

**[Report 1886] / Medical Officer of Health, Salford County Borough.**

**Contributors**

Salford (England). County Borough Council.

**Publication/Creation**

1886

**Persistent URL**

<https://wellcomecollection.org/works/am3bn5am>

**License and attribution**

You have permission to make copies of this work under a Creative Commons, Attribution license.

This licence permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See the Legal Code for further information.

Image source should be attributed as specified in the full catalogue record. If no source is given the image should be attributed to Wellcome Collection.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>



BOROUGH OF SALFORD.

---

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1886,

BY

JOHN TATHAM, B.A., M.D., Trin : Coll : Dubl :

DIPL : PUB : HEALTH, CAMB :

*President of the North Western Association of Medical Officers of Health :*

*Medical Superintendent of the Salford Fever Hospital.*

---

SALFORD :

W F. JACKSON, PRINTER AND STATIONER, NEW BAILEY STREET,  
1887.



*Town Hall, Salford,*

*21st July, 1887.*

TO THE SALFORD HEALTH COMMITTEE.

GENTLEMEN,

In submitting to you my report on the health of Salford for the year 1886, I regret that I am unable to congratulate the Committee on the continuance throughout the year of that steady improvement in the public health which I have been privileged to record in my reports of every previous year since the last census.

A thoughtful comparison of the vital statistics of the period under notice with those of the years which have preceded it in the current decennium, affords evidence of a serious defection in the health-condition of the residents in our older and poorer neighbourhoods. Even in relatively favourable times, the death-toll levied on these people by the adverse conditions in which they live, is appalling; but I am concerned to find that in the year 1886, the waste of human life, and especially of infant life, has been altogether abnormal, even for these ill-fated districts: this fact is unquestionably one of grave significance, which deserves the most anxious and patient consideration of the Sanitary Authority. Sanitary experience in similar quarters of other towns shows that much of the life-waste here referred to, is avoidable, and humanity demands that at any rate an attempt should be made to grapple with the terrible suffering and the sacrifice of infant life which prevail in our midst. This is a question of economic, not less than of sanitary importance: for, it is obvious that the remote effects of sickness of such terrible intensity as to kill one infant out of every five born, must be disastrous to the health and physical well-being of the survivors, and will seriously impair their capacity for labour, in the event of their reaching maturity.

The causes of the recent depression in the public health of Salford are, in their nature, neither exceptional nor obscure: they are essentially those to which, in successive previous reports I have referred, as accountable for the habitual unhealthiness of certain parts of our town. They consist

intrinsically of filth pollution of the air, the dwelling, or the ground ; they are in fact, the inevitable result of overcrowding, and may be produced at will, either by the aggregation of persons in unventilated dwellings, or by the mere accumulation of dwelling-houses on an insufficient area. It is to the persistence of these faulty surroundings, in varying degrees of intensity, from year to year, and to the evil habits thereby engendered amongst the inhabitants, rather than to any abnormal or mysterious agency—that are to be attributed both the increase in the death-rate of 1886, and also the permanently high fatality which besets infantile existence in Salford.

In each of my last three annual reports, I have drawn attention to what I have denominated “weak spots” in the sanitary condition of the borough, and I have offered to the Committee certain suggestions as to the course of action which appeared to me likely to conduce to the improvement of the public health. Inasmuch as the Committee have not as yet seen their way to the adoption of my recommendations, I trust they will not think me importunate if, with great respect, I venture again to ask their attention to these unhealthy conditions, in the hope that during the current year they may receive full consideration by the Committee. The principal weak spots in our sanitary armament are the following, (1) the unsatisfactory character of the homes of the people and of the sewerage in the oldest parts of the borough, (2) the filthy condition of the River Irwell, (3) the objectionable system still adopted in certain districts for the removal of nightsoil, and (4) the continuance of the private slaughter-house nuisance amidst the homes of the people. With regard to the first of these items of complaint, I believe that in my reports of 1884 and 1885 I have fairly substantiated the contention that there still remain not a few districts in the borough the house accommodation in which is structurally so defective as to be dangerous to health, and where the general sanitary conditions are so inveterately faulty as to be incapable of amendment by ordinary methods. It is obvious therefore, that unless these “plague spots” are to be allowed permanently to discredit the sanitary reputation of Salford, they will require fundamental and quite exceptional treatment at the hands of the Sanitary Authority of the borough. I would therefore suggest as a preliminary measure—and with the object of affording to the Sanitary Authority the information necessary for effective action—that a special representative committee or sub-committee should be appointed in Salford, which should be invested with the duty of examining the unhealthy areas referred to, and of reporting

the results of their investigation to the General Health Committee, as the Sanitary Authority of the borough.

With respect to my second complaint, which relates to the foetid condition of the Irwell, I am gratified in being able to announce that the Committee charged with the conservancy of the River, have recently initiated proceedings against several defaulters under the Act, and have taken other steps which are of happy augury, inasmuch as, in their event, they must assuredly tend to minimise the nuisance accruing from the present pitiable condition of that water-course.

With regard to my third grievance, which relates to the mode of refuse disposal still obtaining in certain parts of the borough ; I wish that I could detect some hopeful sign that the midden system of ashpit would shortly be discontinued throughout Salford, in favour of some other method fairly in accordance with modern sanitary requirements. The midden system in all its forms has been condemned by every sanitarian of importance in Great Britain. I have not heard a single valid argument in favour of its retention in the crowded areas of our great towns ; and the sole excuse which has yet been invented for its perpetuation in this borough, is the only too powerful one of comparative inexpensiveness in working.

On every available opportunity, since my appointment here as Medical Officer of Health, I have implored the Health Committee to initiate a careful scrutiny into our prevalent system of refuse disposal—as a matter seriously affecting the health of the people. I regret to say however, that hitherto my advice has not been favourably received. I am, of course, aware of the administrative and financial difficulties involved in the alteration of a system which has been long in vogue, especially in a borough of tripartite constitution like our own : and, I therefore do not counsel the *immediate* alteration of all the old middens at present in use : but, in view of the practical certainty that this system will shortly have to give place—especially in large towns—to other and more healthful arrangements, I would urge the Corporation—if only in justice to the proprietors of cottage property—resolutely to prohibit the adaptation of these nuisances to all new houses hereafter to be constructed in the borough. As time advances, the conviction deepens in my mind that the health of Salford will never attain to a satisfactory position, in relation to that of the neighbouring towns, until the midden

system shall have been entirely and permanently banished from amongst us.

During the year under notice, the suggestions which, in the course of my duty, I have felt called upon to make for the improvement of the public health, have received most gratifying confirmation at the hands of Dr. Page, H.M. Inspector under the Local Government Board; who after paying, in August last, a visit of inspection to the areas of Salford which are most in need of sanitary amendment, has endorsed the foregoing recommendations, categorically, in his report to the Health Committee,\* and has urged their adoption with all possible despatch.

The visit of Dr. Page to Salford was paid by order of the Local Government Board, who in the course of the last two years have directed a number of official enquiries as to the degree of preparedness, existing in many of the towns of Great Britain, against visitation by cholera, in the event of the importation of that disease from abroad. The published details of many of these inspections are very instructive, and show how pressing was the need for such an enquiry, which in many cases has led to the exposure of sanitary defects, in towns of importance, and even in certain fashionable watering places, the existence of which would have offered dangerous facilities for the propagation of cholera in the event of the importation of contagion from elsewhere. With reference to the inspector's visit to Salford, I believe it to have been beneficial in many respects. Dr. Page was able to acknowledge the completion of much good work by the Health Committee, and especially to approve the contemplated action of the Corporation with respect to the River Irwell. On the other hand, he was unsparing in his condemnation of existing insanitary conditions, and becomingly solicitous for their prompt removal.

I trust that the ultimate result of Dr. Page's visit will be to give a fresh *impetus* to sanitary progress in Salford, and I earnestly hope that the Committee will see fit to adopt the above-mentioned recommendations, which have now received the approval of high authority, and that they will at once proceed with the work necessary to give them effect.

---

\* See appendix, No. II.

Of the measures which have been taken in the course of the year, by the officers of our sanitary authority, for the promotion of the people's health, a detailed account is given in sections III and IV of this report; but there are in addition a number of voluntary agencies which have been in operation during the year, and which I desire officially to acknowledge: for I am convinced that to these unofficial sources is due much of the improvement which the public health of Salford has achieved in recent years.

First then, let me refer in terms of grateful recognition to the good work which, year after year, is being effected in our back slums by the ladies and their mission women of the Manchester and Salford Sanitary Association. From an intimate acquaintance with the three Greengate districts in which their labours are carried on, I am able to render personal testimony to the high appreciation in which the home visits of the emissaries of this Association, and especially those of the ladies themselves, are held by the poor cottagers who are the objects of their care. In the interest especially of the women and children who, in their sickness, require aid of a kind which the official inspector cannot suitably render, I should be thankful to see a considerable extension of female sanitary work in Salford: and it is therefore a matter of regret to me that the Ladies' Sanitary Association does not receive more than it does of pecuniary support and encouragement from the well-to-do inhabitants of the borough. The Manchester and Salford Sanitary Association has hitherto depended for support on voluntary subscriptions entirely, and I know of no organisation which accomplishes so much good work of this sort on an income so pitifully small. Having regard, however, to the fact that the mission women referred to are doing public health work of an invaluable kind—and work which, moreover, can only be fitly done by women; I have no hesitation in recommending the Health Committee to consider the advisability of encouraging—by the annual grant to the Association of a sum of money from the rates—the prosecution of this work amongst the Salford poor, which at the present time is being crippled for want of funds.

For my own part, I shall always esteem it a privilege to render any official aid in my power to the members of the Association or their mission women in their labours amongst the sick-poor in Salford; and

before leaving this subject, I desire very heartily to thank the Lady Superintendent of the St. Simon's District for the opportunity which she has recently afforded me of addressing the members of her "Mothers' Meeting" on subjects relating to the health of their children. I have reason to believe that the information which I have been able thus familiarly to communicate on the occasion referred to, and on subsequent similar occasions,\* has been highly appreciated by a class of persons who exceptionally need instruction, and whom I could not easily have reached in any other way.

There are also other voluntary agencies operating in Salford for the benefit of the sick and the needy poor. Especially I may refer to the Salford Royal Hospital, and the Children's Hospital at Pendlebury; the medical officers of both which institutions spend much of their time in visiting and ministering to the ailments of our suffering poor. The Medical Mission also in Greengate, is an institution which, under the conduct of Dr. Grimke, has for many years afforded timely assistance to the poverty-stricken inhabitants in its own immediate neighbourhood.

But in spite of all existing agencies for the relief of preventible human suffering, there remains much—very much—to be done, before Salford can congratulate herself on having done her duty to the poor. What we in Salford want, is, that the wealthier classes, and those possessed of the necessary leisure, should recognise their responsibility in this matter. If the many ladies in our suburbs who have the means and the requisite time at their disposal would only take the trouble to pay back-Salford a single visit, or would accompany either of the Greengate Mission women in their daily rounds, and would see for themselves—not only how terrible is the misery which prevails in those districts, but how easily that misery might be assuaged—I cannot believe that the members of the Sanitary Association would long have to appeal, as they are doing at present, either for more funds or for fresh colleagues in their noble work.

The education of the public in matters concerning their health, is confessedly a slow process, but the operation would be infinitely more

---


\* I beg to tender my thanks to the Revs. H. J. Meres and W. J. Whitworth of St. Matthias' for granting me the use of their School-room and for collecting there a large audience of parishioners on the occasion of my recent evening address in that parish.

tedious than it is, were it not for the potent aid which Medical Officers of Health receive from the public press. It is to me an encouraging fact, the significance of which it is difficult to over-rate, that the journals, both of Manchester and Salford, have invariably placed their columns at my disposal for the inculcation of sanitary lessons ; and that they still continue to publish gratuitously the weekly returns of sickness and death in this borough. I can only offer, once again, on this occasion, my grateful acknowledgments to the Editors, severally, of the Press of Manchester and Salford, for the powerful help which they have so generously extended to me throughout the past year, in my endeavours to improve the conditions of life in this vast community.

I remain, Gentlemen,

Your obedient servant,

JOHN TATHAM.



Digitized by the Internet Archive  
in 2018 with funding from  
Wellcome Library

<https://archive.org/details/b30066943>

## TABLE OF CONTENTS

OF THE REPORT OF THE MEDICAL OFFICER OF HEALTH, DRAWN UP  
IN CONFORMITY WITH THE LOCAL GOVERNMENT BOARD'S  
GENERAL ORDER, 1880, No. VII.

---

### HEALTH AND SANITARY PROGRESS.

- I. An account of the sanitary condition of the Borough of Salford  
generally at the end of the year 1886 ..... 13

### VITAL STATISTICS.

- II. Tabular statements of the Sickness and Mortality within the  
Borough, classified according to diseases, ages, and localities... 19

### WORK OF THE HEALTH DEPARTMENT.

- III. Summary of the action taken during the year, for limiting the  
spread of preventible disease..... 57
- IV. An account of enquiries made by the Medical Officer of Health,  
as to conditions injurious to health existing in the Borough,  
and of the proceedings taken by his advice, for the abatement  
of such conditions, under the Public Health Act, 1875, and  
the various Local Acts ..... 64
- V. An account of the supervision exercised by the Medical Officer of  
Health, or on his advice, for sanitary purposes, over places and  
houses that the Sanitary Authority has power to regulate ;  
with the nature and results of proceeding required, and of  
action taken with respect to the same, during the year ..... 68
- VI. An account of the action taken by the Medical Officer of Health,  
or on his advice, during the year, in regard to offensive trades,  
and to factories and workshops..... 76

---

### APPENDIX.

---

### INDEX.



# REPORT.

---

## 1. *An account of the Health and Sanitary condition of the Borough of Salford.*

**Health of the people.**—Judged by the usual rough test of mortality, the state of the public health in the year 1886 compares somewhat unfavourably with that of its immediate predecessors. The deaths registered in Salford during the year under notice, when calculated on my own estimate\* of the population—which differs from that of the Registrar General—are equal to an annual rate of 23·7 per 1,000 living: this rate is higher than that of the year 1885 by 1·5 per 1,000, and also higher than the average rate in the preceding five years by 0·7 per 1,000. At first sight, this rise may seem a trivial one, but unfortunately it does not express the whole truth; for on making the necessary correction for age constitution of the population, I find that the excess in the death rate of last year must be further increased by a unit in each thousand of the population, in order that the comparison may be a fair one between the death rates of the present and past years. I have previously shewn that the serious diminution which in recent years has taken place in our birth rates, exercises a not inconsiderable influence on the recorded bills of mortality. The birth rate in 1886 did not exceed 36·7 per 1,000 of the estimated population: it follows therefore that the births actually registered during the year were fewer by 1,213 than the number which would have taken place had the normal birth rate† of 42·9 per 1,000 prevailed throughout the year. At the high rate of infantile mortality which obtained in 1886, these 1,213 infants would have become diminished by 239 at the end of the year, and these infantile deaths would have raised the general rate of mortality from 23·7 (the actually recorded rate) to 24·9 per 1,000; which may therefore be accepted as the corrected death rate for the year. The above observations apply to the so-called gross death rate—i.e. the rate of mortality at all ages, calculated on the total number of people living. When, however, the rate of mortality is considered amongst the infantile portion of the community, it becomes at once apparent that we have seriously lost ground during the year under notice. Turning

### SECTION I.

State of the Public Health at the end of 1886

Effect on bills of mortality of continued depression in birth-rate

Excessive infantile mortality

---

\*The Registrar General's estimate of the Salford population is higher than that which I have adopted by 14,347. In recent previous annual reports I have given my reasons for believing that my own estimate is the more reliable.

† That is the average rate of Births in the ten years 1871—80.

SECTION I.  
Health of the  
people

Death-rate of  
England and  
Wales higher in  
1886 than in the  
previous year

Causes of excess-  
ive mortality in  
Salford during  
1886

to the section\* in this report which treats of "infantile mortality" we find that in Regent Road and Greengate, the districts responsible for the excess in our Borough death rate, the mortality amongst infants under one year of age was equal to more than a fifth of the total births—it reached the high proportion of 210 per 1,000, and was thus in excess of the average rates in those districts by not less than 21 per 1,000. The rate of infantile mortality last year throughout England and Wales did not exceed 150 in each thousand births, and was therefore below that of these Salford districts by 29 per cent. Again, the health reputation of our Borough is prejudicially affected by the fact that the improvement in the death rates of certain districts brought about by sanitary operations is neutralized by the persistently high death rate obtaining in other areas. Thus for example, twenty years ago the districts of Regent Road and Greengate were each of them subject to a death rate of 32 per 1,000; but whilst the death rate of the first named district has now been reduced to 25.5 per 1,000, that of the last-named still remains at over 30. I mention these instances merely as an illustration: there can of course be no justification for the continuance in Regent Road of a death rate of 25.5 per 1,000. It should be mentioned here that in 1886 the death rate throughout England and Wales was a trifle higher than that of the year 1885, but the 1886 rate in England and Wales did not exceed the average rate of the five years which have elapsed since 1881, whereas in our own borough the excess in the death rate was remarkable, especially after due correction for the altered age constitution of the population occasioned by the continued depression in the birth-rate. On carefully examining the Salford death record, it does not appear that the year 1886 has been characterised by exceptional fatality from infectious complaints generally; scarlet fever being the only miasmatic disease responsible for a heavier mortality than the average, and even in the case of that disease the excess was trifling when compared with the decennial average. Notwithstanding the unprecedented rigour of a portion of the spring time, the aggregate annual deaths from respiratory diseases showed no serious increment at the close of the year, whilst the deaths from diseases of the nervous system were considerably fewer than the average. On the other hand diarrhoeal diseases gave rise to an unusually heavy mortality last year, having caused 96 deaths more than the average. Tubercular diseases also, and especially *tuberculosis mesenterica* were excessively fatal, and heart disease showed exceptional mortality during the year.

**Sanitary Progress.**—The only instance of general legislation in aid of sanitary progress during 1886 consists of section 9, c. 32, of the Regulation of Dairies Act, which provides for the transfer

\* See page 25.

to the Local Sanitary Authorities of the powers contained in section 34 of the Act of 1878: which powers were previously exercisable under the direction of the Privy Council. For the future therefore the sanitary authorities of the country will have to supervise the dairies, cowsheds, and milkshops as regards their sanitary condition, and to perform such other duties in respect of them, as have hitherto been vested in the veterinary authorities. During the year 1886 the Health Committee put in force Section 9 of the "Housing of the Working Classes Act 1885," which provides for the inspection of tents and vans used for human habitation, for the abatement of nuisances injurious to health, and for preventing the spread of infectious disease by the persons inhabiting such vans. The vans frequenting the borough have therefore been kept under supervision by the inspectors ever since the beginning of last year, and the abatement in them of a large number of nuisances injurious to health has been secured. Another event of the year which deserves mention as an item of sanitary progress, is the determination of the Committee to obtain reliable information as to the condition of the sewerage, especially in the older portions of the borough. At the instigation of H.M. Inspector under the Local Government Board, whose visit of inspection is referred to elsewhere,\* the Committee instructed the Borough Engineer to report fully to them on the condition of the Sewers, and on the best means to be adopted for their amendment. A copy of Mr. Jacob's report is appended,† and the Committee are in possession of additional particulars which have not been printed, as to the condition of the sewers which have been examined, and as to the amount of deposit which they severally contain.

SECTION I.  
Sanitary legisla-  
tion in 1886

Adoption by the  
Committee of  
Section 9 of  
"Housing of the  
Working Classes  
Act. 1885."

Report of  
Borough Engi-  
neer on sewerage  
of the borough

**Prevalence of Epizootic Disease.**—I am indebted to the veterinary surgeons practising in the borough, for the information that rabies has not been abnormally prevalent here during the past year, only some three or four definite cases of rabies and a few cases of doubtful character having come under the notice of the veterinary profession in Salford in the course of the year. Rabies was added to the list of the "Contagious diseases of animals" by an order in Council which came into force on October 1st, 1886.

Epizootic disease

In order that the public may be able the more readily to detect this terrible disease amongst animals in its early stages, it may be useful to insert here the following short description of the most marked symptoms of rabies in dogs. I am indebted for this information to the excellent report of Professor Brown, which has been recently presented to the Privy Council.

\* See page 65.

† See Appendix No. III.

## SECTION I.

Professor Brown  
on Rabies in  
Dogs

*"Symptoms of rabies in dogs.*—Change of habits, restlessness, moving from place to place, often hiding in dark secluded corners, depraved appetite, gnawing and eating indigestible substances, altered voice, difficulty in swallowing, but showing no dread of water, thick viscid saliva hanging from the corners of the mouth which the dog tries to remove with his paws, frequently snapping at the air or imaginary objects. These symptoms in the furious form of the disease are followed by paroxysms of excitement, in which there is an irresistible tendency to bite and attack other animals, especially dogs; the animal then wanders from his home, biting and snapping at every animal that may come in his way, emaciation and exhaustion rapidly follow with loss of nervous power, partial paralysis often supervenes and the animal drops and dies, if it has not previously been destroyed. In the dumb or torpid form of the disease, the premonitory symptoms are followed by dropping or paralysis of the lower jaw, rendering the animal unable to bite or bark, the tongue swollen and livid hangs out of the mouth, the dog in this condition seldom leaves his home but endeavours to remain quiet in some dark place, takes little or no notice of what goes on around him, paralysis of the hind limbs soon sets in, and death quickly follows."

Swine Fever

Eight outbreaks of "Swine Fever" occurred during the year 1886, in the course of which 51 animals were affected; three of these were found to be dead on inspection, and the remainder were slaughtered, as were also 109 other animals which had been in contact with the affected swine, and which were destroyed in order to stamp out this highly contagious disease. It is satisfactory to note that no portion of the borough was declared an "infected area" during the year, in respect of foot and mouth disease.

Infected areas

# VITAL STATISTICS

## STATISTICAL SUMMARY, 1886.

---

**Area.**—The Municipal Borough of Salford—comprising the Townships of Broughton, Pendleton, and Salford, together with a detached portion of Pendlebury—contains an area of 5,170 acres, or rather more than eight square miles.

**Elevation.**—The population of Salford resides at a mean elevation above sea level, of 140 feet, the elevation varying from 85 feet to 250.

**Inhabited Houses.**—There were 37,893 inhabited houses in the borough, at the rate laying in 1886. At the last Census, each house was found to contain 5.15 persons.

**Rateable Value.**—The annual rateable value of the borough in 1886 was £750,678. The increase in the rateable value of the borough within the last decade, has been equal to 7.8 per cent.

**Population.**—Estimated to the middle of 1886, the population of the borough was 196,894, namely:—94,529 males and 102,365 females.

**Density.**—The mean density of the borough = 38.1 persons to an acre. Density of Broughton District = 26.6, Pendleton = 20.4, Greengate = 119.0, and Regent Road = 73.6 persons to an acre.

**Annual rate of Increase of Population.**—Was equal to 2.2 per cent from 1861-71, and to 4.1 per cent from 1871-81.

**Marriages.**—1476 marriages were solemnized in 1886. The marriage rate *i.e.*, rate of persons married was therefore equal to 14.6 per 1000. For statement of marriages and marriage-rates in each of the years 1862-1886, see table A. page 22.

**Births.**—The births of 7,234 children were registered during 1886, namely:—3,708 males and 3,526 females. The annual birth-rate was therefore equal to 36.7 per 1000. 341 or 4.7 per cent of the births were illegitimate.

**Vaccinations.**—Of the 7,376 children whose births were registered within the twelve months ending midsummer, 1886, 77.4 per cent had been successfully vaccinated by the end of June 1886. 0.3 per cent had been certified to be insusceptible of vaccination, 11.8 per cent had died unvaccinated, the vaccination of 3.3 per cent had been postponed by medical certificate, 5.4 per cent had removed to other Districts, and 1.8 per cent remained unaccounted for at the end of that month.

**Deaths.**—The deaths of 4,672 persons were registered during 1886, namely:—2,318 males and 2,354 females. The annual death-rate amongst persons of both sexes was therefore equal to 23.7, amongst males it was 24.5 and 23.1 amongst females.

**Estimated Increase of Population,** = 4,114:—but the excess of births over deaths was only 2,562.

## II.—VITAL STATISTICS.

**Deaths and Annual Rate of Mortality.**—During the 52 weeks of the year under notice, 4,638 deaths were registered within the Borough of Salford, which consists of the townships of Broughton, Pendleton, and Salford. Of the total deaths 4,616 were registered as having taken place in the borough, and the deaths of 78 Salford residents, as having occurred either at the Manchester Royal Infirmary or at the hospitals of Monsal or of Pendlebury, all of which institutions are outside the municipal boundaries. On the other hand, 22 patients, who had come to us from districts outside the borough, died in Salford public institutions. For the purposes of this Report these latter patients are not considered to be Salford residents.

SECTION II,  
The death-roll of  
1886

The Salford death-roll, thus corrected, records the deaths of 4,672 persons in the year 1886, as compared with 4,283 in the immediately preceding year. Calculated on my own estimate of the Salford population, which I compute at approximately one hundred and ninety seven thousand, in the middle of the year, the annual rate of mortality in 1886 was equal to 23·7 per 1,000 persons living. The Registrar General however estimates the Salford population at 211,241 in the middle of 1886, and according to this estimate the death-rate would be only 22·1 per 1,000; but for reasons adduced in a former report,\* I am convinced that the Registrar General's estimate is too high. I therefore adhere to my own estimate which I believe to be much nearer the truth.

Estimate of the  
Salford popula-  
tion

The annual death-rate in Salford during the five years 1877-81 averaged 26·2 per 1,000. In the succeeding five years, which terminated with the year under present notice, the average had fallen to 23·3. The death rate of the later quinquennium as compared with the earlier, was therefore lower by more than eleven per cent.†

**Meteorology and Seasonal Mortality.**—Although the year 1886 was remarkable as including periods alike of exceptional cold and of relatively great heat, nevertheless these extremes tend to counteract one another and do not appreciably influence the "mean temperature" of the year, compounded as it is of the 52 weekly mean temperatures. During the year 1886 the mean temperature

Mean tempera-  
ture

\*Annual Report on the Health of Salford 1885, page 8.

†See table E, page 31 of this Report.

SECTION II.  
Meteorology and  
seasonal mortality

Extreme severity  
of the weather  
in February and  
March

in Bexley Square was  $48.45^{\circ}$  Fahrenheit, which differs only by  $+0.3^{\circ}$  from that of 1885, and by  $-0.2$  from the average of the mean temperatures in the ten previous years. The average of the weekly mean temperatures in the 52 weeks of 1886, was almost identical with the average of the mean temperatures in the ten years 1876-85, namely  $48.7^{\circ}$ . The amount of rain which fell on 192 days of the year under notice, differed only slightly from the average: it was 36.32 inches, as compared with 35.0 the mean annual rainfall in the preceding ten years. The rainfall at Greenwich during the 52 weeks of 1886 measured only 24.21 inches, or 12.11 inches less than that recorded in Salford. On reviewing the various seasons of the year with respect to their meteorological constitution,\* we find nothing abnormal either in the mean temperature or in the rainfall of the second and fourth quarters of the year.

The exceptional severity however of the weather during part of the first quarter of the year was so remarkable as to demand especial notice here. In no corresponding period on record has the local depression of temperature been so continuous as in the four weeks ending March 20th 1886. The mean temperature during the 28 days ending March 20th did not exceed  $34.9^{\circ}$  Fahrenheit, which is lower by  $7.2^{\circ}$  than the average of the mean temperatures in the fifteen previous corresponding periods. The mildest day was the 20th, when the mean temperature reached  $51.1^{\circ}$ , and the coldest was the 7th when the mean fell to  $28.9^{\circ}$ ; the minimum temperature recorded on that day in Bexley Square being only  $20.0^{\circ}$ . With the object of measuring the loss of life in Salford during this very inclement interval, I have prepared a table† in which the rate of mortality in the fatal period of five

\* Difference in the year 1886 as compared with the decennial means of 1876-85.

	Spring Qr.	Summer Qr.	Autumn Qr.	Winter Qr.
Mean Temperature....	-2.6°	-0.1°	+0.7°	+0.7°
Rainfall (inches).....	-1.33	+0.86	+1.06	+0.42.
Rate of Mortality ....	-3.4%	-15.5%	+7.3%	-14.9%

† Annual rate of mortality in Salford from all causes, and from acute lung disease, during two periods of five weeks each, in the spring of the year 1886, shewing the excess of mortality in the more recent period, due to cold weather:—

Ages.	Annual Rate of Mortality per 1,000 living.				Excess of Mortality due to Cold in the five week period ending March 27.	
	From All Causes in the five weeks ending—		From Lung Diseases in the five weeks ending—			
	Feb. 20.	Mar. 27.	Feb. 20.	Mar. 27.	All Causes	Acute Lung Disease.
All Ages .....	22.6	30.9	6.4	10.0	8.3	3.6
Under 5 years ....	66.8	90.0	16.6	26.4	23.2	9.8
5 to 60 years .....	10.4	13.4	2.9	3.5	3.0	0.6
Over 60 years.....	95.6	152.6	35.0	72.3	57.0	37.3

weeks ending March 27th, is compared with that obtaining in the period of five weeks immediately preceding. In this table the death rates are given from all causes, and from acute lung diseases in each of these five-week periods; and in the two last columns is shown the difference in the mortality of the two periods, at three age groups. This difference may be taken to represent the rate of death due to cold, and it is seen to vary extremely at the several ages. Thus, whilst the rate at the age group 5—60 years, did not exceed 3·0 per 1,000 living at that age, it was equal to 23·2 per 1,000 amongst young children, and to not less than 57·0 per 1,000 amongst old people. I am indebted to Mr. John Makinson Fox, the medical officer of health for the Mid-Cheshire combined district, for particulars of the mortality in Mid-Cheshire during the period under notice. The death rates of that rural district are here compared with those of Salford.

## SECTION II.

Excess of mortality, resulting from continued cold

Mid-Cheshire contrasted with Salford in this respect

ANNUAL RATE OF MORTALITY PER 1,000 LIVING AT EACH AGE IN THE MID-CHESHIRE COMBINED DISTRICT AND IN SALFORD, RESPECTIVELY, DURING THE FIVE WEEKS ENDING MARCH 27TH 1886.

	Mid-Cheshire.	Salford.
At All Ages, from All Causes.....	19·9	30·9
Under Five years „ .....	43·5	90·0
Over 60 years „ .....	96·8	152·5
Acute Lung Diseases, All Ages .....	3·7	10·0
Pulmonary Consumption „ .....	1·2	3·4

These figures imply that although, during the period referred to, the mean temperature was probably lower in the country than in the town, nevertheless the population of Salford suffered far more severely from the effects of cold, than did that of Mid-Cheshire.

**District Mortality.**—It has before been mentioned that the Borough of Salford comprises four Registration Sub-Districts—Regent Road, Greengate, Pendleton and Broughton. The physical conditions under which the inhabitants of these areas live vary immensely, and so likewise does the rate of mortality to which they are subject. It follows therefore, that a statement of the average death-rate prevailing in the Borough of Salford is misleading, unless supplemented by a detailed account of the rates of mortality obtaining in its constituent districts. It is familiar knowledge amongst sanitarians that, *cæteris paribus*, the mortality of a district increases with the density, or proximity of person to person. Hence we find<sup>\*</sup> that in the district of

Mortality in the four registration sub-districts of the borough

\* See Table A on page 22.

