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STAFFORDSHIRE COUNTY COUNCIL.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH,

GEORGE REID, M.D., D.P.H.,

FOR THE YEAR

1893.

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INDEX.

STAFFORDSHIRE COUNTY COUNCIL.

ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH

Presented to the Council at the Annual Meeting,

October 30th, 1894.

INTRODUCTORY.

In this, my fifth Annual Report, I propose to adhere, so far as collating the reports of District Medical Officers of Health is concerned, to the general plan adopted originally, and deal with the various reports under subject headings, in place of devoting a special summary to each.

Were it not for the fact that the Administrative County contains so many sanitary districts, the latter plan would possibly be the better, but to adopt it, under the circumstances, and at the same time give sufficient prominence to the more important features of each report under review, would necessitate needless repetition, many remarks being equally applicable to several districts.

While this is so, I feel it is desirable that Members of the Council, who may wish to see at a glance the leading features of certain districts, ought to have the means of doing so, and, in order to admit of this, I have again introduced a summary, in tabular form, and in alphabetical order, of the vital statistics and prominent characteristics of each report. These tables, one for urban and the other for rural districts, will be found at the end.

In addition to this, I have indexed the report, so that each question dealt with, whether of general or special significance, may at once be referred to.

The other general tables correspond exactly with those of last year's report.

The coloured map shows the position up to date of the various districts in the County, with regard to (1) the Compulsory Notification of Infectious Diseases Act, and (2) the presence or absence of Isolation Hospitals and Disinfecting Apparatus.

I take this opportunity of thanking the Medical Officers of Health who, almost without exception, have fallen in with my suggestions as to the introduction into their reports of certain details which, from the point of view of the County Council, are of great value. There is still room, however, in some of the reports, for greater detail in the accounts given of the various outbreaks of infectious disease. It is also desirable that corrections should in all cases be made in the statistics of those districts where large public institutions, such as General Hospitals and Union Workhouses, affect the returns to an extent which materially interferes with a true estimate of the rates in the districts which contribute to the institutions in question; in many cases these corrections are made, but in a few they are not.

It is satisfactory to be able to record that, in response to the appeals of the County Council, nearly all the annual reports of District Medical Officers of Health are now printed.

I must not omit to thank the Medical Officers of Health of districts which extend into other counties for the trouble they have kindly taken to subdivide the statistics, so as to enable me to deal only with the figures for the Staffordshire portions of those districts.

It is satisfactory to think that with one exception, viz., Tamworth Rural District, the readjustment of the boundaries, consequent upon the establishment of District Councils, will do away with the necessity for any such special classification in the future.

I have thought it well on this occasion, for the information of those members of the Council who are not members of the Sanitary Committee, and who, therefore, have less opportunity of acquiring a knowledge of the work which is being carried on in the public health department, to introduce into this report a short summary of what has been accomplished up to the present time, more with the view of indicating the lines on which the Sanitary Committee are proceeding, than with the hope that so condensed an account can convey an adequate idea either of the work which has been done or the good which has attended it. In this summary I have, with the approval of the Sanitary Committee included, *in extenso*, two special reports which I have recently prepared, one dealing with the question of Isolation Hospital accommodation in the County, and the other with an important question affecting sewage disposal—both matters of general interest, and, at the present time, of pressing importance.

SUMMARY OF PAST WORK.

My first duty on undertaking the work of the important office which I hold, was to acquire as accurate a knowledge as possible of the existing sanitary circumstances in the various districts of the County, and, with this object, a large portion of my time was spent in making systematic inspections of each urban district. I have, only recently, completed these inspections, and the information which has thus been acquired is recorded in a book which has been designed to show, not only the present conditions as regards sanitary administration, but also the progress which is made from time to time in the various districts. Without this record, which could only be compiled after detailed inspection and inquiry by myself, the County Council could not have gauged, as they will now be able to do, the activity displayed by the respective sanitary authorities in the discharge of their administrative duties. Another useful purpose served by the inquiry has been, that it has enabled special reports to be prepared for the information of the Sanitary Committee, in which the prominent sanitary circumstances in the various districts have been embodied, together with suggestions as to the most urgently-needed reforms, and these reports have in each case been sent to the authorities interested. With very few exceptions, categorical replies have been received under the separate sections of the reports, and in many instances the authorities have undertaken to carry out suggested useful reforms. I am pleased to be able to record that there is ample evidence, in the Annual Reports of the Medical Officers of Health of those districts which were reported upon early in the inquiry, that the promised reforms, either have been, or are being, effected, and I think the Sanitary Committee have every reason to be satisfied with the impetus which their action has given to sanitation in the Administrative County. It is also satisfactory to know that this has been accomplished without friction, for, almost without exception, the sanitary authorities, through their officers, have afforded me every facility for acquiring information, and, as a rule, they have received all communications from the Sanitary Committee as coming, not from an irresponsible authority, but from one fully alive to the difficulties which local authorities have to contend with in their administration of the sanitary Acts, particularly in the poorer districts of the County.

As regards the rural districts in the County, the area they cover quite forbids a systematic attempt being made to acquire the same detailed information as has been acquired in the case of the urban districts, still, even village sanitation has not been lost sight of, and, apart from many special enquiries I have made—often at the instance of the rural sanitary authorities themselves or their Medical Officers of Health—I have frequent opportunities when engaged in another branch of my work—viz., river pollution investigations—of gaining valuable information concerning the sanitary surroundings of the rural populations. It will be seen

therefore, that I am not entirely dependent upon the annual and special reports received from the various Medical Officers of Health for my information.

As time went on the various sanitary authorities began to realize that the County Council did not intend to allow their powers as a supervising authority, limited though they may be in some respects, to become a dead letter, and it also became apparent that, in their dealings with sanitary authorities, the Council fully realize, and make every allowance for the difficulties which these authorities have to contend with in their efforts to improve the sanitary surroundings, particularly in the poorer districts of the County. This knowledge soon inspired a confidence which has continued to grow until it is now by no means an uncommon experience to receive applications from local authorities for guidance and advice when questions of unusual difficulty are under consideration. It is also satisfactory to me, personally, to find that the occasions on which my advice is sought for by the various health officers in the administrative county, each month become more frequent.

As regards the important work under the Rivers Pollution Prevention Act, the authorities throughout the County are undoubtedly beginning to appreciate the fact that the County Council are in earnest in exercising their powers, and I feel satisfied that the progress which has already been made, amply justifies the step taken, nearly two years ago, in granting me the assistance of a river inspector. It may appear to some, that the work of purifying the streams in the county has not progressed as fast as it might have done, but it must be remembered that the question of sewage disposal is a costly and difficult one, and, although the authorities, almost without exception, are devoting serious attention to it, time must elapse before much practical proof of improvement is apparent.

Again, the information which it is necessary the Council should possess, is by no means easily acquired, a fact which will be self-evident from the following outline of the routine work under this department.

This information may be classified as follows :—

1.—Information, amounting to proof, as to whether the whole or part of the sewage of a district is discharged, in its crude state, into streams.

2,—Information, amounting to proof, as to whether in districts where systems of sewage treatment are in operation, the treatment is uniformly effective, and is applied to the whole of the sewage.

3.—Information, amounting to proof, as to whether manufacturing refuse is discharged into streams without first having been rendered harmless, so far as is reasonably practicable.

The only means by which such information can be obtained under the first heading is by following the course of the streams

and their tributaries throughout the County, and tracing each sewer communicating therewith to its source. As regards urban districts, it may be said that this had already been done before the river inspector was appointed, but in the case of rural districts, with a few exceptions, we were still very much in the dark so far as proof was concerned. Considering the area of such districts, and the distances separating the numerous villages and hamlets—most, probably, contributing their share to the pollution of our rivers—the work entailed under this heading alone is by no means light.

As regards the second heading, the case is more complicated, as experience has proved in more than one instance already. It is well known that under varying conditions, accidental and otherwise, very different effluents may be obtained from the same sewage works, so that, although the general standard of work done may be bad, occasional analyses may indicate the contrary. It is obvious from this that authorities may have a good defence in saying that the good analyses they are able to show represent the average, whereas the bad results obtained by their accusers are exceptional. To defeat such an argument, it is essential to possess a continuous record of results, obtained by analyses conducted periodically, as from such only can a true average be arrived at.

There is another circumstance which renders systematic inspections of works at varying intervals necessary, namely, that the means available for sewage treatment are not always made use of. This I have found to be the case on many occasions, and unless those who are responsible for the management of such works are aware that at any moment a visit of inspection may be made by a responsible officer of the County, such irregularities may continue.

Under the third heading, namely, pollution by manufacturing refuse, the *detective* principle applies still more strongly, for, as a rule, it is only at intervals that such waste materials are discharged from works, and many inspections may have to be made before the fact can be verified.

So far I have not alluded to the quality of river water as an index of the pollution which takes place, but, as in this we have the sure test of the progress that is made, it is expedient that analytical records of samples, collected periodically at various fixed points, should be available, together with particulars regarding the natural conditions that may affect the conclusions, such as the depth and rapidity of flow of the stream at the time of taking the samples, and the antecedent rain-fall.

The above summary indicates the amount of information that should be in the possession of the Council before decisive action can be taken in any case, and, as time goes on, and inquiries on these lines are continued, the position of the Council will be greatly strengthened.

The systematic work, on the above lines, is conducted as

follows:—Two days in each week the inspector is engaged in obtaining samples for analysis from the various sewage works in the County and from streams at fixed points, notice being taken of the conditions at the works visited, and observations being made as to the depth and rapidity of flow of the water in the streams in question, in order to arrive at the rate of discharge, so as to allow, as far as possible, of one analytical result being compared with another under varying conditions of rain-fall, &c.

Now and again, in consequence of some special report received with reference to river pollution, the routine work has to be interrupted, and I have made it a practice, under these circumstances, so to direct the work of the Inspector that the time spent in such extraneous inspections shall be acquired at the expense of the rural inspections, rather than of the sample collecting, thereby insuring non-interference with the continuity and regularity of the visits to sewage works and the special points of observation on main streams; at the same time, although these inspections are made with regularity, the order observed in visiting sewage works is varied from time to time, and the essence of the inquiry consists in the visits being of a surprise nature.

As the inspection of each district is completed, the river inspector reports the details to me, and, having verified these by a personal inspection in company with him, I draw up a report, which is embodied in my usual monthly report to the Sanitary Committee, and, if approved of, it is forwarded to the authorities interested.

Up to the present time, besides the complete information recorded as to the conditions of sewage disposal in urban districts, twelve of the 22 rural districts in the administrative county, with a joint population of 159,605, and covering an area of 702 square miles, have been inspected and reported upon. As regards the inspection of sewage works and streams, 294 observations and analyses have been recorded, representing an average of over seven for each works and point of observation on streams, there being 27 of the former and 13 of the latter.

In view of the powers which have recently been conferred on County Councils under the Isolation Hospitals Act, 1893, for some time past I have been engaged in an inquiry into the existing provision for infectious cases in the administrative county, and I have prepared a report upon the subject for the information of a special Sub-Committee, which has been appointed to consider what steps the Council should be recommended to take in the exercise of their powers. As it is likely that the question will soon come prominently to the front, the Sanitary Committee have instructed me to embody my special report on the subject here, so that each member of the Council may have the opportunity of judging of the requirements of the County, as regards isolation accommodation.

Another important matter which, with the approval of the

Council, has recently been the subject of an inquiry by me, is the effect which the general introduction of the slop-closet system into towns may have on the question of sewage disposal. The report which deals with this inquiry is also reproduced here, as the Sanitary Committee felt that in view of the increasing popularity of the system it was most desirable that the facts set forth in it should be made public.

ISOLATION HOSPITALS IN THE COUNTY.

At a meeting of the Sanitary Committee held on February 10th of this year, I presented a report, explanatory of the Isolation Hospitals Act, 1893, and indicated the broad lines which in my opinion should be followed in giving effect to the provisions of that Act. A sub-committee was formed to consider the whole question, and in order that the members may have all the information in their possession to enable them to form an opinion regarding the existing isolation hospital accommodation in the County, I have, since then, visited all the hospitals, and the result of my inquiry I now embody in this supplementary report.

In place of dealing, in the body of the report, with the details of each hospital, I have prepared a table setting forth these in a convenient form, from which it will be seen at a glance how each district is situated as regards accommodation. In order to avoid repetition, it is desirable that the report of February last should be read in connection with this report.

It is not necessary, at this stage, that I should express any opinion regarding the fitness of each hospital, this will come later when negotiations are entered upon with the various authorities, my remarks, therefore, so far as the existing accommodation is concerned, will be of a general nature.

As regards the necessary accommodation, it is generally considered that one bed should be provided for every 1000 of the population, as, however, the public have not yet been educated up to the point of fully availing themselves of such accommodation, in my opinion it would be expedient for the present to adopt a standard of one bed per 1000 for urban, and one bed per 1500 for rural populations. Taking these numbers as a basis, it will be found on reference to the table that the accommodation of one sort or another at present available amounts to 372 beds, whereas, the number should be 568. This, however, does not represent the deficiency, for, in many instances the accommodation provided, though it may have answered a valuable purpose for the time being, is very far from what it should be. Again, although the actual number of beds amounts to 372, the average capacity of the buildings is not sufficient for that number, as will be seen from the columns in the table dealing with the cubic space and floor space available. Both, in most instances, come very far short of the recognised requirements. The cubic space for ordinary cases which is considered desirable is 2000 feet, and the floor space 144

feet, in the case of children, however, these amounts may be reduced by one-fourth. In one or two instances something approaching this space is met with in hospitals in the County, but as a rule the accommodation is lamentably short of it, and when we consider the defective ventilation arrangements in many instances, the injury which must result from this overcrowding must be serious. In estimating the accommodation I have not taken into account the urban districts of Handsworth and Tettenhall, and the rural districts of Kidderminster and West Bromwich, in all of which cases, infectious patients are sent, by arrangement, either to the hospitals belonging to the County Boroughs of Wolverhampton and West Bromwich, or to the Kidderminster Borough Hospital; neither have I included the urban districts of Brownhills and Willenhall, and the rural district of Walsall, where temporary provision, for a limited period only, is available.

It is important to notice, in judging of the present accommodation, that in some instances smallpox is the only disease which is provided for, and in other instances the same hospital is used for the isolation of smallpox and other infectious cases. In any scheme which may be adopted, it must be laid down as a principle that smallpox cases may not be isolated in the same hospital, or even under the same administration as other cases. As smallpox is a disease which now only occasionally makes its appearance, and as it has to be dealt with separately, it may be found desirable, providing it proves to be practicable under the Act, to establish larger areas for this purpose than for general isolation purposes.

It is not necessary that I should refer on this occasion to all the conditions under the various headings of the table, but by no means third in importance to the questions of the number of beds provided and the cubic space required, is that of nursing. Without wishing to cast any discredit on the authorities, who, under the circumstances, may have gone as far as circumstances reasonably permitted, a glance at the column headed "nursing" in the table will show how far from what is desirable the present provision is in most cases. The Committee will remember the suggestion I threw out in my February report as to establishing a centre from which trained nurses could be provided from time to time for the various districts, and I think it will be admitted that a radical change in this direction is necessary if hospitals are to be made use of to the extent to which they should be. It is not surprising that the public hesitate to submit to isolation under the circumstances existing in many districts, and until an improvement is effected the low figures in the percentage isolation column of the table will undoubtedly be maintained. It is the duty of sanitary authorities to protect the public from infectious diseases, and they are empowered to compulsorily isolate cases. In exercising this power, however, the interest of the patient must be considered as well as

that of the public, and every reasonable provision should be made for his comfort. Were this the case, the practice of isolation would soon be generally recognised as a valuable and necessary precaution.

I need not comment further upon the summary table, which should be carefully studied. I would call attention, however, to the third column of the table, showing the dates when the various hospitals now existing were established. It will be noticed that some of these have only been erected this year or last. With the exception of Tamworth, these recent buildings are mostly of a temporary nature. The fact is, strong pressure is being brought to bear upon Authorities by the Local Government Board to provide hospitals, and the present prevalence of smallpox acts as a lever in this direction. From enquiries I have made in districts not yet provided with hospitals, most are now moving in the matter, although few contemplate providing any other than temporary accommodation. That this is the case renders it most desirable that any steps which the County Council may take should not be delayed.

The following summary of the information I possess will indicate the position of the various districts not possessing Isolation Hospitals of any description at the present time :—

URBAN DISTRICTS.

AUDLEY.—Negotiations are now in progress for the purchase of a small farm and two cottages.

COSELEY.—Isolation hospital not yet provided, but a site for the erection of one has been decided upon.

KIDSGROVE.—The question does not seem to have received the attention of the authority.

LONGTON.—The authority have purchased a site, but as yet no steps have been taken to erect a hospital. During the recent epidemic of small-pox temporary means of isolation was provided at an old cottage hospital, as, however, it is situated in a crowded locality, it is not well suited for the purpose.

In RUGELEY and SHORT HEATH no steps appear to have been taken towards providing hospitals, neither has the Smallthorne authority moved in the matter, although it is said it is their intention to do so.

RURAL DISTRICTS.

ASHBOURNE.—A scheme is being propounded by the Derbyshire County Council which it is hoped will provide for the portion of the district within that county. The difficulty, hitherto, has been to come to terms with the Urban District, and also to meet with a suitable site.

BURTON-ON-TRENT.—It is stated that in the event of an outbreak of infectious disease the Swadlincote Local Board hospital

would be available. A scheme, propounded by the Derbyshire County Council, embraces the Swadlincote Local Board District and the Derbyshire portion of the Burton-on-Trent Rural District, and it is said that the scheme is likely to be favourably received by both authorities. The Medical Officer of Health writes, that the ultimate arrangements will probably be regulated by the action which may be taken under the Local Government Act of this year, and, that if the Union is not divided the whole might participate in the Derbyshire scheme.

CHEADLE.—Writing in July, the Medical Officer of Health says that a meeting of the Sanitary Authority was held on the 13th of that month, at which Dr. Fletcher of the Local Government Board was present and urged the provision of an isolation hospital, stating that the Local Government Board would require a definite reply. The letter goes on to state, that now the authority are being pressed, they will see the desirability of providing accommodation.

MARKET DRAYTON.—In this district land has been rented for the purpose of erecting tents should occasion require, and tents have been provided which are stored in the Union Workhouse.

NEWCASTLE.—In this district it would appear that the authority have not come to any determination with regard to providing a hospital.

In NEWPORT and SHIFNAL rural districts no provision is available beyond the accommodation which exists in the Union Workhouse.

UTTOXETER.—No steps have been taken in this district at present, and the Medical Officer of Health believes that the authority do not propose to take any steps until the question of the boundary of the district is definitely fixed.

SEISDON.—Here, a cottage situated at the extreme end of the district is available where two patients may be isolated. The authority at the present time are considering the question of making further provision for isolating cases.

In conclusion I venture to suggest, that in connection with isolation provision in the County, the County Council at present have a great opportunity which may slip from them if action is much delayed, for, considering the pressure which is being brought to bear upon authorities by the Local Government Board, it is extremely likely that money will be spent in erecting buildings which may not fit in with the comprehensive scheme which I sincerely hope the Council will see their way to adopt.

In order to succeed in framing this scheme, it will be necessary to secure the co-operation of the authorities interested, particularly of the Municipal Boroughs, which are not under the same obligation as the other districts to fall in with the views of the County Council. In my first report I threw out a suggestion that this

ISOLATION HOSPITAL ACCOMMODATION IN STAFFORDSHIRE.—August, 1894.

