passage of this ordinance, no milk shall be offered for sale within the city unless a certificate be presented from a veterinarian that the cows, within three months last passed, have been tested by tuberculin."*

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*Dr. S. W. Little appeared at the meeting of the Board of Health, as one of a committee of the Pathological Society, and asked if it would not be possible to get an ordinance passed, stating that no milk shall be sold in the city unless the cattle had been tested by tuberculin.

In July 1899 an ordinance was introduced requiring that every cow furnishing milk for human consumption must have been tested, within three months last passed, by the tuberculin test, and shown to be free from tuberculosis. This ordinance was referred to the sanitary committee. The ordinance was unanimously adopted on September 7, 1899.

At a meeting of the Board of Health Sept. 27, 1899, his honor the Mayor as Chairman of the Board moved that the Milk Ordinance be suspended until the first day of January 1900. He said, "while the Board did not want to do anything to interfere with the health of the city, it was a question whether it had not gone too far." As the Board would go out of office the last day of Dec. 1899, it had no authority to postpone an ordinance until the first day of January 1900. Dr. Moore offered an amendment that the date of the ordinance be changed from Oct. 1st to Dec. 1, 1899. The attorney for the milk dealers opposed the amendment. Dr. Moore spoke against the postponement of the ordinance and said: "The idea is to see if we can't do away with the consumptive cow." He finally withdrew his amendment to the Mayor's motion and the motion to postpone the ordinance until the first day of Jany 1900 was unanimously adopted.

On Oct. 18, 1899 a special meeting of the Board of Health was held. The Mayor said he was satisfied the ordinance was worthless and that as a committee of the Legislature was considering the matter, we should wait for a law which shall govern the whole state. He, therefore, moved, that the ordinance be repealed. This motion was carried, Dr. Moore being the only Commissioner to vote "no."

CHILD HYGIENE- Prior to the official year ending March 1860, there is no attempt at a systematic record of the deaths in children. Indeed, there is no record of much value relating to anything concerning the early morbidity or mortality in the city prior to 1860, excepting the epidemics of cholera and smallpox. The comments of the Health Officers of 50 years ago are of considerable interest, especially when compared with the mortality tables of the present day. Fifty years ago the city had a population of less than 50,000 persons; and when the annual mortality was about 1,000, it was found that nearly 50% of this mortality was in children under 5 years of age.

For the year ending March 31, 1860, 250 deaths were in children under one year of age, 229 between 1 and 5 years; thus 479, or nearly half of the deceased, exclusive of still-born, were under 5 years of age. In commenting on this report Dr. Briggs, the Health Officer, said:

"This is fearful to contemplate and calls loudly for reform in the management of infantile life. For the official year ending March 31, 1861, of the 969 deaths 248 were reported to have died under one year of age, 184 between 1 and 5, making a total mortality of 432 under 5 years of age, a little less than half of the total mortality from all causes. Of the total reported mortality but 43 persons lived to the age of 70 years.

"For the year ending March 31, 1862, out of a total reported mortality of 1013 from all causes, 519 were reported to have been in children under 5 years of age."

(Annual Report Dr. W. H. Briggs, 1860-61)

Reading the early mortality records one finds, especially during the summer months, long lists of such causes of death as Cholera Infantum, Dysentery, Diarrhoea opposite the names of children under 5 years of age.

From the mortality rate of 50% in children under 5 years of age in 1860, we find the infant mortality slowly diminishing. In 1862 it had dropped below 45%; in 1867 it was 38%. All through the 70's it did not materially diminish and varied on through the 80's to between 33% of the total mortality in '85 to 41% in '86. In '90 and '91 it was 31% in both years; in '92 35% and in '93 29%. Many deaths were never reported.

In 1891 a milk inspector was appointed and a real attempt made to do something to improve the milk supply of the city, as shown under MILK in this chapter. But it was not until 1893 that the work of milk inspection under the milk ordinance passed in 1891 was really under way.

The mortality of children under 5 years of age slowly fell in the middle 90's, until in 1897 it dropped to 22.5% of the total mortality from all causes; and it has remained at or near 20% of the total mortality for the last 15 years. Thus the mortality in children under 5 years of age has fallen in the last 50 years from 50% of the total deaths from all causes to 21% or 22% of the deaths from all causes.