TABLE A.

POPULATION, BIRTHS, DEATHS, AND MARRIAGES, IN THE BOROUGH OF SALFORD, AND IN ITS FOUR REGISTRATION SUB-DISTRICTS, IN EACH OF THE TWENTY-FIVE YEARS, 1862-1886.

	Population.					Births.					Marriages.	Deaths.				
	Boro'.	Regent Road.	Green-gate.	Pendle-ton.	Brough-ton.	Boro'.	Regent Road.	Green-gate.	Pendle-ton.	Brough-ton.		Boro'.	Regent Road.	Green-gate.	Pendle-ton.	Brough-ton.
1862	104975	34928	37458	22139	10450	4087	1351	1592	873	271	552	2654	1027	1040	433	154
1863	107075	36134	37389	22636	10916	4072	1371	1570	837	294	646	2783	1021	1089	509	164
1864	109212	37374	37313	23132	11303	4210	1392	1654	883	281	714	2895	1071	1155	503	166
1865	111393	38046	37231	23633	11883	4207	1443	1594	856	314	739	3239	1248	1220	595	176
1866	113614	39949	37144	24136	12385	4307	1536	1590	860	321	786	3268	1286	1257	556	169
1867	115885	41294	37045	24644	12902	4517	1581	1561	911	364	856	3267	1319	1182	563	203
1868*	118198	42674	36941	25132	13431	4715	1669	1632	1033	381	807	3661	1486	1238	734	203
1869	120526	44087	36823	25658	13968	4681	1725	1589	982	385	874	3182	1287	1075	599	221
1870	122965	45551	36704	26177	14533	4870	1900	1581	949	440	896	3167	1384	1002	559	222
1871	125890	47195	36517	26920	15258	5127	2055	1613	1060	399	950	3815	1649	1184	734	248
1872	130301	49301	36145	28357	16498	5399	2235	1593	1011	560	1012	3299	1423	1039	579	258
1873*	134883	51463	35747	29847	17826	5691	2285	1560	1220	617	996	3884	1684	1092	805	303
1874	139618	53670	35319	31386	19243	5884	2463	1447	1169	805	1164	3935	1748	1029	782	376
1875	144518	55921	34868	32977	20752	6421	2737	1431	1350	903	1304	4271	1944	1115	784	428
1876	149501	58219	34393	34617	22362	6806	2778	1488	1527	1013	1582	4407	2003	1039	863	502
1877	154842	60561	33898	36308	24075	6866	2844	1379	1567	1076	1564	4079	1924	889	795	471
1878	160277	62945	33379	38054	25899	7161	2928	1420	1633	1180	1479	4336	1878	959	898	601
1879*	165899	65371	32843	39848	27837	7240	3022	1367	1719	1132	1290	4495	1831	1056	1001	607
1880	171727	67839	32291	41697	29900	7102	2801	1343	1778	1180	1468	4799	2138	1074	970	617
1881	177167	70154	31758	43421	31834	6880	2826	1243	1698	1113	1489	4000	1745	790	936	520
1882	180948	71922	31320	44654	33052	7130	2974	1285	1711	1160	1552	4265	1824	924	931	586
1883	184809	73502	31320	45778	34209	6778	2882	1214	1584	1098	1494	4287	1862	901	957	567
1884*	188752	75112	31320	46922	35308	7139	2938	1296	1670	1235	1517	4486	1921	893	1025	647
1885	192780	76741	31320	48092	36627	6989	2969	1149	1686	1185	1538	4283	1859	879	961	584
1886	196894	78410	31320	49278	37886	7234	2953	1259	1760	1262	1476	4672	2000	948	1043	681

DENSITY (PERSONS TO AN ACRE), ANNUAL RATES OF BIRTHS, MARRIAGES, AND DEATHS, IN THE BOROUGH OF SALFORD, AND IN ITS FOUR REGISTRATION SUB-DISTRICTS, IN EACH OF THE TWENTY-FIVE YEARS, 1862-1886.

Quinquennial Means.	Density (persons per acre).					Annual rates per 1000 of the Population.										
						Births.					Marriages.	Deaths.				
	Boro'.	Regent Road.	Green-gate.	Pendle-ton.	Brough-ton.	Boro'.	Regent Road.	Green-gate.	Pendle-ton.	Brough-ton.		Regis-tration District.	Boro'.	Regent Road.	Green-gate.	Pendle-ton.
1866-70	22'9	40'0	140'4	10'4	9'4	38'9	39'7	43'0	37'5	28'0	13'8	27'9	31'6	31'1	23'8	15'1
1871-75	26'1	48'3	135'8	12'4	12'6	42'0	45'5	42'6	38'8	35'9	15'5	28'3	32'7	30'5	24'6	17'7
1876-80	31'0	59'1	126'8	15'8	18'3	43'8	45'6	41'8	43'1	43'0	18'0	27'5	31'0	30'0	23'7	21'7
1881-85	35'7	68'9	119'3	18'9	24'0	37'7	39'6	39'3	36'4	33'8	16'0	23'0	25'0	27'9	21'0	17'0
1862	20'3	32'7	142'4	9'2	7'3	39'0	38'7	42'5	39'4	25'9	10'2	25'3	29'4	27'8	19'6	14'7
1863	20'7	33'9	142'2	9'4	7'7	38'0	37'9	42'0	37'0	26'9	11'7	26'0	28'3	29'1	22'5	15'0
1864	21'1	35'0	141'8	9'6	8'0	38'6	37'3	44'3	38'2	24'7	12'7	26'5	28'7	31'0	21'7	14'6
1865	21'6	36'2	141'5	9'8	8'3	37'8	37'3	42'8	36'2	26'4	12'9	29'1	32'3	32'8	25'2	14'8
1866	22'0	37'4	141'2	10'0	8'7	37'9	38'5	42'8	35'6	25'9	13'4	28'8	32'2	33'9	23'0	13'6
1867	22'4	38'7	140'8	10'2	9'1	39'0	40'7	42'2	37'0	28'2	14'3	28'2	31'9	31'9	22'8	15'7
1868*	22'9	40'0	140'4	10'4	9'4	39'3	38'5	43'5	40'4	27'9	13'3	30'5	34'3	33'0	28'7	14'9
1869	23'3	41'3	140'0	10'6	9'8	38'9	39'1	43'2	38'3	27'6	14'1	26'4	29'2	29'2	23'3	15'8
1870	23'8	42'7	139'4	10'8	10'2	39'6	41'7	43'1	36'3	30'3	14'1	25'8	30'4	27'3	21'3	15'3
1871	24'3	44'2	138'8	11'1	10'7	40'7	43'6	44'2	39'4	26'2	14'6	30'3	34'9	32'4	27'2	16'2
1872	25'2	46'3	137'4	11'7	11'6	41'4	45'3	44'1	35'7	34'0	15'1	25'3	28'9	28'8	20'4	15'6
1873*	26'1	48'3	135'7	12'4	12'5	41'5	43'7	43'0	40'5	34'1	14'3	28'3	32'2	30'1	26'6	16'7
1874	27'0	50'3	134'3	13'0	13'5	42'1	45'9	40'9	37'3	41'8	16'2	28'2	32'6	29'2	24'9	19'5
1875	27'9	52'4	132'6	13'6	14'6	44'4	48'0	41'0	40'9	43'5	17'5	29'5	34'8	32'0	23'7	20'6
1876	28'9	54'7	130'6	14'3	15'7	45'5	47'7	43'3	44'1	45'3	20'5	29'5	34'5	30'2	24'9	22'4
1877	29'9	56'8	128'8	15'0	16'9	44'4	47'0	40'7	43'1	44'7	19'6	26'3	31'8	26'3	21'9	19'6
1878	31'0	59'1	126'9	15'8	18'2	44'7	46'5	42'5	42'9	45'6	17'9	27'1	29'8	28'8	23'6	23'2
1879*	32'1	61'4	124'9	16'5	19'5	43'0	45'5	40'9	42'5	40'0	15'2	26'7	27'5	31'6	24'7	21'5
1880	33'2	63'6	122'8	17'2	21'0	41'4	41'3	41'6	42'7	39'5	16'6	27'9	31'5	33'2	23'3	20'6
1881	34'2	65'8	120'7	18'0	22'3	38'8	40'3	39'1	39'1	35'0	16'3	22'6	24'9	24'9	21'6	16'6
1882	35'0	67'5	119'0	18'5	23'2	39'4	41'3	41'0	38'3	35'1	16'7	23'6	25'4	20'8	20'8	17'7
1883	35'7	69'0	119'0	18'9	24'0	36'7	39'2	38'8	34'6	32'1	15'7	23'2	25'3	28'8	20'9	16'6
1884*	36'5	70'4	119'0	19'4	24'8	37'3	38'5	40'7	35'0	34'3	15'6	23'4	25'2	28'1	21'5	18'0
1885	37'3	72'0	119'0	19'9	25'7	36'2	38'7	36'7	35'1	32'3	15'5	22'2	24'2	28'1	20'0	15'9
1886	38'1	73'6	119'0	20'4	26'6	36'7	37'6	40'2	35'7	33'3	14'6	23'7	25'5	30'3	21'2	18'0

\* In the years 1868, 1873, 1879, and 1884 the facts are those registered in 53 instead of 52 weeks; corrections have therefore been made in calculating the rates

Greengate where the density is equal to 119 persons on an acre of ground, the rate of mortality during the past five years averaged 29.0 per 1,000 living, whereas in the district of Regent Road which for the most part is inhabited by persons of a similar class, but where the density averaged only 70 per acre, the quinquennial rate of mortality was lower by nearly four per 1,000. But experience shows that in order to arrive at an approximately correct estimate as to the health condition of the various districts of the borough, it is by no means sufficient to carry the process of territorial division to the limits only which are adopted by the Registrar General. It is necessary to further break up his registration sub-districts into still smaller districts; and the enumeration areas which were adopted by the enumerators at the last census, lend themselves very appropriately to this purpose. Accordingly, on the publication of the detailed census reports in 1883 I caused a chart to be constructed in which the four registration sub-districts of the Borough were divided into enumeration districts consisting of about 200 houses apiece, the population of these several areas having been ascertained at the last census. The deaths occurring in each of these enumeration districts in the census year, and in the two years immediately preceding and succeeding that event were then extracted from the Registers and carefully calculated on the population enumerated at the census. The mean annual rate of mortality in the five years 1879-83 was thus arrived at in each of the 208 enumeration districts of the borough, and the results were carefully recorded on a coloured chart which was published with my annual report for the year 1884. In a table accompanying that chart the 208 enumeration districts of the Borough were grouped according to their average quinquennial death rates, from all causes and from certain specified causes. The table is of more than passing interest, and I therefore re-produce it here. \*

SECTION II.  
Mortality in  
registration sub-  
districts

In the smaller  
districts adopted  
by the census  
enumerators

It will thus be seen, that out of a mean population of about 174,000, more than 81,000 were living, in the five years ending

\* DEATHS IN SALFORD, IN FIVE GROUPS OF DISTRICTS.

GROUPS OF DISTRICTS.	Enumerated Population.	1879-83.—Average Annual Rate of Mortality per 1,000 living, from									
		All Causes.	Six Zymotics.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhoea.	Lung Disease.	Consumption.
Uncoloured	12,220	12.3	0.9	0.1	0.3	0.1	0.2	0.2	0.3	2.4	1.1
Light Red ..	29,131	17.6	2.1	0.4	0.6	0.2	0.6	0.3	0.8	3.6	1.8
Dark Red ..	50,582	22.4	2.7	0.7	0.7	0.1	0.8	0.4	1.3	4.7	2.3
Light Blue ..	47,250	27.4	3.6	0.9	1.0	0.1	1.1	0.5	1.6	6.3	3.0
Dark Blue ..	34,516	34.7	4.1	1.0	1.1	0.1	1.3	0.6	2.2	8.5	3.9

SECTION II.  
Mortality in  
groups of enu-  
meration dis-  
tricts

with 1883, under conditions which gave rise to a rate of death varying from 27 to 35 per 1,000 of the population! On the other hand the table gives evidence that the borough contains areas inhabited by an aggregate population of more than 41,000 persons the rate of mortality amongst whom ranges from 12 to 18 per 1,000. Indeed the chart which accompanies the table in my 1884 report shews examples of even greater variation than this; for whereas in certain of the districts of Old Salford the mean annual death rate from 1879 to 1883, was stationary at over 40 per 1,000, there are, contrarily, extensive areas in the suburbs where the rate of mortality does not exceed 10 in the 1,000—a rate which will compare favourably with that of the healthiest districts in England.

Annual rate of  
mortality in 1886  
in other parts of  
England and  
Wales

**Mortality in other parts of the Kingdom.**—The annual rate of mortality in England and Wales during the year 1886 was equal to 19·3 per 1,000 of the population, which is higher by 0·3 per 1,000 than the rate of 1885, and identical with the mean annual rate in the first six years of the current decennium (1881—90.) The deaths in London during the year 1886 corresponded to an annual rate of 19·9 per 1,000. The rate in the immediately preceding year was 19·8 but with this one exception the rate in 1886 was the lowest recorded since the present system of civil registration began. The Dublin death-rate last year was equal to 26·9 per 1,000, that of Edinburgh to 19·1. The death rate obtaining last year in the 28 Great English Towns of the Registrar General was equal to 20·9 per 1,000, which is lower by 1·5 per 1,000 than the average rate in the ten years immediately preceding. Of the 28 towns, only four had a death-rate higher than that of our own borough, the remaining 23 towns showing a rate in most cases considerably lower than the Salford rate. In the 50 other considerable town districts of England, statistics for which are published by the Registrar General, the death-rate in 1886 was identical with that of London, namely 19·9 per 1,000. With the object of comparing the mortality of Salford and of its four registration sub-districts with that of the neighbouring large towns, in two successive periods of five years each, I have extracted from the Registrar General's reports the figures given below,\* which

\* Average annual rate of mortality in two recent quinquennia, at all ages, and from all causes in Salford, and in six neighbouring towns.

	Quinquennial Average, 1877-81.                      1882-6.		Decrease per cent. in later Quinquennium.
Manchester .....	27·7	26·7	3·6
Liverpool .....	27·2	25·2	7·4
Oldham .....	24·5	23·2	5·3
Leeds .....	24·0	22·5	2·2
Sheffield .....	23·3	21·5	7·7
Bradford .....	22·6	19·3	14·6
Salford .....	26·1	23·2	11·1
Salford Districts.			
Regent Road .....	29·1	25·1	13·6
Greengate .....	29·0	29·0	..
Pendleton .....	23·0	20·9	9·1
Broughton .....	20·3	17·2	15·2

give the local rates of mortality, without correction either for age or for sex constitution of the population. In the middle of 1886 these seven towns contained an aggregate estimated population of more than two millions.

SECTION II.  
Mortality in  
other parts of the  
country

**Normal rate of Mortality, Male and Female.**—Of the 4,672 persons whose deaths were registered in Salford last year 2,318 were males, and 2,354 females.\* The death-rate at all ages amongst males was 24·5 per 1,000, and 23·1 amongst females. The normal rate of mortality calculated on the basis of the new English Life Table, being 20·5 for males, and 18·5 for females, it follows that the recorded Salford rates in 1886 exceeded the life table rates by 20 and 25 per cent respectively. The mortality, both of males and females, showed an increase in 1886 as compared with the immediately preceding year, but the increase was greatest amongst females. In equal numbers living last year, the deaths of males were as 106 to 100 females.

**Mortality at different ages.**—Table B† furnishes the means of comparing the Salford rates of mortality at certain age-groups with the standard or life-table rates at the same ages. The rates at the several ages are also shown by this table for the year 1886, and for each year of the previous decade. In the year 1886, the recorded death-rate of persons of both sexes, and at all ages, was 23·7 per 1,000, and therefore exceeded the life-table rate by 21½ per cent, the excess in the previous decennium having amounted to almost 30 per cent. Among children under five years, the rate of death last year was equal to 78·0 per 1,000 living, as compared with 61·0 the rate of the life-table. The excess of mortality amongst children was therefore equal to 27 per cent last year, against 39 per cent the average annual excess in the ten years immediately preceding. But on reference to Table D‡ it will be seen, that when the rates of mortality under five years in the several districts of Salford are contrasted, they show even wider variations than do the borough rates at the same ages when compared with those of the life-table. Hence, it is that the so called “child mortality” of a district is accepted as the most sensitive attainable test of sanitary condition. At the age-groups 5-20 and 20-40, the recorded rates in Salford during 1886 did not differ materially from the standard rates; but at the two next ætal periods the excess shown by the recorded rates was considerable, being equal to 34 per cent at the age 40-60 years, and to 15 per cent at ages above 60 years.

Comparison of  
Salford rate of  
mortality at the  
several ætal  
periods, with the  
corresponding  
rates of the Eng-  
lish life-table

**Infantile Mortality.**—Measured by the ratio which the deaths under one year of age bear to the registered births, infantile mortality in Salford was equal to 197 per 1,000 last year, as

Deaths of infants  
under one year  
per 1,000 births

\* See table B, page 26

† See page 26

‡ See page 30

TABLE B.

ESTIMATED POPULATION, AND ANNUAL RATES OF MORTALITY, AT ALL AGES, AND AT FIVE GROUPS OF AGES, IN THE FIFTY-TWO WEEKS OF THE YEAR 1886, AND IN EACH YEAR OF THE PRECEDING DECADE:—COMPARED WITH THE CORRESPONDING RATES OF THE NEW ENGLISH LIFE TABLE—FOR PERSONS, MALES AND FEMALES.

	PERSONS		MALES		FEMALES	
	Estimated Population, 1886.	Deaths, 1886.	Estimated Population, 1886.	Deaths, 1886.	Estimated Population, 1886.	Deaths, 1886.
All Ages.....	196,894	4,672	94,529	2,318	102,365	2,354
Under 5 years.....	28,875	2,250	14,413	1,188	14,462	1,062
5-20 years .....	63,647	360	31,530	180	32,117	180
20-40 years .....	63,888	549	30,325	256	33,563	293
40-60 years .....	31,542	774	14,725	392	16,817	382
60 and upwards .....	8,942	739	3,536	302	5,406	437

ANNUAL DEATH-RATES,\* PER 1,000 LIVING IN 1886, AMONG

	PERSONS.		MALES.		FEMALES.	
	Salford.	New Engl. Life Table.	Salford.	New Engl. Life Table.	Salford.	New Engl. Life Table.
All Ages .....	23·7	19·5	24·5	20·5	23·1	18·5
Under 5 Years .....	78·0	61·0	82·4	65·6	73·4	56·3
5-20 years .....	5·7	4·8	5·7	4·9	5·6	4·7
20-40 years .....	8·6	8·5	8·4	9·0	8·7	8·1
40-60 years .....	24·5	18·3	26·6	20·4	22·7	16·4
60 and upwards .....	82·7	71·9	85·3	75·2	80·8	69·8

ANNUAL RATES OF MORTALITY, IN EACH OF THE TEN YEARS, 1876-1885.

		1876.	1877.	1878.	1879.*	1880.	1881.	1882.	1883.	1884.*	1885.	Mean 1876 to 1885.	
PERSONS	{	All Ages,	29'5	26'3	27'1	26'7	27'9	22'6	23'6	23'2	23'4	22'2	25'3
		Under 5 Years,	99'0	87'5	96'2	89'6	102'9	69'4	80'3	73'3	78'5	70'5	84'7
		5-20 ...	7'9	5'0	6'1	6'1	7'0	5'0	4'5	5'8	5'5	5'1	5'8
		20-40 ...	12'5	11'4	9'8	9'9	9'7	9'4	9'5	8'9	9'2	9'1	9'9
		40-60 ...	27'3	27'5	24'7	25'9	24'3	24'5	23'8	24'3	22'5	22'6	24'7
		60 and upwards	87'7	83'7	84'6	92'5	77'4	83'8	75'9	83'0	77'6	80'3	82'6
MALES	{	All Ages,	31'4	28'5	28'3	28'7	30'0	24'1	24'5	25'0	24'7	23'6	26'9
		Under 5 Years,	105'0	92'8	100'7	99'4	109'5	75'0	83'5	78'1	85'6	76'0	90'6
		5-20 ...	7'5	5'1	6'5	6'3	7'3	5'9	4'5	6'0	5'7	5'5	6'0
		20-40 ...	14'4	13'5	10'3	9'5	10'8	9'8	9'5	9'9	9'0	9'9	10'7
		40-60 ...	29'9	32'1	25'6	29'0	27'3	27'4	26'8	29'3	23'2	24'2	27'5
		60 and upwards	97'2	88'0	94'9	105'7	86'1	89'6	81'3	89'5	85'1	87'8	90'5
FEMALES	{	All Ages,	27'6	24'4	25'8	24'8	26'0	21'1	22'7	21'5	22'2	20'9	23'7
		Under 5 Years,	92'8	82'3	91'8	80'1	96'4	63'8	76'9	68'5	71'4	65'1	78'9
		5-20 ...	8'3	4'8	5'7	5'9	6'7	4'2	4'6	5'6	5'2	4'6	5'6
		20-40 ...	10'7	9'5	9'3	10'2	8'8	9'1	9'4	8'0	9'4	8'5	9'3
		40-60 ...	24'9	23'5	24'0	23'3	21'7	22'0	21'3	20'0	21'8	21'2	22'4
		60 and upwards	81'5	80'9	77'9	83'8	73'2	80'0	72'5	78'8	72'8	75'4	77'7

\* The years 1879 and 1884 contained 53 weeks each, instead of 52. The death-rates have therefore been corrected for this difference

compared with 174 the average rate in the preceding five years. In the first or March quarter of the year, the rate of infantile mortality was equal to 174 per 1,000 births, or 22 per 1,000 more than the quinquennial average for the quarter; in the second quarter it was 160, or 15 per 1,000 above the average; in the third quarter it was 283, or 63 per 1,000 above; whilst in the fourth quarter it was 168, or 5 per 1,000 in defect of the average rate for the five previous corresponding quarters. The rate varied in the several districts of the Borough, although not so widely as in past years: it was lowest (177) in Broughton, and highest in Regent Road, where it was equal to not less than 211 out of every 1,000 children born. Throughout England and Wales, the infantile death-rate last year was 150 per 1,000; it was 164 in the fifty large town-districts, and 169 in the twenty-eight great towns of England; in Edinburgh it was 134, and 169 in Dublin.

SECTION II.  
Infantile mor-  
tality

The following table gives the rate of infantile mortality in Salford during 1886, and the average rates in the preceding ten years; and also the 1886 rates in the several districts of the borough,—from the principal diseases or groups of diseases which are especially fatal to infants at this early age.

In Salford and in  
its four consti-  
tuent districts

#### RATES OF MORTALITY UNDER ONE YEAR PER 1,000 BIRTHS.

	Borough Total.		Registration Sub-Districts.			
	1876-85.	1886.	Regent Road	Green-gate.	Pendle-ton.	Broughton.
All Causes .....	177	197	211	210	180	177
Ten Causes:—						
Measles .....	4.0	1.4	2.4	0.8	0.6	0.8
Scarlet Fever .....	1.2	1.2	2.0	1.6	...	0.8
Whooping Cough ...	7.6	7.7	6.8	7.1	10.2	7.1
Diarrhoea.....	24.8	37.2	38.3	34.1	27.8	50.7
Lung Diseases.....	32.0	35.2	35.2	34.9	39.2	30.1
Tubercular Diseases..	13.7	18.8	20.0	22.2	20.4	10.3
Premature Birth .....	13.7	19.9	16.9	20.7	22.7	22.2
Brain Disease and } Convulsions .. }	31.0	23.3	30.5	27.8	15.9	12.7
Found Dead in Bed...	...	8.2	7.8	15.9	7.4	2.4
Syphilis .....	4.8	3.7	3.7	8.7	1.7	1.6

It will be seen by this table that the cause of death, chiefly accountable for the excessive infantile mortality in 1886, was diarrhoea; lung disease coming next in point of fatality. It is a deplorable fact, to which the coroner has frequently drawn attention, that so large a proportion as 8.2 per 1,000 of the children born in one year should be found dead in bed. The proportion of deaths so returned seems to be increasing, for in the year 1885 it was only 4.9 per 1,000.

**Illegitimacy in relation to Infantile Mortality.**—In the year under notice 341 illegitimate children were born in Salford, Deaths among illegitimate children

TABLE C.

BIRTHS IN THE BOROUGH OF SALFORD AND IN ITS FOUR REGISTRATION SUB-DISTRICTS—DISTINGUISHING LEGITIMATE AND ILLEGITIMATE BIRTHS; ALSO THE PROPORTION OF MORTALITY AMONG LEGITIMATE AND ILLEGITIMATE INFANTS UNDER ONE YEAR OLD.

IN 52 WEEKS OF THE YEAR 1886.

	Births.		Percentage of Illegitimate Births to Total Births.	Deaths under One Year.		Proportion of Deaths under One Year per 1,000 Births.		
	Total.	Illegit.		Total.	Illegit.	Total.	Legit.	Illegit.
Borough .....	7234	341	4.7	1428	147	197	186	431
Regent Road District ...	2953	149	5.0	624	65	211	199	436
Greengate ..	1259	69	5.5	264	34	210	193	493
Pendleton ..	1760	79	4.5	316	25	180	173	316
Broughton ..	1262	44	3.5	224	23	178	165	523

CORRESPONDING DATA FOR THE SEVEN YEARS 1879-1885.

Borough .....	49258	2165	4.4	8699	771	177	168	356
Regent Road District ...	20412	991	4.9	3846	348	188	180	351
Greengate ..	8897	434	4.9	1716	167	193	183	385
Pendleton ..	11846	470	4.0	1957	159	165	158	338
Broughton ..	8103	270	3.3	1180	97	146	138	359

against 270 in the year 1885. The ratio of illegitimate births seems to be increasing in Salford; for whereas, in the seven years 1879-85, the percentage of illegitimate to total births was 4.4, in the year 1886 it was 4.7. In Table C, the births occurring in the workhouse are distributed to the localities whence the mothers came, so that the rate of illegitimacy in each of the four registration districts can be accurately gauged. The table shows that Greengate is the district in which the rate of illegitimate births last year was the highest, and Broughton that in which it was the lowest. Of the 341 children illegitimately born last year, not less than 147 died within the first year of life. The proportion of children born out of wedlock, who thus came to an untimely end during the year 1886, was 43.1 per cent. In the district of Broughton, the proportion was 52.3 per cent, or more than one-half! Amongst children born in wedlock, the proportional mortality under one year was 18.6 per cent last year; this ratio, although much too high, is less than half of that which obtained amongst illegitimate children.

In the table at foot, the mean rates of infantile mortality are given in each of the 28 Great English Towns\* during the ten years 1876-85, and also the rates in the year 1886. The towns are arranged in the increasing order of their average death-rates. In the ten years ending with 1885, the mean rate in the 28 towns was 161 per 1,000 births, but in the year 1886 it rose, as before-mentioned, to 169.

**Senile Mortality.**—Of the 4,672 deaths last year at all ages, 739, or 16 per cent, were returned as those of persons aged 60 years and upwards. Calculated on the population estimated to be living at this age in the middle of the year, these deaths are equal to a rate of 82.7 per 1,000, which exceeds the average rate at this age in the previous five years by 2.5.† The unusually severe weather in the five weeks ending March 27th, referred to in a previous paragraph,‡ fully accounts for this excess.

**Classification of Causes of Death.**—The 4,672 deaths registered in 1886, may thus be primarily classified:—878 deaths,

\* Rate of mortality amongst infants under one year per 1,000 births.

Ten years, 1876-85.			Ten years, 1876-85.		
	1876-85.	1886.		1876-85.	1886.
Birkenhead .....	133	162	Bradford .....	163	167
Portsmouth .....	134	174	Oldham .....	169	174
Derby .....	141	150	Huddersfield .....	169	169
Bristol .....	145	149	Cardiff .....	170	168
Brighton .....	147	160	Norwich .....	170	202
London .....	152	159	Leeds .....	172	181
Halifax .....	156	171	Manchester .....	174	183
Sunderfield .....	157	151	Bolton .....	175	180
Plymouth .....	158	154	Nottingham .....	175	180
Wolverhampton ..	159	175	Salford .....	177	197
Hull .....	161	164	Blackburn .....	181	209
Newcastle .....	161	155	Liverpool .....	185	188
Sheffield .....	163	168	Leicester .....	200	211
Birmingham .....	163	175	Preston .....	215	233

† See Table D, page 30

‡ See page 20

TABLE D.

ANALYSIS OF MORTALITY—ANNUAL RATES PER 1000 LIVING IN EACH OF THE REGISTRATION SUB-DISTRICTS OF SALFORD IN THE 52 WEEKS OF THE YEAR 1886 AND THE AVERAGE ANNUAL RATES IN THE PREVIOUS QUINQUENNIUM 1881—1885—INSTITUTION DEATHS DISTRIBUTED

REGISTRATION SUB-DISTRICTS	ANNUAL RATE OF MORTALITY AT ALL AGES FROM ALL CAUSES AND FROM FIVE CLASSES OF DISEASE.											
	All Causes		Zymotic		Constitutional, Developmental				Local.		Other Classes.	
	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886
REGENT RD	25.0	25.5	4.9	5.1	4.3	4.6	1.6	1.6	11.5	11.6	2.7	2.6
GREENGATE	27.8	30.3	4.9	5.4	5.2	5.8	1.3	1.8	14.1	14.6	2.3	2.7
PENDLETON	20.9	21.2	3.6	3.3	4.3	5.0	1.4	1.5	9.9	9.8	1.7	1.6
BROUGHTON	17.0	18.0	2.9	3.8	3.4	3.2	1.0	1.4	8.2	8.1	1.5	1.5
BOROUGH...	23.0	23.7	4.2	4.5	4.3	4.6	1.4	1.6	10.9	10.9	2.2	2.1

REGISTRATION SUB-DISTRICTS	FROM ALL CAUSES				AT ALL AGES FROM							
	Under 1 Year per 1000 Births.		Over 60 years.		Six Miasmatics.		Diarrhœa.		*Acute Lung Diseases.		Phthisis	
	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886
REGENT RD	187	211	82.0	83.3	2.8	2.6	1.6	2.2	5.4	5.5	2.6	2.4
GREENGATE	191	210	89.5	99.5	2.7	2.7	1.6	2.0	6.8	7.0	3.2	3.4
PENDLETON	164	180	74.2	79.1	2.2	1.5	1.1	1.7	4.3	4.4	2.6	2.6
BROUGHTON	138	177	74.6	69.5	1.8	1.6	0.9	2.0	3.3	3.5	1.8	1.7
BOROUGH...	174	197	80.2	82.7	2.4	2.1	1.3	2.0	5.0	5.1	2.5	2.5

REGISTRATION SUB-DISTRICTS	ANNUAL RATE OF MORTALITY UNDER FIVE YEARS PER 1000 LIVING AT THAT AGE.											
	All Causes.		Nervous Diseases.		Six Miasmatics.		Diarrhœa.		*Acute Lung Diseases.		Scrofulous Diseases.	
	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886	Five Years 1881-85.	1886
REGENT RD	82.5	85.2	11.9	11.0	14.3	11.3	10.0	14.4	15.6	16.5	6.3	8.9
GREENGATE	89.0	97.4	13.5	14.7	14.8	14.9	10.8	13.6	18.0	15.9	8.8	11.6
PENDLETON	67.7	68.0	10.6	6.8	11.6	7.0	6.4	10.4	13.8	14.6	8.8	11.0
BROUGHTON	52.1	59.8	7.2	5.0	8.1	7.6	5.3	13.7	11.1	11.8	5.4	4.8
BOROUGH...	74.3	77.9	11.0	9.4	12.6	10.1	8.4	13.1	14.7	15.0	7.2	9.1

\*True Croup is not included amongst "Acute Lung Diseases" in this table, although it forms part of the Sub-order "Respiratory diseases" of the Registrar General. It is however included in the "Local Class" of diseases at the head of the table.

or 18.8 per cent of the total mortality, were referred to the zymotic class; 906, or 19.4 per cent, to the constitutional class; 309, or 6.6 per cent, to the developmental class; and 2,158, or 46.2 per cent, to the local class of diseases. The remaining 421, or 9 per cent, being undistributed. The deaths which thus remain unclassified, are mainly those which are either uncertified, or which have been referred to violence, or to some ill-defined cause, such as "sudden death," "found dead in bed," "natural causes," &c. It is obviously impossible to arrange causes of death thus described, according to any useful system of classification: they are therefore for the present disregarded.