DISTRICT.	Population, 1891.	Persons per bed.	Date of erection or conversion.	Permanent or temporary.	State of repair.	Area of site.	Distance in yards from nearest House	Distance in yards from nearest Road	Ambulance.	Disinfecting Apparatus.	Cart for infected clothing.	Mortuary.	Laundry.	Telephonic communication.	Ventilation.	Warming.	Drainage &c.	Water Supply.	Nursing.	Medical Attendance.	Whether charge made.	Diseases admitted.	No. of Wards.	No. of beds in each Ward.	Mean cubic space per patient in feet. a	Mean floor space per patient in feet.	Percentage isolation during past 4 years.	REMARKS.
BIDDULPH	8290	881	E. 1894	T.	Good.	0·70	200	22	Nil at present.	Nil.	Nil.	Nil.	Nil.	Nil.	Cross window ventilation. Four windows in each ward and outlets in roof near ridge.	High-pressure piping, heated by boiler in detached building.	Drains disconnected. Slop-water into ditch about 20 yds. off. Privy with sunk cesspit. Accommodation for bath and closets at end of each ward, but no appliances yet provided.	Public supply.	Care-taker. If necessary, will engage nurses.	Local practitioner. No fee yet fixed.	Yes, if patient can afford it.	Smallpox only at present.	2	3	2717	290	—	A wood-lined iron building. At present, ward-kitchen occupied by care-taker and husband. Besides this, only a room, which is practically a passage into kitchen, available for nurse.
BILSTON	23453	1000	E. 1883	P.	Bad.	1·75	53	37	Old cab.	Nil.	Nil.	Brewhouse used as such.		Nil.	Windows and fireplaces. One ward with two beds has no fireplace and no provision but window for ventilation. In small-pox block ventilation is better.	Stoves and open fire-places.	Pails. Removed weekly. Drainage into open pit on site, where it sinks away.	Public supply.	By care-taker, with assistance of charwoman, when required, who sleep in hospital.	Special medical attendant, £50 a year.	Nil.	Smallpox and any other one disease.	6	6, 3, 3, 2, 6, 4.	447a 1159a	54a 96a	46·2	Two wards for smallpox in recently-erected iron building, within 27 yds. of general block. Old building in dilapidated condition. Site not enclosed except by ordinary fence.
BRIERLEY HILL and QUARRY BANK Joint Hospital.	18562	928	E. 1893	T.	Good.	1	270	390	Old cab.	Modern steam apparatus.	Nil.	Nil.b	Nil.c	Nil.	Two windows each side with casement openings. One outlet in ceiling connected by pipe through ridge and Boyles' cowl, also four Tobin's tubes.	Four-inch low-pressure piping all round wards.	Into dumb well, where it sinks away and emptied periodically. W.C. and fixed bath in cross-ventilated annex at end of each ward. Drains disconnected.	Local well.	Man and wife. Trained nurses engaged when necessary.	M.O.H. of each district.d	Nil.	Smallpox and all others.	2	10	722	62	—	Iron wood-lined building, with some portion of building stone-work. Site fenced in by open iron fence. Hospital at one point within 7 yds. of field not in occupation of Authority.
BROWNHILLS	13703	An old building is now in process of being converted into isolation hospital. It stands on 1½ acres of land, which has been purchased by the Authority. Unfortunately, however, the actual spot on which the building stands adjoins a road, one wall of the building being actually on the road. Built on to one side of the building are two or three cottages which have not been purchased but which are unoccupied. Besides bedroom accommodation for attendants, there are eight rooms for patients—four on ground floor and four on the first floor. The average capacity of the former is about 1200, and of the latter nearly 1500.																										
CANNOCK (Urban and Rural).	26507	2808	C. 1894	P.	Fair.	0·5	40	3	Old cab.	Nil.	Nil.	Nil.	Nil.	Nil.	Windows and fireplaces, except in case of one ward which has no fireplace.	Open fireplaces.	Drainage into cesspool and on to garden land. Excreta carried to privy. No direct drain connections.	Public supply.	Woman in charge assisted by her husband.	M.O.H.	Nil.	Smallpox and all others.	4	4, 4, 3, 2.	417	48	—	On date of visit, being used for smallpox. Have had as many as 15 patients in hospital at same time. Only a hedge separates hospital from roads at two sides of it.
DARLASTON	14777	1478	C. 1892	P.	Good.	0·2	48	10	Old cab.	Gas stove.	One hand-cart.	Nil.	Washhouse used as such.	Nil.	Windows and openings into passages.	Open fireplaces.	Drains untrapped but not connected with house. Privy with deep sunk cesspit, which has urinal connected with it, and no ashes applied.	Public supply.	Man and wife live in house. Former leaves when cases are admitted. Women (untrained) engaged to help in nursing and housework.	M.O.H. No fixed fee.e	Nil.	Smallpox only.	4	3, 3a, 2, 2a.	479a 718a	56a 84a	2·8 3yrs.	Good clothes only disinfected in apparatus. Common clothing and bedding are burned. Authority contemplate providing a mortuary and a laundry.
HEATH TOWN AND WEDNESFIELD.	12065	1206	E. 1894	T.	Good.	1·0	300	250	Nil at present.	Nil.	Nil.	Nil.f	Nil.	Nil.	Ordinary sash windows on opposite sides. Two openings in ceiling, but not continued through roof. Three openings in floor into air space underneath.	Central stove with chimney through roof.	Drains disconnected. Slop-water on to pit around 20 yds. off, where it sinks away. Accommodation for closet, but no appliance yet provided.	Carted to hospital from mains 600 yards away.	Woman in charge, and propose to engage nurses when necessary, but besides ward kitchen only one sleeping room for man and woman in charge. Contemplate taking cottage on site where nurses might be accommodated.	Alternate quarters M.O.H. of each district.e	Nil.	Propose to admit all diseases, although built for smallpox.	2	6 & 4.	1149	95	—	The building and furnishing, it is hoped, will amount to about £900.
LEEK (Urban)	14128	706	E. 1881	P.	Good.	2·2 Two-thirds enclosed	24	24	Specially-constructed carriage.	Hot-air chamber in which carbolic acid is vaporized.	Nil.	Yes.	Yes.	Yes.g	Top cross window ventilation, and two ceiling extractors. Galton's fireplaces.	Galton's fireplaces in walls, with fresh-air inlet.	Drains trapped and disconnected. Discharge into cesspool and then on to land. Fixed and moveable baths. Former heated by gas, which is said to be disagreeable.	Public supply.	Matron-nurse with assistance of man and his wife, and, when necessary, trained nurses.	No special attendant. Medical men attend their own cases.	Nil. Except to Guardians in case of paupers.	All diseases.	4	2	1204	98	26·1	A well-arranged hospital, but some alterations and additions are desirable.
LEEK (Rural)	13098	1750	C. 1894	P.	Good.	6·0	500	25h	One being built at cost of £30.	Nil.	Nil.	Nil. Propose to build one.	Nil.i	Nil.	Windows and open fireplaces.	Open fireplaces.	Disconnected and trapped. Disposed of on land. Privy used by convalescents. Movable baths.	Drinking water has to be carried from spring a mile away. Steps to get a more convenient supply.	Care-taker and her husband.	By own attendant, or in case of paupers by District Medical Officer.	Patients not paupers pay own attendant.	All diseases.	4j	2	759 and 586	62 and 69	—	The wards are rather an inconvenient size, as they are certainly not large enough for two beds in each.
LICHFIELD (Urban & Rural).	20563	2647	C. 1887	P.	Fair.	In open country adjoining large sewage farm.	47	24	Old omnibus.k	Only sulphur chamber.	Nil.	Yes.	Only wash-house.	Nil.	Windows and fireplaces.	Open fireplaces.	Drains disconnected. Slop water discharged to sewage farm. Ward slops received in pails and buried in garden. Outside privy for convalescents. Movable baths on each floor.	Local well.	Woman in charge does nursing and all work of hospital. Never had assistance even when as many as 12 patients have been under treatment at same time.	M.O.H.e	Nil.	Smallpox and all others.	5	2, 2, 2, 2, 4.	1050	129	3·5 4·1	Have two extra rooms, which might be used as wards and might accommodate 4 patients.
NEWCASTLE	18452	1153	E. 1872	T.	Bad.	1·5	130	50 l	Converted cab.	Hot-air chamber.	Nil.	Yes.	Yes.	Nil.	Openings in roof and also near ground level, but all closed in consequence of draught. Cross top window ventilation.	Central stove with chimney passing through roof.	Water-closets not properly cut off from ward. Drains not disconnected. Sewage discharged into town sewers. Movable bath for ward use.	Public supply.	Elderly woman assisted when possible by mothers of patients.	M.O.H. £1. 11s. 6d. per case.	Nil.	Scarlet fever and smallpox only.	2	8	1155	105	14·2	A very dilapidated iron building. It was previously used for smallpox in a London district. Apart from small outside kitchen, there is no accommodation for care-taker, so that she occupies one of the wards. No accommodation for nurses.
ROWLEY REGIS	30790	1811	E. 1892	T.	Good.	Under an acre.	300	14 l	Specially-constructed carriage.	Efficient steam apparatus 4 miles from hospital.	Nil.	Wooden shed.	Yes.	Nil.	Ordinary windows, opening at top, also lower openings fixed at ridge of roof and protected by perforated zinc.	Open fireplaces.	Directly communicating with each ward is an earth-closet, and, outside, a pail-closet for convalescents. Bath water on the garden, other waste water into ditch at side of fence.	Public supply.	By a woman care-taker who has unskilled assistance when required.	M.O.H. without extra salary.	Practically all. Guardians pay £1. 1s. a week for pauper cases.	Smallpox only. On one occasion opened for enteric fever.	4	5, 5, 4, 3.	698 and 869	62 and 90	3·6	Constructed of double wood walls with air space. Enclosed by close wood fence. When accommodation not sufficient, tents are erected. The ward with four beds is detached from main building.
SEDGLEY	14961	1866	E. 1893	T.	Good.	1·8	380	22	Use Dudley ambulance.	Nil.	Nil.	Nil.	Nil.	Nil.	Cross window ventilation and small openings at ridge of roof.	Central stoves.	Disconnected and trapped. Disposed of on land. Baths will be provided. Detached closets have been built, but at present they are not fitted with any form of closet.	From brook which is said to be pure, and is filtered.	Woman and her husband available at a moment's notice.	M.O.H. Salary not fixed.e	Nil.	At present only smallpox.	2	4	1309	100	—	Building cost £230, and fittings £30. Double wood buildings. Two wards open out of each other. Administration at one end.
SMETHWICK	36170	1644	E. 1886	P. m	Good.	11·0 n	700	120	Yes, but not satisfactory	Gas apparatus (Ransome's)	Nil.	Yes.	Yes.	Nil.	Cross window ventilation, central ventilating stove, air inlets under beds. Extractors in central chimney stack.	Central stoves.	Drains trapped and disconnected. Discharged into dumb-well. Privy with open cesspit used by convalescents. Earth closets opening out of wards with cross ventilation.	Public supply.	Woman and daughter assisted by male lodge-keeper. Assistance provided when necessary, but not trained nurses.	M.O.H.e	Nil.	Smallpox only.	4	9, 9, 2 & 2.	1280, 1040.	107 93	1·7	The main and permanent building has, until recent smallpox outbreak, only once been used during past eight years. Wood building used when only few cases.
STAFFORD (Urban)	18732	624	C.	Converted house and wooden annexe	Good.	2·2	160	160	Converted carriage.	Efficient steam apparatus 1 mile from hospital.	Two, one for infected and one for disinfected clothing.	Yes.	Yes.	Yes.	Windows. Also openings in ceiling, but they merely communicate with roof-space and are closed owing to draught. In annex, cross ventilation from casement windows at top, and openings at each end in gable.	Open fireplaces, except in annex, where two central stoves are fixed.	Outside pail-closets and special pails for wards.	Public supply.	Trained nurse in charge and a servant. Extra nurses engaged when necessary.	M.O.H. £30 a year.	Nil.	All except smallpox, for which special provision exists in small wooden hospital on other site.	5	3, 3, 3, 2, 12.	One ward with 3 beds 593. Others, 662. Annex, 936	58 60 72	47·8	The annex is a detached single-walled wooden building which is used only as an overflow for convalescents.
STAFFORD (Rural)	10030	1290	C. 1880	P.	Good.	0·58	440	40 l	By arrangement with Borough.	By arrangement with Borough, £2. 2s. a year	Use ambulance for this purpose	Yes.	Yes.	Yes.	Four windows in each ward; all, except two in top ward, open by top casements and ordinary sashes. Open fireplace in each ward.	Open fireplaces.	Faulty. Upper closet is of "wash-out" pattern. Downstairs bath (movable) discharges on to gully inside hospital although disconnected outside. Sewage into cesspool with short ventilating chimney stack near to public footpath.	Public supply.	Woman in charge, assisted by her husband and by trained nurse when necessary.	M.O.H. only. £1. 5s. per case.	Nil.	All except smallpox.	2	4	904 to 1169	108 to 115	20·7	The hospital stands high in a large field in the open country.
STOKE (Urban and Rural), FENTON, & HANLEY COUNTY BOROUGH Joint Hospital.	100860	2020	E. 1886	Mostly P.	Good.	6·75 of which 4 are enclosed.	150	250	Brougham-like carriage opening at back and two sides.	Hot air with steam but not inclosed chamber.	Nil.	Yes.	Yes.	Yes.	By Tobin's tubes and ceiling outlets, also inlets under beds and Galton's stoves. Top-casement openings to windows.	Galton's stoves. In the permanent pavilions these are fixed in centre of ward in brick-built block. In the isolation block they are fixed in wall.	Earth-closets and sinks in annex communicating with wards by cross-ventilated passage. Drains disconnected and sewage disposed of on adjoining land. Moveable baths.	Public, but intermittent supply.	Man and wife and servant girls as required. Intend having trained nurses. Women engaged at present although not trained are experienced.	Special Medical Attendant. £1. 1s. per case. Private cases, £2. 2s.e	Not by Hanley, but by other districts although not enforced.	Smallpox, diphtheria, typhus fever and scarlet fever	6	10, 10, 10, 10, 6, 4	1443 1053 624	111 81 63	o 15·6 1·0 2yrs.	Two pavilions and administration blocks are permanent. One block, with two wards of 10 beds each, has wood-lined iron walls outside and brick central walls.
STONE (Urban & Rural)	19826	1635	E. 1893	T	Good.	6·5p	300	40	Converted omnibus.	Nil.	Nil.	Yes.	Yes.	Nil.	Cross window ventilation by top sashes, also small window at each end in gable. Outlets in roof near ridge.	Central stove.	Earth closets in buildings with cross-passage ventilation at end of wards. Drains disconnected and discharge into cesspool. Moveable baths.	Local well.	Caretakers (man and wife) and trained nurses when necessary.	M.O.H. No fixed fee.e	Nil.	All diseases	3	6	1100	80	—	Wards and administration block in Humphrey's iron building. Outbuildings are of brick.
STOURBRIDGE (Rural).	54029	2022																										
General Fever Hospital	—	—	E. 1889	T.	Good.	0·73	130	q	Old cab.	Nil.	Nil.	Nil.	Yes.	Nil.	Fever wards: Cross window ventilation and opening at one end of gable.	Hot-water pipes in fever and smallpox wards. In single rooms oil stoves.	Earth-closets open direct from ward, without cross passage ventilation. Moveable baths.	Public supply.	Care-taker and husband in case of both hospitals. Separate administration.	M.O.H. only.	Nil.	All diseases.	2 & 3 single rooms	4	1276	111	r	Both hospitals are wood-lined wood buildings, standing on same site but separated by iron fence, from which smallpox hospital is distant 48 yards.
Smallpox Hospital	—	—	E. 1893	T.	Good.	0·53	205	123	—	—	—	Yes.	Yes.	—	Smallpox wards: Cross window ventilation. Four Sheringham openings and one four-inch extractor.								2	8	730	70		
TAMWORTH (Urban & Rural).	21945	1365	E. 1893	P	Good.	2·0	300	37	Cab kept for purpose.	Nil.	Nil.	Yes.	Only wash-house	Nil.	Tobin's tubes. Extract ventilators. Artificially-heated extraction flues. Cross top window ventilation. Central ventilating stoves.	In one block, open fireplaces, in the other, central stoves.	Water-closets in air-disconnected buildings. Drains disconnected. Sewage disposed of on land. Movable baths.	Public supply.	Caretaker and her husband, with assistance, and, if necessary, trained nurses.	M.O.H. No fixed fee.e	Nil.	All, including smallpox	4	4	1404 and 2006	108 and 156	—	Hospital is walled in and is well arranged, although several additions are wanted, such as general stores, coal stores, laundry &c., also disinfecting apparatus.
TIPTON	29316	1629	E. 1884	P	Fair.	0·5	120	150s	Old cab.	Small chamber in which carbolic acid is burned.	Nil.	Yes.	Yes.	Nil.	Windows with top casement openings at one side and at one end. Also opening in gable.	Open corner fireplaces.	Drains and bath waste untrapped. Patients' excreta thrown into privy with large sunk cesspit, emptied about twice a year and dug into adjoining land.	Public supply.	Caretaker and her husband. Trained nurses when necessary.	M.O.H. £1. 1s. 0d. a case. t	Yes. t	All, including smallpox	2	10, 6	1098 and 1338	131 and 104	u	Site enclosed by wall on three sides, but freely open to cemetery on one side. Interior walls plain brick, lime washed.
WOLSTANTON AND BURSLEM (Rural) AND BURSLEM AND TUNSTALL (Urban) Joint Hospital.	79956	4409	E. 1886	P	Good.	2·5 r	200	37	Van-like conveyance, rather alarming in appearance.	Hot air.	Nil.	Yes.	Yes.	Nil.	Cross window ventilation. Tobin's tubes, and outlet shafts with cowls connected with ceiling.	Combined system of open fireplaces and high-pressure hot-water pipes.	Mould's earth closets in air-disconnected buildings. Drains disconnected. Movable baths. Sewage disposed of on land adjoining.	Public supply.	Caretaker and husband, with assistants and trained nurses when necessary.	M.O.H. £1. 1s. 0d. a case.	Nil.	All, including smallpox	6	6, 6, 3, 3, 1, 1	Large wards 1186. Small wards 2014	99 and 167	9·7 6·3 9·7	With exception of one of the large wards the floors are bad, being of wood bricks, with large spaces between the blocks, and many of the latter are loose.
WALSALL (Rural)	8218	During prevalence of smallpox, an old farmhouse, in thinly populated part of district, rented for a time. Well suited for the purpose, and will accommodate a considerable number of patients.																										
WILLENHALL	18583	During epidemic of smallpox, a converted building made use of, accommodating 64 patients. Fairly well suited for purpose, but not suitable for permanent hospital.																										
WEDNESBURY	25813	2581w	E. about 1869	T.	Bad.	0·14	85	20	Canvas-covered ambulance.	Gas apparatus at Town Hall.	Yes.	Nil.	Nil.i	Nil.	Cross window ventilation.	Central stoves.	Wood-built privy. Drainage into cesspool with overflow into sewer.	Public supply.	Care-taker, who sleeps in wards, assisted by man, who sleeps in small building where there are two beds.	M.O.H. No extra payment.	Nil.	Smallpox only.	2 One bed in room occupied by nurse.	6 & 3	337, 717	47, 73	—	A wood-built building in bad repair, separated from road only by railway.

a Except when considerable difference exists in different wards the mean of the whole is given. b Tent erected when necessary. c Kitchen used as laundry. d M.O.H. of Brierley Hill responsible for management. Remuneration not yet fixed. e Patients can select own medical attendant if they wish it. f About to convert old machine house, which stands on site, into mortuary. g With Sanitary Inspector's Office. h Long way from public road, but within 25 yards of unfrequented public path. i Kitchen used as such. j Two of them in detached building. k New ambulance being made, costing £78. l From public footpath. m Except the two small wards, which are detached and built of wood. n Two acres enclosed as actual site. o No data as regards Hanley County Borough. p Hospital enclosure ½ acre. q Adjoins road which is used for farm purposes. r Notification Act only recently adopted. s Within 10 yards of Cemetery, with which there is communication by path through hedge. t Union patients, £1. 1s. 0d. per week; others, what they can afford. u Notification Act not in force. v 1½ acres enclosed by brick wall on two sides and by unclimbable wood enclosure on other two sides. w Have tents in addition.

co-operation might be secured more readily if the Council decide to exercise the powers the Act confers and contribute a portion of the initial outlay in establishing hospitals.

With the information now in the possession of the Committee it will be possible to form some idea of what is required, and the credit authorities are entitled to for existing accommodation may be estimated. Some of the hospitals are temporary and decayed and cannot be considered of much present value, others that are temporary may have served their purpose, but, being in good preservation, they may give rise to some little difficulty in the matter of adjustment; on the other hand, in the case of converted permanent buildings, their saleable value would probably amount to a sum approaching what they originally cost. There are other buildings, however, designed originally as hospitals, which will justly claim recognition, and which, with certain alterations and additions, would probably be found to fit in with the proposed scheme.

These are matters which will require the careful consideration of the sub-committee appointed to consider the whole question.

As I have shown, the question is urgent, and although in a county such as this considerable time will have to be devoted to its consideration, it is most desirable that some intimation should be given to the authorities that the question is under consideration, so that they may take this into account should they contemplate taking any immediate action. I venture to suggest that the various authorities in the County should be communicated with, and that a conference should be called, at which the position of matters might be explained. By this means the question would be ventilated, and they would have an opportunity of considering whether it would be to their interest to co-operate in a comprehensive scheme.

SLOP-CLOSETS AND SEWAGE DISPOSAL.

In accordance with the instructions of the County Council, in response to an application from the Corporation of Stafford, I have recently conducted certain experiments with the view of determining whether a proposed scheme of sewerage and sewage disposal might be adopted with every reasonable probability of success. I conclude that in authorizing me to undertake this experimental work the County Council were of opinion that the results would prove of interest and value to the County as a whole, and for this reason I propose to discuss the question more fully than would be necessary if this report was intended only for the information of the authority directly interested.

Some years ago, the Corporation of Stafford very creditably came to a determination to abolish the obnoxious privy-midden system of excretal disposal which then prevailed throughout the town, which system, apart from the nuisance attending it, seriously endangered the public health, for at that time the town was

entirely dependent upon surface-wells for its water-supply. Following the example of certain large towns, the Corporation determined to adopt the pail system and the objectionable privies were systematically abolished in favour of pail closets, which, with a few unimportant exceptions, are now in general use throughout the town.

The recent introduction of a public water-supply into the town brought to a head the question of sewage disposal, and the Corporation, realizing their responsibility under the Rivers Pollution Prevention Act, determined to take steps to put an end to the pollution which is now going on.

That the question of sewage disposal in Stafford is a difficult one all who are familiar with the locality will readily understand. The slight gradients available, and the fact that a large portion of the town lies so little above the level of the stream which is the natural outlet for the drainage of the district, renders disposal by gravitation impossible and necessitates a pumping scheme. Again, owing to the difficulty of acquiring a sufficiently large area of suitable land, the Corporation have had to consider the advisability of adopting some method of artificial filtration. Under these circumstances, apart from the principle being right in itself, the determination to establish a completely separate system of sewers, the existing sewers being retained for surface-water only, is a wise one.

The next difficulty which had to be met was the abolition of the pail closets and the introduction of a water-carriage system of excretal removal. Obviously this step was indicated, not only from a sanitary point of view, but on the ground of economy, for, it would be a ruinous policy to maintain the expensive pail system in addition to the necessarily costly works for disposing of the ordinary sewage.

This change might be accomplished by one of three methods, —namely, by introducing (*a*) ordinary water-closets flushed with clean water from a cistern in each closet; (*b*) trough-closets, available for groups of cottages and flushed, automatically, with clean water from a cistern common to a series; and (*c*) slop-closets automatically flushed by the waste water from the houses. After due consideration the last was the system decided upon, for the following reasons :—

1.—That on sanitary grounds slop-closets appear to be satisfactory appliances, as they have been favourably reported upon by Dr. Parsons, one of the Medical Inspectors of the Local Government Board. Also in those districts where the system has been partially adopted it is generally admitted that it has proved a success.

2.—That the trouble arising from frozen pipes and cisterns in the case of ordinary water-closets placed in out-buildings practically need not be considered in the case of slop-closets.

3.—That by utilizing the slopwater of a household for flushing

closets considerable economy is effected in the consumption of water, and the volume of sewage to be dealt with at the outfall is thus lessened.

On these grounds, the proposal to substitute slop-closets for the existing pail closets was favourably received, but before finally deciding to adopt that course, the Corporation, in the absence of any experience to guide them as to whether it would be possible to effectually treat so concentrated a sewage as would necessarily result from the establishment of such a system, very wisely determined to institute the experimental tests, the results of which are set forth in this report. The experiments also afforded an excellent opportunity of arriving at a conclusion as to the particular form of slopwater-closet which should be introduced. To allow of the experiments being conducted with a sewage approximating in character to the ultimate sewage of the town on the completion of the sewerage scheme, two streets, jointly containing 59 houses, were sewered precisely on the lines indicated above, the surface-water being excluded and slop-closets being provided for each house. It was not possible, owing to the flatness of the town, to select any streets for the purpose of the experiments which would allow of the whole process being completed by gravitation, consequently, pumping had to be resorted to.

Besides the above reason for conducting the experiments, it was sought by means of them to arrive at a conclusion as to the value in the case of the sewage in question of a precipitant called *Ferricum*, which had recently been introduced by Mr. Wardle, of Leek, and, as an afterthought, on the suggestion of Mr. E. W. T. Jones, the County Analyst, superphosphate of lime was also given a trial.

Two filters were experimented with, one the *polarite* filter of the "International Sewage Purification Company," and the other, a similarly constructed filter the special constituent of which was a substance called *magnetone*, which has recently been introduced by Mr. Bell, of Durham, and which, although very similar in appearance, is much cheaper than *polarite*.

Before dealing with the results of the experiments it may be well to describe, very shortly, what the experimental plant consisted of, and how the operations were conducted.

1. Sewage Well.—The sewage was received in a well which was large enough to contain a day's flow. At the mouth of the sewer a wire screen was suspended for the purpose of collecting the larger suspended matter, taking the place, in fact, of a roughing tank. After the sewage had been pumped out of the well into the precipitation tanks—a process which occupied about one hour each afternoon—the end of the sewer was temporarily stopped up, in order that the well might be thoroughly cleaned out with clean water, a practice which was carried out daily.

2. Pump.—Connected with the well was a steam pump capable of raising the day's sewage at a fairly uniform rate in

about one hour. A small pipe communicated with the pump in such a manner that lime from the lime mixer with which it was connected was drawn, by suction, into the sewage, the quantity of lime introduced being regulated by a tap, in accordance with a gauge attached to the mixer, which was graduated to correspond with a floating gauge in the well; by this means the lime could be added to the sewage in quantity varying with the rapidity of the pumping. The pump discharged into a carrier which had a series of baffle plates attached to the sides and communicated with the precipitation tank, and the fluid precipitant was added to the sewage in the carrier from a barrel which was also fitted with a stop-tap and had a gauge graduated to a scale corresponding with the well gauge.