All through this period, from 1860 to the late 80's the health physicians were commenting upon the fearful loss of child life. Aside from the comments of Dr. Briggs and others, one reads with surprise today the words of Dr. David Little, in his annual report as Health Officer in 1872.

"Five hundred and thirty-four (534) decedents, nearly one-half the entire number, were under five years of age. Subtract 128 still births, and it is seen that 406 of these deaths have resulted from post-natal disease. The most prominent cause of infantile (two years and under) mortality is so called 'summer complaint', which term is here used to include all enteric diseases incident to

hot weather, such as diarrhoea, dysentery and cholera infantum.

"The following facts in relation to this disorder are established. It is peculiar to infants under two years of age. It is confined almost exclusively to the summer months. It attacks by preference bottle-fed infants. It is limited usually to cities and large towns. It is absolutely true that the bad quality of the milk (an infant's sole article of diet) is an important factor in the production of this disease. Milk, though perfectly pure from the cow, if put warm in the cans, and carted in hot weather several miles to the city, becomes thereby poisonous to infants. If it is watered and 'doctored' for mercenary purposes, the danger of using it increases, and the milkman, in place of being a public benefactor, becomes a public nuisance.

"In the light of these facts it is believed that an ordinance requiring milk peddlers to cool their milk before starting from home with it, and also the appointment of a milk inspector, to look after dilutions and impurities, would conduce to the health of the little ones and diminish the frightful mortality of the summer months."

It was 20 years before a milk inspector was appointed and 35 years before an ordinance to cool milk--with a "joker" attached--became a law. For years the health officials had been calling the attention of the authorities and the public to the unnecessary waste in infant life, and had been telling them how, by simple methods, much of the infant mortality might be prevented.

The year 1897 marked a new era in child hygiene in the city. For years it had been noticed that the mortality in children under 5 years of age mounted highest during the summer months. While in the fall and winter months the deaths in children ran from 30 to 40 per month, in the months of July and August they trebled and more in number and occasionally mounted to 150 and 175 in a single month. The Health Commissioners for the year 1897 authorized the Health Officer to ppen two milk stations during the summer months and appropriated the sum of $300 to equip these stations and the General and St. Mary's hospitals appointed two nurses to attend them. The mortality in children under 8 years of age for the months

of July and August 1896 had been 126 and 76 respectively. During July and August 1897, the mortality fell to 50 and 57. During these months and during those of the succeeding years the press freely commented upon the work of the milk stations. Milk inspection was extended, both in the city and into the country; booklets, printed in several languages, on the care of babies in hot weather and upon other phases of child hygiene, were distributed.

The following year the Milk Stations were increased to four and continued at that number until 1911, when they were increased to seven; and instead of placing them in stores, settlement and house-keeping centers, they were placed in the public schools. This work for child welfare has been aided by the physicians of the city, and has in some measure been responsible for the diminution in child mortality.

The educational advantages of the Milk or Child Welfare Stations and their relation to the prevention of disease and prolongation of life in infants, is further extended through the effect of school sanitation and school hygiene on the health and lives of the school children. In 1900 a vast improvement was begun in the school buildings of the city; all annexes in stores and dilapidated old houses were removed. Several of the old, insanitary school buildings were replaced by new buildings with modern systems of lighting and warming. These new buildings were ventilated by a blower system and were provided with a moistening apparatus for moistening the air.

In 1904 the late Henry Lomb became so impressed with the value of medical school inspection, that in order to test it he provided

for the payment of six medical school inspectors for two months each. The first aim of medical school inspection was to find out how many cases of contagious diseases could be discovered in the schools. In the six schools in which the medical school inspectors were placed at the beginning of the work, there were found in the two months among other diseases a large number of cases of sore throat, 11 of which proved to be diphtheria. In the latter part of 1905 medical school inspection was begun. Five physicians were added to the corps of seven health physicians; the city was redistricted, giving to each physician from two to three schools in his district and requiring besides the work of caring for the sick poor in his district. The work of medical school inspection was then made to include, not only the search for infectious diseases; but a systematic attempt was made by examination to discover the physical characteristics of the child, for the purpose of determining the relation of height and weight to age, and the condition of the special senses, particularly hearing and seeing, and the repair of teeth and the upper breathing apparatus. It was further proposed to endeavor to exclude lousiness from the schools, just as itch had been excluded a half century ago; and, of course, to prevent the spread of contagious diseases in the schools from formerly unknown, mild attacks of such diseases as scarlet fever, diphtheria and measles. Systematic examination of all children was undertaken, and as far as possible, all the children were submitted to a physical examination each year.