## SECTION II.

Classification of causes of death

Table E, which relates to the entire borough, gives the rate of mortality from each of the eight classes, and from certain sub-classes of diseases, at all ages, and at several groups of ages. The new Table D, which was introduced for the first time in my 1885 Report, gives the more important of these particulars for the various districts of the borough, and compares the 1886 rates for the borough and its districts, with the corresponding average rates in the five years immediately preceding. This table contains important information, and deserves attentive study. The upper and middle sections of the table set forth the mortality at all ages from certain important classes and prevalent kinds of disease, and also the death-rate from all causes in infancy, and in old age. It is useful chiefly as a means of exposing the serious fluctuations in death-rates of contiguous areas within the same registration district, which might otherwise remain undiscovered. For instance, columns one and two in line four of this table, give the borough death-rates for the five years 1881-85, and for the year 1886, as respectively, 23.0 and 23.7 per 1,000. But this record of the borough death-rate alone suggests no inkling of the fact revealed by the figures in lines two and four of the table, namely, that the gross rates are compounded of district rates, differing from one another by more than 68 per cent.

The lower section of the table deals exclusively with the mortality of children under five years of age; the deaths being calculated on the population actually living at that period, and not on the population at all ages. And this is in many respects the most important part of the table, inasmuch as it directs attention to a section of the community which is more sensitive than any other to unhealthy surroundings; and on this account, the figures contained in this section, form a more reliable test than any other in the table, as to what is known as local sanitary condition. From the figures there given, we find that the death-rate of children from all causes last year was equal to 77.9 per 1,000 living under five years, as compared with an average of 74.3 in the four years immediately preceding. Infectious diseases and diseases of the nervous system, which are usually very fatal at this early age, appear to have been less destructive last year than the average; whereas the deaths from scrofulous diseases, and from diarrhoea,

Mortality amongst children under five years old

TABLE E.

ANNUAL RATE OF MORTALITY IN SALFORD IN THE 52 WEEKS OF THE YEAR 1886,  
—FROM EIGHT CLASSES, AND FROM CERTAIN SUB-CLASSES OF DISEASE, AT  
FIVE GROUPS OF AGES,—PER 1,000 PERSONS ESTIMATED TO BE LIVING AT  
THOSE AGE-GROUPS, RESPECTIVELY.

	All Ages.	0-5 Years	5-20 Years.	20-40 Years.	40-60 Years.	60 and upwards.
ALL CAUSES.....	23.7	77.9	5.7	8.6	24.5	82.7
I.—SPECIFIC: FEBRILE: DISORDERS: OR ZYMOTICS.....						
1.—Miasmatic Diseases .....	2.1	10.1	1.6	0.3	0.3	...
2.—Diarrhoeal Diseases .....	2.0	13.1	0.1	...	0.2	1.3
3.—Other Zymotics * .....	0.4	2.4	0.1	0.2	0.1	0.1
II.—PARASITIC DISEASES .....	0.1	0.2	...	...	...	...
III.—DIETIC DISEASES.....	0.1	...	...	0.1	0.5	0.3
IV.—CONSTITUTIONAL DISEASES .....	4.6	9.4	1.7	4.1	6.6	6.3
V.—DEVELOPMENTAL DISEASES.....	1.6	5.7	...	...	...	16.1
VI.—LOCAL DISEASES .....						
1.—Diseases of Nervous System .....	2.7	9.4	0.5	0.5	2.6	12.5
2.—Diseases of Circulatory System .....	1.2	0.1	0.2	0.8	2.8	9.4
3.—Diseases of Respiratory System * .....	5.1	15.0	0.6	1.0	7.0	27.3
4.—Diseases of Digestive System .....	0.9	1.9	0.3	0.4	1.6	2.5
5.—Other Local Diseases .....	0.9	0.5	0.3	0.8	1.8	4.6
VII.—VARIOUS FORMS OF VIOLENCE.....	0.6	1.9	0.2	0.3	0.8	1.2
VIII.—ILL-DEFINED CAUSES .....	1.4	8.2	0.1	0.1	0.2	1.1

\* True Croup is removed from the 'Respiratory' Sub-class of the Registrar General and included under the "Zymotic" Class.

TABLE E1.

AVERAGE ANNUAL RATES OF MORTALITY AT CERTAIN AGE-GROUPS IN THREE SUCCESSIVE QUINQUENNIA.

CAUSES OF DEATH.	All Ages.			Under 5 years.			5-20 years.		
	Quinquennial means.			Quinquennial means.			Quinquennial means.		
	1872-76.	1877-81.	1882-86.	1872-76.	1877-81.	1882-86.	1872-76.	1877-81.	1882-86.
All Causes.....	28.3	26.2	23.3	93.5	89.2	76.3	6.8	5.9	5.3
Smallpox .....	0.6	0.1	...	1.0	0.3	...	0.6	0.1	...
Measles .....	1.0	0.6	0.7	6.4	4.1	4.5	0.1	0.1	0.1
Scarlatina .....	1.1	1.0	0.6	5.3	5.1	2.7	1.0	0.9	0.5
Diphtheria.....	0.1	0.1	0.1	0.4	0.5	0.4	0.1	0.1	0.1
Croup (not spasmodic) .....	0.3	0.2	0.2	1.7	1.3	1.4	0.1	0.1	0.1
Whooping Cough.....	0.9	0.9	0.7	6.1	6.0	4.4	0.1	0.1	0.1
Cont'd Fevers. } Typhus .....	0.1	0.1	...	...	...	...	0.1	...	...
} Enteric.....	0.5	0.4	0.3	0.8	0.8	0.2	0.5	0.4	0.4
} Continued .....	0.1	0.1	...	0.4	0.3	0.1	0.1	0.1	...
Diarrhoea and Dysentery .....	2.0	1.6	1.6	12.2	10.4	9.9	0.1	0.1	...
Puerperal Fever .....	0.1	0.1	0.1	...	...	...	...	...	...
Other Zymotics.....	0.5	0.5	0.4	2.3	2.8	1.9	0.1	0.1	...
Phthisis .....	2.7	2.7	2.5	0.7	0.8	0.9	1.4	1.1	1.1
Other Tubercular Diseases .....	0.9	1.2	1.1	5.7	6.7	6.9	0.3	0.4	0.4
Brain Diseases .....	3.2	3.4	3.0	13.1	13.6	10.6	0.5	0.5	0.6
Heart Diseases .....	1.2	1.0	1.1	0.2	0.2	0.2	0.3	0.3	0.3
Lung Diseases .....	5.2	6.0	4.9	14.8	18.8	14.7	0.4	0.7	0.5
CAUSES OF DEATH.	20-40 years.			40-60 years.			Over 60 years.		
	Quinquennial means.			Quinquennial means.			Quinquennial means.		
	1872-76.	1877-81.	1882-86.	1872-76.	1877-81.	1882-86.	1872-76.	1877-81.	1882-86.
All Causes.....	11.5	10.0	9.1	28.1	25.4	23.6	91.9	84.7	80.2
Smallpox .....	0.7	0.2	...	0.3	0.1	...	0.1	...	...
Measles .....	...	...	...	...	...	...	...	...	...
Scarlatina .....	...	...	...	...	...	...	...	...	...
Diphtheria.....	...	...	...	...	...	...	...	...	...
Croup (not spasmodic) .....	...	...	...	...	...	...	...	...	...
Whooping Cough.....	...	...	...	...	...	...	...	...	...
Cont'd Fevers. } Typhus .....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	...	0.1
} Enteric.....	0.4	0.3	0.3	0.3	0.3	0.3	0.8	0.4	0.1
} Continued .....	0.1	...	...	0.1	0.1	...	0.2	0.3	...
Diarrhoea and Dysentery.....	0.1	...	...	0.2	0.2	0.1	2.1	1.6	1.3
Puerperal Fever .....	0.1	0.1	0.1	...	...	...	...	...	...
Other Zymotics.....	0.1	0.1	0.1	0.4	0.3	0.3	0.6	0.7	0.4
Phthisis .....	4.3	4.2	4.0	4.1	4.9	4.1	1.5	1.7	1.6
Other Tubercular Diseases.....	...	0.1	0.1	...	0.1	0.1	0.1	0.2	...
Brain Diseases .....	0.6	0.6	0.6	2.7	2.9	2.7	11.4	12.1	13.7
Heart Diseases .....	0.9	0.7	0.8	2.9	2.5	2.6	6.5	6.7	7.9
Lung Diseases .....	1.3	1.3	1.1	7.9	7.6	6.7	27.3	30.4	25.8

SECTION II.  
Mortality  
amongst children  
under five years  
old

were markedly in excess, —the latter to the extent of 56 per cent— as compared with the means of the previous five years. It will also be remarked that nervous diseases and miasmatic, *i.e.*, infectious diseases, as well as scrofulous ailments, continue to show a widely different fatality in the several districts into which the borough has been divided.

Classification of  
death-causes ac-  
cording to the  
list recently pub-  
lished by the  
London College  
of Physicians

**Comparative Nosological Table.**—In Table F, which is an abridgment of the classified list of diseases, compiled by the London College of Physicians; the deaths at all ages, and from several causes in 1886, are compared with the average numbers in the previous decade, corrected for increase of population. In this table also, the deaths registered last year from the several causes are referred to the districts in which they occurred, and columns three to eight of the table give particulars of the age groups at which the deaths took place. The following statement which is deduced from columns one and two of Table F, indicates the diseases which have shown, respectively, a greater or a less fatality in 1886, than the corrected decennial average. In other words, it shows the amount of life saved, and the amount lost during the year under notice, compared with the mean annual mortality in the years 1876-85.

	Cause of Death.	Diminution in 1886.	Excess in 1886.
Amount of life saved and amount lost in 1886, as com- pared with the mean annual mortality in 1876-85	Small-pox .....	53	—
	Measles .....	98	—
	Scarlet fever .....	...	8
	Typhus fever.....	10	—
	Whooping cough .....	36	—
	Diphtheria and croup .....	25	—
	Ill-defined fever .....	9	—
	Enteric fever.....	11	—
	Diarrhoeal diseases .....	—	96
	Phthisis and other tuberc: diseases.....	—	35
	Premature birth ... ..	—	37
	Brain and nervous diseases .....	106	—
	Heart diseases .....	—	34
	Respiratory diseases.....	73	—
	Urinary diseases .....	—	24
	Atrophy, other ill-defined causes .....	62	—
	All other causes .....	32	—
		<hr/> 515	<hr/> 234
	Balance of diminution and excess...	281	

TABLE F.

DEATHS FROM SEVERAL CAUSES, AT ALL AGES, AND AT SIX GROUPS OF AGES, IN THE BOROUGH AND IN ITS REGISTRATION SUB-DISTRICTS, DURING THE YEAR 1886.

	All Ages.		Deaths at the following ages.							Deaths in the Registration Sub-districts.			
	Corrected Average age, 1876-85.	1886.	Under 5 years.		5-20.	20-40.	40-60.	60 and upwards.		Regent Road.	Greengate.	Pendleton.	Broughton.
			0-1.	1-5.									
All Causes .....	4953	4672	1428	822	360	549	774	739		2000	948	1043	681
Small Pox .....	53	...	...	...	...	...	...	...	...	...	...	...	...
Measles .....	145	47	10	33	4	...	...	...	...	34	6	5	2
Scarlet Fever .....	161	169	9	101	58	1	...	...	...	88	43	16	22
Typhus .....	11	1	...	...	...	...	1	...	...	1	...	...	...
Whooping Cough .....	163	127	56	69	2	...	...	...	...	42	27	37	21
Diphtheria .....	22	12	1	7	4	...	...	...	...	4	...	6	2
Ill-defined Fever .....	14	5	...	2	3	...	...	...	...	1	2	...	2
Enteric Fever .....	72	61	...	3	33	17	8	...	...	32	8	9	12
Simple Cholera .....	3	8	6	...	...	...	1	1	...	5	3	...	...
Diarrhoea, Dysent: .....	302	393	269	104	4	1	4	11	...	171	61	84	77
Venereal Affections .....	46	35	27	6	...	...	2	...	...	14	16	3	2
Erysipelas .....	19	7	3	1	...	2	...	1	...	2	1	2	2
Pyæmia .....	5	3	1	1	1	...	...	...	...	1	1	...	1
Puerperal Fever .....	10	7	...	...	...	7	...	...	...	3	1	1	2
Other Zymotics .....	23	3	...	1	...	1	1	...	...	2	...	1	...
Parasitic Diseases .....	3	7	7	...	...	...	...	...	...	7	...	...	...
Dietic Dis: Intemp: .....	19	25	...	...	...	7	15	3	...	7	7	8	3
Rheumatic Fever .....	20	20	...	1	3	5	7	4	...	9	4	4	3
Cancer .....	91	90	...	1	1	8	52	28	...	33	14	27	16
Tabes Mesenterica .....	91	119	82	28	7	2	...	...	...	55	22	26	16
Tubercul: Mening: .....	95	95	25	52	17	1	...	...	...	28	20	36	11
Phthisis .....	516	489	6	11	72	243	143	14	...	191	106	128	64
Scrofula .....	35	70	23	35	8	2	1	1	...	31	14	19	6
Constit: Dis: (other) .....	25	23	6	2	1	...	5	9	...	12	2	4	5
Prem: Birth .....	107	144	144	...	...	...	...	...	...	50	26	40	28
Devel Dis: and Cong: Def: ..	21	20	19	1	...	...	...	...	...	8	2	3	7
Old Age .....	141	145	...	...	...	...	1	144	...	71	28	30	16
Apoplexy and Paralysis .....	153	161	...	...	1	12	65	83	...	64	34	39	24
Epilepsy .....	22	16	1	2	3	2	6	2	...	7	3	3	3
Convulsions .....	256	189	140	46	2	1	...	...	...	99	42	27	21
Brain and Nerv: Dis: (other) ..	202	161	28	53	25	18	10	27	...	59	36	37	29
Heart Diseases .....	207	241	2	...	14	52	89	84	...	103	40	57	41
Croup .....	47	32	4	24	4	...	...	...	...	14	11	5	2
Bronchitis .....	655	629	148	76	3	22	168	212	...	272	152	126	79
Pneumonia .....	346	334	99	98	31	37	45	24	...	144	56	84	50
Lung and Respir: Dis: (other) ..	76	41	8	5	4	7	9	8	...	17	11	8	5
Teething .....	14	1	...	1	...	...	...	...	...	1	...	...	...
Diges: Org: Dis: of .....	180	171	43	12	19	25	50	22	...	63	31	52	25
Urinary Org: Dis: of .....	75	99	2	5	5	17	37	33	...	35	22	27	15
Parturition, dis: of .....	31	33	...	...	...	28	5	...	...	15	7	5	6
Gener: Orgs: dis: of .....	8	7	...	...	...	1	5	1	...	1	2	1	3
Locomo: Sys: Dis: of .....	17	43	5	2	13	5	11	7	...	14	10	14	5
Accident .....	113	110	39	15	14	16	17	9	...	54	22	22	12
Homicide .....	3	1	...	1	...	...	...	...	...	...	...	...	1
Suicide .....	10	15	...	...	1	5	7	2	...	6	3	3	3
Atrophy .....	264	214	181	21	1	1	3	7	...	116	34	31	33
Ill-defined Causes .....	61	49	34	2	2	3	6	2	...	14	18	13	4

## SECTION II.

Life-saving  
during 1886, as  
compared with  
previous ten  
years

Of the diseases, or groups of disease in the above list, which were credited with a relatively increased mortality last year, there are two, which were likewise excessively fatal in 1885, namely, premature birth and heart disease. I am constrained, however, to accept with much diffidence, the returns of deaths under the head of prematurity; for a very large number of these are attested either by mid-wives, or by other non-medical informants who happen to be present at the birth.

## I.—SPECIFIC FEBRILE, OR ZYMOTIC DISEASES.

Six common in-  
fectious diseases

**Six Miasmatic Diseases.**—The six common infectious diseases, technically known under this designation, are the following:—small-pox, scarlet fever, (or scarlatina,) diphtheria, continued fever, measles, and whooping cough: the term continued fever comprising, in addition to ordinary febricula, the two chief forms, typhus fever and enteric, or typhoid, fever. Under the Salford Local Act, notification is required of the first three of these, together with typhus, enteric, puerperal, and relapsing fevers, and cholera.

Particulars of  
infectious cases  
reported under  
the Notification  
Act

**Infectious sickness reported under the Notification Act.**—During the year under notice, there were reported under the Notification Act not less than 1,882 cases of dangerous infectious disease, against 949 in the immediately preceding year, and 1,220 and 1,729 respectively, in the years 1883 and 1884. The table on page 37 shows for the borough, and for each of its registration sub-districts, (a) the corrected numbers, (b) the proportional incidence, and (c) the case mortality, of the cases of infectious disease reported to the Health Department under the Notification Act in each of the last four years.

Relatively to population, scarlet fever attacks were more numerous last year than in any year since notification was established: the incidence of attacks being equal to 7·80 in each 1,000 of the population. The proportional fatality amongst the scarlet fever cases was rather above the average; it was lower than in 1884, but higher than either in 1883 or in 1885. The proportional fatality of enteric fever was lower than the quadrennial average, but higher than in the year 1884.

Seasonal distri-  
bution of infec-  
tious sickness

The following figures\* show the incidence in each calendar month of the year 1886, of sickness from those diseases, the notification of which is compulsory.

\* See page 38.

## A.—NUMBER OF SICK CASES NOTIFIED.

Diseases.	Borough.			Regent Road.			Greengate.			Pendleton.			Broughton.		
	1883.			1884.			1883.			1883.			1883.		
	1883.	1884.	1885.	1883.	1884.	1885.	1883.	1884.	1885.	1883.	1884.	1885.	1883.	1884.	1885.
Smallpox .....	6	5	11	...	3	2	...	...	2	...	1	...	6	1	...
Scarlet Fever .....	805	1154	632	1536	356	270	...	109	128	...	237	160	94	236	74
Diphtheria .....	81	99	54	41	11	15	...	14	9	...	24	7	30	23	13
Typhus Fever .....	14	35	32	15	5	21	...	5	6	...	5	4	...	...	...
Enteric Fever .....	293	422	205	288	112	81	...	34	38	...	125	55	62	64	31

B.—INCIDENCE, *i.e.*, PROPORTION OF SICK CASES PER 1,000 PERSONS LIVING.

Smallpox .....	0.03	0.03	0.06	...	...	...	0.1	...	...	...	...	...	0.2	...	...
Scarlet Fever .....	4.2	5.85	3.28	7.79	4.8	3.5	8.8	3.5	4.1	9.5	5.1	3.3	2.8	6.7	2.0
Diphtheria .....	0.4	0.50	0.28	0.21	0.1	0.2	0.4	0.2	0.3	0.2	0.5	0.1	0.9	0.7	0.6
Typhus Fever .....	0.01	0.18	0.17	0	0.1	0.3	0.3	0.2	0.2	...	0.1	0.1	...	1.8	...
Enteric Fever .....	1.5	2.14	1.06	1.46	1.5	1.1	1.2	1.1	1.2	1.4	2.7	1.1	1.8	0.9	0.8

C.—CASE MORTALITY, *i.e.*, PERCENTAGE OF DEATHS TO NOTIFIED CASES.

Smallpox .....	...	...	9.1	...	...	...	...	...	50.0	...	...	...	...	...	...
Scarlet Fever .....	9.9	12.1	10.1	11.5	9.8	9.3	14.3	27.5	14.1	14.4	11.0	9.4	14.9	8.9	8.1
Diphtheria .....	29.6	22.2	31.5	29.3	36.4	33.3	22.5	57.1	25.0	...	8.3	14.3	36.7	34.8	34.8
Typhus Fever .....	21.4	28.6	31.2	20.0	20.0	19.0	25.0	40.0	20.0	...	60.0	75.0	...	...	100.0
Enteric Fever .....	20.4	18.2	24.4	19.8	25.9	25.9	20.8	26.5	13.9	17.8	14.4	20.0	17.7	26.6	29.0

## SECTION II.

Seasonal distribution of infectious sickness

## INFECTIOUS CASES REPORTED UNDER THE NOTIFICATION ACT.

N.B.—These totals will not agree with those in other tables, which refer to the year ending January 1st, 1887.

YEAR 1886.	Small Pox.		Scarlet Fever.		Diphtheria.		Typhus Fever.		Enteric Fever.		Puerp. Fever.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
January ...	-	-	51	9	2	1	-	-	18	7	1	1
February...	-	-	52	4	3	1	-	-	18	6	1	1
March.....	-	-	58	8	4	-	-	-	11	3	1	1
April .....	-	-	42	1	3	1	-	-	13	4	-	-
May.....	-	-	58	6	7	1	-	-	13	2	2	1
June .....	-	-	127	11	4	2	-	-	8	-	3	2
July.....	-	-	162	14	4	-	-	-	14	3	1	-
August ...	-	-	196	30	3	2	-	-	21	7	1	-
September	-	-	165	24	6	2	2	-	49	4	-	-
October ...	-	-	231	22	3	2	*1	1	38	7	1	-
November.	-	-	234	23	-	-	-	-	52	9	-	-
December.	-	-	157	24	2	-	*2	-	33	5	1	-

Relative prevalence of infectious attacks in other protected towns, and in Salford

## Disease notification in other protected British towns.—

As time rolls on, the returns of infectious diseases notified in the several towns possessing compulsory powers for this purpose, become increasingly valuable. By the kindness of several of my brethren in the public health service, I am now enabled to present a statement showing the relative incidence of sickness from the common infectious diseases, in various parts of the kingdom. For purposes of comparison, the notified cases in the several towns are reduced to annual rates per 1,000 of the estimated populations. In the middle of the year 1886, the forty-one towns to which the following table refers, contained in the aggregate an estimated population of 3,903,521 persons, and amongst them 23,725 cases of dangerous infectious diseases are reported to have occurred in the course of this year; namely, 385 cases of small-pox, 16,104 of scarlet fever, 1,426 of diphtheria, 348 of typhus, and 5,642 of enteric fever.

Calculated on the aggregate population, the 23,725 attacks reported in 1886, corresponded to a rate of 6.07 per 1,000, as compared with 5.47, 5.97, and 5.64 per 1,000, the corresponding rates in the years 1883, 1884, and 1885.

Small-pox does not appear to have been seriously prevalent in more than one of the protected towns during 1886, although the disease was observed in not less than twenty-three of those towns. Scarlet fever is shown to have invaded the aggregate population of the forty towns, in the proportion of  $\frac{385}{3,903,521}$  attacks in each 1,000 living. The disease showed excessive prevalence in Burnley, in Dundee, and in Salford, whilst in Stafford it affected only 0.05 per

\* Doubtful cases.

1,000 living. Diphtheria was most prevalent in Portsmouth, and enteric fever in Portsmouth and in Rotherham, the mean rate of enteric incidence in the forty-one towns being 1.40 per 1,000.

## SECTION II.

Prevalence of infectious sickness in other towns

**Small-pox.**—Not a single case of this disease was reported in Salford during the year 1886; the reported cases in the three preceding years having numbered 6, 5, and 11 severally. According to the return on page 40, one or more cases of small-pox were reported last year in 23 out of the 41 protected towns of Great Britain.

Distribution of small-pox throughout the country generally

**Scarlet Fever.**—During the year under notice, not less than 1,536 cases of scarlet fever were reported as having occurred in the borough, against 632 cases in the year 1885, and 805 and 1,154 respectively, in the years 1883 and 1884. From the table on page 52, it appears that during the first five months of the year the disease showed no unusual prevalence, but in the twenty-third week the number suddenly rose, and continued to rise until the thirty-ninth week, when the weekly number reached 66. As in previous years the incidence of the attacks in 1886 was by far the heaviest in the autumn, not less than 75 per cent of the known cases having occurred within the last half of the year. Relatively to population, scarlet fever appears to have been most prevalent in Broughton and in Greengate, where the reported attacks were equal, respectively, to 9.7 and 9.5 per 1,000 of the district populations; the district of Pendleton suffered least, the proportion there being only 3.7 per 1,000. According to the returns given on page 40, scarlet fever has been prevalent amongst the aggregate population of the forty-one notification towns, in the proportion of 4.12 per 1,000 living.

Increased incidence of scarlatina in latter portion of 1886

Two only of the protected towns showed a higher rate of scarlatina prevalence in 1886 than that of Salford, and the remaining thirty-eight a lower. Of the 1,533 cases of scarlet fever reported last year, 176 terminated fatally: the "case fatality," or proportion of deaths to attacks, being therefore equal to 11.5 per cent, as compared with 10.1 per cent in the year 1885, and 12.1 in the preceding year. Like the incidence, the case fatality also was greater during the latter half of the year, being equal to 12 per cent; whilst it only slightly exceeded 10 per cent in the first two quarters of the year. This is exactly the opposite of what was observed in regard to the case fatality of the year 1885.

Prevalence of scarlatina in other protected towns

The following statement,\* deduced from the figures given in the quarterly returns of the Registrar General, gives the annual rates per 1,000 of scarlatina mortality in the year 1886, and in recent previous years, in Salford and in other parts of the kingdom.

Mortality from scarlatina in Salford and in other parts of England

\* See page 42.

RATES OF SICKNESS PER 1,000 OF THE RESPECTIVE POPULATIONS, FROM THE  
UNDER THE LOCAL

Towns.	Population in 1886.	Smallpox.				Scarlet Fever.			
		1883.	1884.	1885.	1886.	1883.	1884.	1885.	1886.
Aberdeen .....	115,217	...	0'05	...	0'01	2'17	1'59	5'78	7'17
Accrington .....	36,000	...	...	...	0'05	3'52	1'32	2'74	2'42
Barrow-in-Furness...	50,000	0'02	0'06	0'20	...	0'98	2'12	10'03	2'82
Birkenhead .....	95,370	0'03	1'34	0'26	0'06	1'91	3'08	5'97	6'58
Blackburn .....	114,689	0'04	...	0'04	0'24	2'54	1'91	1'61	3'68
Blackpool .....	19,550	0'19	0'06	0'11	0'05	2'75	1'68	1'39	5'47
Bolton .....	111,214	0'03	0'12	0'05	...	0'95	2'75	1'69	2'87
Bradford (Yorks.) ...	219,411	0'02	0'01	0'04	0'01	1'72	2'35	3'67	5'10
Burnley .....	76,000	...	...	0'17	...	...	2'49	4'97	9'33
Burton-on-Trent ...	46,970	0'19	...	...	...	2'30	1'93	8'02	4'68
Bury .....	57,000	...	0'06	0'02	0'07	...	2'11	2'80	1'84
Croydon .....	91,100	...	...	...	...	...	...	...	1'36
Derby .....	91,823	0'02	0'08	...	...	5'91	4'44	1'87	1'82
Dewsbury .....	32,500	...	...	...	...	...	...	...	6'68
Dundee .....	155,389	0'01	...	...	0'01	2'65	2'86	1'23	8'56
Edinburgh .....	254,591	...	...	0'05	0'10	7'74	5'67	4'34	5'13
Greenock .....	74,795	...	...	0'08	...	2'40	3'03	1'22	1'70
Halifax .....	78,000	0'03	0'01	0'09	0'03	2'08	3'52	2'74	1'59
Hartlepool .....	18,000	...	...	8'78	11'78	...	...	0'72	2'33
Heywood .....	25,000	...	...	...	0'16	...	0'56	0'08	0'32
Huddersfield .....	88,671	0'01	...	0'03	0'44	1'07	1'37	2'87	4'18
Jarrow .....	30,000	1'11	0'14	0'37	...	5'11	3'14	8'80	3'14
Lancaster .....	22,991	...	0'50	...	...	0'37	0'86	4'84	1'83
Leek .....	13,650	...	...	...	0'15	...	6'96	1'11	0'66
Leicester .....	139,606	0'09	0'01	0'06	0'01	6'16	5'28	13'34	5'85
Macclesfield .....	37,620	...	...	...	...	4'97	1'55	1'67	1'12
Manchester .....	385,678	0'03	0'08	0'79	0'02	5'03	4'76	2'30	4'30
Newcastle-on-Tyne...	155,117	3'30	1'15	0'46	0'03	7'71	14'33	8'00	6'47
Norwich .....	92,028	...	0'01	0'01	...	0'71	0'97	3'06	4'72
Nottingham .....	233,000	0'11	0'05	0'04	0'05	2'05	1'75	1'70	1'50
Oldham .....	130,216	0'05	0'01	0'03	0'04	2'53	2'32	1'81	3'00
Portsmouth .....	136,278	...	0'01	0'08	0'05	...	1'97	2'15	0'52
Preston .....	101,340	0'01	0'03	0'11	0'08	2'84	2'58	2'91	1'50
Reading .....	48,280	...	0'04	0'06	0'10	2'77	4'65	9'03	4'89
Rotherham .....	35,500	...	0'11	0'08	...	2'58	4'09	8'05	1'49
Salford .....	196,894	0'03	0'03	0'06	...	4'36	6'12	3'28	7'80
Stafford .....	20,778	...	0'05	...	...	...	0'98	0'24	0'05
Stalybridge .....	27,186	...	...	0'11	...	1'28	4'97	1'29	0'77
Sunderland .....	127,422	...	...	...	...	...	...	...	2'57
Warrington .....	46,343	0'02	0'09	...	...	2'90	0'49	0'44	0'21
York .....	72,304	...	...	...	0'01	...	...	0'92	1'22
Total .....	3,903,521	0.20	0'12	0'19	0'10	3'59	3'81	3'64	4'12

SEVERAL INFECTIOUS DISEASES, NOTIFICATION OF WHICH IS COMPULSORY  
ACTS OF PARLIAMENT.