3. Precipitation Tank.—The precipitation tank was capable of holding a little over 2,300 gallons, and, by means of a floating arm, its contents were discharged on to the filters by gravitation. The tank was worked on the quiescent principle, it being impracticable to adopt the continuous flow, and each day, after it had been emptied and the sludge had been run off by a channel communicating with the bottom, it, like the well, was thoroughly cleaned with fresh water. The sewage was allowed to remain at rest in the tank about 16 hours, as that was found to be the period which fitted in most conveniently with the day's working.

4. Filters.—The two filters, one of sand and *polarite* and the other of sand and *magnetone*, had each an area of 50 feet, and the depth of each was the same, namely, 3·3 feet. Both were constructed on the plan laid down by the International Sewage Purification Company; indeed, the construction of the former was carried out under the direct supervision of a representative of that company. The sand used was obtained from Leighton-Buzzard, and previous to use it was thoroughly well washed with pure water.

It may be well, at this point, to call attention to the fact that the area of filter in relation to the volume of sewage treated was considerably larger than is usually considered necessary. This arose, partly from the fact that the Corporation—in view of the difficulty of acquiring land and the probability that the ultimate sewage of Stafford would, in the event of slop-closets being introduced, be highly concentrated—were prepared to exceed the usually accepted area in constructing the permanent plant, and partly because in planning the experimental filter it was estimated that the sewage of the two streets in question would amount to about 10 gallons per head, whereas, as a fact, it did not amount to seven.

The cycle of events in conducting the experiments was as follows:—Coming on the scene about 7 a.m. the well would be found to be partially full of sewage which had collected during the previous 14 hours, and the precipitation tank full of sewage which had been pumped from the well the day before. The first proceeding was to run the tank effluent on to the filter at an uniform rate, regulated so that the surface of the filter was

always submerged. The sludge was then run off, and the tank was thoroughly cleaned to receive the sewage then standing in the well. In the first series of experiments the whole of the tank effluent passed through the filter in from 3½ to 4 hours, but, in order to ascertain the effect of prolonging the filtration process, a second series of experiments were conducted, in which, by partially closing the outlet valves of the filters, about nine hours was occupied in the process. Before the pumping was started, and occasionally during the hour while it lasted, the sewage in the well was agitated in order to counteract the partial subsidence which had taken place, and ensure that the consistency of the sewage as it entered the tank was fairly uniform—an important consideration in view of the speed with which the precipitants were run in. At the end of the pumping operations, as already stated, the well was thoroughly cleansed by repeated washings with pure water, during which process (a very short one) the end of the sewer was plugged and the sewage then flowing was allowed to collect in the sewers. This cleansing precaution was adopted in order to counteract, as far as possible, the tendency to putrefaction, a tendency which, in this experimental stage, was greater than one would look for in the case of larger works. The day's working was then at an end, and the sewage now in the precipitation tank was allowed to remain quiescent until the following day, when the same process was gone through again.

An automatic flush tank of 30 gallons capacity was connected with the main sewer, and, under ordinary conditions, it was regulated to discharge four times during the 24 hours. In addition to this, however, on occasional days extra flushing was practised, records being kept of the amount of clean water so added to the sewage. During the last few weeks of the first series of experiments, and again during the last of the second series, the flushing tank was adjusted so as to discharge, in the 24 hours, a volume of water nearly equal to the sewage flow, one-fourth being discharged during the night and three-fourths during the day. When diluted to this extent, the capacity of the tank did not allow of the whole volume being treated, so that a portion had to to be discarded. In the tables attached to this report, by undiluted sewage is meant sewage to which the normal flush from the tank had been added (120 gallons per 24 hours), in other cases the proportion of added water beyond this amount is shown in the tables.

The figures recorded by no means represent all the analytical work, for, previous to starting operations at the works many laboratory experiments had to be undertaken in order to arrive at the approximate quantities of precipitants required to be used in order to obtain the best results. I may say at once that these far exceeded the anticipated quantities. Again, until the plant had been in operation for some time, and improvements had been effected in the gauging gear, lime mixer, &c., the analytical results were so divergent as to be practically of no value, they are, there-

fore, not recorded. It will be noticed that the earlier figures given in the first series of experiments also fluctuate very much, but if they are considered in connection with the quantities of precipitant used the explanation will be apparent. I thought it useful to introduce them to allow of comparison with the later figures when experience had demonstrated the quantities of precipitants necessary to obtain the best results.

I must not omit to mention the fact that although the experiments at the works only embraced the results obtained by using two chemical precipitants and two filters, other experiments with well-known precipitants were conducted in the laboratory, but as the results were certainly no better than those recorded they were not carried further.

To facilitate conclusions being drawn from the figures and, comparisons being made between one method of treatment and another, under varying conditions as regards dilution &c., I have compiled the following tables from the general table, introducing columns showing the per centage purification achieved by precipitation alone, by filtration of the tank effluents, and by precipitation and filtration jointly. In estimating these per centages the amount of dilution with pure water has been taken into account so that the results are strictly comparative, at the same time, it would have been advantageous, had circumstances permitted, to have based the averages upon a larger number of observations.

FIRST SERIES (time occupied in filtration process 3½ to 4 hrs.)

TABLE No. 1.

Wardle's Precipitant (Ferricum).

Average Results. Parts per 100,000.

	Number of samples averaged.	Total Solids.	Chlorine.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed in 3 hours, at 80° Fahrenheit.*	Percentage Purification.		
							Tank.	Filter.	Total.
80 grains Ferricum with 16 grains Lime per gallon.									
Undiluted Sewage	7	158·0	19·6	19·750	2·588	10·632	...	...	...
Tank Effluent ...	13	131·6	18·5	23·193	1·260	4·262	51·3	...	...
Polarite ditto ...	3	120·0	17·0	19·441	0·713	2·574	...	43·4	72·4
Tank Effluent ...	3	118·0	15·2	13·583	0·990	3·183	61·7	...	...
Magnetone ditto	3	116·6	14·7	14·500	0·915	2·800	...	7·5	63·6
Sewage diluted with 23·3 per cent. water ..	7	121·1	15·0	15·149	1·985	8·155	...	...	...
Tank Effluent ...	5	95·0	11·7	11·900	0·605	2·091	69·5	...	...
Magnetone ditto	5	93·5	11·1	10·350	0·516	1·802	...	13·0	74·0

* See footnote on detail table.

Table No. 1—*continued.*

	Number of samples averaged.	Total Solids.	Chlorine.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed in 3 hours, at 80° Fahrenheit.*	Percentage Purification.		
							Tank.	Filter.	Total.
40 grains Ferricum with 8 grains Lime per gallon.									
Sewage diluted with 40 per cent. water ...	7	94·8	11·8	11·850	1·553	6·380	...	...	...
Tank Effluent ...	2	56·0	7.0	6·800	0·382	1·732	75·4	...	...
Polarite ditto ...	2	56·0	6·8	6·700	0·325	1·272	...	14·9	79·0
Sewage diluted with 42·2 per cent. water ...	7	151·0	11·4	11·416	1·496	6·146	...	. .	...
Tank Effluent ...	1	46·0	8·4	8·000	0·365	2·632	75·6	...	...
Magnetone ditto	1	52·0	8·0	7·600	0·285	1·976	...	21·9	80·9

TABLE No. 2.

Superphosphate of Lime.

Average Results. Parts per 100,000.

100 grains Superphosphate with 40 grains Lime per gallon.									
Undiluted Sewage	7	158·0	19·6	19·750	2·588	10·632	...	...	...
Tank Effluent ...	3	73·0	18·6	16·500	0·801	3·980	69·0	...	...
Magnetone ditto	3	66·6	14·7	16·333	0·651	2·959	...	18·7	74·8
50 grains Superphosphate with 20 grains Lime per gallon.									
Sewage diluted with 45 per cent. water ...	7	86·9	10·7	10·863	1·424	5·848	...	...	...
Tank Effluent ...	4	51.5	7·6	6·173	0·275	1·766	80·6	...	...
Polarite ditto ...	4	45·5	6·3	3·763	0·161	0·957	...	40·4	88·6
Sewage diluted with 45 per cent. water ...	7	86·9	10·7	10·863	1·424	5.848	...	...	...
Tank Effluent ...	10	48·5	7·68	6·541	0·352	1·849	75·2	...	...
Magnetone ditto	10	42·6	6·6	5·715	0·244	1·277	...	30·6	82·8

* See footnote on detail table.

SECOND SERIES (time occupied in filtration process, 9 hours).

TABLE No. 3.

Superphosphate of Lime.

Average Results. Parts per 100,000.

	Number of samples averaged.	Total Solids.	Chlorine.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed in 3 hours, at 80° Fahrenheit.*	Percentage Purification.		
							Tank.	Filter.	Total.
100 grains Superphosphate with 40 grains Lime per gallon.									
Undiluted Sewage	7	158·0	19·6	19·750	2·588	10·632	...	...	...
Tank Effluent ..	2	60·5	17·6	9·280	0·576	2·565	77·7	...	...
Polarite ditto ...	2	61·0	13·5	4·533	0·406	1·660	...	29·5	84·3
Undiluted Sewage	7	158·0	19·6	19·750	2·588	10·632	...	...	...
Tank Effluent ...	2	50·0	15·6	9·400	0·635	1·920	75·5	...	...
Magnetone ditto	2	46·0	14·2	5·900	0·470	1·614	...	25·9	81·8
50 grains Superphosphate with 20 grains Lime per gallon.									
Sewage diluted with 46·4 per cent. water ...	7	84·7	10·5	10·586	1·388	5·699	...	...	...
Tank Effluent ...	4	46·7	9·2	4·969	0·286	1·360	79·3	...	...
Polarite ditto ...	4	46·5	8·2	4·003	0·124	0·741	...	56·6	91·0
Sewage diluted with 46·4 per cent. water ...	7	84·7	10·5	10·586	1·388	5·699	...	...	...
Tank Effluent ...	4	50·5	10·72	6·255	0·314	1·406	77·3	...	...
Magnetone ditto	4	52·5	9·92	4·850	0·171	0·867	...	45·5	87·6

As regards the sewage itself, it is of the foulest description, indeed it far exceeds in foulness any sewage the analysis of which I have seen. Of course, considering the fact that it is composed solely of the slopwater of cottages and the excreta and urine of the inhabitants, one would naturally expect it to be fouler than would be the case had the closets in use been ordinary water closets with a clean water flush. No doubt to a very large extent this is explained by the fact that the population contributing to the flow was entirely an artisan one, and one may reasonably conclude that the ultimate sewage of Stafford, even with slop-closets, would compare favourably with that experimented with.

* See footnote on detail table.

The following are the conclusions which the above figures seem to justify. As regards the precipitation process :—

1. In the case of undiluted sewage the advantage seems to be on the side of the superphosphate precipitant rather than on Wardle's. Taking into account, however, that both are equally efficacious in the case of diluted sewage, it is probable that the mechanical effect of the considerable amount of insoluble material in the crude superphosphate used may entirely explain this, the other precipitant being added in fluid form. One can understand that subsidence would more readily take place when the sewage was rendered less tenacious by dilution.
2. The purifying effect of both precipitants appears to be enhanced by dilution, notwithstanding the fact that only half the quantity of precipitant was used in both cases. It would seem then that concentration, in itself, has a deterrent effect on the precipitation process.

As regards the filtration process :—

1. The figures point to the conclusion that in the first series neither with polarite nor magnetone filtration did purification take place in the undiluted sewage, beyond what in all probability would be accounted for by the mechanical effect of the filters in removing any suspended matter which passed off from the precipitation tank. The apparent good result from polarite, as shown in the third line of the first table, is probably entirely explainable in that way, as is indicated by the considerable reduction in the solids of the filter effluents as compared with the corresponding tank effluents.
2. Comparing the figures of the first with those of the second table, a more favourable result, as regards filtration, in the case of both filters, was obtained from the superphosphate effluent than from Wardle's. It is but fair to point out, however, that chance may have led to this, as in the latter case the figures are the outcome of only three analyses of the more largely diluted sewage, whereas in the former case 14 analyses were recorded.
3. Taking the first series of experiments, and comparing the results obtained by the two filters in the case of the superphosphate effluent from the diluted sewage, polarite undoubtedly seems to have been the more efficacious of the two. In this case, although the magnetone results are the average of ten analyses, and may, therefore, be said to represent a truer average than the corresponding polarite figures, which are the outcome of four analyses only, still, the figures, looked at as a whole, undoubtedly point to the conditions having been very nearly identical, and the probability is they are legitimately comparable.

4. Comparing the average results of the second series of experiments with those of the first, it will be found that by prolonging the filtration process a much better result was obtained with both filters, especially in the case of the dilute sewage; and here again *polarite* has the advantage over *magnetone*. It is noticeable that, while only in one instance in the first series had nitrification been effected by the filters, in the second series, in the case of dilute sewage only, this happened in every instance with one exception, and the work done by the filters even in this experimental trial was, now and again, very fair.

In arriving at the general conclusions which may be drawn from the experiments, we must not forget that we have only experimental trials to guide us, and that with properly constructed works on a large scale each process could be carried out more perfectly, and with a corresponding improvement in the result. At the same time, I think we have sufficient evidence to warrant certain conclusions being drawn which may prevent a false step being taken, and justify the expenditure incurred in instituting and carrying on the experimental work.

The first point which I think is fairly well established is, that our hopes regarding Wardle's precipitant are hardly fulfilled. It was hoped that by means of it we should be able so to simplify the question of sewage disposal in a slop-closet town as to warrant the conclusion that polarite filtration, unaided by subsequent land treatment, would meet every requirement, even considering the concentrated quality of the sewage. In place of this, the conclusions which must be drawn are that the precipitant in question, in this case at any rate, is no better than others we know of, and that polarite filtration is quite incapable of dealing with so inert and foul a sewage as that of cottages with slop-closets. Of course, it does not follow that the result would be so disappointing in the case of the average sewage of the town even if the slop-closets were generally established, but, in my opinion, in the face of what we have seen, it would be running too great a risk to establish polarite filters under such circumstances. The cost of precipitants alone, apart from other considerations, would forbid such a step. To give some idea of what this would amount to, I have worked out the cost in the case of the undiluted sewage experimented with, and find that it amounts to £16. 0s. 0d. per million gallons. This sum, of course, would be considerably less in the case of the general sewage of Stafford, for, as has already been pointed out, not only does dilution warrant a diminution in the precipitant added, but the purifying effect is greatly enhanced by it. It must be remembered, however, that with land in place of chemical filtration it would not be necessary to carry the precipitation process to the same extent.

SEWAGE DISPOSAL EXPERIMENTS AT STAFFORD.

RECORD OF ANALYSES.

FIRST SERIES. (Time occupied in filtration process, from three and a half to four hours.)

Date. 1894.	Treatment. Grs. per gall. Lime.	Precipitant.	Percentage Dilution.	Tank Effluent. Total Solids.	Chlorine.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed in 3 hours at 80° F.	Filter Effluent. Filter.	Total Solids.	Chlorine.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed in 3 hours at 80° F.	Nitrite Nitrogen.
Feb. 28	20	...	...	...	...	10·000	1·125	...	...	...	...	...	...	...	...
Mar. 1	30	...	...	...	...	...	1·625	...	...	...	...	...	...	...	...
„ 2	5	20 Ferricum	...	...	...	10·000	1·050	...	...	...	...	...	...	...	...
„ 4	5	30 „	...	...	...	10·000	1·000	...	...	...	...	...	...	...	...
„ 5	5	40 „	...	...	...	...	1·550	...	...	...	...	...	...	...	...
„ 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
„ 9	5	30 „	...	...	...	18·000	1·200	...	Polarite.	...	...	16·000	1·075	...	...
„ 10	5	40 „	...	...	...	10·000	1·100	...	„	...	...	12·000	1·100	...	...
„ 11	5	50 „	20·4	...	...	11·000	1·000	...	„	...	...	12·000	0·587	...	...
„ 19*	5	40 „	...	124·0	13·0	20·815	1·712	5·535	„	98·0	15·0	13·570	0·641	5·535	...
„ 20*	5	80 „	...	143·0	29·6	20·016	1·480	7·037	„	112·0	16·1	16·885	0·541	2·100	...
April 10*	7	80 „	...	128·0	18·5	20·700	1·179	5·298	„	134·0	19·5	20·020	0·920	4·118	...
„ 14*	15	80 „	...	118·0	16·4	22·870	1·132	3·670	„	114·0	15·6	20·750	0·678	4·118	...
„ 15	15	70 „	22·6	84·0	10·6	10·030	0·700	2.232	„	...	12·0	14·110	0·320	1·240	...
„ 18	11	60 „	...	106·0	17·6	24·000	1·029	5·096	„	104·0	18·4	20·000	1·180	4·150	...
„ 19	9	50 „	...	...	17·8	19·200	1·320	4·016	„	...	18·0	18·000	1·329	3·200	...
„ 20	7	40 „	...	...	16·6	19·200	1,020	4·080	Magnetone.	...	14·4	15·600	0·420	1·808	...
„ 22	15	80 „	20·4	...	10·4	12·000	0·500	2.052	„	...	9·8	8·000	0·600	1·896	...
„ 24	15	80 „	20·0	100·0	14·6	15·000	0·700	2·568	„	96. 0	13·4	12·500	0·600	2·232	...
„ 25	20	80 „	...	114·0	18·8	15·000	0·850	3·654	„	122·0	17·6	15·000	0·900	3·040	...
„ 29	20	80 „	20·4	94·0	11·6	10·000	0·480	1·534	„	108·0	11·4	11·250	0·450	1·512	...
May 2*	20	80 „	...	136·00	22·5	20·470	1·067	5·729	„	143·0	17·8	21·437	1·065	4·951	...
„ 6	20	80 „	35·0	98·0	12·0	11·250	0·634	2·120	„	86·0	11·2	10·000	0·594	1·964	...
„ 10	20	80 „	...	132·0	13·8	12·000	1·186	3·512	„	120·0	13·2	11·000	1·086	3·112	...
„ 12	20	80 „	...	108·0	13·6	13·750	0·936	2·574	„	108·0	13·4	17·500	0·761	2·248	...
„ 13	20	80 „	21·0	88·0	10·0	11·250	0·711	2·180	„	84·0	10·0	10·000	0·336	1·408	...
„ 25	40	80 Superphosphate		110·0	22·6	15·000	2·482	5·320	„	104·0	21·0	17·400	1·582	5·320	...
„ 27	40	80 „	21·0	64·0	15·0	15·000	0·860	2·956	„	62·0	14·0	19·000	0·585	1·912	...
June 2	40	100 „	...	84·0	21·2	18·500	1·035	5.884	„	80·0	16·8	19·000	0·885	4·012	...
„ 3	40	100 „	...	72·0	17·6	18·000	0·635	3·112	„	64·0	14·4	19·000	0·435	2·492	...
„ 5	40	100 „	...	64·0	17·2	13·000	0·735	2.044	„	56·0	13·0	11·000	0·635	2·074	...
„ 7	8	40 Ferr.	38·0	60·0	6·0	7·000	0·360	1·344	Polarite.	60·0	6·0	7·000	0·285	1·048	...
„ 8*	40	100 Sup.	...	60·0	10·18	7·440	0·504	2·310	„	57·0	7·4	3·632	0·117	1·191	...
„ 9*	40	100 „	...	56·0	9·5	7·102	0·478	1·705	Magnetone.	42 0	8·2	7·968	0·227	1·428	...
„ 10	20	50 „	42·2	34·0	6·8	5·400	0·385	1·056	„	28·0	6·2	6·000	0·210	0·932	...
„ 12	20	50 „	42·2	42·0	11·0	8·750	0·392	1·768	„	24·0	8·0	9·000	0·392	1·228	...
„ 13	12	40 Ferr.	42·2	46·0	8·4	8·000	0·365	2·632	„	52·0	8·0	7·000	0·285	1·976	...
„ 14	12	40 „	42·2	52·0	8·0	6·000	0·405	2·120	Polarite.	52·0	7·6	6·400	0·365	1·496	...
„ 15	20	50 Super	42·2	40·0	8·0	6·000	0·426	1·460	Magnetone.	40·0	7·0	6·000	0·165	0·620	...
„ 16*	20	50 „	42·2	51·0	8·3	6.640	0·370	1·622	Polarite.	47·0	6·3	4·332	0·171	0·815	...
„ 17*	20	50 „	45·0	49·0	6·80	4·792	0·232	1·581	Magnetone.	39·0	6·0	5·005	0·190	1·222	...
„ 18*	20	50 „	46·4	50·0	8·6	6·562	0·318	1·802	Polarite.	48.0	7·1	2·781	0·147	1·058	0·342
„ 20*	20	50 „	46·4	58·0	7·1	6·942	0·367	2·185	Magnetone.	54·0	6·7	5·262	0·508	1·678	...
„ 21*	20	50 „	46·4	55·0	6·2	4·025	0·328	2·008	Polarite.	38·0	5·5	4·185	0·175	1·150	...
„ 22*	20	50 „	46·4	59·0	7·5	7·402	0·357	2·310	Magnetone.	51·0	6.2	4·735	0·271	1·535	...
„ 23*	20	50 „	46·4	50·0	7·3	7·458	0·285	1·635	Polarite.	49·0	6·6	3·755	0·151	0·807	...
„ 24*	20	50 „	46·4	42·0	7·2	5·830	0·374	1·514	Magnetone.	43·0	6·2	5·577	0·191	1·152	...
„ 26	15	40 „	46·4	54·0	12·4	10·000	0·655	2·632	„	50·0	12·2	9·400	0·485	2·224	...
July 3*	20	50 „	46·4	50·0	7·4	6·978	0·340	1·764	„	47·0	6·7	5·212	0·206	1·565	...
„ 4*	20	50 „	46·4	52·0	6·3	6·210	0·281	2·167	„	47·0	5·9	4·552	0·248	1·305	...
„ 5*	20	50 „	46·4	59·0	8·7	6·515	0·367	2·390	„	53·0	7·4	5·810	0·267	1·742	...

SECOND SERIES. (Time occupied in filtration process, nine hours.)

Aug. 10	40	100 Sup.	...	46·0	17·0	10·500	0·744	2·488	Polarite.	56·0	11·6	3·500	0·594	1·600	Nil.
„ 11*	40	100 „	...	75·0	18·2	8·960	0·498	2·642	„	66·0	15·41	5·967	0·218	1·720	Nil.
„ 12	20	50 „	46·4	44·0	15·8	4·250	0·374	1·176	„	54·0	13·0	3·750	0·130	0·976	1·00
„ 13	40	100 „	...	44·0	14·4	6·400	0·685	1·664	Magnetone.	44·0	13·4	5·800	0·405	1·376	Nil.
„ 14	40	100 „	...	56·0	16·8	12·400	0·585	2·176	„	48·0	15·0	6·000	0·335	1·952	Nil.
„ 15	20	50 „	46·4	54·0	17·8	7·250	0·494	1·764	„	44·0	11·4	6·500	0·206	1·252	Nil.
„ 18*	20	50 „	46·4	47·0	8·5	6·548	0·244	1·377	„	74·0	8·2	5·481	0·105	0·650	1·65
„ 19*	20	50 „	46·4	49·0	10·6	4·712	0·245	1·072	„	44·0	9·8	4·185	0·105	0·672	Trace
„ 20*	20	50 „	46·4	52·0	11·0	6·340	0·275	1·411	„	48·0	10·3	5·234	0·171	0·894	Trace
„ 21*	20	50 „	46·4	48·0	8·2	5·160	0·262	1·319	Polarite.	43·0	7·9	4·785	0·208	0·821	Trace
„ 22*	20	50 „	46·4	49·0	6·3	5·234	0·254	1·552	„	44·0	6·2	4·034	0·087	0·575	Trace
„ 24*	20	50 „	46·4	46·0	6·6	5·234	0·254	1·404	„	45·0	6·0	3·444	0·070	0·594	1·11
			Undiluted Sewage. Average of seven Samples	158 0	19 6	19 750	2 588	10 632							

NOTE.—The analyses on the dates against which asterisks are placed were conducted by the County Analyst, the others by the County Medical Officer.