The early part of this work might be called a plan for examination and recording; but with the examination and recording

of these children, it was found necessary to provide a place to which the children of the poor might be sent to have their physical defects remedied. Here again Henry Lomb, the philanthropist, came to our aid. He established a children's dispensary, under the direction of the new-formed Rochester Public Health Association, for the purpose of caring for the physical defects of school children and with the aid of the Rochester Dental Association the first dental dispensary was established, so that the teeth of poor children might be temporarily cared for. This dispensary work has been extended until now there are two schools with dental dispensaries, Nos. 14 and 26, one of them, No. 26, having two chairs. Here the dentists of the Rochester Dental Society care for not only the children of the public schools, but of the parochial schools as well. Co-operating with the work of the dentists a volunteer nose-and-throat doctor was secured; so that not only the teeth but the upper respiratory passages and the ear may alike receive attention at the dispensary.

With the appointment of medical school inspection, only part of the work of the hygiene of school children was accomplished. The teacher engaged in the education of the child could not always visit the child in the home and bring to the attention of the parent the necessity for correcting certain physical defects--glasses for the near-sighted child; ear treatment for the deaf child; removal of adenoids and tonsils for children who could not breathe properly; the extraction of badly decayed teeth and the filling of teeth which might be saved; the care of the skin and scalp. Printed notices sent home accomplished but little. Children's defects calling for correction had to be presented to the parent

by someone. So it was found necessary to employ a school nurse. And, in 1905, as soon as the work of the medical school inspectors and the organization of the dispensary were well under way, the appointment of a school nurse was demanded. In December 1907 one school nurse was permitted and her salary for one year insured by the Woman's Educational and Industrial Union. In 1910 three school nurses were appointed and assigned to schools Nos. 5, 9, and 26. In the same year the Board of Education organized a series of special classes for backward children, and one of the Health Physicians, Dr. L. L. Button of the Health Bureau, was assigned to examine and grade backward children, representing about 2% of all the children in the schools.

Thus a beginning was made for the care of the child from the time it enters school until it enters high school. A card system was prepared, showing the yearly examination, the comments upon each child, and if the child's parents elected to have it go to work instead of entering the high school, the child was required to bring its card of school inspection to the health office for presentation to the one issuing permit to go to work. So, from the time the child enters school until it leaves school an attempt has been made to guard it physically and mentally, and to some extent provision is made to care for it so that it shall be neither unmoral nor immoral.

This systematic attempt to care for the child from the time it enters until it leaves school included no provision for the oversight of the child from birth to its arrival at school age. In 1910 the Rochester Kindergarten Association provided funds for the employment of a nurse for Infancy and Maternity. For then as now we neglected

the mother of the child before birth. We provide no care in intelligent oversight for the child at the time of its birth until it enters school. We leave it a prey to the infectious diseases; we permit it to enter school with decayed teeth, discharging ears, dripping adenoids; and after having lost, at least, 1/5 of its contemporaries at birth, and hampered by the effects of infectious diseases, its growth checked by the presence of vestigial organs, it enters school to be taught.

It has been shown how the mortality of the child has been reduced from 50% to 20% in half a century. The work of the next 10 years will consist in showing not only what we can do to save the life, but by prolonging the happiness of the child and safeguarding it from birth until the time the child enters high school, give to the city robust children for its future citizens.