Diphtheria.				Typhus Fever.				Enteric Fever.				Towns.
1883.	1884.	1885.	1886.	1883.	1884.	1885.	1886.	1883.	1884.	1885.	1886.	
0.29	0.77	0.49	0.38	0.24	0.51	0.10	0.01	0.55	0.91	1.09	0.95	Aberdeen
0.21	0.18	0.06	0.36	...	...	...	...	1.88	1.18	1.17	0.81	Accrington
0.64	0.84	1.42	0.46	...	0.12	...	...	4.15	2.60	1.82	2.20	Barrow-in-Furness
0.21	0.17	0.23	0.24	0.47	0.17	0.03	0.16	0.86	0.79	0.41	0.60	Birkenhead
...	...	...	...	...	...	...	...	4.07	2.43	1.15	0.92	Blackburn
0.50	0.41	0.44	1.38	...	...	...	...	1.44	1.51	1.22	0.92	Blackpool
0.08	0.09	0.07	0.16	0.08	0.06	...	0.03	0.70	1.44	0.52	0.54	Bolton
0.06	0.11	0.20	0.21	0.15	0.01	0.01	...	1.04	0.95	0.71	0.73	Bradford
...	0.08	0.10	0.32	...	...	...	...	...	1.01	1.31	0.63	Burnley
0.59	0.75	1.52	0.79	0.05	...	0.02	...	0.28	0.59	0.61	0.55	Burton-on-Trent
...	0.13	0.09	0.09	...	0.07	0.02	...	...	1.52	0.51	0.26	Bury
...	...	...	0.66	...	...	...	...	...	...	...	0.24	Croydon
0.09	0.01	0.01	0.07	...	...	...	...	0.60	3.93	0.55	1.73	Derby
...	...	...	...	...	...	...	...	...	...	...	0.34	Dewsbury
0.79	1.15	0.53	0.24	0.47	0.19	0.39	0.29	1.89	0.79	0.71	0.41	Dundee
0.91	0.73	0.59	0.83	0.21	0.17	0.23	0.05	1.47	2.36	2.35	0.88	Edinburgh
0.52	0.45	0.38	0.23	0.57	0.44	2.05	0.71	0.67	1.27	0.68	0.72	Greenock
0.19	0.05	0.32	0.76	0.03	0.01	0.01	...	1.42	0.90	0.72	0.73	Halifax
...	...	0.17	0.22	...	...	1.72	6.11	...	...	3.28	2.55	Hartlepool
...	0.08	0.04	...	...	...	...	...	...	1.12	1.12	1.08	Heywood
0.09	0.09	0.03	0.33	...	...	...	...	0.48	1.00	0.79	0.50	Huddersfield
0.07	0.03	0.30	0.63	0.04	0.28	0.03	0.07	1.00	1.38	0.63	0.73	Jarrow
...	...	...	...	...	0.58	...	...	0.69	0.72	1.86	1.70	Lancaster
...	...	...	...	...	...	0.07	...	...	0.45	0.15	0.22	Leek
0.20	0.36	0.40	0.37	...	...	...	...	0.65	0.90	1.59	1.01	Leicester
0.10	0.24	0.05	0.05	0.03	...	...	0.05	0.64	0.37	0.32	0.53	Macclesfield
0.26	0.18	0.12	0.29	0.15	0.18	0.08	0.11	0.73	0.91	0.80	1.23	Manchester
0.19	0.50	0.61	0.47	0.60	0.11	0.06	0.01	1.45	1.72	1.65	1.32	Newcastle
0.04	0.19	0.13	0.27	...	0.01	0.02	0.01	0.39	1.34	6.40	2.85	Norwich
0.60	0.52	1.11	0.30	...	...	...	...	0.76	1.00	1.37	1.31	Nottingham
0.13	0.16	0.22	0.34	...	...	...	0.08	0.81	0.32	0.46	0.76	Oldham
...	1.22	0.66	1.70	...	...	...	...	...	4.00	5.23	9.17	Portsmouth
0.22	0.18	0.16	0.23	...	...	...	0.01	2.67	2.18	1.24	2.53	Preston
0.83	0.63	0.45	0.23	...	...	...	...	0.40	0.52	0.34	0.41	Reading
0.39	0.14	0.11	0.23	...	...	...	...	2.22	3.82	1.66	5.49	Rotherham
0.44	0.52	0.28	0.21	0.08	0.19	0.17	0.03	1.58	2.24	1.06	1.46	Salford
...	0.05	0.10	...	...	...	...	...	...	0.39	0.05	0.05	Stafford
...	0.15	...	...	0.04	...	0.04	0.07	0.68	0.67	0.66	1.36	Stalybridge
...	...	...	0.17	...	...	...	0.31	...	...	...	0.83	Sunderland
0.18	...	0.13	0.17	0.09	0.05	0.07	...	0.50	0.81	0.42	0.50	Warrington
...	...	0.01	0.06	...	...	...	...	...	...	0.59	3.60	York
0.33	0.39	0.36	0.36	0.14	0.10	0.11	0.09	1.21	1.55	1.34	1.40	Total

## SECTION II.

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
Scarlatina mor- tality in Salford and in other parts of England and Wales	England and Wales...	0'55	0'52	0'47	0'40	0'23	0'43 0'21
	28 Great English Towns	0'64	0'55	0'57	0'45	0'24	0'49 0'25
	London .....	0'55	0'52	0'51	0'36	0'17	0'42 0'17
	Salford .....	0'47	0'45	0'44	0'75	0'32	0'49 0'86
	50 other Towns .....	—	0'65	0'55	0'51	0'25	0'49 0'26
	Rural Districts .....	—	0'47	0'39	0'34	0'21	0'35 0'18

It appears from the above figures that, like its immediate predecessor, the year 1886 was one of exceptionally light fatality from scarlet fever in other parts of England and Wales, but that in our own borough, in which the disease has been epidemic since the middle of the year, the rate of mortality in 1886 was higher than in any year of the previous five. The Salford rate of mortality from scarlet fever last year was more than five times as great as that of London, and fourteen times as great as that of Nottingham.

True croup and  
diphtheria

**Diphtheria.**—Information of the occurrence of 41 cases of diphtheria was forwarded to the Health Department during 1886, as compared with 54 cases in the preceding year. Of the reported cases last year, 12, or 29 per cent terminated fatally. In addition to the deaths referred by medical certificate to diphtheria, the Salford Register contains evidence of 32 other deaths, which are returned as from membranous croup, but which, from a preventive point of view, may fairly be looked upon as essentially diphtheritic in character. The proportional prevalence of diphtheritic sickness in the other notification towns is shown by the table on page 40, from which it appears that the rate of incidence of this disease was lighter in Salford than in the other protected towns taken together. Twenty-five of these towns showed individually a rate of diphtheritic sickness in excess, and seven a rate in defect of that of Salford.

Mortality from,  
in Salford and in  
other English  
towns

The following statement shows the incidence of mortality from diphtheria in other parts of the United Kingdom.

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	0'12	0'15	0'16	0'19	0'15	0'15	0'14
28 Great English Towns	0'14	0'16	0'16	0'17	0'17	0'16	0'16
London ... ..	0'17	0'22	0'24	0'24	0'22	0'22	0'20
Salford .....	0'11	0'10	0'13	0'12	0'09	0'11	0'06
50 other Towns... ..	—	0'08	0'08	0'10	0'09	0'09	0'09
Rural Districts .. ..	—	0'14	0'15	0'19	0'16	0'16	0'14

The rate of mortality from diphtheria last year in London and in the rural districts of England, as well as throughout the whole of England and Wales, was lower than the average, but the rate in Salford was considerably lower than that of any of the other towns or districts included in the list, and also much lower than the Salford rate in any year of the previous five. Nor can this latter fact be explained by supposing that a larger number than usual of diphtheritic deaths were returned last year as from croup,

for the deaths referred to that heading also were markedly lower in 1886 than the average. SECTION II.

**Typhus Fever.**—This disease is reported to have visited the homes of Salford residents in five instances only during the year under present notice; the reported attacks in 1885 having numbered 32, and in the immediately preceding year 35. The first two cases occurred in September last. The patients, a mother and her child, the latter three years old, were admitted from the Regent Road district to hospital, for supposed scarlet fever; the disease however turned out to be typhus: both patients recovered, the mother having given birth to a still born child in the course of her illness. The third case was a doubtful one, which occurred in October in the same registration sub-district. The patient a charwoman was nursed by her niece and died at home. She, however, did not communicate the disease either to her husband, or to her nurse. The last two cases occurred in the persons of young children, inmates of the same house in Pendleton, who were sent to hospital in December: they both recovered.

Typhus fever—  
prevalence in  
1886

Although the five typhus cases here referred to, are the only ones recorded as having taken place in 1886 within the homes of the Salford poor, we were, nevertheless called upon in the month of February of that year to afford shelter to not less than seven typhus-stricken gypsies who found their way into Salford in their vans, from that portion of Pendlebury which is outside our jurisdiction. The circumstances attending this invasion were reported at the time to the Health Committee in the following words:—"I am sorry to have to report that after eight months of almost total immunity, Salford is again threatened with an epidemic of typhus fever. On Sunday last two patients named George and Maria Boswell, suffering from this disease, were brought to Wilton Hospital in a gypsy's caravan accompanied by a certificate from Dr. O'Grady, of Swinton, stating the serious nature of the disease. These patients were of course admitted to the wards, and so likewise were five others of the same family, who were brought in another van on the 2nd instant. On admission these seven patients were found to be in a very filthy and neglected condition. They have, however, been carefully attended to by the officers at the hospital, and are doing fairly well. On enquiry, as to where the gypsies came from, I find that on the occasion of Dr. O'Grady's visit they were encamped on the fair ground at Pendlebury, within the district of the Swinton and Pendlebury Local Board. They were not, however, forwarded to us by order of any official of that Board, and therefore, on the 1st instant I telegraphed\* to the Medical Officer of Health of

Importation of  
typhus, stricken  
gypsies from dis-  
trict of Swinton  
and Pendlebury  
Local Board

\* The following is a copy of the telegram referred to—

"Dr. Hosegood, Swinton."

"From Dr. Tatham, Salford."

"Reason to suspect typhus fever in gypsy's caravan at Pendlebury fair ground. Two cases already certified there by Dr. O'Grady."

SECTION II. Swinton and Pendlebury, drawing his attention to the matter. Typhus fever— Receiving no answer, I next day sent inspector Wilkinson to call upon the medical officer. The inspector saw him and also the Importation from district of Swinton and Pendlebury Local Board nuisance inspector of the Board, both of which officers expressed their inability to take any action *without the express orders of the Sanitary Authority!* I may add that there are two other vans still encamped on the Pendlebury fair ground, and inspector Wilkinson believes that there are several cases of typhus still remaining in one of these vans. Assuming the truth of the inspector's surmise the Borough of Salford will remain in imminent danger of an importation of this disease as long as these pestiferous caravans are encamped on its north western boundary."

During the sitting of the committee at which the above report was presented, I received from the inspector of the Swinton and Pendlebury Local Board, a telegram intimating that the gypsies were on the move from his district, in the direction of Salford! On receipt of this startling report, and with the kind assistance of the Chief Constable, I at once caused a careful search to be made of all the possible camping grounds in this Borough, whilst at the same time I afforded every information in my power to the Medical Officer of Health for Manchester. The search, however, was fruitless, no vans answering to the description of those under suspicion being discoverable either in Manchester or in Salford.

The Health Committee, however, fully realizing the gravity of the situation, at once instructed the Town Clerk to represent the foregoing facts to the Local Government Board, with a view, if possible, of preventing a similar typhus invasion in future from unprotected districts on the confines of our borough.

Mortality from typhus in other parts of the country, and in Salford The following statement shows the rate of typhus fatality in England and Wales, in London, and in Salford, compared with that in the other years which have elapsed since the last census.

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	0'02	0'04	0'03	0'01	0'01	0'02	
London .....	0'02	0'01	0'01	0'01	0'01	0'01	0'003
Salford .....	0'04	0'07	0'02	0'05	0'05	0'05	0'01

The mortality from typhus in Salford is here seen to have been lower last year than in any year since the beginning of the current decade. Fresh importations, however, of the disease continue to occur from time to time into the poorer districts of the borough, and it is certain that typhus would have assumed the proportions of a serious epidemic on several occasions within the last five years, had not first cases been removed to Hospital as soon as discovered.

Prevalence of enteric fever in 1886 **Enteric or Typhoid Fever.**—During the year under report, 288 fresh cases of enteric fever were reported to the Health Department as compared with 205 in the year 1885, and 422 in the year immediately preceding. Locally, the disease showed the greatest

proportional prevalence in the district of Regent Road, where the attacks were equal to a rate of 2.0 per 1,000 of the population, and the least in Broughton, in which district the rate did not exceed 0.8 per 1,000. The seasonal prevalence of enteric fever during 1886, is shown by the tables on pages 38 and 52. The disease showed the greatest prevalence in November and the least in June. No second recrudescence of this disease took place in the spring of last year, similar to that which occurred in 1885; in the month of April of which year a sudden increase in the reported attacks was reported, not less than 38 cases occurring in that month, 11 of which terminated fatally.

## SECTION II.

Enteric fever—  
its prevalence  
during 1886

The rates of mortality from enteric fever during recent years, in England and Wales, in London, and in Salford were as follows—

Mortality from  
enteric fever in  
other parts of  
the country, and  
in Salford

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	0.21	0.23	0.23	0.24	0.17	0.22	
London .....	0.25	0.25	0.24	0.23	0.14	0.22	0.15
Salford ...	0.24	0.25	0.35	0.42	0.25	0.30	0.31

The case fatality amongst the reported cases of enteric fever last year was equal to 19.8 per cent, as compared with 24.4 per cent in the year 1885, and 18.2 per cent in the immediately preceding year.

**Continued Fever.**—This unsatisfactory term includes the various ill-defined febrile complaints, sometimes known as febricula, simple continued fever, &c., in addition to the two chief forms termed typhus and enteric. Unfortunately the Registrar General does not as yet differentiate between the various forms of fever, in his returns for the 28 Great English Towns, consequently we are reduced to the necessity of comparing these towns with our own on the sole basis of their "fever rate," although it is well known that the various forms of disease coming under this designation have scarcely any relation with one another, either as regards their etiology, or in respect of their sanitary importance. The following figures show the annual rates of mortality from the various forms of continued fever—the "fever" death-rate of the Registrar General—in Salford, and in other localities of England and Wales.

"Fever" mortality,  
meaning of  
the term

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	0.27	0.31	0.29	0.27	0.21	0.27	0.21
28 Great English Towns	0.31	0.37	0.35	0.29	0.22	0.31	0.23
London .....	0.30	0.28	0.27	0.26	0.17	0.26	0.17
Salford .....	0.33	0.35	0.40	0.52	0.33	0.39	0.34
50 other Towns.....	—	0.34	0.32	0.34	0.24	0.31	0.26
Rural Districts ...	—	0.26	0.26	0.25	0.19	0.24	0.19

Mortality from  
continued fever  
in England and  
Wales

**Measles.**—This disease accounted for only 47 deaths last year, or just one third of the decennial average. The deaths from measles in 1885 numbered not less than 178. This disease shows a decided tendency to recrudescence in Salford every alternate year, and its fatality varies greatly in different epidemics. The

SECTION II. death-rate therefore affords but an imperfect indication of the actual prevalence of the disease. The following figures, which represent annual rates of mortality per 1,000 of the population, afford a rough measure of the *intensity* with which measles has visited the several great towns, and the country districts of England, during 1886 and in recent previous years.

Measles—Distribution of measles fatality in England and Wales

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	0·28	0·48	0·35	0·42	0·51	0·41	0·41
28 Great English Towns	0·51	0·67	0·50	0·60	0·69	0·59	0·54
London .....	0·66	0·60	0·62	0·55	0·72	0·63	0·50
Salford .....	0·22	0·92	0·84	0·52	0·92	0·68	0·24
50 other Towns .....	—	0·58	0·41	0·45	0·75	0·55	0·52
Rural Districts .....	—	0·33	0·23	0·28	0·37	0·30	0·33

Salford therefore appears to have suffered less severely in 1886 than in any year since that of the census: and, as compared with the other areas included in the table, the incidence of measles mortality seems to have been lighter here than either in the great English towns or in the rural districts.

Distribution of mortality from whooping cough in England and Wales

**Whooping Cough.**—The deaths from this disease last year numbered 127, or fewer by two than the mortality in 1885. As in recent previous years, the rate of death from whooping cough was relatively much greater in the first and second quarters, than in the remaining half of the year. The fatality of this disease in the spring of last year was intensified by the excessive cold which prevailed during the month of March.

The following statement shows the rate of mortality from whooping cough in other parts of England and Wales.

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	0·42	0·58	0·39	0·42	0·44	0·45	0·44
28 Great English Towns	0·57	0·90	0·46	0·64	0·60	0·63	0·54
London .....	0·51	1·20	0·40	0·79	0·61	0·70	0·68
Salford .....	0·90	0·84	0·57	0·68	0·67	0·73	0·64
50 other Towns .....	—	0·47	0·37	0·33	0·53	0·43	0·42
Rural Districts .....	—	0·37	0·32	0·27	0·34	0·33	0·38

It thus appears that, as compared with recent previous years, whooping cough was less fatal in Salford last year, than the average. It was also less fatal here than in London; but, with this sole exception, the disease shewed a higher fatality during 1886 in Salford, than in any other of the areas in the table.

Six common infectious diseases, aggregate mortality

**Aggregate mortality from infectious disease.**—The rate of mortality in Salford last year from the six common infectious or miasmatic diseases, taken together, was equal to 2·14 per 1,000 of the population at all ages. This rate which is lower than the mean in the preceding quinquennium, was far in excess of the rate prevailing in all the other areas in the following table.

## ANNUAL RATE OF MORTALITY FROM THE SIX MIASMATIC DISEASES.

## SECTION II.

Aggregate miasmatic mortality in England and Wales

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	1.76	2.09	1.64	1.72	1.64	1.77	1.41
28 Great English Towns	2.47	2.73	2.09	2.29	2.04	2.32	1.72
London .....	2.81	2.93	2.07	2.41	2.11	2.47	1.72
Salford .....	2.07	2.71	2.31	2.47	2.33	2.38	2.14
50 other Towns .....	—	2.18	1.80	1.76	1.88	1.91	1.54
Rural Districts .....	—	1.60	1.37	1.39	1.37	1.43	1.22

The steady and substantial reduction, which was noticed in my last report as taking place during 1885 in the miasmatic death-rate of London, has been amply sustained in the year under present notice. As compared with the average of the preceding five years, the reduction was equal to more than 30 per cent! London would therefore appear to be outstripping all competitors in her attempts to exterminate infectious disease.

**Diarrhoeal Diseases.**—The year 1886 was one of excessive mortality from diarrhoeal diseases in Salford; the deaths having numbered 401, as compared with 305 the corrected annual average. Of the 401 deaths at all ages, not less than 379 were under five years old, of which number 275 had not completed their first year of age. The Salford rate of mortality last year from these diseases, was equal to 2.0 per 1,000 living at all ages, which rate exceeded the quinquennial average by more than 50 per cent. The following figures show the proportional prevalence of diarrhoeal diseases in various parts of the kingdom.

	1881.	1882.	1883.	1884.	1885.	Mean.	1886.
England and Wales ...	0.56	0.65	0.60	0.97	0.46	0.65	0.84
28 Great English Towns	0.79	0.86	0.77	1.21	0.69	0.86	1.16
London .....	0.80	0.55	0.67	0.97	0.66	0.73	0.95
Salford .....	0.90	1.31	1.14	1.95	1.26	1.31	2.00
50 other Towns .....	—	0.78	0.67	1.09	0.47	0.75	0.98
Rural Districts .....	—	0.48	0.43	0.72	0.34	0.49	0.63

Increased mortality from diarrhoeal diseases

It thus appears, that in London and in the 28 Great English Towns, as well as throughout the country generally, diarrhoeal diseases showed a marked increase of fatality last year, as compared with the average. As might have been expected, however, the increase was much greater amongst the crowded populations of our great towns, than in the rural districts. Amongst the 28 Great English Towns, statistics for which are published annually by the Registrar General, Salford occupies but a poor position as regards her diarrhoeal mortality. She has a heavier death-rate than either Liverpool or Manchester, and stands in the list next to Norwich and Preston, as having the third highest diarrhoeal rate of all the great towns of England.

In London, and in the great English towns

## SECTION II

Mortality from  
diseases of the  
constitutional  
class

## IV.—CONSTITUTIONAL DISEASES.

906 deaths, or 19·4 per cent of the total mortality were referred to this class of diseases in the year 1886. The rate of "Constitutional Mortality," at all ages, was therefore equal to 4·6 per 1,000, being an increase of 0·3 per 1,000 on the average rate\* from this class of disease in the preceding five years. As in recent previous years, the "Constitutional rate" was highest last year in the Greengate district, which is the densest portion of the borough; the death-rates however from this class, in the districts both of Regent Road and Pendleton, were in excess of the average during the year under notice. Of the diseases which form the "Constitutional class" both phthisis and cancer showed a slight reduction last year, as compared with the corrected decennial average;† whereas tabes mesenteria, and the remaining forms of scrofulous disease were considerably more fatal than in recent previous years.

## V.—DEVELOPMENTAL DISEASES.

Mortality from  
diseases of the  
developmental  
class

Table D shows that the aggregate mortality does not greatly vary from this class of diseases, which consists mainly of two death causes—"Premature birth" and "Old age" or "Decay of nature". The rate of death from developmental diseases was equal last year to 1·6 per 1,000 living at all ages. Amongst children however, under five years of age, the rate was equal to 5·7 per 1,000, whilst it was equal to 16·1 per 1,000 amongst persons aged 60 years and upwards.

## VI.—LOCAL DISEASES.

Mortality from  
the local class of  
diseases in Sal-  
ford

The 2,158 deaths referred last year to one or other of the causes included in this important class were equal to 46·2 per cent of the total mortality, and to an annual rate of 10·9 per 1,000 of the population at all ages, which is identical with the average rate in the five preceding years. It is characteristic of the diseases composing this class—namely those of the nervous, respiratory, circulatory and digestive systems—that they are fatal principally to the very old and the very young. This will be seen on reference to table E,‡ from which it appears that whereas during the period of life from 5 years to 40, these diseases are fatal to not more than 3 per 1,000 of the population living at those ages; they nevertheless kill as many as 27 out of every thousand children under five years, and not less than 56 per 1,000 of the estimated population at all ages above 60 years. It has frequently been remarked in these reports that diseases of the local class form a very sensitive test of the sanitary condition of a town;

\* See Table D on page 30.

† See Table F on page 35.

‡ See page 32.

and indeed a valuable means of differentiating, in this regard, between several districts of the same town. For example, columns 9 and 10 of table D show, that not only in the year 1886, but in the five preceding years also, the death rate due to local diseases ranged from eight per 1,000 annually in Broughton, to 14 per 1,000 in Greengate. It is instructive also to note how steadily the several districts maintain their relative position as regards their death rate from diseases of this class: for in no case do the "local" death rates in 1886 differ more than a few tenths in the 1,000 from the mean rates of the preceding five years. Turning now to the groups\* of disease of which the local class is made up; we find that diseases of the nervous system gave rise to 527 deaths last year against 633, the corrected average number. Heart diseases however showed a greater fatality last year than the average, having caused 241 deaths, as compared with an annual mean of 207: whilst diseases of the respiratory organs killed 88 fewer persons in 1886 than the corrected average number in the preceding ten years.

SECTION II.  
Local diseases—  
varying fatality  
in the several  
districts of the  
borough

#### VII.—VIOLENT DEATHS.

The deaths returned as due to violence, in its various forms, are probably not amenable to sanitary control; but it is satisfactory to find that the rate of death from this class is not increasing, and that for some years past, it has remained stationary at about 0.6 in the 1,000 living.

Deaths from  
violence

#### VIII.—DEATHS FROM ILL-DEFINED CAUSES.

The deaths returned under this heading, are those which have been certified as due to such indefinite causes as "dropsy" (without statement of its origin), "atrophy," "debility," "hæmorrhage," "found dead in bed," etc. The deaths referred to this unsatisfactory group in 1886 were more numerous than in the preceding year; and accounted, in the aggregate, for a rate equal to 1.4 per 1,000 of the population.

Unclassified  
deaths

**Uncertified Deaths.**—Of the 35,185 deaths registered in Salford since the year 1878, not less than 1,632 or 4.6 per cent have been interred without formal medical certificate as to cause of death.

Causes of death  
uncertified

The meaning of this is, that one person out of every 22 dying annually in Salford passes away without the assistance which medical science can render. It is true that the proportion of non-certified deaths in the year 1886 was less by 0.5 per cent than in the previous seven years, but it still remains a reproach to our boasted civilization than even so recently as last year 4.2 per cent of the persons dying in Salford were interred without competent testimony as to the cause of their demise.

\* See columns 1 and 2 of table F, page 35.

**TABLE G.**

CERTIFICATION OF THE CAUSES OF DEATH IN THE BOROUGH OF  
SALFORD, AND ITS FOUR REGISTRATION SUB-DISTRICTS,  
IN THE YEAR 1886.

	Total Deaths.	Certified by		Not Certified.	Proportion per cent. of Deaths.		
		Registered Medical Practitioners.	Coroner.		Certified by		Not Certified.
					Registered Medical Practitioners	Coroner.	
Borough .....	4643	4245	204	194	91·4	4·4	4·2
Regent Road District	1989	1830	84	75	92·0	4·2	3·8
Greengate .....	944	840	54	50	89·1	5·7	5·2
Pendleton .....	1038	940	47	51	90·6	4·5	4·9
Broughton .....	672	635	19	18	94·5	2·8	2·7
CORRESPONDING DATA FOR THE SEVEN YEARS 1879-85.							
Borough .....	30542	27751	1353	1438	90·9	4·4	4·7
Regent Road District	13117	11910	548	659	90·8	4·2	5·0
Greengate .....	6514	5784	393	337	88·8	6·0	5·2
Pendleton .....	6791	6237	271	283	91·8	4·0	4·2
Broughton .....	4120	3820	141	159	92·7	3·4	3·9

LOCALITIES, AND SHOWING ALSO THE POPULATION OF SUCH LOCALITIES, AND THE BIRTHS THEREIN DURING THE YEAR.

	Population at all ages.		Registered Births.	Mortality from all Causes, at subjoined Ages.						Mortality from subjoined Causes, distinguishing Deaths of Children under Five years of age.																						
	Census, 1881.	Estimated to middle of 1886.		At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 60.	60 and upwards.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Whooping Cough.	Typhus.	Enteric or Typhoid or Doubtful.	Diarrhoea and Dysentery.	Cholera. Eng.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	Other Diseases.		
Total for Borough exclusive of Public Institutions...	174639	195117	7157	4107	1405	740	200	160	1023	579	Under 5. 5 upwds.	40	60	828	125	3	1	363	6	1	4	2	...	...	...	...	17	426	2	46	1013	
(Union Infirmary.	*	591†	...	340	13	10	6	12	153	146	Under 5. 5 upwds.	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	
Workhouse ...	1484	1000†	77	17	7	2	...	...	1	7	Under 5. 5 upwds.	3	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	
Wilton Fever Hospital...	38	120†	...	84	1	50	26	6	1	...	Under 5. 5 upwds.	...	50	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Royal Hospital and Dispensary ...	72	66†	...	68	1	10	8	7	36	6	Under 5. 5 upwds.	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	
Totals...	176233	196894	7234	4616	1427	812	240	185	1214	738	Under 5. 5 upwds.	43	110	828	125	3	2	370	6	1	4	2	...	...	...	...	17	430	2	54	1034	
The subjoined numbers have also to be taken into account in judging of the mortality of the Sanitary District.																																
Deaths occurring outside Salford among persons belonging thereto	Children's Hospital, Pendlebury		27	1	10	15	1	...	...	...	Under 5. 5 upwds.	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Manchester Royal Infirmary		42	...	...	2	4	31	5	...	Under 5. 5 upwds.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
Deaths occurring within Salford among persons not belonging to the Town...	Monsal Hospital		9	...	...	3	2	4	...	...	Under 5. 5 upwds.	...	...	...	...	...	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Deaths occurring within Salford among persons not belonging to the Town...		22	...	...	...	3	15	4	...	Under 5. 5 upwds.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

\* This institution was not opened until after 1881. In previous reports it has been incorrectly designated "The Hope Hospital."

† These figures, include the following numbers of Officers and Servants, in addition to Patients, Union Infirmary 54, Workhouse 22, Wilton Fever Hospital 29, and Salford Royal Hospital and Dispensary 28.

YEAR 1886.

METEOROLOGY, NOTIFIED CASES OF SICKNESS AND REGISTERED DEATHS FROM ALL CAUSES, AND FROM CERTAIN PREVALENT DISEASES IN EACH WEEK OF THE YEAR.