† In the case of the County Analyst's figures, and in all cases in the second series of analyses, the period was four hours instead of three.

If then the Council determine to adhere to their intention of establishing the slop-closet system, it will, in my opinion, be necessary to discard polarite or magnetone filtration and adopt a scheme of land filtration. The other alternative is to introduce ordinary water-closets in place of slop-closets.

As regards the comparative cost of ferricum and superphosphate, I am not in a position to speak definitely, but in the proportion in which each was used in the experiments the initial cost would probably be much the same. The former has one advantage, however, in the fact that the resulting sludge would be less than in the case of the latter. On the other hand, it is probable that the cost of the superphosphate would be considerably lessened owing to the value of the sludge as a manure, and in this lies its chief claim to consideration. At this stage, however, it is not necessary to decide as to what precipitant shall be used, as it does not effect the question of the construction of the works.

In conclusion, I have given it as my opinion that land treatment will be necessary if slop-closets are introduced, but even then I am by no means certain that, from a sewage disposal point of view, no risk would be incurred, as, besides the concentrated quality of the sewage, there are other objections, not the least of which is the tendency to rapid putrefaction—a consideration which would not only increase the difficulty even of land disposal, but which, I very much fear, would render still more difficult the vexed question of sewer ventilation.

That this has been the outcome of the experiments is disappointing, still it is better that the knowledge should have been acquired now, before any harm has been done, than later, and, considering the fact that large numbers of slop-closets are being fixed in various towns in the county, the experiments are quite as valuable to the county as a whole as to the town of Stafford itself.

I must not omit to express my indebtedness to Mr. J. E. Willcox, of Birmingham, the consulting engineer for Stafford, for the trouble he took in designing the experimental plant, and to Mr. Blackshaw, the borough surveyor, for the willing assistance he afforded me. I wish also to acknowledge Mr. Wardle's generous help in spending much time in conducting preliminary experiments with his precipitant as applied to the sewage in question. To Mr. Jones, the county analyst, I am also much indebted for valuable hints given from time to time while the work was in progress. It is but fair also to mention the excellent services rendered by the assistant, whose time was entirely placed at my disposal by the Corporation, and who so intelligently carried out my instructions. Without the help of such a man it would have been impossible for me to have undertaken the work.

AREA AND POPULATION.

I have no alteration to record, this year, in the area of the Administrative County.

The estimated aggregate population is shown in the following table, which also distinguishes the urban from the rural populations, and gives the comparative figures according to the 1891 census.

	Census, 1891.	Estimated to middle of 1893.	Increase.	Decrease.
Urban	544,390	561,152	16,762	...
Rural	226,473	227,704	1,231	...
Total	770,863	788,856	17,993	...

It will be noticed that the estimated urban population of the County shows a considerable increase as compared with the census figures of 1891. This, in all probability, is largely accounted for by migration from rural districts.

BIRTHS.

The average birth-rate of the whole Administrative County, and of the urban and rural districts respectively, for the five years 1889–93, is shown in the following table, in which corresponding rates for England and Wales, and for the large towns in England, taken from the Registrar-General's returns, are included.

DISTRICTS.	Birth-rate per 1000 of Population.				
	1889.	1890.	1891.	1892.	1893.
Staffordshire — Combined Urban and Rural	33·5	32·7	35·7	35·1	35·7
Staffordshire — Urban	35·2	34·5	37·3	36·3	36·6
Staffordshire — Rural	29·5	28·6	31·6	32·2	33·3
England and Wales	31·1	30·2	31·4	30·5	30·8
Large Towns in England	30·9	30·4	32·5	31·8	31·8

The relatively high birth-rate of Staffordshire, as compared with the rest of England, is undoubtedly to be accounted for, as I have explained in former reports, by the large artisan population of the County, and the consequent predominance of young adults.

The Urban Birth-rates are shown in the statistical tables at the end of this Report, and little need be said about them here beyond pointing out that in eight instances—namely, Audley, Brownhills, Cannock, Darlaston, Fenton, Heath Town, Longton, and Short Heath—the rates exceed 40 per 1000 of the population.

It will be noticed that in all these cases the populations are made up of artisans.

In Handsworth, where the birth-rate only amounted to 24·7, Dr. Welch points out that it is the lowest rate of any year with the exception of 1889, the figures being given for each year since 1871.

In Smallthorne, where the birth-rate was 38·4, Dr. Swift Walker calls attention to the fact that it is higher than the average by six per thousand of the population.

In Tunstall, Dr. Partington calls attention to the unusually high rate for that town of 39·8, and states that, with the exception of the rate for 1885, it is the highest recorded during the past ten years.

The Rural Birth-rates vary considerably, some reaching even the average for towns, while others are remarkably low. In the former case it will be noticed that the districts are situated among artisan centres, while in the latter the surroundings are, as a rule, agricultural.

It will be noticed that no record appears in the statistical tables of the number of births registered in the Ashbourne rural district, and in explanation of this Mr. Littleton says—"I regret the birth returns have been returned to me in so erratic a manner that I am unable to make out the usual birth-rate."

The high birth-rate of the rural district of Lichfield, which I have commented upon in previous reports, is still maintained, as the following figures for the past ten years show :—

YEAR.....	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
Births registered.....	744	702	769	685	679	775	689	730	755	767
Rate per 1000 of population...	33·5	32·2	35·3	31·4	31·1	35·5	31·6	32·1	33·2	33·7

DEATHS.

The number of deaths registered in the Administrative County in 1893 amounted to 14,728, as compared with 14,746 in 1892, —a decrease of 18, and no fewer than 886 less than in 1891. Satisfactory as these figures are, the death-rate is still higher than, under ordinary circumstances, one would have expected it to be, judging from its steady decline for many years previous to 1890, when epidemic influenza appeared in this and other countries, and proved so fatal among all classes of the community. For the fourth year in succession this disease has prevailed, although not to the fatal extent recorded in the preceding years, and, as will be seen later, it is to this cause that the maintenance of a higher death-rate than, under normal conditions, might have been looked for, is to be attributed.

In the following table comparative figures for the past five years are given, together with corresponding figures for the country as a whole, and for town and country districts throughout England.

Death-rate per 1000 population.

	Staffordshire.			England.		
	General.	Urban.	Rural.	General.	Large Towns.	Country Districts*
1889	18·0	18·9	15·4	17·9	19·2	16·5
1890	19·8	20·0	16·3	19·5	21·6	17·5
1891	19·9	20·7	18·1	20·2	22·4	18·5
1892	18·8	19·2	17·9	19·0	20·6	18·1
1893	18·6	19·5	16·3	19·2	21·5	17·4

* Certain proportion of Urban residents included.

The apparent marked increase in the rural death-rate of Staffordshire in 1891, as compared with the previous years, is, to a large extent, accounted for by the fact that the rates for 1889–90 were calculated upon an erroneously high estimate of the population, owing to the long interval since the 1881 census, a mistake, however, which does not apply to the same extent in the case of the urban districts.

Death-rates in Urban Districts.—These, together with the figures upon which they are based, are shown in the tables at the end of the report. In the following table the figures are given for those districts in which the rates may be said to be very high, together with figures and remarks bearing on the influence that causes, preventable, and, more or less, non-preventable, have had on the results. The districts are placed in order, in accordance with the death-rates, the highest being placed first.

DISTRICT.	Death-rate per 1000 of population.	Population estimated to middle of 1893.	Number of persons to the acre.	Deaths in children under 1 year per 1000 births.	Zymotic death-rate per 1000 of population.	Occupation, &c.	Increase over average of entire districts from the under-mentioned diseases, affecting appreciably the general rate.				Position as regards average death-rate of former years.
							Measles.	Whooping Cough.	Diarrhœa.	Disease of respiratory organs.	
Longton	**25·0**	35,240	17·6	225	4·00	Working class.	Slight.	...	Slight.	Considerable.	Average for 4 years, 24·1.
Darlaston	**23·2**	14,777	18·4	221	3·85	,,	...	...	Slight.	Considerable.	Average for 9 years, 22·4.
Fenton	**23·0**	18,000	11·2	193	3·00	,,	...	...	Slight.	Considerable.	Average for 4 years, 20·8.
Bilston	**22·7**	23,500	12·7	202	2·97	,,	...	...	Slight.	Slight.	Average for 7 years, 22·4.
Lichfield	**22·7**	7,864	2·3	186	1·07	Partly residental.	...	...	...	...	Average for 4 years, 20·0.
Newcastle	**22·5**	19,000	29.1	194	3·10	Working class.	Slight.	...	...	Considerable.	Average for 11 years, 20·4.
Tipton	**22·2**	29,316	10·8	183	2·66	,,	...	...	Slight.	Slight.	Average for 11 years, 19·6.
Burslem	**21·3**	32,935	12·7	194	3·64	,,	Slight.	...	Slight.	Slight.	Average for 17 years, 22·9.
Coseley	**21·0**	21,950	5·5	177	1·64	,,	...	...	...	Considerable.	Average for 10 years, 19·6.
Sedgley.....	**21·0**	15,000	3·9	182	1·66	,,	...	...	...	...	Average for 7 years, 20·1.
Willenhall	**20·8**	17,457	13·9	207	2·17	,,	...	...	Slight.	Considerable.	Average for 10 years, 19·6.
Kidsgrove	**20·3**	3,841	3·5	166	Nil	,,	...	...	...	Slight.	Average for 4 years, 18·1.
Biddulph	**20·2**	5,390	1·0	170	2·41	,,	...	...	...	...	Average for 4 years, 15·1.
Leek	**20·2**	14,406	9·8	138	1·87	,,	...	...	...	...	Average for 10 years, 19·8.
Cannock	**20.1**	21,000	2·6	192	3·38	,,	Considerable.	...	...	...	Average for 10 years, 18·4.

It will be noticed that in the case of Biddulph the high rate this year is distinctly exceptional, and, as the population is a small one, it need not be looked upon as of much significance. Among the others, those which must be classed as high death-rate towns, which most years have to be introduced in this table, are Longton, Darlaston, Bilston, Newcastle, and Burslem.

The high death-rate of Coseley is attributed by Mr. Clendinnen partly to diarrhœa and, indirectly, to influenza.

In Darlaston, Mr. Partridge mentions measles, scarlatina, diarrhœa, and diseases of the respiratory organs as being responsible, to some extent, for the high death-rate.

In Kidsgrove, where the rate was 4·5 higher than the previous year, the severe weather in the winter, a somewhat high infant mortality, and three deaths which occurred from accident are blamed.

Mr. Dawes, of Longton, writes:—"As usual, our high death-rate is owing to the high rate of infantile mortality."

Tunstall, with a death-rate of 19·9, only just escaped being included in the above table of high rates, as the limit was drawn at 20·0 per thousand. Dr. Partington points out that this year's rate is lower than it has been during the past five years.

Dr. Biggam, of Sedgley, writes:—"It must be carefully remembered, in comparing the death-rates for the years given, that until 1890 the deaths in the Workhouse of those belonging to Sedgley *parish* (*i.e.*, Sedgley *and Coseley* Urban Districts) were always excluded; but for the past four years they have been included, at the request of the County Medical Officer. The death-rate in your district is thus higher, by nearly two per thousand than it would have been on the old method of reckoning. The change of method is to be regretted, for it saddles your district with a death-rate higher than the facts and figures warrant. The Coseley paupers should be reckoned in Coseley and not in Sedgley, but I am not furnished by the Registrar with information by which they can be differentiated."

I venture to suggest that in this case, as well as in others, the practice adopted in some districts of applying to the Master of the Workhouse for information to allow of a classification being made, might with advantage be followed. It would involve very little trouble, and in all probability the information would willingly be supplied.

Dr. Underhill writes as follows with reference to the death-rate of Tipton:—"Several causes have tended to make the general death-rate higher than normal, a reference to which is made further on in my Report, more particularly the two epidemics of influenza, with their immediate and remote evil effects, have damaged our death-rate this year. I do not think that in reality the year has been a bad average year for the working classes; we felt but very little, in proportion to other places, the coal famine, and what was a curse to some similar districts was not so to us."

In Stone, Dr. Fernie calls attention to a death-rate of 14·0 as being the lowest during the past ten years.

Rural Death-rates.—In the reports for Cheadle, Eccleshall, and Seisdon rural districts special attention is called to the exceptionally low death-rates, and in each case the satisfactory returns are accounted for by the comparative absence of epidemic influenza or lung diseases. Mr. Langley Webb, of Cheadle, points out that this year's rate, which amounts to 16·6, is lower than any recorded during the preceding five years, and this he attributes to fewer deaths having resulted from diseases of the respiratory organs. In Eccleshall, Mr. Gosse attributes the low death-rate of 10·8, compared with 16·6 the previous year, to the absence of influenza in a severe form, and the smaller number of deaths from lung diseases. In Seisdon, where the death-rate this year was 13·0, Dr. Spackman points out that, with one exception it is the lowest on record within the past twenty years, and gives it as his opinion that this is probably explained by the fact that influenza proved so fatal among the old and delicate people the two preceding years.

Dr. Clark, of Lichfield, points out that the most striking feature in the death returns is the increased mortality among children, which he says was largely due to measles and whooping cough, which caused thirteen and eight deaths respectively.

In Market Drayton an increased mortality is recorded, which is attributed by Dr. Sandford to the excessive number of deaths among infants.

In Newcastle rural district, Mr. Dickson points out that had it not been for deaths from accidental causes, the death-rate, in place of being 17·7, would have amounted only to 15·7.

In commenting upon the high death-rate of 21·7 in the Walsall rural district, Dr. Wood states that in all probability the population has been under-estimated, as many houses have recently been built. He also states that deaths among children are largely responsible for the high rate.

UNCERTIFIED DEATHS.

These receive notice in some of the reports—for example, in those of Bilston, Cannock, Coseley, Newcastle, and Sedgley urban districts, and Cheadle, Eccleshall, Lichfield, and Wolstanton and Burslem rural districts. Information under this heading, however, is not supplied for a sufficient number of districts in the County to allow of comparative figures of any value being given.

INFANT MORTALITY.

The excessive infant mortality in many of the urban districts in the county, which has received such prominent notice in my previous reports, is still maintained. I mentioned in my last report, that in consequence of the statistics I had published bearing upon this question in relation to factory labour, the Parliamentary Bills Committee of the British Medical Association had taken the

matter up, and I am pleased now to be able to state that through their action the Home Secretary has intimated his willingness to receive a deputation, in October next, who will submit for his consideration certain proposals with reference to the law which regulates the employment of married women in factories, which, it is believed, would have the effect of greatly reducing the needless sacrifice of infant life which is now going on in many artisan towns.

In the administrative county this year the infant death-rate per 1000 births exceeds 200 in no fewer than six urban districts. In the following table the figures are given for the past five years in the case of these towns, together with comparative figures for the urban districts in the County, as a whole, and for the large towns in England :—

Deaths in children under one year per 1000 registered births.

	Bilston.	Darlaston.	Longton.	Small-thorne.	Tunstall.	Willenhall.	Urban Districts in County.	Large towns in England.
1889...	204	207	216	171	211	178	161	161
1890...	182	191	231	191	230	156	176	171
1891...	210	235	224	183	232	179	175	167
1892...	219	215	231	128	198	189	174	163
1893...	202	221	225	216	206	207	179	181
Aver.	208	213	225	177	215	181	173	168

It must not be supposed, because prominence is given to those towns which have exceptionally high infant death-rates, that therefore other towns have favourable records; this is very far from being the case, as a glance at the sixth column of the death-rate table at the end of this report will show.

As regards Smallthorne and Willenhall, both are, for the first time in the unenviable position of being introduced into this table. Smallthorne is a little place and, therefore, one would not be justified in coming to any conclusion upon figures covering a few years only. Possibly the four high rates recorded out of the five given in the table may have been exceptional, and to be explained by causes which are not looked upon as preventable, for it will be noticed that the rate for 1892 only amounted to 128. The other four towns habitually appear in this table and their average infant mortality rates are undoubtedly very high.

As regards Bilston, Dr. Ridley Bailey can only point out that it is not so bad this year as in 1892.

In his report for Darlaston, Mr. Partridge does not enter so fully into the question as he did the previous year, when considerable prominence was given to it. I venture to suggest, from my knowledge of the district, that there are causes urgently calling for

remedy at the hands of the Local Authority which in no small degree are responsible for maintaining the excessive mortality among infants.

Mr. Dawes, of Longton, writes :—"As usual our high death-rate is owing to the high rate of infantile mortality—no fewer than 468, *i.e.*, 52·9 per cent of the total number of deaths occurring in children under 5 years, whilst 22 per cent of the children born in the year, died. This very high infantile mortality, in this Borough, is due, largely, to improper feeding and exposure in inclement weather. The digestive system of infants is very sensitive : improperly fed infants are more susceptible to cold, and hence so many contract Bronchitis and Congestion of the Lungs, most fatal diseases in early age."

Mr. Partington, of Tunstall, writes :—"132 deaths occurred in children under one year, and 38 between one and five years, total 170, or 53 per cent. of the entire number registered. There is a slight improvement here on the preceding year, but such a rate is still far from satisfactory. Nearly one half of these deaths are ascribed to congenital debility, and diseases of a scrofulous nature, pointing to hereditary tendencies, and a want of cleanliness in the surroundings of the children. Neglect, or inexperience in nursing, and improper feeding are also powerful factors in producing so serious a mortality among infants."

In Coseley, about where the infant death-rate is higher this year than usual, Mr. Clendinnen says :—"The average mortality per one thousand births amongst Children at this age in the 34 urban districts throughout the county in 1892, was 174. It will thus be seen that we approximate very closely the average, which we ought not to do, seeing that our married women are not much employed in factories, and it is largely due to such employment that the average mortality in the county is so high."

"The cause, I fear, is to be found in the gross ignorance of the working classes in regard to the feeding of infants. It would in my opinion conduce more to the public weal were the teaching of cookery and allied subjects substituted for some with which the children of the working classes are now crammed."

Concerning Fenton, Mr. Griffiths writes :—"Infant Mortality of course remains very great ; of the 414 deaths, 227 took place in persons under 5 years of age ; I see little hope of improvement so long as it is the mode of parents after losing their children through improper feeding, and, in many cases, actual neglect and indifference, to satisfy their consciences by making all sorts of pious ejaculations. I see many mothers (themselves almost children) carrying babies, whose old-fashioned looking, wrinkled faces tell a tale of dirt, neglect and foul surroundings. No wonder that many die, the marvel is that so many survive."

Mr. Ellis, of Brierley Hill, writes :—"Of the 78 deaths under one year of age, 33 are due to premature birth or insufficient vitality at birth. These cases were not due to bad feeding. In

an industrial community such as this, there will always be a high percentage of early and improvident marriages, where the comforts and necessities needed to promote healthy child-bearing will be wanting, and a sickly progeny the result. Four of these 33 births were illegitimate, and in two only of the 33 the mothers worked from home. In children a few months old, and in those between one and five years, a very important factor in the mortality is the overcrowding in small badly-ventilated bed rooms, many of the cottages having one room upstairs only; and again, the bad habit which is general amongst the poor of putting the baby to sleep with the parents. It is difficult for the Sanitary Officers to exercise much influence for good over the habits of these people. The ventilation and over-crowding can be dealt with, but in a district where houses with sufficient accommodation are very scarce, and the overcrowding is confined to one family, the defect is not so easily overcome as may be desired. This difficulty has often occurred in my inspections, and I have always pointed out the evil results of living under such circumstances; but to take extreme measures, in many cases, especially amongst the cottage owners, would mean turning the family into the street. At Delph, for instance, where the cottage tenants principally abound, the owners are generally too poor to make the required alterations."

In Rowley Regis, Mr. Beasley points out that the infant death-rate continues high, and he says there are "no new facts or theories to bring forward except that low wages and increased poverty have been more pronounced this last year." Dr. Biggam, of Sedgley, in calling attention to the continued high infant mortality, says:—"In Lower Gornal a considerable number of the mothers are employed in brick yards during the day, thus causing neglect of their offspring and leading to a high infant mortality."

In his report for Smethwick, Mr. Marsh Jackson, as usual, devotes considerable space to the question of infant mortality, and introduces most useful tabular information. In accounting for the exceptionally high rate this year, he says:—"The high infantile death-rate is due to the unusual number of deaths that were registered from diarrhœa, fifty-five out of sixty-seven diarrhœal deaths under five years of age having been those of infants. There is no doubt but that the phenomenal atmospheric conditions of the hottest and driest year known to this generation exercised a profound influence over those conditions which naturally tend to produce diarrhœa, enervated the physical health of the children, and materially affected the quality of milk, and that, to the combined agency of these exceptional conditions, rather than to any definite local insanitary circumstances, the heavy diarrhœal mortality which has so unfavourably influenced the death-rate, must be attributed."

To the summer temperature is also attributed the exceptionally high infant death-rates of Handsworth and Tamworth (that is high for these places) by Drs. Welch and Fausset respectively.

Dr. Blumer, of Stafford, in discussing the question says that "in addition to the deaths from diarrhœa and diseases of the digestive organs, it is probable that a large proportion of those from atrophy and convulsions were primarily due to disease and irritation of the alimentary canal set up by improper feeding."

In Walsall rural district, Dr. Wood attributes the excessive infant mortality of 203 to a disastrous epidemic of measles, and to poverty and destitution attending the prolonged strike among miners.

It may be of interest to note whether recent figures still bear out the conclusions I arrived at as the result of the inquiry I conducted two years ago into the effect of factory labour on the infant mortality, accordingly, I give in the following table the original figures for the artisan towns, classified in accordance with the relative proportion of married women engaged in factory work, together with corresponding figures for the past five years :—

Deaths in children under one year in three classes of artisan towns in Staffordshire.

	CLASS I. Many women engaged in work.	CLASS II. Fewer women engaged in work.	CLASS III. Practically no women engaged in work.
10 years, 1881–90...	195	166	152
5 years, 1889–93 ...	199	176	167

Comment upon these figures is needless, they speak for themselves. It will be noticed that although there has been a general increase in the infant death-rate, practically very much the same relative proportion has been maintained between the three classes of towns.

ZYMOTIC DEATH-RATE.