DEATHS AT THE TWO POINTS OF LIFE

	Under 5 years	Over 70 Years
1881	707	247
1882	690	254
1883	691	247
1884	663	206
1885	650	221
1886	699	246
1887	770	301
1888	759	272
1889	772	297
1890	723	322
Total	6965 - - 6963	2613 - - 2613
1891	779	429
1892	963	353
1893	762	415
1894	745	415
1895	649	358
1896	614	356
1897	458	388
1898	482	430
1899	483	475
1900	498	457
Total	6433 - - 6433	4076 - - 4076
1901	438	454
1902	399	501
1903	456	545
1904	469	569
1905	615	609
1906	603	571
1907	598	649
1908	551	591
1909	683	604
1910	642	666
Total	5454 - - 5454	5759 - - 5759
1911	694 - - 694	712 - - 712
Grand Total	19544	13160

DEATHS IN CHILDREN—ROCHESTER, N. Y.

Year	Population	Jan'y	Feb'y	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Grand Total	Rate	% of Pop'n	Ages	Deaths all Causes	
1881	90,000	21	21	29	28	28	27	72	61	64	45	24	25	445	...	..	...	Under 1 Year		
		20	21	23	24	21	18	20	27	27	24	11	26	262	707	37	7.8	1 Year to 5...	1,901	1881
1882	100,000	8	17	18	18	13	22	23	21	28	17	14	15	210	...	..	...	1 Year to 5...		
		27	19	37	38	53	32	86	84	39	29	17	19	480	690	37	6.9	Under 1 Year	1,835	1882
1883	105,000	20	15	19	35	22	19	80	104	40	22	12	22	410	...	..	...	Under 1 Year		
		8	16	14	12	16	24	23	32	28	14	17	17	221	631	55	6.0	1 Year to 5...	1,769	1883
1884	105,000	15	15	22	21	27	14	38	85	74	38	18	19	386	...	..	...	Under 1 Year		
		21	14	11	10	16	12	8	25	20	18	19	22	196	582	35	6.0	1 Year to 5...	1,689	1884
1885	105,000	32	27	30	18	26	18	65	81	36	30	17	37	417	...	..	...	Under 1 Year		
		26	13	22	21	12	19	11	18	12	23	22	14	213	630	33	6.0	1 Year to 5...	1,901	1885
1886	120,000	25	19	29	19	22	24	58	82	71	26	24	31	430	...	..	...	Under 1 Year		
		22	16	18	16	23	16	18	35	25	32	22	26	269	799	40	6.6	1 Year to 5...	1,958	1886
1887	120,000	30	29	26	29	28	33	136	44	45	38	22	22	482	...	..	...	Under 1 Year		
		29	28	22	24	29	14	39	23	14	20	24	22	288	770	36	6.4	1 Year to 5...	2,084	1887
1888	120,000	31	36	34	32	26	32	90	118	64	38	19	22	542	...	..	...	Under 1 Year		
		21	18	16	20	16	14	28	25	18	16	13	12	217	759	36	6.2	1 Year to 5...	2,058	1888
1889	130,000	32	32	34	40	26	23	133	83	68	30	28	32	561	...	..	...	Under 1 Year		
		22	17	18	20	14	26	18	24	17	8	13	14	211	772	37	5.9	1 year to 5...	2,079	1889
1890	138,327	28	30	39	34	32	23	88	94	58	29	28	26	509	...	..	...	Under 1 Year		
		18	17	23	23	17	9	18	18	16	15	19	21	214	723	32	5.2	1 Year to 5...	2,255	1890
1891	138,327	27	42	29	34	23	34	81	93	76	37	30	33	539	...	..	...	Under 1 Year		
		17	20	15	19	18	20	15	17	20	17	23	39	240	779	31	5.6	1 Year to 5...	2,505	1891
1892	144,834	48	38	51	47	25	27	101	104	61	36	27	24	589	...	..	...	Under 1 Year		
		19	35	39	37	24	16	26	34	30	28	47	39	374	963	31	6.6	1 Year to 5...	2,751	1892
1893	150,000	34	26	23	32	30	21	99	85	53	36	19	25	483	...	..	...	Under 1 Year		
		42	34	26	26	24	18	16	19	23	19	9	23	279	762	29	5.0	1 Year to 5...	2,568	1893