Week.	Temperature of the Air.			Air Pressure.	Horizontal Movement of Air in Miles p. hour.	Mean Humidity. Complete Saturation. =100	Rainfall in Inches.	Sickness. (cases notified.)				*Deaths registered from											
Date of ending.	Highest during the Week.	Lowest during the Week.	Mean Temperature.	Extreme range of Barometric changes.				Smallpox.	Scarlet Fever.	Diphtheria.	Typhus Fever.	Enteric Fever.	All Causes.	Smallpox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Typhus Fever.	Enteric Fever.	Diarrhoea.	Respiratory Diseases.	Phthisis.
1886.																							
Jan. 9	52.7	26.0	36.7	0.626	2.8	81	.827	...	13	1	...	3	81	...	5	1	...	1	...	2	15	12	
16	46.8	26.3	38.3	0.890	3.2	83	1.390	...	12	1	...	7	94	...	3	2	1	4	...	2	23	9	
23	39.2	25.0	34.5	0.636	1.8	87	.456	...	16	...	...	5	105	...	1	3	...	5	...	3	32	11	
30	42.9	31.0	37.7	0.472	3.2	92	.856	...	10	...	...	4	80	...	2	1	...	6	...	1	...	22	10
Feb. 6	43.2	28.8	36.4	1.194	2.0	86	.274	...	20	...	...	8	78	...	2	1	...	2	...	...	24	9	
13	48.8	30.2	39.3	0.814	2.2	91	.198	...	15	3	...	3	84	...	...	2	1	8	...	2	1	23	14
20	43.8	30.6	35.9	0.501	0.1	85	.162	...	10	...	...	7	79	...	2	3	...	3	...	3	1	20	10
27	41.8	28.0	34.9	0.160	...	79	.060	...	13	...	...	2	106	...	...	...	9	...	...	1	30	19	
Mar. 6	39.6	26.0	32.7	1.058	...	81	.360	...	22	...	...	3	125	...	1	3	...	2	...	2	1	37	15
13	42.4	20.0	33.1	0.251	1.0	77	...	...	13	2	...	1	139	...	1	4	...	4	...	1	2	46	12
20	57.3	29.9	38.8	0.454	0.8	83	.350	...	14	2	...	3	109	...	...	1	...	5	...	1	3	37	10
27	64.1	42.2	53.2	0.477	2.0	84	.578	...	11	...	...	3	105	...	1	1	...	4	...	2	39	9	
April. 3	60.3	37.0	46.1	0.595	4.3	74	1.115	...	8	...	...	5	81	...	2	...	...	2	...	3	28	7	
10	53.9	35.0	43.9	0.772	3.0	76	.750	...	8	3	...	1	78	...	...	1	1	4	...	2	3	18	8
17	55.0	33.0	44.9	0.564	0.8	77	.110	...	14	1	...	3	81	...	...	...	7	...	1	2	20	14	
24	61.9	40.0	47.0	0.166	0.9	74	.168	...	9	...	...	2	69	...	...	...	3	...	...	...	21	10	
May 1	71.6	33.2	48.5	0.547	0.8	58	.090	...	8	...	...	3	91	...	...	1	...	4	...	1	4	24	14
8	73.2	38.8	54.9	0.352	0.8	56	.390	...	10	5	...	5	97	...	...	1	...	6	...	1	1	23	13
15	61.1	40.0	45.6	0.707	2.4	81	2.062	...	11	2	...	1	82	...	...	1	...	6	...	1	1	18	8
22	64.6	40.2	51.3	0.642	1.3	77	.792	...	12	...	...	3	70	...	...	...	1	4	...	...	1	17	11
29	61.5	40.7	50.2	0.705	1.1	79	1.173	...	20	...	...	4	76	...	...	...	1	4	...	1	3	14	7
June 5	67.3	44.0	51.8	0.319	0.2	77	1.830	...	22	1	...	4	58	...	...	4	...	...	...	...	14	1	
12	70.8	48.0	58.0	0.359	0.3	70	0.054	...	41	...	...	2	59	...	...	1	...	3	...	...	10	8	
19	75.4	48.8	54.6	0.320	1.3	69	.325	...	14	...	...	2	74	...	...	2	...	...	...	3	11	13	
26	67.1	49.6	55.0	1.376	1.6	77	.225	...	34	2	...	1	99	...	2	3	1	3	...	4	15	11	
July 3	82.0	46.9	64.0	0.128	0.3	61	...	...	27	1	...	1	54	...	1	1	...	7	...	5	5	9	
10	79.0	47.0	60.0	0.450	0.3	67	.080	...	55	1	...	2	78	...	...	2	...	3	...	5	9	8	
17	71.3	51.0	58.5	0.681	1.9	74	1.211	...	34	...	...	2	82	...	...	5	...	2	...	6	10	8	
24	77.9	56.0	63.3	0.398	2.0	69	.622	...	45	1	...	6	82	...	1	3	...	...	2	7	14	4	
31	70.0	50.0	56.0	0.670	0.8	81	2.760	...	24	2	...	3	75	...	2	2	...	2	...	1	19	10	5
Aug. 7	70.8	47.0	56.6	0.388	1.1	69	.102	...	37	...	...	3	92	...	2	4	...	1	...	...	20	14	7
14	70.7	50.7	59.3	0.538	1.2	71	.957	...	42	1	...	3	96	...	1	2	...	...	1	25	12	11	
21	71.1	52.3	60.7	0.527	1.2	72	.802	...	45	2	...	5	104	...	...	5	1	2	...	1	24	10	6
28	76.8	52.9	62.1	0.187	0.1	78	.038	...	38	...	...	8	101	...	1	6	...	2	...	1	26	9	7
Sep. 4	82.5	54.3	62.8	0.221	0.4	83	.150	...	58	1	...	6	138	...	11	1	2	...	3	38	16	12	
11	70.8	47.9	59.9	0.282	2.4	82	1.825	...	20	2	...	18	117	...	...	6	2	...	...	3	37	9	6
18	69.9	44.2	58.4	0.692	0.8	77	.470	...	41	...	2	12	137	...	1	5	...	2	...	1	43	11	12
25	64.8	42.0	52.7	0.381	0.9	73	.400	...	45	...	...	11	99	...	...	4	...	1	...	2	31	7	7
Oct. 2	68.9	48.2	57.9	0.433	2.5	82	1.982	...	66	2	...	7	99	...	1	8	...	...	...	19	19	6	
9	73.4	46.0	59.4	0.271	0.8	87	1.770	...	52	1	...	8	91	...	1	10	...	1	...	1	10	14	7
16	59.7	43.0	51.4	1.349	1.8	85	1.630	...	58	1	1	12	78	...	1	5	1	1	1	1	16	7	4
23	57.1	42.4	50.1	1.040	0.8	85	.830	...	50	...	...	11	80	...	...	6	...	...	2	6	9	11	
30	58.7	46.0	51.0	0.424	0.9	90	.608	...	45	2	...	7	59	...	1	3	1	...	2	7	13	6	
Nov. 6	59.8	39.0	48.4	1.183	2.1	92	1.275	...	56	...	...	12	81	...	1	4	...	...	2	4	16	7	
13	49.7	36.2	43.3	0.380	1.3	83	.304	...	53	...	...	14	80	...	...	5	...	...	2	1	18	8	
20	54.9	35.7	45.9	0.861	1.4	90	.157	...	51	...	...	13	71	...	...	7	...	...	2	13	8		
27	51.7	39.0	46.5	1.054	0.2	92	...	...	55	...	...	10	96	...	3	2	...	1	...	3	24	14	
Dec. 4	49.8	27.1	39.3	0.750	1.7	84	.490	...	40	...	...	10	86	...	3	4	...	...	2	2	21	5	
11	52.5	32.0	41.8	1.667	4.1	84	1.969	...	40	1	...	7	104	...	...	6	...	...	5	1	30	12	
18	46.8	22.0	36.9	0.616	0.8	90	.300	...	30	...	...	3	93	...	...	7	...	...	1	...	34	7	
25	43.3	22.8	34.6	0.893	1.6	90	.535	...	39	1	...	10	86	...	2	6	...	...	...	1	38	11	
1887																							
Jan. 1	44.3	26.0	35.2	0.827	1.5	90	.450	...	34	...	2	6	84	...	3	4	...	1	...	2	28	10	

\* These are the uncorrected deaths registered within the borough.

PRICES OF COAL, FLOUR, POTATOES, AND BUTCHER'S MEAT, AND THE  
NUMBER OF PAUPERS RELIEVED IN SALFORD—1872 TO 1886.

	AVERAGE PRICES OF FOOD AND FUEL.				PAUPERISM.		
	Coal, per ton.	Flour, per stone.	Potatoes, per load.	Butchr's Meat, per lb.	Weekly number of Paupers relieved.		
					Indoor.	Outdoor	Proportion to Population
	£ s. d.	£ s. d.	£ s. d.	d.			
1872	0 10 0½	0 2 1¼	0 4 6¾	6½	764	1839	1 in 50
1873	0 15 9¾	0 2 3	0 13 0¼	7¾	817	1711	1 in 53
1874	0 16 1¾	0 2 2	0 11 4	7½	853	1842	1 in 52
1875	0 12 4	0 1 7½	0 10 6¾	7½	872	1652	1 in 57
1876	0 11 6	0 1 9¼	0 10 7½	7½	944	1409	1 in 64
1877	0 10 5	0 2 1½	Various.	7¼	1037	1662	1 in 57
1878	0 9 10	0 1 7½	Various.	7¾	1146	2326	1 in 46
1879	0 7 5	0 1 11½	0 14 0	6¾	1442	4023	1 in 30
1880	0 7 11	0 2 5¾	0 10 0	7½	1559	3488	1 in 34
1881	0 7 8	0 1 8¾	0 10 0	7¼	1640	3039	1 in 38
1882	0 7 7	0 1 7¼	0 12 0	7½	1379	2300	1 in 56
1883	0 7 7½	0 1 6¾	0 7 0	6¾	1690	2237	1 in 49
1884	0 7 8½	0 1 4½	0 5 9	5½	1645	2250	1 in 51
1885	0 7 7	0 1 3¼	0 6 4½	4¼	1573	2297	1 in 50
1886	0 7 5	0 1 3	0 7 3	5½	1624	2412	1 in 49



WORK OF THE HEALTH  
DEPARTMENT.



# WORK OF THE HEALTH DEPARTMENT.

## III.—Summary of the action taken during the year for limiting the spread of infectious disease.

**Compulsory Notification of Infectious disease.**—The experience of a fourth year under the "Notification Act" furnishes additional and confirmatory evidence of its administrative value as a means of controlling the spread of infection. Inasmuch as scarlet fever is at once numerically the most important and the most refractory of all the diseases notifiable under the Act, we may safely accept the evidence afforded by this disease as a criterion of the general success of notification as a preventive agency. The year 1886 has been one of almost epidemic scarlatina prevalence in Salford: the disease, which had shown excessive prevalence throughout 1884 also, appearing to recrudescence, somewhat anomalously, toward the middle of the year under notice, after a period of little more than twelve months of what may be termed its normal incidence in the Borough. The time which has elapsed since the passing of the Act is obviously too short to allow of the drawing of positive conclusions as to the permanent control which it is capable of exerting on the spread of infective diseases: nevertheless such statistics as are available both in Salford and in other protected towns\* certainly tend to show that notification has everywhere proved signally efficacious as a means of disease repression. In Salford we find that since the passing of the Act, and in consequence of it, we have been able to effect a much more complete degree of hospital isolation than before, of infectious patients.† This will be apparent from the statement that whereas of the total deaths from scarlatina registered in the six years ending with 1882, only 14 per cent occurred in public institutions; in the four years following that date, which is the period during which the Notification Act has been in operation, not less than 42 per cent. of the deaths took place in our fever hospital. It is of course impossible to ascertain the proportion of admissions to total infectious attacks prior to the passing

### SECTION III.

Experience of compulsory notification in Salford

Its effect as an auxiliary to hospital isolation

\* For statistics of disease prevalence in the 40 towns of England possessing powers for the compulsory notification of infectious disease, see page 38.

† Deaths from scarlatina in Salford:—

	1877—82.		1883—86.
Total deaths in the borough .....	951	.....	457
Deaths in hospital .....	131	.....	192
Percentage of deaths in hospital to total deaths in borough ..	14%	.....	42%

SECTION III. of the Notification Act, but on reference to the sickness register\* we find that whereas in 1883, the first complete year after the passing of the Act, only 26 per cent. of the known cases were removed to hospital, the proportion so isolated has steadily increased year by year ever since that date, until in the year 1886 it reached 49 per cent.—a proportion which, under the circumstances, cannot be considered unsatisfactory.

As regards the reduction in the mortality due to scarlet fever in recent years, under the combined systems of notification and isolation now in vogue, it may be well to mention that the Salford fever hospital was opened about ten years ago, namely, at the end of 1876, and our Notification Act came into operation just six years after that event. It will therefore be instructive to compare the incidence of scarlet fever mortality during the six years respectively preceding and succeeding the opening of the hospital; and this latter period again with the incidence of mortality since 1882, under the combined influences of disease notification and hospital isolation. The following figures have been prepared with this object in view:—

Average annual rates of mortality from Scarlatina, per  
1,000 living.

1871—76.	1877—82.	1883—86.
1'01	0'95	0'59

Disregarding decimals, it will be seen that the rate of mortality from scarlet fever in each 100,000 of the population averaged 101 per annum during the six years preceding the erection of the fever hospital. In the earlier years of the operation of the hospital the rate averaged 95; and in the third period, namely, that during which the community have had the advantage both of notification and isolation, the rate has fallen to 59 in every 100,000 living. Comparing the last of these periods with the first, the scarlet fever mortality is seen to have been reduced by more than forty per cent. It is only fair, however, to say that the reduction in scarlatina mortality within the last few years has been general throughout the country; indeed, in some towns the reduction has been even greater than with us. On the other hand it deserves mention that scarlatina has shown abnormal prevalence here within the last two years, and this has not been the case in the towns referred to as showing a greater reduction than that which we are privileged to record. Our experience in Salford very conclusively proves that the value of isolation, and consequently of notification, is

\* Ratio of hospital removals to known cases of infectious disease in each of the years 1883 to 1886:—

	1883.	1884.	1885.	1886.
Cases notified .....	1220	1729	949	1879
Cases removed .....	332	689	442	911
Percentage of removals to known cases .....	26'4%	39'9%	46'6%	48'5%

most appreciable—not during epidemic periods when the spreading tendency of infection is aggravated by the frantic conduct of the people in their very efforts to avoid it—but rather in the non-epidemic intervals, when by the early isolation of first cases, and the adoption of appropriate measures of disinfection, it is possible to obviate that general diffusion of contagion which culminates in epidemic outburst. The history of infectious disease in Salford subsequent to the framing of the Notification Act, five years ago, furnishes several instances illustrative of this statement. Since the year 1882, in addition to scarlet fever and enteric fever—diseases which up to the present seem to have been endemic in Salford—the borough has been invaded by not less than seven separate visitations of small-pox, and by six of typhus fever. In every one of these instances prompt segregation of the first cases was secured, and careful disinfection of clothes, bedding, and houses carried out by the Health Department; with the result that in every case the spread of the disease was promptly arrested, and thus the community has been spared the suffering, and the ratepayers have been saved the expense of what would almost certainly have become formidable epidemics of those frightful pestilences. But people are proverbially prone, in happier times, to forget the salutary lessons which the sufferings and bereavements of past epidemics ought to have taught them; and it is to be regretted that the very success which has been achieved in recent years under the Notification Act tends to foster this apathetic tendency. When the epidemic of 1875-7 was upon us—in the course of which between two and three thousand Salford people were stricken, and 472 killed, by small-pox—the public gave way to senseless panic, and clamoured loudly for the means of isolating the sick; but no sooner had the pestilence spent its force for lack of further susceptible bodies for its own propagation, than the people lapsed into their wonted lethargy, and now they seem incredulous of the fact that almost every year one or more importations of the disease take place, any one of which would assuredly give rise to another epidemic but for the speedy removal of first cases to hospital.

## SECTION III.

Value of notification most appreciable during non-epidemic periods

Detection by means of notification of successive invasions of small-pox and typhus

Again, it is worthy of note, that in the absence of compulsory notification, the mere existence of hospital accommodation cannot be relied upon as a safe defence against epidemics. As a proof of this let me instance the terrible, though fortunately limited, epidemic of typhus which raged here throughout the whole year 1880. The fever hospitals of Wilton House and Monsall were ready to receive the sufferers, but inasmuch as we had taken no steps to acquire early information of first cases, the patients were not reported and consequently not removed until great damage had been done, and the entire borough had been threatened with decimation by this terrible destroyer. It was only when, in sheer desperation, a rigorous house to house visitation of the fever haunts was undertaken by Dr. Thomson and myself, with the

Mere existence of hospital provision not sufficient protection against epidemics, unless supplemented by compulsory notification

## SECTION III.

Compulsory  
notification of in-  
fectious disease

The case for  
compulsory noti-  
fication stated

Removal of in-  
sanitary condi-  
tions brought  
about by inspec-  
tion as a result  
of notification

Dangers of  
spread of infec-  
tion by the ag-  
gregation of chil-  
dren in elemen-  
tary schools

assistance of Inspectors Wilkinson and Buxton, that we were able to make headway against the disease. And recent experience of typhus in the same district\* entitles me to say, that it could never have obtained a footing amongst us if only we had possessed powers for securing that necessary information as to first cases, which we now receive under the Compulsory Notification Act. The case on behalf of isolation, and consequently of notification of infectious disease, may be easily stated, conditionally that assent be given to the following two propositions:—(a) That scarlet fever, small-pox, typhus fever, etc., are communicable diseases, which amongst the poor are generally spread by personal contact; and (b) That isolation of persons suffering from an infectious disease, such as scarlet fever, is practically impossible in the crowded houses of the labouring classes, as they exist in our great towns. Inasmuch then as under these circumstances contagion tends to spread from infective persons or infective things until every susceptible individual in the community has been attacked, it follows, if the above premises be accepted, that the removal from amidst the homes of the people of so many infective centres—whether patients or bedding—must exercise, *pro tanto*, a repressive effect on the propagation of communicable diseases. But further, and quite apart from the assistance to the individual patient which early notification enables us to afford, we find by experience that in the course of our enquiries we frequently encounter timely evidence of conditions which in themselves are likely to lead to dissemination of disease. Thus, for instance, it is not uncommon to find in a room in which the business of a tailor, or that of a laundress, is in active operation, a child suffering from scarlet fever, and being nursed at intervals by either the tailor or the laundry woman, as the case may be. Again, the inspectors frequently discover infective patients in dangerous proximity to milk supplies exposed for public sale in premises, probably too small, under the most favourable circumstances, for the safe storage of milk. In these, and in numerous other instances which need not here be mentioned, we are able to give advice, or to take steps which are probably instrumental in protecting the public against various forms of infection. It is needless to say that these useful offices would be impossible in default of the essential information which notification supplies.

**Measures for checking the spread of Infection by Schools.**—As an illustration of one among the many important uses to which the information may be applied, which we derive from the Notification Act, it may be mentioned that out of the total number of houses infected with scarlet fever during the year under notice, not less than 1,020 proved to be the residences of children in attendance at one or other of the elementary schools of the borough. Consequently, in every one of these instances I

\* i.e. the locality opposite the Regent Road Barracks.

have been able to communicate with the masters or the mistresses of the schools concerned, and to give them timely warning against receiving into their schools children from infected houses, until after due disinfection of houses and clothing, and the observance of other necessary precautions. Although scarlet fever was quite exceptionally prevalent in Salford during the latter end of 1886, I am pleased to say that in no single instance have I found it necessary to recommend the closure of a school on account of the diffusion of scarlatina amongst the pupils, and I attribute this fortunate circumstance to the efficient control over infective disease which the Notification Act enables us to exercise.

## SECTION III.

Elementary schools in relation to dissemination of contagion

**Hospital Isolation of Infectious Disease.**—During the year under notice not less than one thousand and twenty-eight Salford patients, suffering from dangerous infectious disease, have been under treatment in hospital for the protection of the health of the community. Of this number 63 were patients remaining in hospital at the beginning of the year; 965 were admitted to the wards in the course of the year; and of these 133 still continued in hospital at its close. Of the total admissions last year, 902 patients were accommodated at Wilton Hospital, and the remaining 63 either at Monsall or at Pendlebury. On admission not less than 811 of these patients were certified to be suffering from scarlet fever, and 85 from enteric fever. The number of admissions for these two diseases respectively in the year 1885 were 331 and 66.

The borough hospital for infectious disease

As time rolls on statistics continue to accumulate which plainly indicate a growing appreciation by the Salford people of the inestimable boon conferred upon them by the presence in their midst of a well-regulated hospital, always ready for the reception of the infectious sick. As evidence of the existence of this sentiment, we may refer with, I trust, pardonable pride to the gradually increasing proportion of removals to hospital in recent as compared with former years.\* The fact that within the short period of four years the proportion of hospital admissions to reported cases has increased from 26 per cent to 49, may surely be reckoned as proof that the fever hospital is rapidly gaining favour with the class of persons for whose benefit it has been provided. And I think we are entitled also to claim, as significant evidence to the same effect, the fact that mothers are now coming to entrust their younger children to the care of the hospital staff in far greater numbers than formerly. This may be argued from the circumstance that whereas in the first six years after the opening of the hospital only one half of the patients admitted to its wards were children under ten years of age; in the four years terminating with 1886, the proportion of children under ten years was fully seven-tenths of the admissions at all ages.† In recording the

Growing appreciation by the public of hospital provision

\* See foot-note on page 58.

† See last page of Provisional Report on Fever Hospitals, Appendix No. I.

(52 Weeks ending January 1st, 1887.)

	WILTON HOSPITAL.				MONSAL & PENDLEBURY HOSPITALS				Total.
	Males.		Females.		Males.		Females.		
	Under 5	Over 5	Under 5	Over 5	Under 5	Over 5	Under 5	Over 5	
A.—Patients remaining in Hos- pital on Jan. 3rd, 1886, affected with									
Small Pox .....	...	...	...	...	...	...	...	...	...
Measles .....	4	1	1	...	...	...	...	...	6
Scarlet Fever .....	6	15	10	11	...	...	...	...	42
Diphtheria .....	...	...	...	...	...	...	...	...	...
Typhus Fever .....	...	...	...	...	...	...	...	...	...
Enteric Fever.....	...	3	...	5	...	...	...	...	8
Other Acute Diseases .....	...	6	...	1	...	...	...	...	7
Total.....	10	25	11	17	...	...	...	...	63
B.—Admitted during the 52 Weeks ending Jan. 1st, 1887, affected with									
Small Pox .....	...	...	...	...	...	...	...	...	...
Measles .....	3	1	10	8	...	...	...	...	22
Scarlet Fever .....	142	222	165	281	...	1	...	...	811
Diphtheria .....	...	1	...	...	...	...	1	1	3
*Typhus Fever.....	1	4	2	3	1	...	1	...	12
Enteric Fever.....	...	16	2	17	3	23	1	23	85
Other Acute Diseases .....	3	14	2	5	1	4	1	2	32
Total.....	149	258	181	314	5	28	4	26	965
Total under Treatment .....	159	283	192	331	5	28	4	26	1028
C.—Of the above there were discharged recovered from									
Small Pox .....	...	...	...	...	...	...	...	...	...
Measles .....	7	2	9	7	...	...	...	...	25
Scarlet Fever.....	109	197	118	241	...	1	...	...	665
Diphtheria .....	...	1	...	...	...	...	...	1	2
Typhus Fever.....	1	4	2	3	...	...	...	...	10
Enteric Fever.....	...	14	2	17	2	13	1	15	64
Other Acute Diseases .....	3	18	1	5	1	3	1	1	33
Total.....	120	236	132	272	3	17	2	17	799
D.—Died from									
Small Pox .....	...	...	...	...	...	...	...	...	...
Measles .....	...	...	...	1	...	...	...	...	1
Scarlet Fever .....	22	7	28	15	...	...	...	...	72
Diphtheria .....	...	...	...	...	...	...	...	...	...
Typhus Fever.....	...	...	...	...	...	...	...	...	...
Enteric Fever.....	...	5	...	4	1	5	...	3	18
Other Acute Diseases .....	...	2	1	...	...	1	...	1	5
Total.....	22	14	29	20	1	6	...	4	96
E.—Remaining in Hospital on Jan. 1st, 1887, affected with									
Small Pox .....	...	...	...	...	...	...	...	...	...
Measles .....	...	...	2	...	...	...	...	...	2
Scarlet Fever .....	17	33	29	37	...	...	...	...	116
Diphtheria .....	...	...	...	...	...	...	1	...	1
Typhus Fever .....	...	...	...	...	1	...	1	...	2
Enteric Fever.....	...	...	...	1	...	5	...	5	11
Other Acute Diseases .....	...	...	...	1	...	...	...	...	1
Total.....	17	33	31	39	1	5	2	5	133
Total under Treatment in 1886.	159	283	192	331	5	28	4	26	1028

\* Eight of these typhus cases, and one scarlet case, were from outside the borough, seven being gypsies.

RETURN OF SALFORD PATIENTS SENT TO WILTON, PENDLEURY, AND MONSAL HOSPITALS; FROM OCTOBER 26TH, 1876, TO JANUARY 1ST 1887.

	WILTON HOSPITAL SALFORD.				MONSAL & PENDLEBURY HOSPITALS.				Total.
	Males.		Females.		Males.		Females.		
	Under 5	Over 5	Under 5	Over 5	Under 5	Over 5	Under 5	Over 5	
A.—Patient admitted,affected with									
Small Pox .....	8	124	2	97	1	29	5	40	306
Measles .....	92	28	82	31	3	4	1	1	242
Scarlet Fever.....	464	651	480	814	1	5	4	3	2422
Diphtheria .....	1	6	3	19	5	1	3	7	45
Typhus Fever.....	5	54	5	81	2	26	2	37	212
Enteric Fever.....	14	284	11	258	5	49	8	40	669
Other Diseases .....	47	86	36	94	2	6	1	9	281
Total.....	631	1233	619	1394	19	120	24	137	4177
B.—Patients discharged re- covered from									
Small Pox .....	4	96	1	75	...	23	1	38	238
Measles .....	73	28	62	30	1	3	1	1	199
Scarlet Fever.....	330	578	356	711	1	4	3	3	1986
Diphtheria .....	...	4	1	18	2	1	1	7	34
Typhus Fever .....	5	39	5	56	1	18	1	31	156
Enteric Fever.....	11	219	10	205	4	37	4	30	520
Other diseases .....	30	61	27	70	2	5	1	8	204
Total.....	453	1025	462	1165	11	91	12	118	3337
C.—Patients dead from									
Small Pox .....	4	28	1	22	1	6	4	2	68
Measles .....	19	...	18	1	2	1	...	...	41
Scarlet Fever.....	117	40	95	66	...	1	1	...	320
Diphtheria .....	1	2	2	1	3	...	1	...	10
Typhus Fever.....	...	15	...	25	...	8	...	6	54
Enteric Fever.....	3	65	1	52	1	7	4	5	138
Other Diseases .....	17	25	9	23	...	1	...	1	76
Total .....	161	175	126	190	7	24	10	14	707
D.—Patients remaining in Hospital									
Small Pox .....	...	...	...	...	...	...	...	...	...
Measles .....	...	...	2	...	...	...	...	...	2
Scarlet Fever.....	17	33	29	37	...	...	...	...	116
Diphtheria .....	...	...	...	...	...	...	1	...	1
Typhus Fever.....	...	...	...	...	1	...	1	...	2
Enteric Fever.....	...	...	...	1	...	5	...	5	11
Other Diseases .....	...	...	...	1	...	...	...	...	1
Total.....	17	33	31	39	1	5	2	5	133

**SECTION III.** increasing measure of success which has attended our endeavours to secure adequate isolation for persons who are unable to provide it at their own homes, I desire to acknowledge the generous co-operation which I have received from my brethren of the medical profession, for without their aid it is obvious that the removal to hospital of so large a proportion as nearly one-half of the reported cases could never have been effected; more especially when the fact is mentioned that in no single instance have the powers of the Public Health Act been called into requisition for the compulsory removal of a patient.

Hospital accommodation: growing appreciation of its benefits by the public

#### **Disinfection and destruction of infected clothing.—**

During the year under notice 1,132 parcels of infected bedding and clothing have been disinfected by means of high pressure steam at Wilton Hospital, and 159 articles of filthy or worn-out clothing have been destroyed by the disinfecting staff. The following table shows the cost of maintenance at the Wilton Hospital during the year 1886, together with the amount received from the Salford Guardians and others, for the maintenance of patients whilst under treatment in the hospital.

	£	s.	d.
Salaries of Resident Medical Officer and Matron.....	250	0	0
Wages of Nurses, &c. ....	627	11	2
Rates, Taxes and Insurance .....	152	19	0
Coal, Gas, Water, and Cleaning Materials.....	447	4	11
Meat, Provisions, and Groceries.....	1006	10	9
Medicine and Stimulants .....	424	16	2
Repairs and Alterations .....	163	10	4
Provender and Farriery ...	68	1	6
Printing, Stationery, &c. ....	16	6	0
Collecting Hospital Charges .....	21	14	0
Furniture for Residential House.....	89	7	5
Stamps and Sundries .....	121	10	0
	3389	11	3
Maintenance of Patients in Monsall Hospital .....	203	11	6
Amount Received for Fees.....	£578	4	3

*IV.—Enquiries by the Medical Officer of Health as to conditions injurious to health, existing in the borough, and of the proceedings taken by his advice for the abatement of such conditions.*

#### **SECTION IV.**

Fortnightly reports to the Health Committee

#### **Periodical Reports of the Medical Officer of Health.—**

The successive reports of the Medical Officer of Health, which have been submitted to the Health Committee at each of their fortnightly meetings, have contained particulars as to the prevalence of sickness and mortality in the several districts of the borough, and

likewise of the admissions to the fever hospital from time to time. Each report has also contained details of the sanitary condition of the several townships of which the borough is composed, and of the number and character of the nuisances for the abatement of which, the Committee's intervention has been necessary. There are, however, certain matters of more than passing importance, which have received the special attention of the Health Department during the year, and to which therefore I desire shortly to refer.

## SECTION IV.

Fortnightly  
reports to Health  
Committee

**Imperfect condition of the Sewers.**—I am compelled to return yet again to this unsavoury question, because I feel assured that to the condition of the sewerage in certain parts of the borough, is due much of the excessive mortality and of the chronic depression of health which is known to persist in these areas. Since the presentation of my last report, the borough has enjoyed the advantage of a visit and an independent inspection as regards amongst other things its drainage system, at the hands of Dr. Page, H.M. Inspector under the Local Government Board. The Inspector's report, copy of which will be found in the appendix, emphasises the necessity of attending to the condition of the sewers, and recommends that the subject should be at once referred to the Borough Engineer for special and detailed report: upon (i) the state of the sewers and the structural works necessary for their amendment, and (ii) the adoption of permanent arrangements for the regular and systematic flushing of the system. On receipt of this recommendation, the Health Committee at once instructed the Borough Engineer to prepare a report in accordance with the wishes of the inspector, and through the intervention of the chairman of the Pendleton Highways Committee, the Health Committee have been favoured with a similar report on the sewerage of the Pendleton District of the borough. Copies of the Borough Engineer's Reports will be found in appendix No. III to this report, and I would respectfully direct attention to the details which they contain as to the condition of the sewers, which seems to be fully sufficient to account for the low degree of vitality enjoyed by the inhabitants in certain of the older portions of the borough. I sincerely trust that before another year has passed I shall be able to report at any rate the commencement of effective steps for the improvement of our sanitary condition in this most important particular.

Report of H.M.  
Inspector under  
Local Govern-  
ment Board, as  
to condition of  
the sewers

Report of the  
Borough Engi-  
neer on the  
sewerage of the  
borough

**Condition of the homes of the people.**—In my successive annual reports of recent years, I have made a point of drawing the attention of the Committee to the unsatisfactory condition of the dwellings in which our poorer people live, as being an important factor in the high death-rate which year after year clings to certain "unwholesome areas" in the borough. In my report for the year 1884, I submitted a sketch map of the borough, in which these unwholesome areas were depicted, the population and boundaries of each area having been ascertained at the census of 1881. I do not

Unwholesome  
dwellings: their  
relation to mor-  
tality

## SESSION IV.

Unhealthy dwellings: their relation to mortality

think that the members of the Health Committee can have fully realized the pitiable condition in which the denizens of these wretched areas exist. The greed of successive generations of property jobbers has succeeded in heaping together on an acre of ground, the largest possible number of tenements, without regard either to the health of the occupants, or to the requirements of common decency. The living rooms, often opening into narrow courts, are dark and gloomy in the extreme, and the stagnant air they contain is horribly polluted, not only with the products of human respiration, but with the foetid emanations from the filth-sodden earth,\* and from the too contiguous cesspool. A great portion of the time of the Sanitary Inspectors is occupied in apparently fruitless endeavours to mitigate the evils resulting from this pitiable condition of things. The inhabitants are urged to practice such habits of cleanliness as are practicable in these surroundings, and to live as much as possible in the open air. The property owners are compelled to keep the houses as far as possible in repair, and the scavengers certainly do their best to remove filth accumulations from amidst the dwellings of the people. But, with all our care, the result is not encouraging; and I am convinced that no lasting improvement can be hoped for in such neighbourhoods as those to which I now refer, until some general scheme of demolition is put into operation. Meanwhile the death-roll marks with unerring precision the havoc which such faulty surroundings wreak upon the denizens of these localities: not only is the general death-rate more than double of what it ought to be, but the mortality from those diseases which are known to indicate unhealthy surroundings, is enormously in excess of the average. Thus we find that there are areas in the borough, containing in the aggregate, a population of more than 30,000, where the death-rate from lung diseases and from consumption is in each case three times as great, whilst that from diarrhoea is more than seven times as great as that which obtains in the healthier portions of the borough. Fever also is fatal to three times as many victims in these unfavoured abodes; and infectious diseases generally are four times as deadly there as in the less crowded districts of our town.† I revert yet again to the subject in the present report, in the hope that the Committee may see fit during the present year, to initiate a system of house to house visitation of the older property in the borough, taking a single enumeration area at a time, and dealing with it according to its needs.