The death-rate from zymotic diseases, including under this heading, according to the Registrar-General's classification, the seven principal ones—namely, smallpox, measles, scarlatina, diphtheria, fevers, whooping cough, and diarrhœa—is higher this year than it has been since it has been my duty to collate the reports. In the following table the comparative figures are given for the past five years, together with similar figures for England and Wales, and for the large towns in England :—

Zymotic mortality per 1000 of population.

	Districts in Administrative County.			England and Wales.	Large towns in England.
	Urban.	Rural.	Urban & Rural combined.		
1889	2·36	1·17	1·99	2·40	2·72
1890	2·06	1·15	1·77	2·05	2·77
1891	2·00	1·36	1·82	1·83	2·41
1892	2·03	1·10	1·77	1·90	2·63
1893	2·41	1·58	2·17	2·47	3·17

The increased rate is accounted for by the large number of deaths which occurred from diarrhœa. Whereas no fewer than 632 deaths from this disease were registered in the urban districts of the county in 1893, the number in the previous year only amounted to 301, and in the rural districts the respective numbers were 129 and 65. This was the case throughout England, and it is to be attributed to the long continued heat during the summer and autumn months, which invariably results in an increase of bowel affections. Another point in connection with this year's zymotic rate which calls for mention, is the fact that smallpox has contributed appreciably to it, deaths from that disease having occurred in four urban and four rural districts.

SPECIAL ZYMOTIC DEATH-RATE.

Smallpox.—In my last year's report I pointed out that after several years of almost complete freedom from smallpox, the disease had made its appearance in the county late in the year. Throughout the year under review cases occurred in almost every district of the county, and in a few instances it assumed almost epidemic proportions, although the mortality was slight.

To comment upon the particulars given in the various reports of the outbreaks which occurred would occupy a considerable space, without serving any very useful purpose; I propose, therefore, only to notice a few examples, partly for the purpose of illustrating how the disease is conveyed from one district to another, and partly to show how much trouble and anxiety it gives rise to in districts which do not possess the means of dealing with it, as compared with other districts where isolation accommodation of some sort is available.

In Bilston, Dr. Ridley Bailey reports that a case occurred in a pauper family, and having no isolation accommodation for such cases, the patient had to be attended at home, with the result that two others of the family were attacked. In view of the possible spread of the disease, the Authority, very wisely, sanctioned the erection

of an iron hospital for 18 cases. By working night and day, the building was available for patients in six days' time.

"Mr. Ellis describes an outbreak of 39 known cases, of which five proved fatal, in Brierley Hill, as follows:—"The closing sentence of my last annual report calls attention to the possibility of an outbreak of small-pox, and the necessity of providing some means of isolating the first cases, should it occur.

"On the 31st May, three cases were notified at the Eagle Tavern, Turner's Lane, an outlying part of the district. The Sanitary Committee was called together at once, and weekly meetings were held. In my Report to the Committee I advised isolation as the only possible way of preventing Smallpox from spreading; tents to be immediately purchased, and a site obtained to place them on; this being the best way of meeting the present difficulty, and at this time of the year, the best means of treating Small-pox. The *Public-House to be closed*, and the owner compensated.

"Steps were immediately taken by the Sanitary Committee to rent a cottage, or failing that, to procure a site on which to pitch tents. We were, however, beset with difficulties on every hand. Eventually land was secured at Merry Hill, and it was decided to erect an Isolation Hospital, of wood and iron, to be completed in six weeks. At this time there was only one case, in an outlying part of the district.

"Eva Knight, Turner's Lane, who was notified on the 7th July, was allowed to expose herself before she was free from contagion, and on the 14th August a companion of her's, named Rider, was notified. The disease having thus obtained a fresh start, several others followed, and on the 26th September, as the Hospital was not ready, tents were procured, and the patients then suffering were removed to them.

"Eva Knight was subsequently taken before the magistrates and fined.

Between September 26th and October 26th, five cases were notified, and promptly removed to the tents. No other case occurring throughout November, it was confidently hoped the disease had been stamped out. On December 16th the disease received another spurt. I believe there are several reasons why this happened. At Brierley-Hill, a child was taken ill towards the end of November, with what was supposed to be Chicken-pox. *No doctor saw this child until it had completely recovered.* There can be no doubt this was modified Small-pox. Six of the cases notified on December 17th, 18th, and 19th, were known to have visited at this public-house. Believing that the parents of this child did not wilfully expose it, the Sanitary Committee decided not to prosecute. The patients at this time were being treated in the hospital. Other cases, however, occurred, which could not be traced to this source. There was a house at Mount Pleasant, just outside our district, where Small-pox was known to exist, and be under treatment at home. On the other side of the town,

at Brockmoor, also outside our district, a child had been suffering from Small-pox, *and was not seen by any doctor*, and thus escaped notification. Two cases were traced to this source. Then it was discovered that the male ward attendant, at the Isolation Hospital, had been visiting certain public-houses at night time, and he had probably helped to spread the disease. This attendant was at once discharged.

"At the beginning of this outbreak of Small-pox, up to the time of placing the cases in tents, on the 26th of September, every possible effort was made to stamp out the disease, and where the disease was known to exist, the isolation was successful. It was the visiting of friends, before the cases were removed, which baffled our efforts.

"The means adopted were :—Printed notices of precautionary measures, and penalties for neglect, were left at every infected house. The inmates, and neighbours who were known to have been there, were vaccinated. Children living near such houses were kept from school. Disinfectants, with printed instructions, were supplied free of cost, and in every case the bedding was destroyed, and the houses thoroughly disinfected, and fumigated, after recovery or death. The fatal cases were buried within 24 hours. Placards were also issued urging vaccination and re-vaccination, and amongst certain classes this precaution was very generally adopted."

An interesting table follows, showing the circumstances as regards vaccination in each case. I refrain, however, from publishing the figures here, as I hope to publish them with others, probably in my next annual report, when the data upon which conclusions may be based will be much more extensive, owing to the increased prevalence of the disease throughout the county during 1894.

In Darlaston, where eleven cases occurred, all, with one exception (a mild case), were isolated at once in hospital, and Mr. Partridge states that "but for the prompt and active measures used we might have had a wide-spread and fatal epidemic."

Dr. Welch writes with reference to cases at Handsworth as follows :—"This disease has been present to a greater or less extent throughout the year in the neighbouring city of Birmingham, and the towns of Aston, Walsall, and Oldbury, and it was not to be expected that Handsworth would escape. Forty-two cases have been reported in 35 families, at intervals since April. With three or four exceptions, the first or only person attacked in any house, was engaged in business or work outside the district. With one exception, all the patients were above fifteen years of age, the exception being an unvaccinated infant. For the most part the cases were mild, the rash being thinly scattered, and in many highly modified. Only one was fatal, and this was an unvaccinated person. The case mortality was 2·38 per cent. All the patients except two had been vaccinated in infancy, none had been

re-vaccinated until a case broke out in the house. I attribute the mildness of the outbreak and the non-infection of children, to the fact that the district is, and has hitherto, been well protected by vaccination. I regret that during the last two years the number of unvaccinated children tends to increase."

Mr. Beasley in describing an outbreak at Rowley Regis says :— "The effect of vaccination (recent and remote) has been very marked in the twenty cases I have had under observation this last year, the disease almost invariably assuming the severe or mild forms, according to the quality and quantity of the vaccination marks. Only two cases of Confluent Smallpox occurred in vaccination cases. One of them was a man aged forty years who was vaccinated in infancy, and had three indistinct marks. The other was a man aged thirty years, also vaccinated in infancy. He had two small marks. Three unvaccinated patients had very severe forms of the Confluent variety, and one of them died. All the others were protected, and had the disease in a very mild form. No case of small-pox occurred after vaccination to any of the members of the families from which patients had been removed, notably in the case of No. 116, Dudley Road, and No. 95, Grainger's Lane, whilst in the Corngreaves Road family two cases occurred after refusing re-vaccination."

Dr. Blumer writes as follows, with reference to three cases which occurred in Stafford :—"Smallpox was introduced into the town by two lads, who were travelling as advertising agents. One of them came to my house, on May 11th, with the rash well out on him. I had him at once sent into hospital, and had his companion vaccinated and put into quarantine. Two men who slept in the same room with them on the night of the 10th, and the man and his wife who kept the house were also vaccinated. Advantage was also taken of section 15 of the Infectious Diseases (Prevention) Act, to remove them all into another house, pending the thorough cleansing of the infected premises. The second lad developed the disease in a week's time; and one of the lodgers showed symptoms, on the thirteenth day after exposure to infection, of what proved to be a very mild case of smallpox. Both these cases were sent into hospital. Fortunately, as in 1888, we were prepared before the disease made its appearance, and could deal so promptly with the first cases that no fresh ones occurred beyond those that had been exposed to infection in the first instance."

Dr. Fausset, of Tamworth, writes :—"In March the son (aged 15) of the keeper of a common lodging-house, in Church street, was attacked with modified small-pox, and was removed for isolation and treatment to the Workhouse old Hospital, where he was placed under the charge of a special nurse, and measures were adopted to prevent the spread of the disease to the inmates of the Workhouse. The family consisted of ten persons, and the lodging-house was licensed for twenty persons, six being permanent lodgers. There was no account of previous illness in the house,

and the boy was at work up to the time of the attack. Those who needed to be protected were vaccinated and re-vaccinated. The lodging-house was closed and disinfected, the inmates were confined to the house, supplied with food and kept under observation for two weeks, at a total cost of £23. 12s. No further case occurred."

Dr. Garman, of Wednesbury, in referring to cases which occurred in that town says :—"There can be no doubt that the prompt isolation of these cases as they arose saved us from small-pox in an epidemic form."

Among the other urban districts where cases occurred which are commented upon at some length in the reports, may be mentioned—Fenton, Longton, Quarry Bank, Sedgley, Short Heath, Smallthorne, Smethwick, Stoke-on-Trent (one case), Stone, Tipton, and Willenhall.

As regards rural districts, Mr. Langley Webb, of Cheadle, in a history he gives of an outbreak in his district, calls attention to what would appear to be a reckless disregard of precaution. The report says :—"Of the two remaining cases, one was that of a young girl who had been a patient in the fever hospital at Rochdale for an attack of scarlet fever. When nearly convalescent she was allowed to wait on some small-pox cases in the same hospital. On getting her discharge she proceeded home to Freehay, and within a few days developed signs of small-pox.

Dr. Wood, of Walsall Rural District, writes in respect of the cases which occurred in that district, as follows :—"The annoyance and expense to which we have been subjected in having to provide temporary accommodation during the present outbreak, and the break down of our existing provisional arrangement—owing to the fact of our right of sending in cases being subject to their having room, has demonstrated the absolute necessity of making *permanent* provision against such a contingency in the future."

Among the other rural reports in which mention is made of cases having occurred, are Burton-on-Trent, Market Drayton, Newport, Stourbridge, Tamworth, Uttoxeter, West Bromwich, and Wolstanton and Burslem.

Measles.—This disease, which appears each year in most districts, has been more prevalent generally, but particularly in rural districts. than it was the previous year.

It does not appear that there was any marked incidence of the disease, as regards date of appearance, in any particular area of the county, and in some parts it seems to have prevailed pretty generally throughout the year.

In rural districts the same remarks apply as in urban districts, so far as absence of any marked periodicity of the disease is concerned, but the various outbreaks seem to have occurred at times when the disease was prevalent in the more populous centres within or adjoining the rural areas.

The following table shows the number of deaths, and the death-rate per 1000 of the population from this disease, in the urban and rural districts of the county, for the past five years :—

Measles.		1889.	1890.	1891.	1892.	1893.
Urban	Number of deaths	347	221	368	187	283
	Rate per 1000...	0·64	0·40	0·67	0·33	0·50
Rural	Number of deaths	66	37	106	20	111
	Rate per 1000...	0·26	0·14	0·44	0·08	0·48

As regards urban districts, the following seem to have suffered most, namely, Brownhills, Burslem, Cannock, Longton, Newcastle, Tamworth, and Wednesfield, while among rural districts it proved most fatal in Stoke-on-Trent, Uttoxeter, Walsall, and Wolstanton and Burslem.

In Audley, it is said, an epidemic which "rapidly attained considerable proportions" appeared in Talke in August, and six schools were closed for six weeks in consequence of it.

Dr. Maddever, of Brownhills, says that "during a portion of the year measles spread with alarming rapidity and was of a most fatal type, causing 16 deaths, while, no doubt, its sequelæ were in many cases responsible for a fatal issue later on." Certain schools were closed for a time, with the result, it is said, that a decrease in the number of cases immediately took place and the disease died out.

Mr. Ritchie, in writing about the disease in Leek, says:—"It is a pity there should be so general a feeling of the innocence of this disease . . . The following facts may, possibly, bring the truth home to some minds—At Leek, during the last 10 years, 150 deaths from all kinds of infectious disease have been recorded, and of these, 67, or nearly one-half, have been from measles."

In Newcastle schools were closed, it is said, with good effect.

Among the other urban districts where the disease was prevalent may be mentioned Darlaston, Lichfield, Longton, Short Heath, Smethwick (mostly trivial cases), Stoke-on-Trent, and Stone.

As regards the desirability of including measles among the diseases which should be notified, considerable difference of opinion is expressed in some of the reports. For example, Mr. Dawes, of Longton, writes :—"Measles and Whooping Cough are not notifiable, but when we have our Contagious Diseases Hospital, I shall recommend the Authority to include them in the Act, as they are both highly contagious, and, by early notification and isolation of the first case or two, an epidemic can in all probability be prevented. Both these diseases, when prevalent, are very serious, often necessitating the closing of schools."

Dr. Ridley Bailey, of Bilston, also advocates the inclusion of measles among the notifiable diseases. On the other hand, Dr. Clark, of Lichfield, says :—"I would remark that the lengthened period of the incubation or pre-eruptive stage, and hence the practical impossibility of knowing of cases sufficiently early to isolate them, either in hospital or at their homes, still inclines me to the belief that the advantages gained from the notification of this disease in your district, are over-balanced by the cost. Hitherto it has been more costly than Scarlet Fever—without the advantages gained." Again, Dr. Fausset, in his report for Tamworth Rural District, says :—Measles is not notifiable in your district, but it ought to be, for the same reasons which apply to other infectious diseases, and also to lessen the possibility of cases of scarlet-fever being perhaps intentionally overlooked and not reported by the householder, who excuses himself by saying he thought the disease was measles."

Scarlet Fever.—This disease caused 134 deaths in the Administrative County, equal to a rate of 0·17 per 1000 of the population.

The following table shows the number of deaths, and the death-rate per 1000 of the population from this disease, in the urban and rural districts in the county, for the past four years :—

Scarlet Fever.		1889.	1890.	1891.	1892.	1893.
Urban	Number of deaths	108	145	144	105	119
	Rate per 1000...	0·20	0·26	0·25	0·18	0·21
Rural	Number of deaths	30	51	63	29	27
	Rate per 1000...	0·12	0·19	0·26	0·12	0·11

Among the urban districts where the highest mortality occurred may be mentioned Burslem, Darlaston, and Wednesbury.

In Burslem, beyond mentioning the fact that scarlet-fever prevailed pretty generally, Mr. Taylor does not give any account of the outbreak.

As regards Darlaston, Mr. Partridge writes :—"Scarlatina first appeared in the beginning of March, and in the month four cases were reported to me which were of a mild type, and as during April there were none, and the cases were of a sporadic nature I thought no epidemic was imminent; during the five months dating from the commencement of the disease, that is March 1st to the end of July, twenty notifications were sent me and no death had resulted, and by its dormancy I was strengthened in the belief that no epidemic was to be feared, but in August there was a sudden revival of the contagion and thirty-nine cases were

reported in the month and the first two deaths took place. From August to the end of the year (five months) there were 176 notifications, but in November and December a great declension was manifest, and the epidemic had pratically exhausted itself.

"The total number of deaths was twenty during the year, or 9.8 per cent. of the reported cases. Children from infected houses were kept from school as far as possible and every precaution used to prevent the disease spreading, but many of the cases were so mild as to pass recognition by parents, and in this way the disease was conveyed to schools, and still further extended by parents, either from sympathy or gossip, visiting houses where they knew the disease was. Parents are daily being reproved by medical men for persisting in this bad habit, but year succeeds year and I see no abatement in this nefarious practice."

The report for Wednesbury does not contain an account of the out-break there.

Mr. Marsh Jackson in his report for Smethwick, publishes several interesting tables of statistics with reference to scarlet fever in this and previous years. The following is an extract from the report itself.—"I have again prepared for this year tables similar to those that have appeared in my former reports. The first of them shews the number of persons attacked each month, and the age and sex of those attacked, with the totals as regards these particulars for the whole year. In the next table the number of attacks, the relation of attacks to population, the annual mortality, and the Scarlet Fever death-rate for the year are contrasted with the similar details of each of the three previous years during which the Notification Act has been in operation. The third shows the number of attacks at the various age-periods named for this and the former years mentioned, and the proportion the attacks at these age-periods bear in relation to population.

"By means of the two latter tables a very interesting and instructive picture is afforded of the prevalence of this fever during the past four years. In round numbers 750 out of a total 1,000 attacks occurred amongst children under ten years of age. After that age the attacks you will notice were much fewer. In each year the susceptibility was greatest at the second age period, that is between five and ten years of age, or during early school life, a fact which probably will not escape the notice of those responsible for the School Board finances. An outbreak of Scarlet Fever in the family of a working man involves the disappearence from the School Register, not only of the sick, but of all the children in the house, of school age, for a period of at least seven weeks, the effect of which must be to lower the attendance average, and proportionately reduce the capitation grant. In consequence too of the very natural disinclination on the part of employers and fellow workmen to be brought in contact with persons coming from infected houses, the working members of the family are frequently prevented from continuing

their employment, and in some instances without receiving any compensation, I venture to submit these facts to your notice in connection with the considerations which are before you, and engaging your attention as to the provision of a Hospital for the reception of those cases of Infectious Diseases other than Small-Pox which cannot be isolated at home."

In a good many of the reports attention is called to the fact that it is impossible to deal with outbreaks of this disease unless means of isolation and disinfection are available, and in other reports the advantages to be gained by possessing such means are pointed out. In Rugeley, for example, Mr. Freer, attributes at least 10 out of 26 cases "to direct infection arising from the impossibility of effecting proper isolation." On the other hand, Dr. Underhill of Tipton calls attention to the fact that it is nine years since a serious epidemic of scarlet fever occurred in the district, and says that he can only attribute the non-spreading of cases to the more general isolation precautions now resorted to.

Mr. Ritchie of Leek writes:—"I firmly believe that this disease, which has prevailed in the town for three years, would have long been stamped out if every case had been sent to the hospital, for I am not aware of any infection following the 88 cases treated there."

Mr. Hartill of Willenhall, in discussing the question of the diminished fatality of the disease, says.—"Ninety-nine cases of scarlet fever came to my knowledge, with the extraordinary result that there was no death due to it. Although cases of scarlet fever are still numerous the disease is nothing like so serious as it was a few years ago. From 1873 to 1882 the average number of deaths in this town from scarlet fever was annually nearly 31, whilst from 1883 to 1892 it was less than 4. On the whole, more care is taken of the sufferers by those in charge of them; more are isolated; greater pains are taken to exclude children living in the same houses from school."

Among the rural districts, in Lichfield there were 161 cases with only two deaths. In Newcastle there were 46 cases and no deaths. In Stoke-on-Trent 31 scattered cases occurred, of which 13 were isolated in hospital. Dr. Swift Walker states that it is satisfactory to be able to record that in no instance did a second case occur in the same house. In Stone, scarlet fever is said to have been the only serious outbreak of zymotic disease which occurred. The hospital which has recently been erected was not available until the epidemic had extended beyond isolation limits, but Dr. Fernie points out as regards the villages of Sandon, Cold Meese, and Darlaston, where early isolation was resorted to, in no instance did the infection spread.

Cases occurred, mostly of a mild character, in nearly all the other rural districts.

Diphtheria.—In the administrative county, 42 deaths occurred from diphtheria as compared with 53 in 1892, equal to a

rate per 1000 of the population of 0·05 as against 0·07. Of these deaths 24 occurred in the urban districts, or 0·04 per 1000, and 18 in rural districts producing a rate of 0·08 per 1000. In the following table corresponding figures are given for the past five years:—

Diphtheria.		1889.	1890.	1891.	1892.	1893.
Urban	Number of deaths.	27	23	37	32	24
	Rate per 1000 of population.....	0·05	0·04	0·06	0·05	0·04
Rural	Number of deaths.	28	14	25	21	18
	Rate per 1000 of population.....	0·11	0·05	0·10	0·09	0·08

In Bilston only one case was notified, in a family in which a case of membranous croup had been notified 12 days previously.

In Brierley Hill there were two non-fatal cases. In one of them an open ditch was believed to be the cause.

In Cowley there were two cases in one house, one of which proved fatal. No apparent cause could be discovered.

In Handsworth 15 cases were reported as having occurred in 13 houses, and two deaths resulted. In six cases the premises are said to have been found in good sanitary order; in the others badly trapped and ventilated pan-closets, defective privies, or damp and dirty surroundings were met with.

In Newcastle six cases occurred in four houses, and two were fatal. Drainage defects were met with in all cases with one exception, and several privies were found in close proximity to the back premises.

In Rowley Regis, it is said, there were a considerable number of non-fatal cases.

In Stoke-on-Trent 32 cases were reported, of which, however, only two proved fatal.

In Willenhall, where there were eleven cases of diphtheria and "diphtheritic sore throat," Mr. Hartill says:—"It is a significant fact that two of the cases occurred on premises which in my last annual report were among the five named as having water-closets connected with dumb-wells, whilst of two cases of membranous croup one was on premises in which a child the day before was at play in the cellar of a house built a few years ago on land used to deposit ash-pit refuse. Of the five dumb-wells referred to, three have been abolished, and a fourth is in process of demolition. From 1889 to 1893 there was no case of diphtheria in the town, and prior to 1889 the disease was extremely rare."

As regards rural districts, in Burton-on-Trent four cases were heard of, all of which were associated with scarlet fever.

In Cannock three cases occurred, two of which were fatal. One of the fatal cases followed a malignant attack of measles.

In Cheadle twelve cases were notified. Four of these occurred in an old farm house at Totmonslow. Concerning these Mr. Langley Webb writes :—"On visiting them I found a water-closet (with very meagre cubic space and ventilation) in direct communication wiih the living rooms. The old-fashioned pan-closet was in a very filthy condition, and dependent upon rain water for flushing purposes. During the then prevailing dry weather there was no water supply, and the closet was necessarily untrapped. The cesspool, into which the excrement passed, was situated some 20 yards distant. It was found to be almost full to repletion, and I ascertained that it was emptied once, or at most, twice, in the year. As a consequence, sewer gas found easy access to the living rooms, and hence the outbreak."

In Cheadle also a remarkable and interesting outbreak of "epidemic sore-throat" occurred among the children attending the Kingsley schools. A full account of the outbreak is given by Mr. Langley Webb in his report, and, as I assisted him in the enquiry, with his permission, I placed the occurrence on record by reading a paper before the Midland Counties Branch of the Society of Medical Officers of Health, in which the facts were set forth. In no case did the disease prove fatal, but out of 302 children attending the schools one-third were attacked. The origin appeared to be connected with the opening of an old drain in connection with the extension of the school buildings.