1894	150,000	23	16	20	19	32	26	82	72	45	30	18	8	391	...	..	...	Under 1 Year		
		23	21	15	16	23	17	18	29	21	24	17	17	241	632	28	4.2	1 Year to 5...	2,181	1894
1895	155,000	48	38	20	22	14	15	92	56	39	38	16	17	415	...	..	...	Under 1 Year		
		20	17	16	11	13	13	16	11	13	17	16	7	170	585	24	3.8	1 Year to 5...	2,356	1895
1896	155,000	18	20	27	27	22	46	108	59	45	28	27	35	462	...	..	...	Under 1 Year		
		22	7	11	14	14	16	18	17	13	17	19	24	192	654	28	4.2	1 Year to 5...	2,301	1896
1897	160,000	26	27	37	22	19	26	43	44	31	17	11	13	316	...	..	...	Under 1 Year		
		25	8	17	22	6	9	7	13	6	14	7	8	162	478	22	2.9	1 Year to 5...	2,076	1897
1898	160,000	13	24	37	34	22	19	47	47	40	39	19	13	354	...	..	...	Under 1 Year		
		10	7	13	10	11	12	11	10	12	9	12	11	128	482	21	3.0	1 Year to 5...	2,191	1898
1899	160,000	25	31	19	23	14	17	51	44	23	22	17	19	305	...	..	...	Under 1 Year		
		16	11	19	15	16	10	33	18	14	12	7	7	178	483	21	3.0	1 Year to 5...	2,286	1899
1900	162,436	14	23	31	27	22	18	50	54	40	26	13	21	339	...	..	...	Under 1 Year		
		12	9	14	18	9	8	16	14	16	15	11	20	162	501	22	3.0	1 Year to 5...	2,272	1900
1901	162,608	24	26	22	20	18	13	37	33	32	19	19	20	283	...	..	...	Under 1 Year		
		28	21	16	12	12	13	12	8	9	11	6	7	155	438	18	2.7	1 Year to 5...	2,385	1901
1902	162,608	20	20	19	19	24	22	26	43	32	27	22	27	301	...	..	...	Under 1 Year		
		10	6	7	2	10	10	5	20	9	7	11	11	108	409	17	2.5	1 Year to 5...	2,303	1902
1903	162,608	14	27	20	24	18	23	32	32	24	20	13	20	267	...	..	...	Under 1 Year		
		16	11	11	16	15	22	16	26	14	9	12	23	191	458	18	2.8	1 Year to 5...	2,525	1903
1904	170,000	26	29	26	35	29	19	15	43	57	26	19	17	341	...	..	...	Under 1 Year		
		21	18	14	17	7	8	11	6	6	8	5	8	129	470	17	2.7	1 Year to 5...	2,670	1904
1905	170,000	21	29	30	41	27	28	53	60	51	44	30	21	435	...	..	...	Under 1 Year		
		11	18	18	23	26	11	10	13	6	14	14	15	177	612	21	3.6	1 Year to 5...	2,797	1905
1906	182,000	30	29	24	38	25	21	59	70	43	30	30	26	425	...	..	...	Under 1 Year		
		11	24	13	25	13	13	7	7	21	12	14	15	175	600	20	3.2	1 Year to 5...	2,874	1906
1907	200,000	29	34	48	30	25	23	29	71	52	35	15	24	415	...	..	...	Under 1 Year		
		18	11	21	11	10	13	23	17	14	19	9	13	179	594	19	2.9	1 Year to 5...	3,058	1907
1908	200,000	34	28	30	20	21	21	41	55	52	43	21	18	384	...	..	...	Under 1 Year		
		21	13	18	13	13	14	8	19	16	12	8	12	167	551	19	2.7	1 Year to 5...	2,807	1908
1909	200,000	40	33	41	33	36	34	48	63	50	26	18	40	462	...	..	...	Under 1 Year		
		25	22	20	19	29	12	20	16	19	6	20	13	221	683	22	3.4	1 Year to 5...	3,062	1909
1910	218,000	25	21	29	28	27	21	39	75	74	41	28	38	446	...	..	...	Under 1 Year		
		18	22	32	21	14	18	15	12	11	13	5	15	196	642	19	2.9	1 Year to 5...	3,212	1910
1911	220,000	36	27	30	30	39	29	56	50	65	32	25	30	449	...	..	...	Under 1 Year		
		19	24	22	33	22	13	19	15	22	16	18	22	245	694	21	3.1	1 Year to 5...	3,273	1911