Statistics showing excessive mortality in unhealthy areas

River Irwell: its present deplorable condition

**Offensive condition of the river Irwell.**—If the condition of this foul stream has not improved within the last few years, I am bound in justice to the Committee to whom is entrusted the conservancy of the Irwell, to say that this is in no sense attributable to apathy, either on their part, or on that of their respected chairman.

\* The earth underneath and around the houses in certain of these older districts is contaminated by soakage from midden cesspools, and broken or leaky drains.

† See table on page 23, taken from 1884 report.

As these sheets are passing through the press, I have before me the last of a series of essays, which Mr. Alderman Walmsley, Chairman of the River Irwell Conservancy Committee, has contributed to the public press, with a view of drawing attention to the actual position of Salford in respect of the river pollution question. In these essays, nine in number, Alderman Walmsley gives a vast amount of information, which I think will be both instructive and novel to most of the inhabitants of the borough; and which will at any rate prepare the public (both within the borough and outside it) for the spirited action which the Conservancy Committee will probably take under his direction, for the abatement of a nuisance which has long been a public scandal in Salford.

## SECTION IV.

River Irwell:  
probable action  
of R. I. Conser-  
vancy Commit-  
tee

**The Tip Nuisance.**—From a sanitary point of view, the question of refuse disposal becomes more and more serious as our great manufacturing communities increase in size. Hitherto, it has been the practice in Salford to dispose of a portion of the midden contents to farmers in the neighbouring rural districts; but, until recently, the contents of dust barrels and similar household rubbish, together with the street sweepings and other refuse of small manurial value, have for the most part been used for the formation of building sites in certain eligible parts of the borough. As the utilization of street sweepings and house refuse for this purpose is universally condemned by sanitarians, I have long endeavoured to prevail upon the several district scavenging committees to deal with the material by cremation, and so convert a possible source of danger into a harmless and useful product for the manufacture of mortar. In my last report, I was able to announce the erection of a refuse destructor by the Committee in charge of the Salford township, and now I have the pleasure of congratulating the inhabitants of Broughton on the decision of the Committee of that district to deal in a similar way with the unsaleable refuse, for the disposal of which they are responsible. When this system of refuse cremation has been extended throughout the entire borough, and thus the tip system has been entirely discontinued, a very constant source of anxiety will have been removed from the mind of the Medical Officer of Health.

Deposit of mid-  
den refuse on  
waste lands for  
building sites

New refuse des-  
tructor for the  
Broughton dis-  
trict

**Nuisance Inspection and Abatement.**—The staff engaged in the sanitary inspection of the borough, and in the abatement of nuisances, consists of a chief inspector and four district officers, together with an inspector who divides his time equally between the supervision of the smoke nuisance and the prevention of food adulteration. The table on page 80 shows that during the year under notice, more than thirty thousand inspections have been made by the half dozen inspectors engaged in this office. I think it right to say that every one of these inspections has been made the subject of separate entry in a diary which the inspectors submit to me every morning, receiving my instructions in writing

Staff engaged in  
the systematic  
inspection of  
nuisances, and  
their abatement

**SECTION IV.** as to how the reported nuisances are to be dealt with. In this way an enormous number (more than ten thousand) of nuisances injurious to health have been removed from amidst the homes of the people during 1886. The work is done systematically and unostentatiously, and as far as possible without recourse to legal proceedings; our object being to cultivate a feeling of confidence amongst the people toward the sanitary inspectors, so that the latter may be regarded as the sanitary advisers of the public, rather than as mere emissaries of the Corporation, anxious to obtain the conviction of offenders against sanitary law.

**Meat inspection** **Supervision of the Meat Supply.**—Inspector Fordham, M.R.C.V.S., of this department, has exercised his accustomed supervision of the cattle brought to the several railway stations in the borough, *en route* for the various markets in this part of Lancashire. The table on page 72 shows that a large quantity (over 17 tons) of meat and other articles intended for human food, has been confiscated during the year by the Meat Inspector. It must not be understood, however, that the whole of this meat, &c. has been seized under the Act of Parliament; on the contrary, a very large proportion of the carcasses condemned by order of the magistrates during the year, were those of animals which had been smothered in transit, and voluntarily given up to the inspector as unfit for food. The amount of meat and other unwholesome commodities dealt with during 1886, was much larger than either in 1884 or in 1885.

*V.—An account of the supervision exercised by the Medical Officer of Health or on his advice, for sanitary purposes, over houses and places which the Sanitary Authority has power to regulate, with the nature and result of proceedings required, and of action taken with respect to them, during the year.*

**SECTION V.** **Supervision of Common Lodging-houses.**—At the end of 1886 there were forty common lodging-houses\* on the Salford register, as compared with thirty-five in 1885. During the past year the inspectors have paid seven hundred and four visits at night to the lodging houses of the borough, which have generally

**Registration of common lodging houses**

\* Common lodging-houses on register, end of 1886:—

District.	No. of houses.	No. of rooms.	Persons accommodated.
Regent Road.....	18	54	278
Greengate .....	18	91	547
Pendleton .....	4	12	45
Broughton .....	0	0	0
<b>Borough .....</b>	<b>40</b>	<b>157</b>	<b>870</b>

been found to be clean and well conducted. Forty-eight cautions for minor offences have been given, but in no case has it been found necessary to take legal proceedings against common lodging-house keepers for serious breaches of the regulations. Five cases of infectious disease occurred during the year in three of these houses, namely, three of scarlet fever and two of typhoid. The scarlatina infection was contracted at school, and the two patients suffering from typhoid fever were tramps who, on arrival in the borough, were probably incubating the disease. All the cases were promptly removed to hospital, and the houses and bedding were disinfected. In none of these instances did the disease spread beyond the persons primarily attacked. The weekly average number of persons who have availed themselves of accommodation in Salford common lodging-houses during the year has been 210 male and 34 female regular lodgers, and 1,024 male and 212 female casual lodgers. The distribution of the common lodging-houses in the borough is shown in the foot-note.\* All the houses have been regularly cleansed and limewashed according to regulations, and in thirty cases new bedsteads, with beds and mattresses, have been provided in lieu of old and worn out ones.

## SECTION V.

Common lodging houses

Infectious diseases in these houses

**Houses Sub-let in Lodgings.**—Our experience during the year under notice fully confirms the opinion which I have advanced in previous reports as to the manifold dangers arising from the sub-letting of houses as lodgings, in default of that effectual supervision which registration under the Common Lodging-house Act ensures. At the close of 1885 there were 421 sub-let houses on the register. During the year under present notice 12 persons have discontinued the letting of lodgings, and the names of 52 persons have been placed on the register. The register of sub-let houses therefore now contains 461 entries,† or 40 more than the number on the list at the end of 1885. In consequence of the vigilance of the inspectors in their search for infectious disease, not less than 65 persons were brought to book in the course of last year for letting lodgings of this class without registration. Of these, 46 have since discontinued the letting of lodgings, and the remaining 19 have complied with the bye-laws of the Corporation, and their names have been placed on the register. Four persons have been successfully prosecuted during the year for offences against the bye-laws relating to houses sub-let in lodgings. The following table shows the number of infected sub-let lodging-houses, together with the number of cases of infectious disease reported to have occurred in such houses during the year 1886.

Registration of sub-let houses, under Sanitary Act of 1866

Infectious sickness in sub-let lodging-houses

\* See foot-note to page 68.

† The number of registered sub-let lodging houses in each district, is given in the table, page 80.

## SECTION V.

Sub-let lodging-houses under Sanitary Act, 1866

	Number of Infected Houses.	Number of Cases of Sickness.					
		Total in Houses.		Scarlet Fever.	Enteric Fever.	Diphtheria.	Puerperal Fever.
		Registered.	Unregistered.				
Regent Road .....	45	7	52	49	8	1	1
Greengate .....	18	13	16	24	5	0	0
Pendleton .....	7	0	11	8	1	2	0
Broughton .....	11	0	20	17	3	0	0
Total .....	81	20	99	98	17	3	1

Removal of infectious cases from sub-let lodging-houses

It thus appears that of the houses known to have been sub-let in lodgings last year, 18 per cent. were invaded by infectious disease, whereas the proportion was less than five per cent. in the remaining houses of Salford which were not known to have been occupied as lodgings. Of the 119 cases detected in lodging-houses last year 89 were removed to the Wilton Hospital, and in all cases the houses and bedding were properly disinfected by the staff of the Health Department.

Experience of section 90 of the Salford Improvement Act

**Registration of Lodging-houses under Section 90 of the Salford Improvement Act.**—As in the two previous years, so in the year under notice, the beneficial influence has been manifest which the above-mentioned section enables us to exert on a peculiarly unmanageable class of tenants. Inspector Wilkinson reports that the 73 houses already registered under this section have throughout the year continued to be fairly well conducted. With trifling exceptions the provisions of the section have been generally complied with. It appears to me that it will eventually be found expedient to considerably extend the application of section 90 of the Salford Improvement Act.

Registration of vans, tents, &c., used for human habitation

**Caravans, Tents, &c., used as Dwellings.**—In the year 1885 the "Housing of the Working Classes Act" was passed. Under this Act, all inhabited vans, tents, sheds, etc., used for human habitation, which are found to be in such a state as to be a nuisance, or injurious, or so overcrowded as to be injurious to the health of the inmates, are to be deemed a nuisance under the "Public Health Act, 1875." The Town Clerk of Salford has issued notices setting forth the provisions of the Act, and inspections have been made by the sanitary inspectors during the year 1886 of such vans and tents as

have appeared in the borough. In the course of the year 48 vans have been visited, the occupants of which were occupied in some regular trade, and five vans whose inmates came more fitly under the designation of gypsies, inasmuch as they followed no particular calling. Six notices were served under the Act, requiring the cleansing of vans, or the abatement of overcrowding. No cases of infectious disease\* have been discovered amongst the inmates of vans during the year.

## SECTION V.

Vans, tents, &c.,  
used for human  
habitation

**Dairies, Cowsheds, and Milkshops.**—At the end of the year 1885 there were on the register 528 dairies and milkshops. Since the commencement of the year under present notice, 55 fresh entries have been made in the register, and 35 persons previously registered have discontinued the sale of milk. The following is a summary of the dairies and milkshops on the register at the end of 1886.

Supervision of  
milk supply

	Borough.	Regent Road.	Green- gate.	Pendle- ton.	Brough- ton.
Number on Register, } end of 1885 .....	528	235	83	95	115
Registered in 1886 .....	55	33	0	9	13
Discontinued during } the year... ..	35	2	12	7	14
Remaining on Register...	548	266	71	97	114

The dairies and milkshops have been regularly visited throughout the year, and 24 notices have been issued to remove paper from the milkshop walls, and otherwise to comply with the regulations; and also 94 notices, requiring the limewashing and cleansing of the places in which milk is stored.

In four instances infectious disease was discovered in houses connected with registered milkshops; in consequence of which we have been obliged to insist either on the removal of the infectious persons to hospital, or on the closure of the milkshops. There remains no doubt that in numerous instances the intervention of the sanitary inspectors has tended to secure greater cleanliness in the storage and sale of milk; and on the other hand I am glad to be able to report that in no case has any real hardship accrued to

Infectious disea-  
ses occurring in  
houses connect-  
ed with milk  
shops

\* The typhus cases referred to on page 43, occurred in vans encamped outside the borough.

**SECTION V.** the milk sellers in consequence of the action of the Health Department under the "Dairies and Cowsheds Act."

Supervision of milk supply

At the end of 1886 there were 33 cowsheds and shippens on the register, as compared with 30 in the previous year. These establishments have been regularly visited during the year, and have been found satisfactory.

The slaughter-house nuisance

**Private Slaughter-houses.**—There were 53 private slaughter-houses in the borough at the end of 1886, or four more than the number on the register at the close of the previous year. These have been kept under frequent inspection by Mr. Fordham throughout the year, and as far as practicable the provisions of our local Act with respect to them have been enforced. In the year 1878 I presented to the Committee a report on the subject of "Private Slaughter-houses," giving particulars of the cubic capacity of the various establishments, and of the weekly number of cattle slaughtered therein. A supplementary report is now in course of preparation wherein, by the help of the excellent new map which the Borough Engineer has recently completed, the exact locality of the districts is set forth, in which the several slaughter-houses are situated. In this report something like a classification will be attempted of the slaughter-houses at present existing in the borough, as regards the sanitary condition of the houses themselves, and of their surroundings. On receipt of this document, which I hope shortly to present, the Committee will be in a position to judge as to whether or not they are justified in submitting to the continuance of a nuisance which has been persistently condemned in my successive Annual Reports.

Further report on the slaughter-houses of the borough

Supervision of the meat supply

**Seizure of Unwholesome Meat.**—The following seizures of bad meat, and other unwholesome commodities have been made by the Meat Inspector during 1886. In all cases the meat has been dealt with by a magistrate, according to the provisions of the Public Health Act.

#### UNWHOLESOME MEAT SEIZED AND DESTROYED IN 1886.

	No. of Seizures.	Tons.	Weight.		
			Cwts.	Qrs.	Lbs.
Beef.....	26 .....	6	19	3	3
Mutton .....	141 .....	3	15	3	13
Veal .....	42 .....	1	5	3	2
Pork and Bacon.....	16 .....	3	13	1	26
Goat .....	3 .....	0	1	0	9
Fish .....	3 .....	1	3	3	15
Eggs .....	2 .....	0	4	1	4
	233	17	4	0	16

Analysis of food and drugs

**Proceedings under the Adulteration Act.**—During the year 1886 Mr. Joseph Carter Bell, F.I.C., the Public Analyst for Salford, has examined 483 samples of food and drugs submitted

to him by Inspector Thompstone. The figures given below show the number of samples of the various commodities examined, and the proportion of adulteration detected, in the year just closed, and also in recent previous years. As in previous reports a table is likewise given, on page 74, showing the number of milk samples taken by the inspector from farmers' cans, at the railway stations, before delivery to the various retailers of milk in Salford. Particulars of the analysis of these samples are likewise given in the table, with the view of showing the condition, as regards purity, of the milk on delivery at the railway stations.

SECTION V.

Analysis of food  
and drugs

SAMPLES COLLECTED BY THE INSPECTOR UNDER THE "SALE OF FOOD  
AND DRUGS ACT," FROM 1875 TO 1886.

	Total.	Milk.	Butter.	Bread and Flour.	Drugs.	Gro- ceries.	Beer and Porter.	Wines and Spirits.	S'ndries
1875...	60	37	1	1	1	...	7	4	9
1876...	119	43	2	18	34	17	...	...	5
1877...	390	114	7	159	22	30	18	37	3
1878...	418	197	10	35	31	25	24	70	26
1879...	518	306	16	130	15	28	10	13	...
1880...	506	269	12	48	5	52	71	18	31
1881...	478	376	11	1	...	61	...	8	21
1882...	465	300	7	47	13	3	58	20	17
1883...	497	436	1	29	1	12	...	2	16
1884...	507	359	10	35	7	...	64	11	21
1885...	478	399	21	14	4	13	21	...	6
1886...	483	361	6	21	0	36	1	22	36

PERCENTAGE OF ARTICLES RETURNED AS ADULTERATED.

	Total.	Milk.	Butter.	Bread and Flour.	Drugs.	Gro- ceries.	Beer and Porter.	Wines and Spirits.	S'ndries
1875...	66.6	62.1	100.0	...	...	...	100.0	75.0	66.6
1876...	40.3	55.8	50.0	27.8	35.3	17.6	...	...	60.0
1877...	27.4	40.3	28.6	11.3	13.6	6.7	...	97.3	...
1878...	29.9	29.4	10.0	2.9	51.6	4.0	4.2	67.1	...
1879...	12.0	13.1	25.0	5.4	26.6	10.7	10.0	2.3	...
1880...	20.2	25.2	75.0	6.3	...	17.3	11.3	11.1	9.7
1881...	16.3	18.1	9.1	...	...	1.6	...	37.5	23.8
1882...	15.5	19.0	14.3	2.1	53.8	...	1.7	10.0	17.6
1883...	6.6	6.7	...	3.4	...	8.3	...	50.0	6.3
1884...	7.1	2.8	40.0	5.7	57.1	...	...	27.3	61.9
1885...	5.2	4.8	4.8	7.1	...	15.4	...	...	33.2
Average,									
1876-85	18.1	21.5	25.7	7.2	26.4	8.9	3.9	37.8	23.6
1886...	3.9	1.1	50.0	...	...	25.0	...	...	8.3

*Particulars of Milk consigned to Salford Dealers by Farmers living outside the Borough, showing the number of samples taken at the Railway Stations before delivery, by the Salford Inspector, and the Analyst's Report on the quality of the Milk.*

No.	Name and Address.	Result of Analysis.	Place of Delivery.
1	O. J., Clitheroe, Lancashire .....	Pure .....	Pendleton Raily. Station.
2	H. W., Langho, " .....	Do. ....	" " "
3	W. J., Chatburn, " .....	Do. ....	" " "
4	W. J., Chatburn, " .....	Do. ....	" " "
5	K. D., Newsholme, " .....	Do. ....	" " "
6	K. D., Newsholme, " .....	Do. ....	" " "
7	H. J., Langho, " .....	Do. ....	" " "
8	H. J., Langho, " .....	Do. ....	" " "
9	W. P., Kenyon, " .....	Do. ....	Ordsall Lane Ry. Station
10	L. W., Chapel-en-le-Frith, Derbyshire..	Do. ....	" " "
11	B. C., Broxton, Cheshire .....	Do. ....	Old Trafford Ry. Station
12	B. C., " " .....	Do. ....	" " "
13	W. R., Dunham-o'th'-Hill, Cheshire ..	Do. ....	" " "
14	G. W., Ince, near Warrington .....	Do. ....	Ordsall Lane Ry. Station
15	D. & C. J., Gisburn, Lancashire .....	Do. ....	Pendleton Raily. Station
16	B. J., Newsholme, " .....	Do. ....	" " "
17	O. H., Chatburn, " .....	Do. ....	" " "
18	H. H. J., " " .....	Do. ....	" " "
19	P. J., " " .....	Do. ....	" " "
20	P. J., " " .....	Do. ....	" " "
21	H. A., Hope Hospital, Pendleton .....	Do. ....	" " "
22	H. A., " " .....	Do. ....	Hope Hospital, nr. Eccles
23	H. A., " " .....	Do. ....	" " "
24	H. A., " " .....	Do. ....	" " "
25	M. J., Thelwall, near Warrington .....	Do. ....	" " "
26	H. J., Chatburn, Lancashire .....	Do. ....	Ordsall Lane Ry. Station
27	D. C. J., Gisburn, " .....	Do. ....	" " "
28	T. A., " " .....	Do. ....	" " "
29	H. H. J., Chatburn, " .....	Do. ....	" " "
30	O. J., " " .....	Do. ....	" " "
31	C. S. J., " " .....	Do. ....	" " "
32	H. J., Newsholme, " .....	Do. ....	" " "
33	M. J., Thelwall, near Warrington .....	Do. ....	" " "
34	R. T., Swineyard, near Knutsford .....	Do. ....	" " "
35	B. J., Plumbley, Cheshire .....	Do. ....	Old Trafford Ry. Station
36	W. J., Heatley and Warburton .....	Do. ....	" " "
37	S. R. H., Lower Broughton .....	Do. ....	Lower Broughton.
38	B. E., Weaste .....	Do. ....	Weaste, near Eccles.
39	T. J., Gisburn .....	Do. ....	Pendleton Raily. Station
40	H. J., Newsholme .....	Do. ....	" " "
41	O. J., Chatburn .....	Do. ....	" " "
42	O. H., " .....	Do. ....	" " "
43	R. B., " .....	Do. ....	" " "
44	B. H., " .....	Do. ....	" " "
45	H. G., " .....	Do. ....	" " "
46	D. J., Gisburn .....	Do. ....	" " "
47	G. T., Wrenbury .....	Do. ....	Ordsall Lane Ry. Station
48	G. T., " .....	Do. ....	" " "
49	B. J., Caerqurle, by Hope, near Chester	Do. ....	" " "
50	B. J., " " " .....	Do. ....	" " "

*Particulars of Milk consigned to Salford Dealers by Farmers living outside the Borough, showing the number of samples taken at the Railway Stations before delivery, by the Salford Inspector, and the Analyst's Report on the quality of the Milk.—Continued.*

No.	Name and Address.	Result of Analysis.	Place of Delivery.
51	H. L., Marston, near Knutsford .....	Pure .....	Old Trafford Ry. Station
52	J. P., Plumbley, Cheshire .....	Do. ....	" "
53	H. W., " " .....	Do. ....	" "
54	H. W., Tabley, " .....	Do. ....	" "
55	J. P., Plumbley, " .....	Do. ....	" "
56	W. J., Knutsford, " .....	Do. ....	" "
57	B. W. J., Antrolus, near Arley, Cheshire .....	Do. ....	" "
58	G. T., Wrenbury, near Crewe .....	Do. ....	Ordsall Lane Ry. Station
59	G. T., " " .....	Do. ....	" "
60	H. J., Baschurch, Salop .....	Do. ....	" "
61	B. W. J., Hope Junction, near Chester .....	Do. ....	" "
62	W. J., Clitheroe .....	Do. ....	Pendleton Raily. Station
63	A. T., Chatburn .....	Do. ....	" " "
64	B. J., Newsholme .....	Do. ....	" " "
65	O. H., Chatburn .....	Do. ....	" " "
66	S. J., Whalley, near Clitheroe .....	Do. ....	" " "
67	S. J., Clitheroe .....	Do. ....	" " "
68	B. C., Broxton, Cheshire .....	Do. ....	Old Trafford Ry. Station
69	B. C., " " .....	Do. ....	" "
70	W. R., Dunham-o'th'-Hill .....	Do. ....	Ordsall Lane Ry. Station
71	W. R., " " .....	Do. ....	" "
72	L. A., Norton, near Warrington .....	Do. ....	" "
73	L. A., " " .....	Do. ....	" "
74	M. J., Thelwall, near Warrington .....	Do. ....	" "
75	L. M., North Rode, Staffordshire .....	Do. ....	" "
76	W. W., Prestbury, " .....	Do. ....	" "
77	J. P., Mobberley .....	Do. ....	Old Trafford Ry. Station
78	J. P., " .....	Do. ....	" "
79	M. J., Ince, near Chester .....	Do. ....	Ordsall Lane Ry. Station
80	M. J., " " .....	Do. ....	" "
81	H. H., Chatburn .....	Do. ....	Pendleton Raily. Station
82	W. W., " " .....	Do. ....	" " "
83	H. T., Newsholme .....	Do. ....	" " "
84	H. T., " " .....	Do. ....	" " "
85	P. T., Chatburn .....	Do. ....	" " "
86	P. T., " " .....	Do. ....	" " "
87	B. M., " " .....	Do. ....	" " "
88	T. J., " " .....	Do. ....	" " "
89	L. W., Chapel-en-le-Frith, Derbyshire .....	Do. ....	Ordsall Lane Ry. Station
90	G. W., Ince, near Warrington .....	Do. ....	" "
91	M. J., Thelwall, near Warrington .....	Do. ....	Old Trafford Ry. Station
92	M. J., " " .....	Do. ....	" "
92	R. J., Grapnall, Cheshire .....	Do. ....	" "
92	W. W., Lostock Gralam, Cheshire .....	Do. ....	" "
93	L. S., Toft, near Knutsford, Cheshire .....	Do. ....	" "
94	L. T., Tabley, " " .....	Do. ....	" "
95	H. J., Baschurch, Salop .....	Do. ....	Ordsall Lane Ry. Station
96	J. T., Chatburn .....	Do. ....	Pendleton Raily. Station

SECTION V.  
Supervision of  
the bread supply

**Supervision of Bakehouses.**—There are 91 bakehouses in the borough, being an increase of one since the year 1885. Ten bakehouses have been registered during the year under notice, namely, four new ones, and six old ones which have been repaired and brought into compliance with our requirements. On the other hand nine bakehouses previously on the register have been discontinued during 1886. One of the objectionable bakehouses in the Greengate district, to which reference was made in my last report, has been pulled down, but the amendment of the other, which is in Regent Road district, is still in abeyance. Twelve notices have been served and, with one exception, complied with, requiring the better ventilation, limewashing, etc., of bakehouses.

PARTICULARS AS TO BAKEHOUSES IN SALFORD AT THE END OF 1886.

Districts.	No. of Bake- houses.	Ovens.			Number of Persons employed.		
		No.	Description.		Men.	Women.	Boys.
			Flue.	Waggon			
Regent Road.	47	60	14	46	105	14	17
Greengate ...	13	19	4	15	25	1	13
Pendleton ...	18	27	7	20	33	6	9
Broughton ...	13	16	4	12	26	5	3
Borough .....	91	122	29	93	189	26	42

VI.—*An account of the action taken by the Medical Officer of Health, or on his advice, during the year, in regard to Offensive Trades, and to Factories and Workshops.*

SECTION VI.

Regulation of  
the smoke nui-  
sance in Salford

**Smoke Nuisance.**—During the year 1886 Inspector Thompson has taken 524 observations of the smoke emitted from chimneys connected with the various manufactories in the borough, as compared with 540 observations during the preceding year. As a result of the supervision which the inspector has been able to exercise, three persons have been summoned before the magistrates for negligently using furnaces properly constructed; and in addition to this, 24 firms and 29 stokers have been

seriously cautioned by the Smoke Inspector to use more diligence in the prevention of smoke nuisance. The following table gives the number of boilers and furnaces in use within the four districts of the Salford Borough at the end of 1886, together with particulars as to notices served under the Smoke Prevention Bye-laws.

SECTION VI.  
Smoke nuisance  
—action of In-  
spector

Registration Sub-Districts.	Boilers and Furnaces in use.		Notices to Properly Construct Furnaces.	
	Properly Constructed.	Improperly Constructed.	Number Served.	Number complied with.
Regent Road ...	125	80	12	2
Greengate.....	138	68	6	4
Pendleton.....	196	54	13	4
Broughton .....	16	19	2	1
Borough total ...	475	221	33	11

The nominal horse power of the steam boilers now operating in Salford amounts to about 23,268: this power is exerted by 696 boilers of various forms.

Boiler power

#### NUMBER OF BLACKSMITHS' FORGES AND BAKERIES IN SALFORD AT THE END OF 1886.

	Borough Total.	Regent Road.	Greengate.	Pendleton.	Broughton
Blacksmiths' Forges	53	21	16	11	5
Bakeries .....	91	47	13	18	13

Although there has been no material increase, as compared with last year, in the boiler power now operating within the borough, nevertheless it deserves notice that a number of firms have, during the past year, replaced the old and defective boilers attached to their works by new boilers of superior construction, which afford greater facilities for smoke consumption. Inspector

Substitution of  
new and improv-  
ed boilers, for old  
and defective  
ones

**SECTION VI.** Thompson assures me that there exists amongst the large manufacturers of Salford a growing desire to conform to the requirements of the law with regard to smoke prevention ; on the other hand, he reports that although many manufacturers are in the habit of offering pecuniary rewards to their stokers for the efficient "firing" of their boilers, nevertheless it is to the carelessness of workmen, rather than to the apathy of their masters, that the pitiable condition of the Salford atmosphere is still to be attributed. In this opinion I fully concur ; and I would therefore respectfully reiterate the advice which for some years past I have tendered to the Committee, namely, that they should relieve Mr. Thompson of his duties under the Adulteration Act, and apportion to him the supervision of the smoke nuisance as his sole charge. The Borough of Salford extends over an area of eight square miles, and as it contains between seven and eight hundred factory chimneys of one or another sort, it is not unreasonable to ask that at least the entire time of one inspector should be devoted to their supervision, in the interests of the public health.

Suggestions for increased supervision by smoke inspector

**Brick-burning Nuisance.**—No serious complaints have reached us during the past year as to nuisance from the burning of bricks in close proximity to dwellings ; but in the near future it is much to be feared that the inhabitants of at least one district of the borough will have reason to complain on this score, and past experience shows that brickmakers are little deterred from the commission of this nuisance by the prohibitory clauses of our Local Act.

Supervision of miscellaneous offensive trades

**General Supervision of Offensive Trades.**—During the year under notice 62 establishments answering to the designation of offensive trades came under the supervision of the Health Department, as compared with 50 in the year 1885. The following table shows the distribution of the several industries in this category during the year 1886 :—

	Regent Road.	Green-gate.	Pendle-ton.	Brough-ton.
Rubber Works .....	1	2	2	1
Tanneries .....	1	1	1	0
Oil and Tallow Works .....	2	5	1	0
Floor Cloth Works.....	1	2	0	0
Varnish or Tar Distilleries.....	1	3	1	0
Rop Cleaning Establishments .	4	0	1	1
Telegraph Cable Works....	0	2	0	0
Tripe Dressing Establishments.	8	6	3	0
Soap Works .....	1	0	1	0
Paper Works .....	1	0	1	1
Albumen Works.....	0	0	0	1
Chemical Works .....	3	2	1	0

During the year one chemical works, three rop cleaning establishments, and one albumen manufactory, have been placed on the register. One leather dresser, one tripe dresser, and one oil-cloth maker have discontinued business.

*Record of Cases taken before the Magistrates during 1886, with the result of Proceedings.*

Particulars of Complaint.	No. of Cases.	How Disposed of.	Amount of Fines.
			£ s. d.
Adulteration of Food.....	6	Six fined in all £38 os. od. ....	38 0 0
Refusing to sell articles of } Food to the Inspector ..... }	1	Withdrawn .....	.....
Exposing diseased meat for sale.	10	{ Seven fined in all £36 os. od., } two withdrawn, and one } dismissed .....	36 0 0
Slaughtering sheep in un- } licensed premises .....	3	Three fined in all £2 2s. od.....	2 2 0
Negligently using furnaces } constructed to consume their } own Smoke .....	3	One fined £1, two dismissed ...	1 0 0
Letting houses in lodgings } without being registered ... }	4	{ One fined 2s. 6d., three with- } drawn .....	0 2 6
Burning bricks nearer than } 60 yards to dwelling houses. }	1	Fined £1 .....	1 0 0
Premises in such a state as to } be a nuisance .....	9	{ Five withdrawn and four } "Orders to abate" made ... }	.....
	37		78 4 6

PARTICULARS OF WORK DONE BY THE HEALTH DEPARTMENT  
DURING THE YEAR 1886.