In Lichfield (Rugeley sub-district) 18 cases were notified. Dr. Clark describes the circumstances attending four of them as follows :—"In April four cases of this disease of a virulent type suddenly, and at the same time, occurred in the neighbourhood of the mllk factory at King's Bromley Wharf. I immediately visited the cottages and made an inspection of them, together with the factory, with Dr. Armson, the Medical Attendant. One of the children, with the consent of the parents, was at once removed to the hospital, another had died the day previous, and a third died the day following. The sale of milk was at once ordered to be stopped, and the factory to be closed until further notice. The cottages were thoroughly disinfected under the personal supervision of the Inspector of Nuisances. It was found that a large tank used by the factory for the reception of refuse, whey, &c., which had not been emptied for some time, had been opened and cleaned out a few days previously, and the stench that came from it was described as very horrible. Some children were playing near at the time, and one was immediately taken ill and died after a short illness. The simultaneous occurrence of the other cases, together with the virulence of the disease, clearly points to the emanations of this foul tank as the cause of the outbreak. Every precaution was taken and no other case occurred, and the child that was removed to the hospital recovered after a severe and prolonged illness."

Among other rural districts in which cases occurred, may be mentioned Newcastle, Seisdon, Stafford, Stoke-on-Trent, and Stone.

Whooping Cough.—This disease caused 204 deaths, as against 510 in 1892, equal to a rate of 0·25 as compared with 0·65. Of these 171 occurred in urban, and 33 in rural districts, equalling a rate, respectively, of 0·30 and 0·14. In the following table corresponding figures are shown for the past five years :—

Whooping Cough.		1889.	1890.	1891.	1892.	1893.
Urban	Number of deaths	261	211	222	420	171
	Rate per 1000 of population ...	0·48	0·38	0·40	0·75	0·30
Rural	Number of deaths	39	68	39	90	33
	Rate per 1000 of population ..	0·11	0·26	0·16	0·39	0·14

As regards urban districts, in Brierley Hill there were many cases and five deaths. In Handsworth there were many cases during the first half of the year, 14 of which were fatal and all in children under one year. In Rowley Regis it is said to have been more prevalent than in any year since 1888, and caused 28 deaths. In Tipton there were fewer deaths than the average for the previous 10 years. Among the other urban reports in which special reference is made to the disease, may be mentioned Bilston, Cannock, Coseley, and Longton.

Among the rural districts the disease is said to have been very prevalent in Eccleshall and Stoke-on-Trent. In Wolstanton and Burslem, on the other hand, it only caused one death as compared with 43 in 1892.

Enteric Fever.—This disease, which must be looked upon as entirely preventable, caused 149 deaths, including in that number seven deaths which were returned as continued fever. Of these, 117 occurred in urban, and 32 in rural districts, the respective rates being 0·20 and 0·13. The comparative figures for the past five years are shown in the following table :—

Enteric Fever.		1889.	1890.	1891.	1892.	1893.
Urban	Number of deaths	106	74	111	85	117
	Rate per 1000 of population ...	0·20	0·13	0·21	0·15	0·20
Rural	Number of deaths	26	34	35	24	32
	Rate per 1000 of population ...	0 10	0·13	0·12	0·10	0·13

It will be seen by reference to the tables at the end of this report, that the urban districts that suffered most are the following, enumerated in order, the highest being placed first:—Longton, 0·70; Fenton, 0·44; Tipton, 0·44; and Darlaston, 0·40.

In those districts in which the causation is discussed, polluted water and defective drainage, as a rule, are credited with it.

Mr. Dawes, of Longton, reproduces in his annual report a special report, which he prepared by request of the Local Government Board, in December, 1893, dealing with the prevalence of the disease. It appears that no fewer than 200 cases were reported during the year. The following are the concluding sentences of the report:—"I have been quite unable to trace the cause of the disease to either milk or water supply. The milk is procured from a large number of small dairy farms in the neighbourhood, and the water supply is pumped from the gravel and sandstone strata, and is reported to be of very good quality. I am of opinion, as the district has not been free from the disease for so long, that the continued dry weather permitted the cultivation of the poison to a much greater extent than would have been possible had there been a reasonable amount of rain. . . . . The Authority has done its best to check the spread of the disease by inspecting cesspools and middens and supplying what disinfectants were requisite. There is no means of isolation as yet, but the land for the erection of a Contagious Diseases Hospital has been purchased by the Authority. Whatever could be done by flushing the sewers has also been effected. For some time past now, all new houses have been ordered to be supplied with water-closets, and the ash-pits required to be of small dimensions. Old cesspools out of repair have been replaced by water-closets. When found practicable, infected houses have been disinfected, and bedding, &c., sent to the disinfecting stove. The excrement from the cesspools is partly taken away by the farmers, and partly disposed of at the destructor. The district is efficiently sewered, and all houses are properly connected with the main sewers."

In discussing the outbreak at Fenton, where there were 38 cases, Mr. Griffiths says:—"I am strongly of opinion that the privy-midden system of disposal of excrement should be abolished as soon as possible; there are many leaking privies in the District; the surrounding soil becomes thereby horribly polluted; this state is peculiarly favourable for the spreading of enteric fever."

With regard to the Tipton cases, Dr. Uuderhill writes:—"There has been a very general increase in the number of these filth produced diseases during the year, due partly to the stagnant heat that we have had, and partly to the want of water. Drains that in the more rainy seasons get flushed at times with the rain, were not so during a great portion of the year; consequently the drainage fermented and decomposed, thus causing noxious gases; besides much of the ground around the houses is sewage sodden and the hot still air evaporated the moisture, and caused

a general pollution of the air, most noticeable to anyone who was compelled to visit the courts and poorer houses during the hotter parts of the year. The cases have not been confined to any one portion of the parish; Bridge Road and Toll End Road, more particularly about Spring Street, have furnished more than the usual quota of cases."

As regards the Darlaston cases, 24 in number, Mr. Partridge states that in no case was any cause discoverable, but that evidence did not point to milk or water being responsible.

In Brierley Hill, where ten cases occurred, Mr. Ellis calls attention to the fact that the well water, which is said to have been the cause, had been condemned by him the year before. Five other cases are also attributed to impure well water.

In discussing an outbreak at Coseley, Mr. Clendinnen mentions the fact that a certain owner of a block of houses, in one of which a case occurred, declined to substitute the public water-supply for the impure well water in use, and the Authority are recommended to have the well water analysed. As the cases referred to occurred in June, 1893, it seems very remarkable that so glaring a sanitary evil should still have to be mentioned in February of the following year.

In Newcastle, where 18 cases occurred, Mr. Hallam states that in no instance could the cause be attributed to water or milk. In connection with most of the cases, however, either foul privies or defective drainage are mentioned, and several of the cases occurred in the same locality which suffered in previous years.

In Short Heath, Mr. Hartill again calls attention to the imperfect water-supply at New Invention, in connection with enteric fever cases. To my knowledge the attention of the Authority has over and over again been called to this defect, and, as the matter appears to be a very serious one, it is to be hoped that measures will be taken to provide a more constant supply of water for the locality in question.

In Smethwick, where the disease is said to have been unusually prevalent, Mr. Marsh Jackson writes :—"It is difficult to account for this increase in the number of cases of this fever, except on the score of the heat and dryness of the weather, which were unexampled, and may well be presumed to have favoured its spread by fæcal contamination from privies and ashpits. In no instance could the use of impure well water be credited with the infection, for in every instance the South Staffordshire water was the sole supply. Some cases were traced to infection outside the district, but the great majority were inexplicable on any other grounds than those adduced, as in connection with them there was found either leakage from privies or ashpits, or evidence of prolonged storage of excrement. Unskilful domestic nursing was the cause of some cases, and, it is to be feared, of some fatal results. Absolute disregard of cleanliness was apparent in some

instances. With all these factors present the suitable atmospheric conditions which prevailed alone were required to fan the flame and favour the spread of the fever. The tables that I have prepared in illustration of its influence on the mortality show that after all its existence was unattended with any serious results as regards life. In no instance was there any occasion to suspect infection through the milk supply."

In discussing the possible origin of an outbreak of enteric fever (37 cases) in Stafford, Dr. Blumer writes :—"In almost every house the Corporation water had been in use for months, all the drains were disconnected from the dwellings, Rochdale tubs were in use, no suspicion could rest upon the milk supply, and, except in seven instances, there was no connection traceable between the individual cases. That there are occult causes at work in setting up typhoid fever, other than those which are generally recognised, is evident, but much patient investigation must be carried on before we can claim to have mastered the ætiology of typhoid fever."

Among the other urban reports in which enteric fever receives more or less prominent mention, are Audley, Bilston, Handsworth, Wednesbury, Quarry Bank, Rowley Regis, Rugeley, Sedgley, Smallthorne, Stoke-on-Trent, Stone, Tettenhall, and Willenhall.

Among rural districts, I would call special attention to the question of enteric fever in the parish of Madeley in Newcastle rural district. It would appear from the remarks of Mr. Dickson that the Authority of that district do not follow up his recommendations, nor take steps to remedy defects which fatal and preventable illness is instrumental in bringing to their notice. That this is the case is evident from the following extract from the report in question :—"Of the nine reported cases three occurred in the beginning of the year in one house in the Long Row, Madeley, and one of them ended fatally. A severe epidemic of enteric fever in this neighbourhood, which began in the previous autumn, was only just subsiding, and after careful examination we came to the conclusion that the same two causes mentioned in my last annual report, viz : impure water and defective sanitary surroundings still existed. The first cause was remedied so far as the closing of the polluted wells was concerned, but the supply of good water for the district is still very defective. The second cause was remedied by the improvement of the drainage of the houses by trapping and disconnecting drains. But this area is still in a very primitive state so far as sanitary requirements are concerned."

Owing to the prevalence of enteric fever in Madeley in the autumn of 1892, I specially visited the district, and the report which I then presented to the Sanitary Committee of the County Council was forwarded to the Newcastle Rural Sanitary Authority. The following concluding sentences of that report call attention to

faults which, it would appear from the above quotation, are still uncorrected. —"Without asserting either that the water-supply or the drainage arrangements are responsible for the outbreak of fever, there is no doubt whatever but that both are sufficiently at fault to account for it. It is, therefore, incumbent on the Authority to take steps to place the property in proper sanitary repair, and to provide a good water supply for the people. The first requirement can easily be complied with, and, I am informed, that little difficulty need be experienced in getting a good supply of water at a reasonable cost."

Dr. Wood, in discussing the surroundings of the houses in which enteric fever occurred in the Walsall rural district, says :— "In one property there existed a leaking ash pit, with contents percolating through the brickwork, and contaminating the surrounding surface of the yard which was well paved and drained. In another there was an overcrowding of insanitary outbuildings occupied by pigs and other animals, together with a privy in a foul and dilapidated state. In others, open ash pits with liquid contents were conspicuous, and in one an open untrapped drain in the cellar."

Among the other rural reports in which enteric fever is more or less prominently mentioned, are Cannock, Cheadle, Eccleshall, Stafford, Stoke-on-Trent, Stone, West Bromwich, and Wolstanton and Burslem. In the Stourbridge report, Mr. Turner congratulates his authority on the fact that no deaths have been recorded.

Diarrhœa.—In the administrative county 761 deaths occurred from diarrhœa, equal to a rate of 0·96 per 1000 of the population. Of these deaths, 632 occurred in urban, and 129 in rural districts, equalling, respectively, rates of 1·12 and 0·56 per 1000.

As will be seen from the following table, the figures this year compare very unfavourably with those of the previous four years :—

Diarrhœa.		1889.	1890.	1891.	1892.	1893.
Urban	Number of deaths.	431	454	208	301	632
	Rate per 1000 of population.....	0·82	0·82	0·38	0·54	1·12
Rural	Number of deaths.	98	91	65	65	129
	Rate per 1000 of population.....	0·40	0·35	0·27	0·28	0·56

Diarrhœa is a disease which is very variable as regards its prevalence, as the temperature in the summer months is intimately associated with its causation. At the same time, although climatic conditions are intimately associated with the ailment, its prevalence is largely influenced by the presence or absence of

insanitary surroundings, and the amount of discretion shown in the feeding of infants, for it is essentially an infantile affection.

In calling attention to the exceptional prevalence of the affection in Handsworth, Dr. Welch gives the following pithy summary of the exciting causes —" The chief factor in the production of this increased mortality was the prolonged and excessive heat of the past summer. A high temperature is not, however, the only factor in the production of summer diarrhœa. It is precisely in those districts where the least attention is paid to sanitation, where houses are kept dirty, and the food closet is not infrequently the dirtiest place, where windows are rarely or never opened, where foul slops of all kinds are thrown out from the house doors and saturate the earth of the yards and courts, and where the midden stink in hot weather prevades the atmosphere, that the disease most prevails. Ignorance and carelessness in the matter of feeding play their part, and in addition to this, there is frequently neglect of, or inattention to the early symptoms, and medical advice is called too late."

Mr. Beasley, in his report for Rowley Regis, calls attention to the prevalence of diarrhœa, and as the disease was specially included among notifiable diseases for a period of the year, owing to the occurrence of cases of cholera, I quote the following from the report in question :—" This disease has been much more prevalent this year than in 1892. Twenty-six deaths have been registered from it, twenty-three children under five, and three adults. Six deaths occurred in the first half year, sixteen in the third quarter, and four in the last quarter. Twenty-three cases were reported in the last week in September, (sixteen under, and seven over five years) and one hundred and twenty-four in the quarter ending December 31st, (one hundred and eleven under, and eighty-three over five years of age)."

Owing to an outbreak of cholera at Tividale at the end of September diarrhœa was included in the notifiable diseases for two months, and afterwards for an additional month.

In the report dated September 6th, the attention of the Board was called to the fact that diarrhœa as well as typhoid fever had been, and still was, very prevalent throughout the parish. It was also pointed out that extra precautions to secure the cleansing of the sewers and drains, and the purity of the water supply were requisite. In response to this the Board granted extra men to devote their time to this special work. The disease was chiefly confined to the Upper Division of the parish, was very prevalent through October and November, and gradually subsided in December. A large proportion of adults were attacked, viz., ninety out of a total of two hundred and seventeen. Amongst the possible causes for this excess of diarrhœa may be included, the abundance of fruit (of variable degrees of soundness); the scarcity, and in many cases, the impurity of the water supply ; the excessive heat and dryness of the summer, and the consequent

stagnation of surface drains, through the absence of the natural flushing."

I quote the following from Dr. Underhill's report for Tipton, as it bears out the opinion of many, that the evil which is attributed by some to the practice of infant life insurance is greatly exaggerated:—"In this district an extensive experience has taught me that life insurance greed has nothing to do with the high death-rate in infants from diarrhœa and other causes, and that a case has never come under my notice as a M.O.H. or as a Police Surgeon for over 20 years, when I have been able to say that any infant, whether a legitimate or an illegitimate one, has been deliberately neglected for the sake of insurance money or for getting rid of the child. I have heard hundreds of times, expressions used by relatives and outsiders as to the desirability of delicate children going to "a better home above" and such remarks, but I have never known any lawless action taken to ensure a happy exodus."

Mr. Hartill, in an appendix to his annual report as Medical Officer of Health for Willenhall, gives a very interesting summary showing the localities where deaths occurred, and the ages, social condition, and kind of diet of the infants. He says:—"It is certain children in this town fed from the breast until 9 or 10 months old are more exempt than others from fatal diarrhœa; that children fed on artificial food without milk from the breast suffer most severely from diarrhœa; that children fed partly at the breast and partly on artificial food suffer much from diarrhœa; that maternal neglect, vicious habits of the parents and dirty homes encourage it; and that the employment of females in factories is a cause of maternal neglect which leads to children being fed on artificial foods. The social remedy lies chiefly in the direction of kindly philanthropic education, and the influence of the example of the prosperous, among the poor."

Among the other reports for urban districts in which the prevalence receives special mention, are Bilston, Brierley Hill, Burslem, Darlaston, Short Heath, and Tamworth.

In rural districts the disease seemed to have been specially prevalent in Cannock, Eccleshall, and Tamworth.

Cholera.—The possibility that cholera might break out in this country has led to some amount of sanitary work being done in the various districts, which, in all probability, would have been long delayed had it not been for the stimulus which this fear gave.

Cases which were pronounced by advisers of the Local Government Board to be true asiatic cholera actually did occur in two districts, namely, Rowley Regis urban and Stafford rural.

Mr. Beasley reports very fully on the Rowley Regis cases, and as their occurrence is so exceptional, I reproduce the report in full: "On July 8th I was called in to see a case at No. 4, Dudley Road, Rowley, which I diagnosed as English cholera. The symptoms so

closely resembled those of Asiatic cholera, that for a time I was in doubt under which head to classify the disease. A review of the whole of the facts, together with the opinions of Dr. de Denne and Dr. George Reid (the County Medical Officer), who kindly came over from Stafford and investigated the case with me (after the patient's death) enabled me to come to the conclusion that it was English cholera. The history of the case is as follows :—The man was taken ill with severe diarrhœa on July 8th, about 3 a.m., and was purged three times between then and 6 a.m. He went to work, was seized with violent pains in his bowels, was again purged and vomited. He lay in a field, into which he had gone to relieve himself, for two hours, and was then brought home in a very exhausted state. When I first saw him, at 12 noon, he was lying on a couch, complaining of pains in the stomach and cramp in the legs and thighs, also of feeling very sick. He was quite cold, and had a quick and feeble pulse. I saw him at intervals up to the time of his death, which occurred at 8 p.m. the same evening. The symptoms remained unchanged. He was conscious to within half-an-hour of his death. The corpse was buried within thirty-six hours after death. The house was stripped of all paper, the walls scraped, and the rooms fumigated and lime-washed, and all the contents of the house stoved immediately after the funeral. No other case has occurred in the neighbourhood. I could not obtain any history of infection, or cause of the illness. The man had been in a bad state of health for some weeks previous to the attack.

"On September 10th, a case was reported at No. 208, Halesowen Road, as cholera nostras. I saw the man immediately on the receipt of the certificate, and found that he had been suffering from excessive diarrhœa for five days, but was then very much better. There had been little or no cramps in the extremities, and both Dr. de Denne and myself considered it a case of excessive diarrhœa. The contents of the closet were removed and buried, and as soon as possible the house and its contents were disinfected. No similar case occurred in this neighbourhood.

"On September 25th notice was received of a case of cholera at No 42, Lower Chapel Street, Tividale. On arriving there I found the patient (Mary Smith, aged 61 years) dead. She had been taken ill on September 23rd, at 9 a.m., and died on September 25th at 1-30 p.m. Whilst making enquiries about the case, I was informed that another woman had just died. I immediately went to the house (No. 138, Brown Lion Row, and found that a Mrs. Bailey, aged 45 years), had been taken ill on September 24th, at 4 p.m., and died on September 25th, at 1-30 p.m. I also found four other people suffering from choleraic diarrhœa, viz :—

William Henry Mann,	19	yrs. at	No	11,	Lower Chapel St.,	taken ill at	9 a.m.	Sept. 25th.
Amelia Taylor,	60	,,		12,	,,	,,	9	,, 23rd.
Norman Scriven,	6	,,		18,	,,	,,	7	,, 25th.
Mary Ball,	30	,,		32,	,,	,,	2	,, 25th.

"On ascertaining the nature of the outbreak I telegrahed to Dr. Reid (County Medical Officer), who came over the same evening and visited the cases with me We made a post-mortem examination of Mrs. Bailey, and sent a portion of her intestine to Dr. Thorne, Local Government Board Officer, for Bacteriological examination. I wrote to Dr. Thorne the same night, and telegraphed to him the following morning reporting the cases. In reply to my telegram, Dr. Sweeting, one of the Local Government Board's Medical Inspectors, came down on Tuesday evening and saw the cases with me. At his request I sent a second portion of intestine from the same body to Dr. Thorne, as Dr. Klein reported that microscopically the case was suggestive of true cholera, and he required another portion for further investigation. We spent the greater part of Wednesday at Tividale, trying to discover the cause of the outbreak, and at 4 p.m. we attended a special meeting of the Board, which had been called to meet Dr. Sweeting. Dr. Sweeting explained to the Board the reason of his visit, and made the following suggestions :—

1st. "That all healthy people should be removed from the infected houses

2nd. "That the notification of diarrhœa should be enforced for two months from present date.

3rd. "That a re-issue of posters advising the public how to act in cases of infectious diseases, Cholera and diarrhœa especially, should be made throughout the parish.

4th. That the contents of privies which had received infected discharge should be cleaned out at once and their contents burned. (This work was in progress before and at the time of Dr. Sweeting's visit.) Also that the Board should consider the advisability of doing their own scavenging.

5th. That the condition of Brown Lion Row and Lower Chapel Street should receive immediate attention.

All these suggestions the Board agreed to adopt, and at a subsequent special meeting held at 6 p.m. September 29th, Mr. Martin, an eminent engineer, was instructed to prepare a plan for the drainage of Tividale. Notice had been previously sent to the medical men in the district informing them that the Infectious Diseases (Notification) Act should include diarrhœa for two months. On September 26th the Local Government Board telegraphed that Dr. Klein was unable to distinguish the disease from true cholera. The whole of Thursday was spent in carrying out Dr. Sweeting's suggestions. On Friday Dr. Sweeting and myself again visited and inspected the whole of Tividale. On Saturday, I accompanied Dr. Sweeting to the Local Board Offices to enable him to complete his notes.

"The adoption of diarrhœa as a notifiable disease brought to light the following cases from Tividale. In addition to the cholera cases, nine cases of diarrhœa were reported, four cases under five years of age and five over. Three of these cases

occurred in the infected locality, viz., a son of Mrs. Bailey, at No. 129, Brown Lion Row; a woman at No. 153, Brown Lion Row; and a child at No. 14, Lower Chapel Street (the same yard in which there were two other cases). No further death occurred amongst any of these cases until October 28th, when Bailey's child died from exhaustion induced by diarrhœa. All the other patients made more or less protracted recoveries The bodies of the two that died were buried within forty-eight hours, and the coffins were surrounded with quicklime The houses were immediately stripped of all paper, and the walls and ceilings scraped. They were then washed all over with a solution of carbolic acid, and afterwards fumigated with sulphur. All the contents of the houses were stoved or fumigated. The bedding was burned. The same course was adopted in all the houses in which cholera cases had occurred, as soon as the patients were convalescent. Void houses were rented by the Board, and all the healthy members from the infected families were removed to them. The water courses and drains were cleaned out daily, and disinfectants were used freely.

"Several theories were started as to the cause of the outbreak, but the following facts are patent.

"The drainage of the whole of Tividale is bad. The whole of the district is undermined, and most of the old drains and water courses are either broken or diverted. All the drains now in use in this particular locality are open ditches. The whole of the house drainage is conveyed through open drips into these ditches. The cellars in several of the houses contain water which can only be removed by pumping or draining into dumb wells. Part of a disused colliery bank within fifty yards of the lower end of Lower Chapel Street had formerly served as a night-soil tip.

"In the Brown Lion Row, houses Nos. 137—143 inclusive were in a very dilapidated condition. The backs of these houses are within three feet of the canal embankment, and are below the level of the canal. To make matters worse the tenants had been in the habit of depositing ashes in this narrow entry until they had accumulated a heap several feet thick, so causing the back rooms to be very damp.

"On application being made to the Board, extra men were employed to keep the drains clear. The closets were all emptied and disinfected, and the contents buried. Orders were issued for the supply of tap-water to those houses which had not a proper supply. The night-soil tip was ploughed as far as practicable, and the remainder of the ashes and refuse was levelled, covered with a six inch coat of gas lime and afterwards with a foot of earth. The houses Nos. 137—143 Brown Lion Row were closed as unfit for habitation.

"This outbreak of Cholera occurred simultaneously with the return home of a number of hop pickers (Ball and Mann amongst the number) who brought a quantity of apples and other fruit

with them, which was partaken of more or less freely by all the above-mentioned cases.

"A quantity of fish had been sold in this neighbourhood during the week, of which several of them had partaken, but I could not get any trustworthy information of the fish being unsound."

Mr. Butler, of Stafford Rural District, points out that Dr. Klein of the Local Government Board was consulted with reference to a fatal case in that district, and gave it as his opinion that it was true cholera.

Erysipelas.—Little reference is made to this disease in the reports under review.

With reference to twenty cases which were reported in Handsworth, of which four proved fatal, Dr. Welch writes:—"Except that it involves an enquiry into the sanitary condition of the house, I do not see what is gained by the notification of this disease."

In the Newcastle Rural District, out of 122 notifications 64 were for cases of erysipelas, and Mr. Hallam in his report for the urban district of Newcastle says:—"Judging from the last Annual Report of the County Medical Officer, I may say in no district in Staffordshire is erysipelas so prevalent as in the Newcastle Urban and Rural District."

In Brierley Hill and Bilston urban districts 17 and 23 cases respectively, were notified, none of which proved fatal.

In Seisdon Rural District, it is said that an unusual number of cases were notified.

Puerperal Fever.—In the administrative county 59 deaths were attributed to puerperal fever. In a few only of the reports is any special reference made to the circumstances attending the cases. In Coseley, where five cases were notified, of which two were fatal, four were attended by the same midwife. In the last of the series, a certificate of death having been refused by the medical man who was called in, an inquest was held and the woman was censured.

In Rugeley, where one non-fatal case occurred, the patient was attended by an untrained midwife, and, according to Mr. Freer the cause was no doubt want of proper cleanliness after the birth.

In Stafford five cases occurred, of which four were fatal. All, in the first instance, were attended by women.

Dr. Underhill of Tipton writes with reference to puerperal fever:—"Generally with the improved antiseptic method of conducting a case of labour which holds now, the mortality from this class of disease has very greatly diminished, but unfortunately about two-thirds of the women in this district are delivered by unskilled and often very ignorant midwives who entirely earn a living by attending to such cases. Being quite untrained they carry disease from one case to another. During the year five

fatal cases were recorded, all as far as I could learn, unconnected with one another, and two only being ill at the same time. I ascertained that a midwife who was attending to one of the fatal cases, delivered another woman about the same time who developed puerperal symptoms, so I suspended her for a month from attending any lying-in cases, threatening her with a coroner's inquest if she persisted and had a fatal case; she also had full instructions as to disinfecting herself. I did not trace another case after these precautions.

"I very much regret that the 'Midwives' Registration Act' as proposed, did not become law. In districts like this, poor women require some protection, they cannot, as a rule, afford to pay for skilled medical assistance, and some guarantee should be given that none but women who are really competent to undertake such work should do it, and it should be condemned as penal for anyone unregistered to do so."

Influenza.—Most districts again suffered more or less from influenza, although, as a rule, the cases were not so numerous or fatal as in previous years.

Diseases of the Respiratory Organs.—In both urban and rural districts fewer deaths were recorded from bronchitis, pneumonia, and pleurisy than in 1892. The explanation of this is probably to be found in the fact that influenza, which as a rule is associated with inflammatory affections of the lungs, was less prevalent.

Phthisis and Tubercular Diseases.—Special reference is made to tubercular affections in a few of the reports.

In Handsworth it is said that the death-rate from this group of diseases has decreased since 1885, co-incidently with the sewering of the district.

Mr. Ritchie writes as follows with reference to Leek:—"One very striking result of the advantages accruing from sanitary reform has been the lessened mortality from *Phthisis* of late years when compared with previous periods. This is well shown in the admirable *resumé* of the history of the sanitary condition of Leek, compiled by Mr. Farrow, and published with this report. It is there seen that the deaths from *Phthisis* have been reduced from 5 to 2 in each 1000 living; and as this disease is one specially due to overcrowding and insufficient ventilation, there is no doubt in my mind that the improved condition of the mills, workshops, and dwellings in our town have been chief factors in the diminution of the death-rate from this fatal disease."

In Smethwick, where the phthisis death-rate cannot now be said to be high, Mr. Marsh Jackson anticipates that it will be still further reduced when the sewering of the district is completed.

Concerning Stafford, Dr. Blumer writes:—"It is gratifying to record that the mortality from phthisis is lower than it has

been for many years. There have been 26 deaths (corrected), compared with 37, the average during the previous seven years, which is equal to a rate of 1·37 per 1000. These favourable returns are no doubt due in a great measure to the long continued dry weather of last year."

Zymotic Disease Prevention.

Notification.—I regret to say I can only add one district, namely Cannock (urban), to the list of those where the compulsory Notification of Infectious Diseases Act is in force. The addition of Cannock to the list adds 21,000 to the population which is now under the Act, and brings it up to 681,673. In the following districts, with a total population of 107,183, the Act has not been adopted :—

Short Heath,	Urban.	Ashbourne,	Rural.
Smallthorne,	„	Burton,	„
Tipton,	„	Leek,	„
Wednesbury,	„	Uttoxeter,	„
Wednesfield,	„		

The coloured map at the end of this report shows the position of the County as regards this Act. It is needless again to discuss fully the arguments that can be adduced in favour of compulsory notification, as this has already been done in previous reports. In addition to this also, special appeals have been made to authorities who have not adopted the Act, pointing out the desirability of their doing so; for the information of those authorities, however, who look upon expense as a deterrent, I give the following figures, which show the average cost per 1000 of the inhabitants for each of the past four years in districts where the Act has been in force :—1890, 18s. 6d.; 1891, £1 8s. 9d.; 1892, 18s. 4d.; 1893, £1 5s. 10d.

Tables, with reference to the working of this Act, are introduced at the end of this report.

In those districts where the Act is in force, the expression of opinion is unanimous in its favour. In former annual reports I have quoted many of the favourable comments on its working, on this occasion I propose only to call attention to the opinions of the Medical Officers of Health of districts in which the Act is not yet in force.

As regards Short Heath, Mr. Hartill writes :—"I still advise the adoption of the Notification Act, 1889. There are very few Boards in the County who have not already adopted it. The utility of it will be plain to any one who reads this report with care. If the Board is unwilling to schedule all infectious diseases as notifiable they might omit measles and whooping cough from the list sent to the clerk, and thus diminish the cost."

Dr. Underhill, of Tipton, writes :—"I must again refer with regret to the fact that we have not yet in force this very needful Act. I know that on three occasions during the year the question

has been freely discussed as to whether we should adopt it or not, and that a majority of the Board do not approve of it, but the importance of it is so great that I must again mention it. I find that of the thirty-nine Urban Sanitary Authorities in the County of Stafford, thirty-three have adopted it. The six who have not done so only representing a population of 87,978. I trust that before long we shall cease to be one of these defaulting authorities, and that we shall be able to give to our inhabitants the same chance that other well regulated towns give to their inhabitants of combating infectious disease by the only absolutely safe way, viz: by that of early notification and by separating the infected from the healthy."

Dr. Garman, of Wednesbury, appeals to his authority as follows:—"Another year has passed without the Act for the Notification of Infectious Diseases having come into force in Wednesbury. I feel it my duty to again urge upon the Health Authority the desirability of adopting the Act, which could be done without incurring much additional expense, probably not more than 8/0 or 10/0 per thousand of the population. I believe the advantages arising from this course would more than justify the expenditure."

Mr. Hands, of Wednesfield, says:—"I would again urge the Board to adopt the Notification Act, as I am sure it would be beneficial, and would not be nearly as expensive as may be thought; on the average it would not cost more than £5 per annum, and taking 1893 as an example, it would be much less than this amount if the notification of measles was excluded. The number of districts which have not adopted it are gradually diminishing, and I would not like, nor would you, gentlemen, like Wednesfield to be the *last* of the number."

Mr. Littleton, Medical Officer of Health Ashbourne Rural District, writes as follows:—"I regret your Board has not adopted the Compulsory Notification of Infectious Diseases Act. As it is only by isolating the early cases that we are able to prevent epidemics, the advantages of the Act are apparent, and I do hope before another year we may have the benefit of it."

Dr. J. Hay Moir, of Burton-on-Trent Rural District, says:—"I deeply regret that the Infectious Diseases (Notification) Act has again been shelved by your Authority, as it is absolutely impossible for any Medical Officer of Health to cope with the spread of disease, of the very existence of which he is absolutely ignorant. But so much has been said by both my predecessors and others with regard to this matter, that I have no doubt that your Authority at an early date will see the advantage of adopting the Act."

As regards Leek Rural District, Mr. Dakeyne does not introduce the subject in this year's report, but in his report for 1892 he very strongly urged his Authority to adopt the Act.

Isolation and Disinfection.—In most of the reports, both for urban and rural districts, this question is very fully dealt with.

In the table at the end of this report, headed "Result of the Working of the Compulsory Notification of Infectious Diseases Act," figures are given showing to what extent isolation hospitals are made use of in districts where they exist. It will be noticed that the use made of them varies very considerably, and in most cases it is evident that they can be of little practical value in curtailing epidemics—the chief purpose for which they are intended. In some instances it would appear that patients object to go to them, on the ground that the accommodation provided is not satisfactory. In other cases the Authorities themselves seem to be responsible, owing to the fact that they take a limited view of their responsibilities, and impose a hindrance to the isolation of infectious cases by making a charge for the admission to hospital of all persons who are not paupers.

The percentage of infectious cases isolated in urban districts where hospitals are available, and have been available during the whole year, varies very much, from 2·2 and 3·1 in Tunstall and Fenton, to 61·3 and 62·6 in Stafford and Leek.

The aim of sanitary authorities should be to isolate all cases where isolation cannot efficiently be carried out at home, and these constitute nearly the whole. A glance at the first column of the table referred to will show the position of each district as regards percentage of cases isolated in hospital to total cases, both in urban and rural districts, where the Notification Act is in force.

Last year the percentage isolation in Stafford and Leek exceeded that of other districts, and this is again the case.

The question of providing isolation accommodation in districts unprovided with hospitals has received considerable attention during the year, chiefly because of the general prevalence of small-pox. In several instances provision of a more or less temporary character has been made, which, perhaps, under the circumstances, was the best thing that could be done, although from one point of view it is to be regretted. Considerable sums have thus been spent, in some instances, in erecting hospitals which, although serving a useful purpose, it will probably be found will not quite fit in with schemes for united districts in the event of such being formed.

In my last annual report I devoted considerable space to a summary of the remarks in the various reports with reference to the necessities of the districts as regards hospital accommodation and means for disinfection. This year, however, I do not propose to do so, partly because the conditions, as described in the reports, have since been altered, owing to the increased prevalence of small-pox having stirred up the authorities to action, and partly because the whole question is fully dealt with in a special report which will be found at the beginning of this report.

I am pleased to say that steps are now being taken, by the Sanitary Committee of the County Council, to arrange for a conference of the various authorities in the County to discuss the general question,in the hope that,in accordance with the provisions of the recent Isolation Hospitals Act, some comprehensive scheme may ultimately be decided upon which would be beneficial to all districts concerned.

Vaccination.—In many of the reports figures are given showing the per centages of successful vaccinations—a practice which might usefully be followed in all where possible. In many districts, for dishonest motives, the operation is very imperfectly performed, a practice which may be attended with serious consequences, not only to the persons who are imperfectly vaccinated, but to their neighbours also.

In Coseley, Mr. Clendinnen says that only in the case of 97 out of 561 children vaccinated was the operations performed by the public vaccinator, owing to the fact that cheap vaccination in one place only is practised by a medical man in the district.

Mr. Hartill, in his annual report for Short Heath,says :—Having recently inspected the arms of 55 children in an infant school, I found 21 had four vaccination scars, 22 had two scars, 6 had one scar, and 6 had no mark that I could find. The majority of those who had one or two scars had very indistinct scars. I am of opinion there has been a distinct deterioration in the efficiency of vaccination during recent years, and am credibly informed an examination on a large scale of children younger than those inspected would demonstrate a still larger proportion less well-protected by vaccination. This is much to be regretted, because the people are surely preparing the way for a recurrence of their terrible troubles of 1871 and 1872, a few years hence."

Mr. Beasley calls attention to the practice in Rowley Regis in the following terms :—"In this district vaccination is practically evaded to a very great extent. Many people comply only to the bare letter of the law by having their children vaccinated in one or two places. This mode of vaccination can only afford a slight protection against small pox, as it is a generally accepted fact amongst all those who are not totally opposed to vaccination that the amount of protection goes in a direct ratio to the number and quality of the vaccine vesicles produced. It is a remarkable fact, that amongst the few cases of small-pox we have had in this parish this last year, no second case occurred in any of the families whose members submitted to re-vaccination, while in the one who refused to have it done three other cases occurred. This disease was strikingly modified in all the vaccinated cases. The only death that occurred was in an unvaccinated patient."

Dr. Underhill again, as in former reports, devotes considerable space to the question of imperfect vaccination in Tipton, and says that the returns show that 50 per cent of the children are imperfectly protected against small-pox.

Mr. Hands of Wednesfield says :—" With regard to the vaccination performed in the locality, there can be, I think, no question that there has been a distinct deterioration during recent years."

Mr. Turner, of Stourbridge Rural District, says that the operation is " still carried on in the same unsatisfactory manner."

INSANITARY DWELLINGS AND OVERCROWDING.

In the Housing of the Working Classes Act of 1890, and the Public Health Act, 1875, a remedy exists for the various defects of which all districts, both urban and rural, have examples. In the latter districts the new Act has not as yet been very actively administered, although evidence is not altogether wanting that rural Authorities are now more inclined to move in the matter.

The following extract from Mr. Partridge's report may be said to apply to a good many of the smaller urban districts in the County, and the way out of the difficulty is by no means easy to find :—" There are many houses in the parish with such structural defects, as from a sanitary standpoint, to render them unfit for habitation, but I hesitate to reccommend the alterations which seem necessary, as this would impose an expenditure upon the owners almost as ruinous as the closing altogether. In a parish like this where there are a number of owners of small houses, who are very poor, and at a time like the present of exceptionally bad trade, a Medical Officer would not advise measures that would be very burdensome unless some urgent necessity arose demanding such a course."

In Longton, it is said that the dilapidated property in the old part of the town is gradually disappearing, business premises taking its place.

Dr. Fausset of Tamworth says :—" Three years ago legal proceedings were taken against the owners of certain cottages which were considered to be unfit for human habitation, and an application was made for a closing order, which was refused. Some of these cottages have been repaired, but the main defects still exist, viz.—damp and insanitary surroundings, and with regard to these I recommend that proceedings be again taken to have them closed on the grounds of their being in an insanitary condition.

"All dwelling houses, more especially the older ones, require constant looking after, as they become more and more dilapidated as regards the state of the roofs, chimneys, spoutings, windows, and doors. There are also several unpaved yards which are very damp and dirty in wet weather, and cannot be considered to be in a state conducive to health, and it will be necessary to have these put in a better sanitary state."

In a town like Newcastle, Mr. Hallam ought not to have occasion to call attention to such work as, it would seem, is being carried out there by the speculative builder, and it is depressing to think that privies are still being erected there even in the case of new

property. The report states :—"In the older parts of the town, Holdborn, Lower Green, Salters Lane, Courts off Lower Street and other districts, the condition of dwellings is far from satisfactory, and this is owing in most instances to defective privies, want of spouting, and filthy habits of the occupants. As to the condition of new dwellings, a large number are excellently built and provided with proper W.C. accommodation. Some, although erected in new streets where there are excellent sewers, are provided with privies and cesspits, in others the workmanship and materials have been so bad that draughts find their way between wainscotting and walls, and between the window frames and brickwork, also the floors are so badly laid in bedrooms, the boards in some instances being ¼-in. apart, that filth and germs of disease may be harboured between floor and ceiling of room below. The waste pipes in many instances from sinks are fixed in a slovenly fashion.

"As to overcrowding, 8 cases have come under the notice of Inspector, 2 of these were remedied after formal notice, and 6 without notice."

In the same report, under the heading "Housing of the Working Classes Act," Mr. Hallam writes :—"Under the act no proceedings taken.

"On March 7th, 1893, I reported 25 and 27, Penkhull Street, as being unfit for habitation, and asked the Council to instruct Town Clerk to take proceedings before Magistrates. In concluding my report, I said, it was most important that the matter should be considered at once as there were many other premises in the Borough in a similar insanitary condition which must be dealt with under the same act. The report was referred to Sanitary Committee.

"The Sanitary Committee met on March 30th, and the above report was considered. Resolved that 'No further action be taken in the matter.' On 27th April I attended meeting of Corporation Estates Committee and presented report on the insanitary condition of 25, 26 and 27, Penkhull Street. The Committee instructed me to furnish report on condition of all property belonging to Corporation, and postponed taking action on present report until the next meeting. On 1st of June I presented such report on Corporation property. Resolved, 'That the report be received.'

"On 26th January, 1894, I again reported the Penkhull Street property as unfit for habitation. Resolved by the Sanitary Committee, 'That the question be referred to a Sub-Committee to inspect, consider and report to next meeting.'

"The above is an example of the 'difficulties' of Sanitary administration. The above houses were closed by order of Magistrates in August, 1892. Although still insanitary they were re-opened by Lessee and are still occupied."

Such a lukewarm system of administration on the part of an important Sanitary Authority is not calculated to encourage an energetic officer in the discharge of his responsible duties.

In Smethwick, Mr. Marsh Jackson calls attention to the effect of depression of trade in causing overcrowding, as follows :—" In consequence of the slackness of trade, and the consequent want of employment, many people have been compelled to give up their houses and to live in apartments, cases of overcrowding, therefore, have been unusually numerous. I have found as many as three families located in a house. At the latter end of the year there were some 400 to 500 void houses, but towards its close this number was considerably diminished. I find the same people offenders over and over again in this respect; on being found out they move away, shortly to be discovered again living under similar conditions."

From this it will be seen that bad trade like good trade gives rise to overcrowding, although by a different process.

In Coseley, during the year, under the Housing of the Working Classes Act, 13 houses have been demolished, 15 rendered habitable, and in the case of 39 others, some have been permanently closed, and others are undergoing repair.

In Leek, 90 houses certified in 1891 and '92 to be unfit for habitation, have been dealt with as follows :—18 have been closed, 54 have been made habitable, 11 have been pulled down, and as regards the remaining seven, plans for rendering them habitable have been approved.

In Smallthorne, it is said, that owing in large measure to the action of a large colliery proprietor considerable improvement has taken place in house property.

In Bilston, 11 houses have been closed during the year as unfit for habitation.

As regards rural districts, in Leek 11 cases of uninhabitable houses have been dealt with, in seven of which the necessary repairs were carried out, and in the remaining four the tenants left and they have not since been occupied.

Throughout the West Bromwich Rural District the houses mostly belong to large proprietors and are kept in good repair.

In Newport Rural District, there are said to be many houses without spouting, with defective drainage and privy accommodation and bad water-supplies. Dr. Thursfield states, that in all cases in which the Housing of the Working Classes Act would apply action has been taken under section 21 of the Public Health Act, 1875.

EXCREMENT AND REFUSE DISPOSAL.

In a report such as this one cannot deal with each subject exclusively under its own heading, as, owing to cause and effect, most are necessarily touched upon under several headings. For this reason the question of excrement and refuse disposal has already received considerable notice in the section devoted to enteric fever; at the same time, it is one of such extreme importance that it cannot be passed over without some special mention

being made of any changes for good or evil which may have taken place during the year, and which are notified and commented upon in the reports under review. The chief reason why this is one of the most difficult questions with which sanitary authorities have to contend, is that towns have been rapidly extending in area having systems of disposal, the objectionable features of which have multiplied with, and in consequence of, that extension. This being the case, it is of the utmost importance that a stand should at once be made against perpetuating a system which is radically wrong in principal and in practice, in place of adding to the trouble in the future by allowing it to continue. It should be generally recognised that the privy system in the case of urban districts must, sooner or later, be discontinued, and authorities should endeavour to establish Bye-laws enabling them to refuse their sanction to all plans of new buildings in which such a system is provided for. By this means existing troubles will not continue to multiply, and the thin end of the wedge, leading to more radical changes for the better, will have been introduced.

Unfortunately, the question as to the best substitute for the system is not one which can easily be answered, but it appears to resolve itself into a water-carriage, as againt the conservancy method of which the privy and pail systems are examples.

By the introduction of slop-closets, it was thought that a comparatively easy way out of the difficulty had been found, but I regret to say that that system has by no means established its claim to general favour, as will be seen from the special report on the subject which is included in the introduction to this report.

Under certain conditions such a system, if generally adopted, might possibly answer, but in this county few towns can lay claim to the possession of the necessary conditions.

It may be too early in the day to discredit the slop-closet system, but, in the face of the report I have just referred to, I felt I must not be quite silent on the subject when reviewing reports in which it is so frequently referred to.

The following is a summary of the remarks under this heading which appear in some of those reports in which the question receives more special notice.

Dr. Vernon, of Audley, writes :—"Up to the present the privy-midden system has been in operation at Audley. The cesspits are large and sunk in the ground, and from faulty construction surface water frequently gains admission into them.

"A committee of the Board has visited several towns to see different systems in operation, and upon their recommendation the Board has decided to do away with the present system of cesspits and to insist upon each privy having a water-tight receptacle.

"About 50 privies have been fitted with receptacles of glazed clay—2 ft. in diameter, 3 ft. 6 in. deep, and 1½ in. thick. These are emptied every 14 days, and, so far, are very satisfactory in

their action. This system will probably be adopted for the whole district.

"The scavenging is at present carried out jointly by the Board and the farmers of the district, the Board supplying the tubs and men and the farmers supply horses. At times, when agricultural operations are brisk, it is difficult to obtain horses, and the work is somewhat neglected. With this exception, the work has been satisfactorily done. In future the Board will probably undertake the whole of the work themselves."

In a wide district like Audley, the privy system, if properly carried out, may be admissible, but it is to be hoped the Board will undertake the work of removal, as it is obvious that the present system is not likely to prove satisfactory. The report does not state whether the ashes of the district are applied to the excreta, but if this is not the case, and hitherto in Audley it has not been so, the system cannot be conducted in a cleanly or sanitary manner.

Mr. Ellis, of Brierley Hill, writes:—"I have no complaint to make, excepting what I have said before, viz., that the ashpits are much too large, and that consequently the removal of the contents is not sufficiently frequent. The work is now done by contract, a plan which I do not advise. The work should be done by the Board's servants, and, for my own part, I cannot see how it can be done more efficiently and economically by contract."

Mr. Taylor, of Burslem, writes:—"The old cesspools in the Borough continue to require much supervision on the part of your Inspector; 102 Duckett's closets have been fixed during the year, to replace dilapidated privies, and 41 have been fitted to houses, where the night-soil previously had to be emptied through the dwellings. There are still seventy-five dwellings in the Borough where the most objectionable practice of carrying the night-soil through them has to be carried out; these will gradually be altered and 420 Duckett's closets are now fixed in the Borough, and with proper supervision work satisfactorily."