	Borough.	Regent Road.	Greengate.	Pendleton.	Broughton	
No. of Complaints lodged at Health Office	2010	707	334	124	845	
Inspections made.	Of Dwelling-houses .....	11509	3792	2776	3274	1667
	„ Lodging-houses .....	2474	1043	1119	312	...
	„ Slaughter-houses .....	2600	1144	312	832	312
	„ Shippens .....	858	130	...	286	442
	„ Dairies and Milkshops .....	747	220	153	177	197
	„ Bakehouses .....	210	173	7	2	28
	By Smoke Inspector—Observations taken .....	524	125	147	212	40
	Under Adulteration Act—Samples collected for Analysis .....	486	180	90	130	86
	By Meat Inspector—Seizures made .....	233	222	2	8	1
	Miscellaneous Sanitary Inspections .....	1457	279	315	421	442
Re-Inspections after Notice .....	9251	3833	1916	1744	1758	
Total Inspections made by Staff ...	30349	11141	6837	7398	4973	
Orders issued for Abatement of Nuisances	3422	1222	835	761	604	
Letters written for ditto .....	2582	867	655	512	548	
Nuisances abated pursuant to order.	Houses and Premises, cleansed repaired or Limewashed .....	1601	410	429	521	241
	Houses disinfected after infectious disease .....	1170	516	277	128	249
	House Drains repaired, trapped, or disconnected .....	1668	800	343	436	89
	Ashpits and Privies repaired or reconstructed .....	1008	286	212	427	83
	Accumulations of Manure removed. ....	122	56	23	21	22
	Ashpits attended to after complaint .....	2984	732	502	483	1267
	Improperly kept Animals removed .....	50	17	8	20	5
	Overcrowding of Dwellings abated .....	90	12	25	53	...
	Passages and Yards repaired, drained or flagged .....	900	289	115	340	156
	Total number of Nuisances abated	10520	3323	2212	2611	2374
* Regularly Inspected.	Lodging-houses { Common .....	40	18	18	4	...
	„ { Sublet in Ap'ts .....	461	246	166	49	...
	Slaughter-houses .....	50	22	6	16	6
	Dairies and Milkshops .....	548	266	71	97	114
	Shippens .....	33	5	...	11	17
	Bakehouses .....	91	47	13	18	13
	Marine and Second-hand Stores .....	195	78	54	48	15
Patients removed to Fever Hospitals ...	954	470	243	102	139	
Infected bedding and clothing disinfected	1132	435	299	154	244	
Infected bedding destroyed .....	159	57	78	2	22	
Legal proceedings taken (see page 76)	...	...	...	...	...	

\* The figures in this section represent the number on the registers at the end of the year 1886.

## APPENDIX.



## APPENDIX.

---

### CONTENTS.

- I. Provisional Report of the Medical Officer of Health on future  
Fever Hospital accommodation..... i
- II. Copy of Memorandum by Dr. Page, H.M. Inspector under the  
Local Government Board, as to the sanitary condition of  
Salford ..... xxvii
- III. Copies of Reports by the Borough Engineer, as to the condition  
of the sewers of the Borough, made in compliance with  
the request of H.M. Inspector contained in the above  
Memorandum ..... xxxi



APPENDIX I.

---

PROVISIONAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

AS TO

FUTURE HOSPITAL ACCOMMODATION

FOR

INFECTIOUS DISEASE.

---

1887.

afforded by their position, and forthwith established permanent hospital accommodation for the future protection of the Borough. The Hospital in Cross Lane has been improved and enlarged in various ways from time to time, until the middle of 1886, when the circumstance transpired which gave occasion for the present report.

*I.—Circumstances necessitating the establishment of a New Hospital  
in Salford for the isolation of infectious disease.*

In the course of certain excavations for the development of their cattle truck system, the London and North Western Railway Company have within the last twelve months gradually encroached nearer and nearer upon the Wilton Hospital in Cross Lane, until at the present time the navvies are working within a few feet of its boundary walls. The comfort and the well-being of the patients in the fever wards have therefore come to be seriously interfered with: for the nuisances inseparable from the conduct of a vast cattle siding—the shrieking of engines, the shunting of trucks, the shouting of drovers, &c.—which persist throughout the night as well as the day, have latterly increased to such an extent as to deprive the patients of that rest which, in so many cases, is an essential condition of recovery. In fact, the circumstances under which the Wilton Hospital is administered have recently assumed a critical aspect, which has caused much anxiety to the medical staff. Under these circumstances the Salford Health Committee, realizing the serious responsibility which devolved upon them, as the guardians of the patients resident in hospital, and apprehensive of a still further extension of cattle sidings in dangerous proximity to the wards, at once opened communication with the Railway Company in the hope of obtaining redress. On the 23rd of June last, a deputation from the Health Committee attended a meeting of the Directors at their offices in Euston Station, and were there courteously received; and as the result of that Meeting and of many subsequent conferences between the Company's advisers and the Town Clerk of Salford, the London and North Western Railway Company have finally agreed to purchase from the Corporation the Hospital and the adjacent property belonging to them in Cross Lane. The Health Committee therefore as the Local Sanitary Authority have now to grapple with the question of future hospital provision for this large and fast increasing

Borough. The Committee therefore, as a preliminary measure, have requested the Medical Officer of Health to carefully consider the question of hospital accommodation for infectious diseases in Salford, with a view of affording the Committee such information as is at present available for their guidance in this direction.

In thus promptly deciding to replace by a new hospital, constructed on the best modern principles, the old pile of buildings in Cross Lane now serving for the isolation of fever patients, the Health Committee have taken a course which will once more place Salford in the van of sanitary progress. Profiting by their memorable experience of small-pox prevalence in the year 1875, the Committee have wisely determined that no future epidemic of ordinary proportions shall find them, as on that sad occasion, unprepared to cope with it. Accordingly, they have availed themselves of the present period of comparative freedom from epidemic disease, in order to devise and complete a hospital for Salford, which shall form an effective and a lasting defence against the ravages of infection. In preparing the report which I herewith respectfully submit, I have acted under a sense of heavy responsibility; but I have had the satisfaction of feeling that I was addressing a Committee whose members are uniformly solicitous for the success of isolation in the Borough, and determined that as far as possible the hospital which is about to be erected shall fulfil every modern requirement, and shall, in fact, constitute a model of what a municipal Fever Hospital ought to be.

## *II.—History of Hospital Isolation in Salford.*

The present Fever Hospital in Cross Lane owes its origin to the Small Pox Epidemic of 1875—6. The Institution which at that period was adapted to receive only about 60 patients,\* was opened in October 1876, and from that date up to the present,—a period of rather more than ten years—about four thousand patients have passed through its wards. At first the hospital was reserved for the exclusive use of non-pauper patients; but subsequently the Health Committee, at the instance of the Guardians, agreed to receive into their wards such paupers as the

---

\*Towards the end of 1884 the accommodation at Wilton Hospital was increased to 100 beds by the erection of a large shed in the rear of the permanent building.

Guardians chose to send, the latter contributing a stipulated weekly sum for the treatment and maintenance of each case. This arrangement continued for some years, but after the passing of the Salford Act for the compulsory Notification of infectious disease it speedily became evident that the Guardians were getting the best of the bargain. For whereas, in the six years ending with 1882, the Relieving Officers had furnished orders to the extent of 37 per cent. of the total admissions; within the next two years the proportion so admitted had fallen to 6·2 per cent., although the ratio of destitute cases to total admissions was actually larger in the later than in the earlier period. The explanation is this: that under the Notification Act, all suitable patients are now, (with consent) promptly removed to hospital, without question as to whether or not they are paupers; whereas in pre-notification times, *i.e.*, prior to 1883, the earliest information as to cases of infectious sickness amongst destitute persons was generally received from the Relieving Officer, whose order for admission to Hospital, carried with it an undertaking on behalf of the guardians to pay for the maintenance of the patient.

In these circumstances the Health Committee approached the Guardians,\* setting before them facts which proved that in the matter of maintenance of the infectious sick amongst the poor, the Committee were virtually doing the work of a Poor Law Authority, and asking that the Guardians should acknowledge the Committee's good offices by an annual subsidy. After consultation with the Committee, and with the consent of the Local Government Board, the Guardians agreed to pay the Committee an annual sum of £500 per annum, in consideration for which the Committee were to receive any infectious paupers which may require hospital isolation, and which would otherwise have been treated in the infectious wards of the workhouse. This sum has therefore been annually received by the Committee since the year 1884, and has been applied by them towards the current expenses of the Wilton Hospital.

This useful arrangement which has been entered into—with the deliberate sanction of the authorities at Whitehall—between the Guardians of the Poor and the Health Committee of the Corporation, is a tacit acknowledgment by the three consenting parties, of the principle that the

---

\*The date of this Conference was June 13th, 1884.

isolation of the infectious poor, whether technically pauper or not, is essentially a matter which should be undertaken by the Sanitary Authorities, as the protectors of the public health, instead of, as heretofore, by the Guardians of the Poor.

### *III.—Object and scope of the present enquiry.*

**Sources of information.**—As the present enquiry has for its chief object the enunciation of the general principles which should underlie the construction of a well appointed isolation hospital, the further questions of site and of detailed construction being of set purpose deferred for future consideration ; I have not for the present thought it necessary to ask the Committee's consent to examine the many excellent examples of fever hospitals in various parts of the country which have been established within the last decennium. But, availing myself of the knowledge, that all, or most of these hospitals have been constructed under the eye of the Local Government Board, I have sought and obtained a conference with representatives of the Medical and Architectural Departments of the Board, and from this, as well as from the official publications of these authorities, I have gained a large proportion of the information contained in the present section of my report. Before going further, I desire to acknowledge the courtesy of Dr. Thorne Thorne and of Mr. Percival Gordon Smith, respectively the Assistant Medical Officer, and the Architect of the Local Government Board; as well as of Dr. Collie, the Medical Superintendent at Homerton, and of Mr. Shirley Murphy, Lecturer on Hygiene at St. Mary's Hospital, and member of the Committee of the London Fever Hospital ; and to thank them one and all for the valuable assistance and advice they have rendered me in the course of my recent enquiries.

**Scope of Inquiry.**—By the terms of their Resolution of the 3rd of March last, the Salford Health Committee have courteously invested their medical adviser with a large discretion as to the ground which the present enquiry should cover, and as to the nature of the report which should be submitted, at this early stage for the Committee's guidance. Happily, however, but little consideration was required, to determine this point. For, in the first place, inasmuch as the special form and character which the projected hospital shall assume, must obviously depend on the area and

position of the site itself; and as that site has yet to be selected, it was evident that nothing could profitably be decided as regards matters of detail, until a careful inspection—preferably by the Committee themselves—had revealed, not only what was worthy of adoption, but also what ought to be avoided in the most approved isolation hospitals which have been provided elsewhere since the establishment of our present hospital in Cross Lane.

The general principles involved in the construction and administration of isolation hospitals, as far as these could be ascertained from the experience gained up to that date, were made the subject of an exhaustive treatise in the report of the Medical Officer of the Local Government Board, for the year 1881, by Dr. Thorne Thorne, of the Medical Department of the Board; and it is not too much to affirm that this essay has furnished the principles for the construction of the majority of such hospitals for the isolation of infectious disease, as have been established since that date. Taking as my starting point the information so admirably collated and methodised by Dr. Thorne, I have endeavoured to learn how far the teachings of the last decade have been confirmed, and in what particulars, if any, they have required modification in consequence of the practical experience gained since the completion of the decade and the issue of Dr. Thorne's report. This then, is the general plan which I have proposed for myself to follow in the present report:—I have set out in order—*First*, the medico-sanitary considerations, which according to the judgment of the best authorities extant, should govern the construction and administration of fever hospitals; and *second*, the proximate extent and character of the accommodation which the special circumstances of Salford require, the latter estimate being based on our own past experience at Wilton Hospital, and on a review of the ascertained behaviour of recent epidemics of infectious disease within the Borough.

#### *IV.—General and sanitary considerations as to the Site of the proposed Hospital.*

**Accessibility of Site.**—Our experience of isolation in Salford since the passing of the Notification Act, has afforded abundant proof of the oft-repeated contention, that in order to fulfil reasonably well, the purpose for which it is intended, it is essential that a Fever Hospital should be fairly accessible to the population by whom it is, prospectively, to be used.

It should be remembered that our hospital has proved to be, in the main, a children's hospital ; more than seventy per cent of its occupants since 1882, having been under ten years of age. It follows therefore that if the sick children are to be isolated in anything like the proportion requisite for controlling the spread of disease amongst the community, the good-will of the mothers of the little patients must be secured.

That very marked success \* has attended our endeavours at isolation in Salford is an unquestionable and a gratifying fact. It will not, I think, be contended that any great share of this success is attributable to the outward appearance of the hospital itself; although, thanks to the administrative tact of the Lady Superintendent, the cheery and homelike aspect of the ward interiors contrasts very strongly with the dingy appearance of the exterior of the hospital building. Under any circumstances however, the fact is incontrovertible, that the Wilton Hospital would never have achieved its present high degree of usefulness, had it been situated at a great distance from the homes of the people. The experience of the Health Department is conclusive on this point. We find that Salford mothers will seldom consent to part with their children, especially when young, unless the reasonable proximity of the Hospital allows of frequent enquiry, at any rate, at the hospital gate, as to the welfare and progress of their offspring.

**Special Sanitary considerations.**—In addition to the general requirements, as to construction and management, which a fever hospital shares, only in common with other asylums for the sick ; there are other and quite special considerations of a sanitary character attaching to a hospital in which is to be segregated the whole of the infectious sickness incidental to a vast population. And these latter considerations will properly receive the most patient deliberation on the part of the Committee as the Guardians of the public health of the community in the aggregate. Happily there is no reason to fear that the arrangements which the Corporation will devise, or which the Local Government Board are likely to sanction, for the accommodation of fever† patients, will be attended with any real danger

---

\* See Hospital Statistics on last page of this Report.

† The question of provision for the isolation of Small Pox has not been considered here, inasmuch as satisfactory arrangements still exist with the Monsall Authorities for the reception of cases of this disease.

to the public outside the hospital enclosure. But inasmuch as there exists among the public, a widespread although purely sentimental dread of fever hospitals, it will be the more prudent course to recognize the existence of this feeling, and to endeavour to meet it by the bestowal of such care, not only on the selection of the site itself, but also on the framing of regulations for the management of the hospital and for the conveyance of patients thereto, as shall tend to engender public confidence. The most effective way of attaining this object is to provide for the complete privacy of the hospital buildings, by surrounding them with a wall of suitable height, and by setting them back so that a belt of unoccupied space, not less than 40 feet in width, should intervene between the enclosing wall and any buildings intended to receive either infective persons or infective things.

**Area of Site**—The experience of the Medical and Architectural Departments of the Local Government Board has enabled them to arrive at a definite estimate as to the number of patients that should be treated on a given area of ground, due regard being had to the welfare of the patients themselves, as well as to the safety of the public residing in the immediate neighbourhood of the Hospital. As bearing specially on this point, I here quote a passage from a report already referred to\* in which Dr. Thorne lays down certain considerations which should have weight in determining the size of the site of a Fever hospital. "Special regard," he says, "should be had to, (1,) the reasonable seclusion of the hospital buildings; (2,) the provision of ample space, both as regards the buildings and the number of patients to be received therein; and (3,) the need for future permanent extension of the hospital buildings, in case of an increase in the population or the erection of temporary means of isolation in the event of any epidemic prevalence which may result from inability or failure to isolate first cases of disease." As the result of his inspection of all the fever hospitals which were in operation at the time of his report, and of the further experience of the Medical Department of the Local Government Board since 1881, Dr. Thorne is decidedly of opinion that the number of infected persons to be accommodated on an acre of ground should not under ordinary circumstances exceed twenty, and he quotes in terms of approbation a number of instances of hospitals actually in existence in 1881, in every one of

---

\* Report on the Use and Influence of Hospitals for Infectious Disease 1881.

which this limitation has been adhered to. Mr. Gordon Smith\* also, in a special communication to the Epidemiological Society on the planning and construction of hospitals for infectious disease, adopts an identical estimate. He says "I am strongly of opinion that this number" (20 beds) "very nearly approaches what should be regarded as the proper maximum number of beds per acre ; and while circumstances may render such extent of site sometimes difficult to procure, it is nevertheless, I believe a proper quantity to aim at securing when seeking for a site for a hospital."

In determining the extent of ground which it is expedient to acquire for the purpose of dealing prophylactically with infectious diseases in Salford, it is important to bear in mind (1), that although at present we are able to rely upon Monsall to a limited extent for the isolation of surplus cases of infectious diseases (such as Small Pox,) still it should be remembered that Monsal Hospital lies outside the Salford boundaries, and that therefore it is by no means impossible that eventually Salford may have to accommodate within the Borough the whole of her infectious cases, including Small-pox ; and it is well known that this disease requires exceptionally ample space for its safe accommodation. It is of the first importance therefore, that this contingency should ever be present to the minds of the Committee in relation to the extent of area which should be acquired by them, although it by no means follows that the whole of the ground should forthwith be covered with hospital buildings. (2.) That it would be economically advantageous if the arrangements for disinfection which in any case are required for the purposes of the hospital itself, could be made also to serve for the disinfection of whatever other bedding requires such treatment. For large quantities of contaminated bedding and clothing have constantly to be collected from private residences and disinfected by the Health Department, for the protection of the Public Health. (3.) That, as an additional and a powerful incentive to the acquisition of a sufficient area of ground, the new responsibility of the Committee in relation to the isolation of sick paupers sent to them by the Guardians, demands serious consideration. (4.) That inasmuch as the length of time during which each patient shall remain in hospital forms a very important factor in the aggregate cost which infectious disease entails upon the community, it is desirable even

---

\* Architect to the Local Government Board.

on grounds of economy, to arrange that the patients shall remain in hospital after convalescence has set in for a period as brief as is consistent with safety to the public. The essential means to this end are to secure, that the wards shall be surrounded with an atmosphere of the utmost attainable purity; and this is obviously impossible on a site which is overcrowded, either with patients or with buildings. It has frequently happened in our present establishment, that patients have had to be retained in hospital an undue time, because their convalescence has been protracted for want of airing ground. And (5.) lastly, it is desirable that the Committee should take timely warning from the experience of other sanitary authorities, who have been compelled, at excessive cost, to augment an originally insufficient site, in order to provide, in emergency, for necessary hospital extension. For although the cost of an additional acre or two of ground would scarcely be serious, if acquired at the outset—yet the subsequent enlargement of the site, to meet exceptional needs, is almost certain to be attended with greatly increased expense, and probably serious delay.

**Ratio of Hospital accommodation to population.**—It has for some years been officially recognised that the amount of permanent accommodation which an Urban Sanitary Authority may reasonably be expected to maintain for the hospital isolation of the infectious sick, is about one bed per 1,000 of the population. Adopting this proportion, we find that a total of 200 beds would be required for the purposes of Salford; as the population, according to the Registrar General's Estimate, at present exceeds one-fifth of a million. Having regard then, to the foregoing considerations and to the present state of knowledge respecting the danger of segregating on a limited area a large number of patients suffering from various kinds of disease; bearing in mind also the paramount importance of keeping the air in and about the wards pure, and especially of effecting such an arrangement of buildings as shall prevent the possibility of emanations from the dead house, laundry, and neighbouring wards, obtaining access to the patients; [in all of which particulars our present hospital is a conspicuous example of what to avoid in future,] I feel that I cannot discharge my responsibility either to the Committee or to the public, otherwise than by recommending that a site of ten acres of land should

be acquired for the purposes of the projected hospital and of the disinfecting station previously referred to.

*V.—Suggestions as to Hospital Construction and Administration.*

**Disposition of buildings on the site.**—The general arrangements of the buildings on the hospital area, will of course depend to a great extent on the form of the site actually selected. Nevertheless there are certain general principles as to the disposition of the wards with reference to one another, and also with reference to the administrative buildings, which would apply equally to any well chosen site; and these principles it may be well provisionally to indicate. In order to illustrate my meaning:—Let us suppose a site to have been acquired, ten acres in extent; oblong in shape, and the length of which bears to its breadth the same ratio as that existing between the corresponding dimensions of this sheet of paper. I would suggest that one-fifth of the upper portion of the area should be walled off from the rest and kept in reserve against a Small Pox\* epidemic or any other emergency; and that for the present it should be utilized as an airing ground for the patients. The remainder of the area, eight acres in extent, which may be roughly represented by the lower four-fifths of this page, will be available for the purposes of a hospital for the infectious fevers, other than Small Pox. On this site, therefore, I would suggest that provision be made for 160 beds, together with the full administrative accommodation necessary for that number of patients.

The buildings necessary for the purposes of a fever hospital such as I have indicated, may thus be grouped:—

- (a) The Administrative Department.
- (b) The Hospital buildings proper, or Patients' Department, and
- (c) The out-buildings, *i. e.* Laundry, Disinfecting Offices, Mortuary, Ambulance, &c.

(a) **The Administrative Department.**—In this block the private apartments of the Resident Medical Officer and the Matron will be placed, as will also the kitchens and the bed-rooms of the nurses and other officers

---

\* In the event, however, of the necessity arising for the treatment of Small-pox on this limited area, it would be necessary to construct a separate hospital, with pavilions constructed like those of the Epidemic Hospital at Copenhagen, where provision is made for the purification by fire of the infective ward air, before allowing it to mix with the external atmosphere.

and servants of the hospital. The administrative block should be situated some little distance inside the entrance gates, which, pursuing further my former illustration, may be represented in position on the site by a point at the centre of the lower edge of this page. And here let me remark, that in simple fairness to one and all of these officers, whose duties in the wards are of so monotonous and so depressing a character, it is desirable that their private apartments should be made as cheerful and as home-like as possible. An additional reason why this department should be removed as completely as possible from air connection with the wards, is supplied by the consideration that the food for the patients and for the officers alike will have to be prepared here. To this spot also hospital supplies will be brought from outside ; tradesmen will apply here for their daily orders, the periodical meetings of the Hospital Committee may conveniently be held here, and the friends of patients will come here for purposes of inquiry.

If, instead of being surrounded by wards, as in the case of some existing hospitals of faulty construction, the administrative block were made to occupy a position intermediate between the entrance gates and the hospital, it ought to follow that with reasonably good management no improper communication between the infectious sick and the outside public could possibly occur. A further advantage accruing from this arrangement would also be that the dormitories and commons room of the nurses being cut off from air connection with the wards, these officers would live and sleep under conditions fairly compatible with the enjoyment of health. I have dwelt thus fully on the necessity for extraordinary care in the planning of this department because past experience at the Wilton Hospital has convinced me that the insanitary character of its administrative department has tended to depress the health of the officers and of the nursing staff, and to render them more susceptible to attack by infectious disease. In proof of this, let me mention that since the opening of the hospital, ten years ago, not less than 26\* officers have been stricken down with infectious disease ; namely, five with Typhus,† six with Enteric Fever, six with Scarlet Fever, and nine with other infectious diseases. I am sure that the Committee will consider these facts sufficient to warrant them in devoting exceptional care to the contrivance of this important department of the hospital.

---

\* Of these three died;

† Including the Resident Medical Officer.

In addition to the residential apartments of the Medical Officer and the Matron, the Administrative department of the hospital should contain (a) the waiting room for the friends of patients, and an apartment for the meetings of Committee. (b) The kitchen and scullery departments. (c) The food and linen stores for the hospital. (d) The dispensary, and (e) the commons room, the dormitories, and other offices for the nurses and servants of the institution. Although I have no intention to enter into the question of the manner in which the several classes of officers are to be accommodated in the administrative department, it nevertheless occurs to me that I may usefully give the Committee a general idea of the number of officers which will be required, in order efficiently to work a hospital of 160 beds,\* for all of these officials will require accommodation in the administrative block. In addition to the Medical Officers, the Matron, and the Night Superintendent, who will, of course, require separate apartments, accommodation should be provided here for the nurses and assistant-nurses, and for the ward servants or scrubbers. In case there are six general wards, each of these will require a head nurse and a probationer by day, a nurse by night, and a ward scrubber. The isolation blocks will require at least four nurses and one scrubber; and past experience of fever hospitals has shewn that in busy times not less than six extra nurses with two ward servants will be required in such a hospital as ours for relief purposes, and to meet current emergencies. Provision will therefore have to be made for 28 nurses and nine ward servants. In order to wash for 160 patients, at least four laundry maids and a head laundry woman will be requisite, and for kitchen and household purposes a cook, two kitchen maids, and four housemaids will be necessary. The sleeping and living apartments of the ambulance driver disinfecting officers and other male servants will be situated at the Porter's Lodge, and consequently need not be considered here. I desire it to be understood that the above estimate of administrative accommodation is based on the minimum requirements of a hospital for 160 beds, and that it would be wise to provide for this amount, at the very least, in the arrangement of the administrative block. For it will easily be understood that when the wards are full of patients, so that the undivided

---

\* I have purposely excluded from this estimate the administrative accommodation for the 40 beds, on the two acres of ground which I have proposed to set apart to meet other emergencies (see page xiii), because I have thought that a separate administrative block of special construction would be needed for that purpose.

attention of the staff is demanded for the treatment of the sick, it is disheartening and harassing to the officers in charge to find that only scanty provision exists for the housing of the necessary attendants. And further, it might be a serious danger to the health of the public, and might bring the hospital into disrepute, if under epidemic pressure the nurses and others temporarily employed in the wards were permitted to live elsewhere than on the hospital premises.

**Hospital Pavilions.**—From the administrative block an uncovered pathway should run from end to end of the grounds, and similarly branch ways should lead from this to the several ward pavilions, which would then retain no connection whatever with one another. This arrangement would tend to keep the nurses to their own wards, and to prevent the common habit of gossiping between the attendants on different kinds of disease, which is so fruitful a source of trouble in large fever hospitals.

Past experience at the Wilton Hospital has abundantly shown that it is quite impossible to reserve any ward, or any group of wards, for the exclusive treatment of one kind of disease. Again and again has it been necessary, under pressure of epidemics, to vary the kind of disease in the several buildings: at one time we have been compelled to fill the enteric wards with scarlet fever patients, and at another to replace these by cases of measles. And yet, on the other hand, we have never found it satisfactory to give up the entire hospital to the treatment of the prevailing epidemic disease; for even during the severely epidemic periods of 1884 and 1886 we were called upon to afford simultaneous accommodation to never less than two, and generally to three, or even four distinct kinds of disease. Hence the necessity of transferring all our cases of enteric fever to Monsall last year, when the whole of our available beds were occupied by scarlet fever cases. Our past experience, therefore, teaches two important lessons:—First, that in the construction of the general wards for our projected fever hospital, primary importance should be attached to their susceptibility of prompt and easy conversion from the treatment of any one disease, to that of whatever other disease may be epidemic at a given time; secondly, that inasmuch as separate accommodation for several distinct diseases is always necessary in Salford (in addition to small pox, which we transfer to Monsal), no arrangement in a new hospital could be deemed satisfactory which did not

provide for the separate treatment of, at any rate, three different kinds of disease in both sexes. With these objects in view, I would suggest that permanent provision be made for (a) 144 beds in six "ward blocks," each ward block containing 24 beds; and (b) 16 beds in two separate isolation blocks, according to the accompanying plan issued by the Local Government Board. The six larger ward blocks should be arranged either in as many separate pavilions, each complete in itself, or in three sets of pavilions, each set being two storeys high, and containing 48 beds: and with a view of fulfilling the indications mentioned on page xviii., I would suggest that each of these wards should be divided by a partition, or by the nurses room, into two compartments, accommodating 18 and 6 beds respectively. Each isolation block should contain four wards, but the wards in the two blocks might conveniently be varied as to size—the larger block containing two rooms of three beds apiece, and two of two beds; the smaller block containing two wards each of two beds, and two single bedded wards. These necessary adjuncts to a large fever hospital may be described as cottage hospitals, and an excellent block of them, from the designs of Mr. Keith Young, F.R.I.B.A., may be seen at the London Fever Hospital. The following are some of the administrative advantages to be derived from such isolation blocks:—

1.—The possibility of isolating ill-defined cases, in order to determine their ultimate destination in the fever wards.

2.—Economy of ward space and of beds when only one or two patients suffering from the same disease require isolation. For the presence of only one infectious case in a large ward would contaminate the whole pavilion or apartment, and temporarily prevent the use of the remaining beds for other purposes. Moreover, as each room is only a small one, there will be considerable economy on the score of warming, cleaning, &c.

3.—The facilities afforded by such wards for the treatment, away from the general wards (a.) of delirious, noisy, or otherwise objectionable patients, (b.) of persons suffering from gangrene, or other offensive disease, and (c.) of erysipelatous surgical cases, or of puerperal patients. To introduce any such cases into a large general ward would be obviously unfair, alike to the patient and to the occupants of the neighbouring beds.

The number of ward pavilions required will, of course, depend on whether the accommodation is to be provided on the ground floor, or whether the buildings are to be two storeys high. Most of the hospitals already constructed have their ward accommodation arranged on the ground floor; an arrangement which is decidedly preferred by the Medical and Architectural Departments of the Local Government Board, and which possesses very considerable administrative advantages. It deserves mention, however, that two storied pavilions have recently been constructed which do not appear to be open to objection on sanitary grounds, and which offer the advantage that this arrangement allows of the preservation of a wider belt of uncovered land around the pavilions, which is of great value for airing purposes. It is obvious that this boon could not be secured on the same area with wards on the one storey plan, for, in that case, almost the entire site would have to be covered with buildings in order to provide the requisite space for ward and administrative purposes: added to which two storied pavilions are considerably less costly than those of one storey only.

The question of how many patients should be accommodated in a single ward practically resolves itself into the further question of how many patients can be adequately looked after by one head nurse, with the usual complement of assistants? There is reason to believe that, under ordinary circumstances, a nurse and an assistant-nurse can fairly take charge of 24 beds, and this is the capacity which I should recommend for adoption in the ordinary wards of the new hospital. In a large establishment like that at present projected, the question of providing for the separate accommodation of both sexes in the several wards will not, of course, arise; but nevertheless the following consideration will show the desirability of separating patients of the same sex under treatment for a given disease. It is a fact which is familiar to hospital physicians that in a ward full of patients a certain number will be found who are convalescing, and a certain number of others who have passed the critical stage, whilst a few will be noticed who are still acutely suffering; and it is for the separation of these severer cases from the rest that a division of each ward by a partition of some kind is desirable. I am indebted to Dr. Collie, the Medical Superintendent of the Homerton Fever Hospital, for the following memorandum, which may be useful in deciding what proportion the acute section of the ward should bear to the

total ward capacity. From his very extensive experience at Homerton, Dr. Collie is able to lay down as a fact that in an ordinarily constituted ward population, consisting of 20 patients, whether these are suffering from scarlet fever, from enteric, or from typhus—

	2	will be found	dangerously ill,
	4	„ „	sharp cases,
	4	„ „	very mild cases,
whilst 10	„ „		convalescent.

It is therefore worthy of consideration whether, at any rate, in such of the general wards as are to be used for children, a separate and sufficiently capacious\* space should not be walled off at one end of the building for the two acute cases, or for these and the four sub-acute cases together, so as to protect them from the disquieting noise and prattle always present in a ward containing juvenile convalescents. In this case, the acute portion of the ward would be placed under the immediate guardianship of the head-nurse, who, by means of a window in the partition wall, would be able adequately to supervise the nursing of the patients by the assistant-nurse in the general ward.

**Ward Space.**—In their Official Hospital Memorandum the Local Government Board lay down as a rule that the ward space for each patient should approach as nearly as circumstances allow to 2000 cubic feet, and 144 square feet of floor space. And, in addition to this, Mr. Gordon Smith has drawn attention to the necessity of taking care that the amount of cubic air space per patient should be made up with due regard to floor space, and to distance apart of the beds. He accordingly recommends, as an improvement on the dimensions usually adopted, that the wards should be 13 feet high (in place of 14 feet), and 26 feet wide (instead of the usual 24 feet). If then 12 feet of wall space be allowed to each bed, the additional width of the ward will allow of the beds being placed a foot or more away from the walls, thereby tending to facilitate the free circulation of air about the head of the bed, whilst still preserving sufficient cubic space.

**Subsoil and Drainage.**—The sanitary considerations which it is desirable to bear in mind, with respect to the subsoil and drainage, are simply those which would influence a competent architect in the construction of any large public institution. The soil should be as free as

---

\* These acute cases should certainly be allowed cubic air space in excess of the 2,000 cubic feet usually considered sufficient for cases of average severity.

possible from animal and vegetable contamination. It should be well drained, and those portions of the area upon which the buildings are to stand should be covered with a thick layer of sound concrete; indeed, it would be well if this substance could be made to take the place of wood in the construction of floors in the wards and administrative buildings. It is found, however, that concrete floors are very cold, and on this account their adoption is not likely to become general. Moreover, concrete is believed by Mr. Gordon Smith to be more porous than a good oak block floor polished with paraffin.

The drainage of a fever hospital should, for obvious reasons, be faultless. It ought to be unnecessary in these days to insist upon this point; and yet there are but few fever hospitals in England in which the drainage originally laid down has not required subsequent amendment, on account of leakage or other defect consequent on faulty workmanship. I am in no wise overstating the case by saying that, of all the appointments of a hospital, the drainage system is sanitarily the most important, and yet this is the very detail which is most likely to be "scamped," simply because the builders know that, inasmuch as the drains are out of sight, even serious defects will temporarily remain undetected, and so the defaulter will escape blame, since the nuisances peculiar to faulty drainage seldom declare themselves sufficiently early to expose the dishonesty of the workmen. The frequent recurrence of drainage troubles at the Wilton Hospital has been a constant source of embarrassment to the Resident Medical Officers, and as such will furnish a timely warning against the perpetuation of similarly faulty drainage in the new hospital which the Committee are at present projecting. Upon this point the Architect of the Local Government Board, Mr. Gordon Smith, has some apposite remarks which deserve quoting. He says:—"It is, however, very unwise economy to save money over drain laying. Drains to be permanently efficient and satisfactory require the most careful consideration in every particular, for which purpose it is imperative that details as well as general drawings should be prepared, showing, not only the course of the drains, their gradient, size, depth, and so forth, but all the requisite arrangements for inspecting them, and for flushing and ventilating them, and most of these details ought to be drawn to a large scale. The execution of the work must be constantly supervised in the most careful way by the foreman and clerk of works, and

“these officers, with the architect, must each be impressed with the importance of having the work thoroughly well done. It should, moreover, be clearly understood from the first by the contractor, and indeed by all concerned, that the drains on completion would be tested in lengths, by plugging the lower end of each length, and then filling the length of drain with water. If the drain then fails to hold the full quantity of water for a specified time—say four or six hours—it would be evident that means of leakage existed, for which the contractor would be held responsible.”

Mr. Smith goes on to insist that the drains should be laid in direct lines, with uniform gradients between the several points where a change of direction or of gradient occurs, and that at each of these points means of access to the drain should be provided either by a manhole or a lamp hole, so that the entire system of drains could be inspected with ease at any moment; and he concludes his observations on this subject with the remark, that “if these precautions be taken we should hear little of the drains of a building—whether a private house or a hospital—being found defective, rendering necessary most inconvenient, and often very offensive work, in opening up drains that so frequently results from bad work.”

With regard to the details of ward construction I shall have little to say, inasmuch as these fall for the most part within the province of the architect. The broad principles necessary to be borne in mind in determining these particulars are admirably laid down in Dr. Thorne's Hospital Essay. And since its publication attempts have been made in different places, with varying degrees of success, to construct a hospital which shall fulfill all the requirements of an asylum for the infectious sick. Nevertheless, I fear it must be confessed that a ward which can be pronounced perfect in every respect for the treatment consecutively of various kinds of infectious disease has yet to be built. The following are a few of the sanitary considerations which it is desirable to bear in mind in the construction of wards for the treatment of infectious diseases:—

The walls, ceilings, and floors of a fever ward should present a smooth surface, easily allowing of being cleansed with soap and water; the walls should be built of good brick, with an efficient damp course, and should be covered on the inside with some kind of durable and impervious cement. The ceilings and floors also should be similarly impervious, and equally with the walls, should readily permit of cleansing. All projections into the

ward, which may tend to harbour dust, should be studiously avoided, and all the angles of the walls should be rounded, so as to facilitate the cleansing process. These requirements have been well carried out, by Mr. Keith Young, in the walls of the new isolation pavilion at the London Fever Hospital, which in this and in many other respects is well worthy of imitation.

**Lighting, Construction of Windows, &c.**—The provision of an excessive amount of window space, in proportion to the cubic capacity of the ward, has given trouble in some hospitals, even of recent construction. For where, as at Pendlebury, the proportion is as large as one square foot of glass to every 35 cubic feet of space, it is found difficult in cold weather at the same time to maintain the due warmth and the purity of the ward air. Dr. Thorne's experience leads him to the belief that the proportion of window surface to cubic ward capacity should be about one square foot to every 70 cubic feet. The best kind of window for ward purposes seems to be one of double hung sash construction, with a hinged fanlight above, arranged as in our present hospital to allow of free ventilation without inconvenience to the patients from draught; and, in order to insure free circulation of air in the upper parts of the ward, the fanlight should extend to within six or eight inches of the ceiling.

**Verandahs for Convalescents.**—And I must here refer in terms of commendation to an arrangement for the promotion of convalescence after fever, which is now commonly adopted in continental hospitals. The arrangement consists in fitting one of the windows in each ward with a casement which should be carried down to the floor, so as to lead directly on to a verandah which is constructed on one side of the ward. In suitable weather, then, a convalescent patient can be wheeled out of the ward into the open air whilst still lying on a bed; the fatigue of dressing is therefore entirely avoided. I cannot too strongly commend this merciful expedient for the benefit of convalescents, to the favourable consideration of the Committee.

**Ventilation and Warming.**—The ventilation of a fever ward is a subject of the very first importance, and one to which too much attention can scarcely be given, either by the architect or by those who are responsible for the treatment of the sick. It has recently been suggested that the contaminated air of a fever ward ought to be made to pass through a

furnace, or other purifying agency, before delivery into the outside atmosphere; and this plan has been successfully carried out in the construction of the New Epidemic Hospital at Copenhagen. Up to the present time, I believe that no similar attempt has been made in this country; but if the system could be tried here, even in the case of a single fever hospital, by way of experiment, and in case it was possible to guarantee that the infective properties of the ward air should be regularly and effectively destroyed in the manner above described, there is no doubt that much of the objection against fever hospitals now prevailing would soon cease to exist in the case of that particular institution. In addition to the interchange of air which is provided for by the ward windows it appears to be necessary that the space between the floor and the level of the beds should possess independent means of ventilation, and this can best be provided for by openings through the walls just above the level of the floors, each opening being protected by a moveable shutter to allow of the regulation of the air supply. The ventilation obtained by the means already considered is, of course, only passive in character. Probably the most effective active ventilator is that which consists of an open fireplace, or a stove of suitable construction; the fire, of course, being constantly kept burning, so as effectually to warm the atmosphere and to keep it in motion at the same time. If such fireplaces are exclusively relied on for warming the wards, at least one of them will be required for every 25 feet of ward length; the fireplaces or stoves should in this case occupy a central position in the wards, and they should each be fitted with double open fronts, so as to diffuse the heat as thoroughly as possible throughout the adjacent space.

**Water-closets and Sinks.**—Attached to each ward there must be a water-closet and a sink. The water-closet should be on the washout principle, with an ample flush of water. The closet should consist of basin and pedestal, formed of a single piece of ware, and should be self-supporting, without enclosure of any kind; the only woodwork necessary in connection with the closet being an ordinary hinged and moveable seat. Mr. P. G. Smith finds that closets constructed in this way answer admirably, and are easily kept clean. The ward sink, furnished with a water supply, should be placed in a compartment adjoining the water-closet, and the two together should be air-disconnected from the ward by a corridor with louver-windows on both

sides. Nothing less than this will prevent the occasional contamination of the wards with foul air.

**Bath Rooms and Nurses' Rooms.**—The only other apartments of a fever ward which need be referred to here are the bath-rooms and the nurses' day room and stores. There should be no difficulty in satisfactorily arranging these necessary offices, and yet in practice it is often found that, in consequence of inattention to details, this is the part of the fever hospital which gives the greatest trouble to the administrative staff. I beg, therefore, to draw special attention to this most important department of a hospital pavilion, in the hope that the Salford Health Committee may be more fortunate, in this respect, than have been the owners of several other fever hospitals I could name, and those too of recent construction.

**Hospital Outbuildings.**—These will consist of a porter's lodge, with stables and coach-house attached, and near these will conveniently be arranged the disinfecting house and the coal and wood store. The exact position which the wash-houses and mortuary shall occupy are matters as to which an architect may properly be consulted, but I must insist that they be so arranged, with reference to the hospital buildings, that the air of the wards shall be free from danger of contamination, either by the atmosphere of the dead house or by that of the laundry. In these respects, permit me once more to point to the existing hospital in Cross Lane as a conspicuous example of what to avoid in the hospital which the Committee are about to establish.

---

In concluding this report, I would express a hope that the information which I have been able to collect may be deemed worthy of consideration by the Committee, and that it will materially assist them in the important duty which lies before them.

JOHN TATHAM, B.A., M.D.

Town Hall, Salford,

*April, 1887.*

## Summary of Recommendations.

---

**I.** That a site of ten acres of land should be procured, in a situation reasonably accessible to the bulk of the working classes. (see page x.)

**II.** That the site should be surrounded with a boundary wall of 7 feet in height, and that no hospital wards or other infectious buildings should be allowed to approach within 40 feet of that wall. (see page ix.)

**III.** That one-fifth of this area should be partitioned off from the rest of the site, and for the present be utilized as an airing ground for the patients : in case of future necessity, the site would be available for extension of the hospital. (see page xiii.)

**IV.** That permanent provision should be made on the remaining eight acres of the site, for 160 patients, together with the necessary administrative accommodation ; the hospital wards to be arranged on the pavilion principle, as follows :—

(a) 144 beds in six ward blocks—each ward block containing 24 beds.

(b) 16 beds, in two separate “isolation blocks,” containing 10 and 6 beds respectively. (see page xvi.)

**V.** That the treatment, in separate general wards, of at least three different diseases, in both sexes, at one and the same time, should be provided for ; irrespective of the accommodation afforded by the special isolation blocks. (see page xvii.)

**VI.** That the administrative block should be placed near the main entrance of the hospital, and be protected as completely as possible from the atmosphere of the wards, the mortuary, and the laundry, (See page xiii.)

**VII.** That a disinfecting station, with the necessary ambulances and appointments, should be provided within the hospital enclosure. (see page xxiv.)

J. T.

# ADMISSIONS\* TO THE HOSPITALS OF WILTON, MONSAL, AND PENDLEBURY.

Admissions, Discharges, and Deaths, from the opening of the Hospital  
in October, 1876, to the end of the year 1886. (Ten years.)

	Admissions.	Discharges.	Deaths.	Remaining in Hospital end of 1886.
Small Pox .....	306	238	68	...
Measles .....	242	199	41	2
Scarlet Fever .....	2422	1986	320	116
Diphtheria .....	45	34	10	1
Typhus Fever .....	212	156	54	2
Enteric Fever .....	669	520	138	11
Other Acute Diseases...	281	204	76	1
<b>Total .....</b>	<b>4177</b>	<b>3337</b>	<b>707</b>	<b>133</b>

Age distribution of cases admitted to Hospital (a) in the six years 1876-82,  
(b) in the four years 1883-6.

(1)		Total admissions at undermentioned ages.				
		All Ages.	Under 5 years.	5-10 years.	10-15 years.	Over 15 years.
All Causes {	1876-82...	1651	469	378	183	621
	1883-86...	2526	818	983	337	388
Scarlet-fever {	1876-82...	575	217	241	71	46
	1883-86...	1847	725	828	227	67
(2)		Proportion of Admissions at each age to 100 at all Ages.				
All Causes {	1876-82...	100	28.4	22.9	11.1	37.6
	1883-86..	100	32.3	38.9	13.3	15.4
Scarlet-fever {	1876-82..	100	37.7	41.9	12.4	8.0
	1883-86...	100	39.3	44.8	12.3	3.6

	Proportion to 100 Admissions. (All Causes.)		Proportion of Males and Females respectively in 100 Hospital Patients of both sexes at certain groups of ages. 1883-1886.			
	Of Children under ten years old.	Of Scarlet Fever cases. (All ages.)		Under 15	15-30.	Over 30.
1876-82	51.3	34.8	All Causes..	{ Males ... 47.6 Females 52.4	48.3 51.7	44.0 56.0
1883-86	71.3	73.1	Enteric-fever	{ Males... 55.0 Females 45.0	55.4 44.6	57.7 42.3

\* For the returns from which these tables have been deduced, I am indebted to the kindness of Dr. Mullen, the Resident Medical Officer at Wilton Hospital. Certain trivial errors, which escaped notice on the first issue of the above table, have been corrected in the present reprint. J. T.

## APPENDIX II.

---

MEMORANDUM BY DAVID PAGE, Esq., M.D.,

H.M. INSPECTOR UNDER THE LOCAL GOVERNMENT BOARD,

Read at a Meeting of the General Health Committee, 26th August, 1886.

---

At the conclusion of my enquiry, pursuant to the instructions of the Local Government Board, into the sanitary condition of Salford, as part of a comprehensive survey of sanitary districts, which, with special reference to the possible introduction of cholera into this country, has been ordered by the Board, I have the honour, in accordance with these instructions, to report immediately to the General Health Committee of the Council, upon the results of this enquiry, in so far as these relate to the pressing sanitary requirements of the borough. And in this sense I find I have only and briefly to state how entirely I concur in and endorse the matured advice of your Medical Officer, Dr. Tatham, who, in directing the attention of the Committee to the necessity for certain measures of permanent sanitary improvement being effected without undue delay, has ably summarized these matters under the following headings :—

- 1.—The unsatisfactory condition of the homes of the people, and of the sewerage in oldest parts of the borough.
- 2.—The filthy condition of the River Irwell.
- 3.—The objectionable system still adopted in certain districts for the removal of nightsoil.
- 4.—The continuance of the private slaughter-houses amidst the homes of the people.

1.—In regard to the first of these headings—the condition of the dwellings of the poorer classes, I would recommend that early action should be taken respecting the densely built, unhealthy and appallingly high death-rated localities in Salford, as for example, an area behind Chapel Street, in a neighbourhood comprising Garden and Quay Streets, the state of which, although to some extent ameliorated by the considerable attention which has been given to paving, flagging and surface cleanliness, can however only be effectually dealt with and improved to the full extent attainable within the powers of the authority, by the demolition of dwellings unfit for habitation, or obstructive to the free circulation of air. In reference to the sewerage of the borough, the result of my enquiry shewed that deposits prevail to a serious degree in the majority, if not the whole of the old brick sewers, notably in the Greengate district, where, besides other localities, opportunities of actual inspection were afforded me, as also in certain pipe sewers of more modern construction. Looking to the supreme importance of maintaining sewers in the highest possible state of efficiency, it is desirable that this subject should at once be referred to the Borough Engineer for specially and detailed report upon :—

I.—The state of the sewers and the structural works necessary for their amendment.

II.—The adoption of permanent arrangements for the regular and systematic flushing of the system.

2.—This matter is now being dealt with by the authority.

3.—With regard, next, to the question of excrement disposal, and in view of the dangers to the public health attendant upon defective methods, the authority should require the abolition throughout the entire borough of all midden privies, and their substitution by pail, or water-closets. From my own observations, I regret to find that the so-called improved or modified privy which has been allowed in the Salford and Broughton districts especially, possesses from the health point of view no appreciable advantages over the older midden privy of which it not only retains some of the objectionable structural details, but the one essential defect of permitting excremental accumulation over excessive periods of time.

4.—Lastly, the authority should consider the desirability of erecting public abattoirs and the discontinuance of private slaughter-houses, the unfitness of which on general sanitary grounds and the insuperable difficulties in the way of efficient supervision have already been brought under notice by the Medical Officer of Health.

DAVID PAGE, M.D.

26th August, 1886.



## APPENDIX III.

---

COPY OF REPORTS OF THE BOROUGH ENGINEER,  
ON THE  
CONDITION OF THE SEWERS,  
(a.) IN THE DISTRICTS OF SALFORD AND BROUGHTON,  
(b.) IN THE DISTRICT OF PENDLETON.

---

6th January, 1887.

(a.) SALFORD AND BROUGHTON.

TO THE GENERAL HEALTH COMMITTEE.

GENTLEMEN,

In obedience to your resolution dated the 16th of September of last year, I now have to report on the state of the sewers in the Salford and Broughton districts. I have prepared and lay before you a tabular statement\* shewing the depths of deposit in a large number of sewers, which were examined, and also the sizes and inclinations of the sewers. From this statement it will be seen that the amount of deposit is greater, generally speaking, in the older sewers, than in those which have been constructed more recently, and on truer principles. This is to be accounted for, *first*, by the fact that there has been a longer lapse

---

\* This statement has not been reproduced on account of its length, but it may be referred to at the Health Office,

of time for the deposit to accumulate in the older sewers, and *secondly*, because, owing to faulty work and the use of ordinary bricks in their construction, the friction has been greater, and the velocity of the current through the older sewers has been less, than it would be if a smooth impervious material had been used, as is now generally done.

With this statement before you, it is unnecessary that I should make further remark on the condition of the sewers beyond directing your attention to the fact that in the newer parts of the borough, notably that part of the Salford district lying to the south of Regent Road, where, as a rule, the sewers have been well and scientifically laid, there is nevertheless a good deal of deposit; and with reference to this fact I desire to point out that although the sewers have, as a rule, been laid with good working inclinations, quite sufficient to carry away all ordinary sewage and keep them perfectly self-cleansing, they are not calculated to discharge all the solid matter that passes into them from the passage drains.

Before enquiring what structural works are necessary to prevent the continuance or recurrence of the existing state of things, it is necessary that the cause of the evil should be ascertained beyond question, and with a view to arriving at a safe conclusion on this point, I have had samples of the deposit collected from several manholes in the newer as well as the older parts of the borough. These samples I have had washed carefully in order to get rid of all the lighter flocculent material, such as is found in ordinary sewage, and after all the suspended matter had been washed out, there were still left a considerable volume of heavy deposit, which, when examined with a lens, was found to consist wholly of ashes and cinders, which had evidently passed from the ashpits into the drains in the passages, and so into the street sewers. The presence of deposit in sewers which have moderately good gradients, is in almost every case due to some heavy material such as sand, grit, or cinders, finding its way into the drains, but my examination of the deposit proved that in every case cinders only were to be found, as might indeed have been anticipated, when it is remembered that all the road grit is intercepted by cesspits in the street gullies which are periodically cleared out.

With these facts before me, the only structural improvement that I can suggest is to disconnect the ashpits completely from the drainage system.

This, however, opens up a large question which can only be dealt with by the Building Committee and the several Night Scavenging Committees.

The examination which I have made shows beyond doubt that the process of silting in the sewerage system is going on steadily—except in those districts where cinder sifters are used—and the nature of the material found in the sewers clearly indicates where the origin of the evil is to be found, and where the remedy will have to be applied.

FLUSHING.—With regard to the question of flushing the sewers, I desire to point out that the process is one which is not in my opinion applicable to this borough to any large extent. Most of the sewers have flatter gradients at their lower end than are to be found at their upper extremity, and with a very few exceptions the sewers are connected to the intercepting sewer. The effect then of flushing the sewers would be to carry the deposit—if indeed it could be moved by ordinary flushing—into the flatter parts of the sewers, where, owing to the reduced velocity the grit would be deposited, and if not deposited here, it would pass into the intercepting sewer, which has a flat inclination, and in most parts a velocity insufficient to remove heavy silt. The proper remedy to apply is to entirely prevent the admission of heavy gritty matter into the sewers.

I may add that most of the above remarks as to the quantity and kind of material existent in the public street sewers, apply in a greatly exaggerated degree to the private passage drains. A very large number of these drains terminate with dead ends, and as the amount of sewage that would come from the slopstones of three or four houses at the upper end of the drains could be but trifling, it is obvious that there could be but little or no scour to remove whatever cinders or ashes may pass into the drains, and the consequence is that blind ended passage drains very frequently become stopped up with deposit, causing frequent cleansing and consequent expense.

28th February, 1887.

## (b.) DISTRICT OF PENDLETON.

TO THE PENDLETON DISTRICT HIGHWAY, &amp;C., COMMITTEE.

GENTLEMEN,

In obedience to your resolution of the 17th of January, I now have to report on the state of the sewers in the Pendleton district. I have prepared and lay before you a tabular statement\* shewing the depths of deposit in a large number of sewers which were examined, and also the sizes and inclinations of the sewers.

From this statement it will be seen that the amount of deposit is greater, generally speaking, in the older sewers, than in those which have been constructed more recently, and on truer principles. This is to be accounted for, *first*, by the fact that there has been a longer lapse of time for the deposit to accumulate in the older sewers, and *secondly*, because, owing to faulty construction, and the use of ordinary bricks in their construction, the friction has been greater, and the velocity of the current through the older sewers has been less, than it would be if a smooth impervious material had been used, as is now generally done.

It will be noted that most of the new sewers are free from deposit, or nearly so, and also those which have a high inclination of which the following may be taken as an example.

NEW SEWERS—Cromwell Road,  
Walness Road,  
Liverpool Street,  
Gerald Road,  
Langworthy Road.

STEEP SEWERS—Holland Street,  
Broad Street, (Upper part)  
Eccles Old Road,  
Weaste Lane,  
Church Street, (Upper part)  
Broughton Road.

---

\* See note to page xxxi.

Before enquiring what structural works are necessary to prevent the continuance, or recurrence, of the existing state of things, it is necessary that the cause of the evil should be ascertained beyond question, and with a view to arriving at a safe conclusion on this point, I have had samples of the deposit collected from several manholes in the newer as well as the older parts of the district. These samples I have had carefully washed in order to get rid of all the lighter flocculent material, such as is found in ordinary sewage, and after all the suspended matter had been washed out, there was still left a considerable volume of heavy deposit which when examined with a lens was found to consist wholly of ashes and cinders, which had evidently passed from the ashpits into the drains in the passages, and so into the street sewers. In my opinion, the presence of deposit in sewers, which have moderately good gradients is, in almost every case, due to some heavy material such as sand, grit, or cinders, finding its way into the drains; but my examination of the deposit proved that in every case cinders only were to be found, as might indeed have been anticipated, when it is remembered that all the road grit is intercepted by cesspits in the street gullies which are periodically cleaned out.

Before entering upon this enquiry, I thought it probable that the drains and sewers in those parts of the Pendleton district in which cinder sifters have been used would be proved fairly free from deposit, but strange to say, the prediction has not been fulfilled, and I am obliged to conclude that the deposit now existing in the drains in Pendleton has been there since before the cinder sifters were introduced.

In certain localities, for example, Indigo Street and Bolton Road, Irlams-o'th'-Height, the existence of deposit can easily be accounted for, as the sewers have been originally badly laid, or dislocated by the settlement of the ground subsequently to their being laid.

No doubt much of the deposit is due to the sewers not having been originally perfectly truly laid. Any sewer having but a gentle fall in the whole of its length, would have to be laid with *perfect accuracy* in order to prevent absolutely deposit from taking place, for the heavy matter would rest at the bottom of every undulation, the intermediate lengths being quite free from silt. To secure that every drain and sewer shall be entirely free from deposit, it would be necessary to take up and relay a very considerable

length of the existing culverts and pipe drains at a great expense, but much can be done by increasing the number of manholes, and by constructing cesspits in the bottom of existing manholes. These cesspits will catch the silt as it gradually passes along the sewer, and thus the evil will be localized at the manholes, from which it can be easily and cheaply removed.

I believe that if a sufficient number of cesspits be constructed, a very large quantity of the deposit now existent can be got rid of, and its accumulation largely prevented in the future.

I am, Gentlemen,

Your obedient Servant,

A. JACOB,

BOROUGH ENGINEER.

# INDEX.

	PAGE.		PAGE.
Adulteration of food .....	72	Elevation above sea-level .....	18
Age at death.....	25, 31	Enteric fever .....	44
Analysis of food .....	73	Epidemic diseases .....	36
Analysis of mortality .....	19	Epizootic diseases .....	15
Area of borough and districts .....	18	Estimate of population .....	18
Atmospheric impurity (smoke).....	76		
Annual rateable value.....	18		
		Factory smoke.....	76
Bakehouses, supervision of .....	76	Future hospital accommodation ...	App.I
Borough Engineer's Report .....	App.III	Fever hospital .....	61
Births and birth-rate .....	18	Fever, Typhus .....	43
Birth-rate, decline in .....	13	Fever, enteric or typhoid .....	44
Blacksmiths' forges.....	77	Fever, scarlet .....	39
Boilers, steam, in Salford .....	77	Fortnightly health reports.....	64
Brick-burning nuisance .....	78	Food adulteration .....	72
Bye-laws, sanitary .....	68	Fryer's destructor .....	64
Certification of cause of death .....	50	Health of Salford in 1886 .....	13
Classification of cause of death.....	29	Health Department, work of.....	57
Cost of maint'ance of WiltonHospital	64	Hospital, fever, report of .....	61
Compulsory notification of diseases	57	Hospital, fever, maintenance of ...	64
Conditions injurious to health .....	64	Homes of the people .....	3, 65
Comparative nosological table .....	34		
Contagious diseases in cattle.....	15	Illegitimacy .....	27
Cowsheds, regulation of.....	71	Ill-defined causes of death.....	49
Continued fever .....	45	Increase of population .....	18
Condemned meat.....	68	Infectious disease, notification of...	57
Constitutional diseases .....	48	"    "    in schools .....	60
Coroner's inquests .....	50	"    "    prevalence of ...	36
Correction of death-roll .....	13	"    "    isolation of .....	61
		Infantile mortality .....	25
Dairies and milk-shops order.....	71	Inhabited houses.....	18
Deaths during 1886; in Salford ...	19	Influences affecting health.....	64
Death-rate, increase of .....	13, 19	Inquests .....	50
Death-roll, correction of.....	19	Irwell, condition of .....	5, 66
Density of population.....	18	Isolation of infectious disease .....	61
Destructor for street sweepings ...	67		
Developmental diseases .....	48	Jacob, Arthur, Esq., Report .....	App.III
Destruction of infected clothing ...	64		
Dilapidated property, demolition of	4	Ladies' Sanitary Association, appeal	7
Disinfection of infected bedding ...	64	Life Table, .....	25, 26
Disinfection of houses.....	80	Life saving in 1886 .....	34
Diarrhœal diseases .....	47	Local Government Return.....	51
Diphtheria .....	42	Local Government Inspection .....	6
Disinfector, steam .....	64	Local diseases .....	48
Drainage of the Borough .....	65	Lodging houses, supervision of.....	68

	PAGE.		PAGE.
Magisterial proceedings .....	79	River Irwell, condition of .....	5, 65
Marriages .....	18	Sanitary condition of Salford, 1886. 3, 13	
Measles prevalence .....	45	"    progress .....	14
Medical Officer, reports of .....	64	"    Association, Ladies' Branch .....	7
Meat unwholesome .....	68	Saving of life in 1886 .....	34
Meteorology .....	52	Seasonal distribution of mortality... ..	19
Miasmatic mortality .....	46	Scarlet fever .....	39
Midden refuse, disposal of .....	4	Schools and infectious disease .....	60
Milk supply regulation of .....	71	Sewers, Borough Engineer's Report. App. III	
Milk shops and cowsheds .....	71	Slaughter-house nuisance .....	72
Mortality in Salford, 1886 .....	19	Small-pox in 1886 .....	39
"    analysis of .....	19	"    epidemic, 1875-7 .....	59
"    in other towns .....	24	Smoke nuisance .....	76
"    infantile .....	25	Spread of infection by schools .....	60
"    normal rate of .....	25	Statistics, Vital .....	19
"    male and female .....	25	Steam boilers in Salford .....	77
"    at different ages .....	26	Street sweepings, disposal of .....	67
"    relation of illegitimacy to .....	27	Sub-let lodging-houses .....	69
Nervous diseases .....	49	Suggestions for future sanitation... ..	4
Nightsoil removal .....	5	Systematic inspection .....	67
Normal rate of mortality .....	25	Swine fever in 1886 .....	16
Notification of disease .....	57		
Nuisance inspection .....	67	Temperature (Meteorology) .....	52
Offensive trades .....	78	"Tip" nuisance .....	67
		Typhus Fever .....	43
Pauperism .....	53	Enteric or typhoid fever .....	44
Page, Dr., inspection of Salford...6, App. II		Uncertified deaths .....	49
Population estimates .....	13	Unclassified deaths .....	49
"    increase of .....	18	Unhealthy areas, and cholera .....	6
Prevalence of infectious disease ... ..	36	Unwholesome meat .....	68
Price of food .....	53	Unvaccinated infants .....	18
Progress, sanitary .....	14		
Provisions, prices of .....	53	Vaccination .....	18
Protected towns of England .....	38	Value, rateable .....	18
Public health in 1886 .....	13	Violent deaths .....	49
Public health nuisances .....	67	Visitors amongst the poor .....	7
Public Analyst, The .....	72	Vital Statistics .....	19
Rainfall .....	52	Want of skilled attendance in sick- ness .....	8
Rateable value of property .....	18	Weak spots in sanitary armament ..	4
Registration of bakehouses .....	76	Whooping cough .....	46
"    dairies, cowsheds, &c. ....	71	Work of the Health Department ...	57
"    infectious diseases ... ..	57		
"    lodging houses .....	68	Zymotic diseases .....	36
"    milk shops .....	71		
Reports of Medical Officer of Health ..	64		
Revision of population estimates ... ..	13		