It is satisfactory to find that the removal of night-soil and ashes is now undertaken by the authority. The report states:—"The removal of night-soil and ashes has been much more efficiently done during the year by the teams of the corporation than by the former contract system. A large portion of the night-soil has been taken to the destructor, and there burned with the house-refuse, the remainder distributed on farm land; none is now pumped on the farm from the tanks."

In Handsworth, the question of scavenging has been under consideration, and a sub-committee was appointed to consider and report upon it. Among other recommodations in the sub-committee's report is the following:—"We are strongly of opinion that the present method of collection should be improved, and the work done by the Board's own staff."

In this district, during the year, 176 privies have been converted into water-closets.

As regards Newcastle, Mr. Hallam writes :—"In previous reports I have drawn your attention to the difficulty of disposal of night-soil. Occasionally during the past year the Inspector has had the same experience, and night-soil has been retained at the town yard in tubs until there was demand by the farmers.

"On May 11th, 1893, I received a letter from the County Medical Officer enclosing a complaint from Mr. Rundall, of the High School.

"In concluding my report on the alleged nuisance which was caused by deposit of night soil on the fields in the neighbourhood of the High School, I wrote 'the nuisance complained of is only one of the inseparable consequences of the privy cesspit system. The disposal of night soil depends on the requirements of the farmers, and as we discontinue the nuisance in one district we are bound to create the same in another. In Newcastle there are 3,000 houses, from which excrement *must* be removed and disposed of in this way. I with other Medical Officers shall welcome the time when it will be compulsory for all Urban Sanitary Authorities to adopt the water carriage system.'"

As regards scavenging in Smethwick, Mr. Marsh Jackson writes :—On the whole the improvement that was observed last year in respect of this, at the best, necessarily offensive work, has been tolerably maintained. Many instances have occurred of carelessness on the part of the scavengers. I have personally encountered not a few such in the course of those walks by night which my professional duty has imposed upon me. The subject has been frequently discussed at the meetings of the Sanitary Committee, who have taken great pains to render the scavenging operation as inoffensive as possible by ordering the unstinted use of suitable deodorants and disinfectants, which you have liberally supplied. It must be confessed however that your wishes and endeavours, in the absence of some constant system of inspection during the night, are frequently frustrated. During the year 14,407 loads of nightsoil and refuse have been removed by the Contractor, each load I am informed averages from 25 to 30 cwts,, so that it may be concluded that in all some 18,000 to 20,000 tons have been dealt with, averaging half a ton for each unit of the population. This immense heap of material of a decomposing character whose properties are highly injurious to health has been removed from 10,920 dwelling-houses, 89 works, 18 schools, and 4 chapels. In all, as appears by the summary of work supplied by the Sanitary Inspector and appended to this report by order of the County Council, 5,522 ashpits, 9,127 privies, 688 tubs of refuse, and 65 cesspools have been emptied.

"In view of the great cost entailed by the removal of night-soil, and the prospective payments that will have to be made as soon as you have arranged with the Local Boards of Handsworth and Aston for an outlet for the sewage of the district, the rapid substitution of water-closets for privies will become as desirable from a financial as it is from a sanitary point of view.

"That you are fully alive to the importance of this matter the steps you have taken to insist on the erection of water closets wherever practicable before passing the plans of new houses conclusively testify, and your endeavours in this direction are further manifested by the zeal you have displayed in hastening the completion of the sewers of the district, and the labours you have undertaken to effect a settlement of the points of difference between yourselves and the Local Boards of Handsworth and Aston as to the means of outlet for the sewage of your district."

In dealing with the question of privies, the report goes on to say :—"As soon as the outlet for the sewers is arranged for, the suppression of privies, and the substitution of water-closets in their stead, will effectually rid the district of a nuisance that has so long been felt to be very difficult of satisfactory abatement."

Dr. Johnson, of Stoke-on-Trent, writes :—"I should strongly recommend the Committee to insist on the adoption of the water carriage system in all new and altered property, and to endeavour to abolish all privies, cesspools, and middens to the extent of their authorised power, and at the same time to insist on all ashpits being roofed, and the floors of same kept on a level, or a little higher than the adjoining ground."

Dr. Fernie, of Stone, writes :—"The tub system, about which complaints were made to the County Council that a nuisance was caused by the removal of night-soil to land in the rural district was improved, and satisfactorily settled by special arrangements being carried out for the deodorizing and disinfection by sulphate of iron of the tubs before their removal in vans, also of vans, and soilcarts. A difficulty has also occurred and complaints are made that your Authority does not remove at the public expense ashes and refuse matter from premises where badly constructed privy middens are still in use. It would I think have been a retrograde step to encourage the existence of these unsanitary and dangerous structures, remembering the serious epidemics of Typhoid Fever occasioned thereby in years past through well pollution. On the completion of your Authority's sewerage works, I would strongly urge the reconstruction of old privies and pails into W.C's, wherever it is practicable, as being more cleanly and efficient, and also a less expensive mode of removal."

Among other of the urban reports in which this question receives prominent notice, may be mentioned those of Biddulph, Coseley, Quarry Bank, Rowley Regis, Rugeley, Short Heath, Tettenhall, Tipton, and Tunstall.

As regards rural districts, Dr. Fausset, of Tamworth, writes :—"Complaints having been made as to the perfunctory manner in which the work of night-soil removal was carried out in some parts of the district, your Surveyor recommended the purchase of horses and carts, and that the work should be done under his own supervision. Two horses and carts are now employed at this work in the Glascote, Kettlebrook, and Fazeley districts. With

sufficient strength the work can now be carried out much more effectively than hitherto. This work, let by contract at Wilnecote, appears to be well done."

In his report for Stourbridge rural district, Mr. Turner says :—"I am sorry to say I still see many uncovered ashpits, and consequently in an insanitary condition, some have of course been covered in, but they are not done as quickly as I think they may be.

"Removal of refuse from ashpits in Wordsley, Brockmoor, Kingswinford, Bromley, and Pensnett districts is still carried on in the, to my mind, same unsatisfactory manner, namely, not emptied often enough, and when they are commenced, not finished quickly."

Dr. Wood, of Walsall rural district, says :—"I must again call attention to the subject of scavenging—to which I made special reference in my last two reports. The Sanitary Inspector complains that the ashpits are not receiving that regular attention which they require. The solid he says is taken, and the liquid left, and the surroundings are left in a dirty condition. If the night-soil removal continues to be carried out in this lax manner the sooner we abandon the contract system and do the work ourselves the better. If we had the machinery in our own hands, I believe it would be more to our advantage to do it ourselves rather than to contract with irresponsible persons as at present."

In the reports for Cannock, Eccleshall, Leek and Stoke-on-Trent, rural districts, this question is also specially noticed.

SEWERAGE AND SEWAGE DISPOSAL.

The increasing prominence which is given to the question of sewerage and sewage disposal in most of the reports under review affords ample proof, if such were needed, of the general activity which is being displayed by authorities in this direction, and justifies the opinion I expressed in my summary of the work which is being carried on under the Rivers Pollution Prevention Act. That this is the case is a most wholesome sign, for one thing leads to another, and, as a necessary consequence of improving the sewering of a district, improvements in house drainage must follow. This activity is observable in rural as well as urban districts, and the principle that under no circumstances shall sewage of any description be discharged, in its crude state, into streams, is now pretty generally recognised.

The following fragmentary summary of the remarks under this heading in the various reports will serve to show that, in my summary of the work of the Council I have not overestimated the progress which is being made throughout the county, and justify the expectation that in the near future substantial evidence of improvement will be apparent to all. As I have pointed out, the question is not a simple one, therefore we must not risk failure from undue anxiety to progress.

In Brierley Hill a consulting engineer has been called in to advise the Authority with regard to sewage disposal, and Mr. Ellis anticipates great benefit from the scheme when it is carried out.

In Brownhills, where one scheme has already been submitted to the Local Government Board and was not approved of, Dr. Maddever urges his Authority to push on with the consideration of a fresh scheme. In Burslem the separate system of sewerage, for the purpose of separating the storm water, has been considerably extended during the year.

Dr. Clark writes with reference to Lichfield :—"The difficulty of the disposal of sewage at the sewage farm has been vigorously dealt with by your Council, and it is now hoped that there will be an end of litigation in connection with the subject. Additional land has been purchased, and additional time granted by the High Court of Justice for all the necessary work to be carried out. The arrangements at the precipitation works are now believed to act satisfactorily, the machinery having to be kept at work by night as well as by day."

In Newcastle, it is said considerable work has been done in laying new sewers during the year.

In Quarry Bank drainage defects are called attention to, and Dr. Thompson says :—"It will be a good thing when the deep drainage scheme, already in the hands of the Conjoint Board, comes into full operation, then many of the present faults can be remedied."

In Rowley Regis, the internal sewerage is being proceeded with in anticipation of the joint scheme of sewage disposal now in progress.

Mr Freer of Rugeley writes :—"The main sewers do not appear to have been a source of trouble during the year, but the sewage disposal, in view of the fact that the Authority's lease of the Moors Farm is within measurable distance of running out, should suggest the advisability of discussing the subject of the sewage disposal of the future, as it is quite possible that the Rivers Pollution Act may be a hindrance to the present plan of disposal. I am loth to mention this subject at a time when I know the Authority has so much on its hands, but my reason is that a subject of such importance and of such complexity should have time for consideration, and should be well and carefully reasoned out, in order, if possible, to avoid further complications, and expense to the ratepayers, already sufficiently burdened. I believe the Authority has already decided to supply some form of ventilation to the town sewers, a subject I mentioned in my last Annual Report, and I trust soon I shall be able to report that it is done."

In Sedgley, a scheme of sewage disposal is said to be under consideration.

In the report for Short Heath considerable prominence is given to the question.

Dr. Fausset, of Tamworth, writes :—"With regard to the question of sewage disposal a new method has been adopted, and is now being tried under the direction of your Surveyor, Mr. H. J. Clarson. It deals with the sewage of the houses in Gungate, Church Street, Aldergate, the Leys, part of Lichfield Street, Silver Street, and Market Street, representing about 2,300 of the population of the Borough. Should this experiment prove satisfactory, it will become necessary to put other tanks down in order to intercept the remainder of the sewage of the Borough. It is proposed to utilize the present sewers, and it is considered that separate provision for the storm water will not be wanted; but this must also be considered a part of the experiment."

Mr. Winter, of Tettenhall, points out that at the close of the year 546 of the 940 houses in the district have been connected with the new sewers.

"Dr. Garman, of Wednesbury, writes :—"During the year a large amount of sanitary work has been accomplished, mainly in the direction of bringing into use the system of deep drainage. For a long while the deep sewerage of the town was little more than a name, for although all the streets were sewered the connections between the houses and the sewers were extremely few. Some twelve months ago, however, the Sanitary Committee voted a large sum (£6,000) to be expended in making such connections as appeared to be called for. The result is that no fewer than 1094 connections have been made during the year.

"Gradually, therefore, a revolution is being effected in the drainage of the town, and the system of surface drainage is being replaced by the deep method."

Mr. Hands, of Wednesfield, writes :—"The Central Authorities appear to be carrying out the clauses of the Rivers Pollution Act, with increasing stringency, so that in the near future the Board will probably have to contemplate a more comprehensive system of sewage disposal than they have at present, but such a serious undertaking will require much consideration, and I would advise the Board to have the district throughly inspected by a good Engineer before taking steps in the matter. There can be no doubt, I think, of the immense benefit to the health of the people that so desirable a consummation would confer."

With reference to the question of sewage disposal at Biddulph, Mr. Fox writes :—"No complaints have reached me during the year as to any defect in the general system of drainage. Certainly some notice has been taken by the Staffordshire County Council of the defective purification of our general sewage effluent. All this is capable of receiving, and will in due time receive, the successful attention of the Biddulph Local Authority. But it may be admissible to observe that means of filtration are in existence, and that no evidence is forthcoming of any injury to public health, either in the county or the local district, from any theoretical defects (if any) that may have been indicated."

As there would seem to be some doubt in the mind of Mr. Fox, first as to whether any injury results from the method of disposal of the sewage of the district, and secondly, whether there are any defects in the system, it may be well to point out that, whether injury to health results from it or not, it is against the law to discharge untreated or badly treated sewage into streams; also, that by no possibility could the sewage in question be purified to any appreciable extent by means of the plant at present available; and that, as a fact, serious pollution is taking place in the district.

As regards rural districts, in his report as Medical Officer of Health of Burton-on-Trent, Dr. Hay Moir says:—"With regard to the sewerage and sewage disposal of Tutbury, I have before me Mr. Radford's report on your Inspector's Scheme. He says a large part of Tutbury is in a very bad condition, and something ought to be done. I have no hesitation in stating that the larger scheme, which includes land filtration, will not only prove the best but, in the end, the most economical, and will thus meet the views of the County Council as regards the pollution of the river. It is also more comprehensive, and includes portions of the Township, to omit which would lead to complications and greater outlay in the future."

In Cheadle rural district, it is said that in the main street of Cheadle a great improvement has been effected by the sewering of a large portion of it, and that the completion of the work will soon be undertaken. As regards the village of Alton, a new sewer is said to be in process of construction.

Mr. Gosse, of Eccleshall rural district, hopes to be able to mention many improvements in his next annual report, and he recommends his Authority to call in an engineer to advise as to sewage disposal in the town of Eccleshall, a matter which is now under consideration.

In the rural district of Leek, it is said that the disposal of sewage at Norton Green has been considerably improved, as the sewage from the two principal outfalls, which formerly was discharged, almost entirely, into the Trent, is now being disposed of by irrigation. Throughout the district generally, it is said, most of the pollutions have been abated.

Concerning the town of Alrewas in the Lichfield rural district, Dr. Clark writes:—"In conseqence of a report which I made in June last on the defective condition of the drainage of Alrewas, fever being prevalent at the time, in which I mentioned that where there was bad drainage and bad water, fever would most likely thrive, a committee was appointed, which included your Chairman, to inquire into the insanitary condition of the village, and to report as to the steps necessary to be taken for its improvement. By the recommendations of that Committee, whom I accompanied in their inspection, and who found things very bad, Mr. Rogers, Surveyor, of Rugeley, was appointed to make the

necessary plans, which included a new sewer in the main street, and the contract of Messrs. Child & Co. was accepted for carrying out the work."

Mr. Dickson, of Newcastle rural district, confirms the accuracy of my report with reference to river pollution within the district, and recommends the calling in of an engineer to advise the Authority on the matter.

In the report for Newport rural district attention is called to pollution at Gnosall, and, to a less extent, at Gnosall Heath.

Dr. Spackman, of Seisdon rural district, writes:—"I would again direct your attention to the want of a proper system of sewerage in some parts of the district, especially in the villages of Codsall and Kinver. Respecting "Codsall," levels have been taken, and plans submitted to you, of which you approved; but, unfortunately, the owners of the land upon which it was proposed to discharge the sewage, refused their consent to allow you to do this. The only course now open appears to be to put the Compulsory Clauses of the Public Health Act in force. As to "Kinver," I would suggest that levels be taken and plans submitted to illustrate how the sewage may be effectually dealt with there, as sooner or later this matter will have to be attended to. In the parish of Penn 433 yards of sewer pipes have been laid, which has greatly facilitated the dealing with the sewage there. At "Wombourn," 50 yards of sewer have been repaired, and 18 yards of sewer pipes laid, and a ventilator provided, which has abated a nuisance frequently complained of."

In the Stoke-on-Trent rural district, a scheme for disposing of the sewage of the populous district of Bucknall has been prepared, and awaits the approval of the Local Government Board.

In the Stone rural district, a scheme for disposing of the sewage of the village of Hanford has recently been approved of by the Local Government Board. A scheme for the village of Trentham, including Trentham Hall, has also been prepared. In many of the smaller villages also the question of river pollution is receiving the attention of the Authority.

In the Uttoxeter rural district, so far, little progress has been made beyond cleansing a certain brook course.

Dr. Fausset, of Tamworth, writes:—"No scheme has yet been devised for the treatment of the sewage of the populous parishes of the district as a whole, but experiments are being made to treat those districts separately, by tanks known as "Ives' Patent Precipitating Tanks." One has been for some time at work at Glascote (and two others are being arranged for at Fazeley and Dosthill). It has been working in a satisfactory manner, and has made a great improvement in the condition of the brook into which the crude sewage was formerly discharged, and has necessarily lessened the pollution of the river Anker."

As regards Hamstead, in the West Bromwich rural district, Dr. Welch writes:—"At Hamstead there are now 175 cottages,

built in continuous rows on a few acres of land, occupied almost entirely by colliers. The sewage from these cottages is run into numerous dumb-wells, which are constantly full and overflowing. On the east side, a portion of the overflow runs into a pit in the adjoining brickyard, where it has formed a large pool about 150 yards to the rear of the houses, another portion runs into a pit close to the roadside. On the west side it runs on to the surface of a field, opposite to the village school. In both cases there is a nuisance, which on the west side is the more dangerous, as children from the cottages are daily passing on their way to school or playing in the field often, as I have seen them, exactly where the dumb-wells overflow. The volume of slop and sewage water from these cottages is too great to be dealt with in cesspools, and it is absolutely necessary, if the health of the village is not to suffer, that the Committee should adopt measures for dealing with the nuisance. I have referred to this in previous reports, and the colliery proprietors, who own nearly all the cottages, have themselves seen the necessity of its being remedied, and have proposed plans which I was compelled to object to, for turning the sewage into the river Tame after subsidence or filtration. I would advise that an engineer should be consulted in this matter."

In Wolstanton and Burslem Rural District, a drainage scheme for Pitts Hill, Chell, Fegg Hayes, &c., an important part of the district, it is said, is now under consideration.

In considering the above summary with reference to sewage disposal it must be remembered that most of the reports were presented early in the year, so that, in many instances, considerable progress may have been made, in fact I know that several of the schemes referred to have since been approved of by the Local Government Board.

WATER-SUPPLY.

As the Council are aware, the populous parts in the north and south of the county are fortunate in having excellent water-supplies from the two large water companies, whose mains are within reach of most of them. I have previously pointed out that these supplies are not made use of to their full extent, but it is satisfactory to be able to record that in many districts numerous houses which were previously dependent upon local wells for their supply, have, this year, been connected with public supplies.

The following is a summary of the remarks with reference to water-supply in those urban districts where the subject receives most notice in the reports, and where the question has not been specially referred to under other headings in this report:—

In Audley, where there is a good public supply, out of 2,442 houses for which it is available, only 17 are unconnected.

Mr. Ellis, of Brierley Hill, writes:—"The company's water has been laid on at Level Street. At Delph the water has not yet been laid on. The Board have met the deficiency in that part of the district since August last, by permitting the people to

obtain a supply for an hour twice daily from the water stand at Delph, which is used for supplyiug the water carts. In this way much suffering has no doubt been saved, the people having eagerly made use of the opportunity; and the real necessity for laying on the water to the houses in that neighbourhood has been amply demonstrated. I hope the Board will be able to insist upon this being done during the ensuing year."

In Cannock, where the water mains have been extended 1,200 yards, 105 extra houses have been connected during the year.

Mr. Clendinnen, of Coseley, writes: –"During the year 70 additional houses have been supplied with 'tap' water, and there are others at present being supplied.

"In my report for 1892 I alluded to negotiations then proceeding between your Board and the South Staffordshire Waterworks Company, with a view to supplying the higher parts of the district with water. These negotiations have been attended with success in so far that a pumping engine has been erected at Shaver's End (the present reservoir) and mains laid to a new reservoir at 'The Beacon,' the highest point in Staffordshire. Seeing how seriously the hamlet of Cinder Hill suffered from enteric fever last year, I trust no time will be lost in placing the inhabitants in possession of a wholesome supply of water now that it is within their reach."

In the Newcastle report certain wells are again referred to, which supply about 100 houses, although, from time to time, their closure has been recommended by the Medical Officer of Health.

Reference has already been made to the question of the water-supply in Rowley Regis, under the heading Enteric Fever, besides this, however, (in a special section of his report), Mr. Beasley says :—"Four hundred and twenty-two houses have been supplied with tap water, but there still remains a number of houses supplied by wells of a more or less objectionable quality. The water of forty-three of these has been analysed, and thirty-seven wells have been condemned as unfit for use.

"Turner's Hill and district are still without any proper supply, notwithstanding the strenuous exertions made by the Board to induce the South Staffordshire Water Works Company to extend their water supply to this district. The services of an eminent engineer have been engaged, and several schemes have been submitted, at present without success, although there is still a hope that the work will be accomplished by some special arrangement. Perry's Lake was also practically without water during part of the summer. This district is now supplied by the Company's mains."

In Rugeley, where the question of water-supply has engaged the attention of the Authority for some time past, a new supply has been proved to be satisfactory, and when the Local Government Board's sanction is obtained the work of building the reservoir and laying the mains will be proceeded with.

Dr. Biggam, of Sedgley, writes :—A large part of your district

is now for the first time about to enjoy a public supply from the South Staffordshire Waterworks Company. I am glad to be able to congratulate the Board and district on this much-needed improvement, and trust that the inhabitants will universally avail themselves of this long sought for public water supply."

In Smethwick, 101 old houses have been connected with the public water-supply, and 283 new ones.

In Stafford, 1,029 additional houses have been connected with the mains, making a total of 3,443 premises now supplied from the water-works, and leaving only 300 to be supplied which are now dependent upon local wells.

In Stone more than one half the houses are now supplied with water from the works which have recently been completed.

In Tamworth "nearly every house in the Borough is now supplied with an ample quantity of pure wholesome water."

In Tettenhall, the public water-supply has been laid on to 40 houses during the year; but of 25 samples of well water submitted to the Public Analyst, affecting 64 houses, all, with the exception of five, were condemned.

Dr. Underhill, of Tipton, writes :—"My opinion is that no well water in the district is fit for drinking purposes, the ground has been so broken up by mining operations that all the springs in time become contaminated. *I have never yet found any well in the Parish that was sufficiently pure to be used for drinking purposes,* all are more or less contaminated."

In Wednesfield, owing to the exceptionally dry summer, there was great scarcity of water. This matter was specially reported to the Board, and Mr. Hands recommended the extension of the mains, but this suggestion they did not see their way to carry out, notwithstanding the following remarks of their Medical Officer of Health :—"I think I shall not err in saying most if not all the shallow wells in Wednesfield are more or less contaminated with extraneous matter, and it is a subject I submit the Board would do well to seriously consider, as the supplying of pure water to the people is one of the first duties of a Sanitary Authority."

As regards rural districts, Dr. Hosegood, of Cannock, calls attention to the great need for a better supply of water in the parishes of Cheslyn Hay and Great Wyrley, and says :—"I trust that a scheme will soon be arranged, for a considerable increase of population may be expected in Great Wyrley in connection with local colliery developments. The present arrangements for water are grossly inadequate. Water has to be fetched from great distances, the existing sources of supply are uncertain, the quality unreliable, and no safer or better water could be obtainable than that which is near at hand in the South Stafford mains."

In the Cheadle district, Adderley Green is said to have suffered again, owing to a failure in the supply from the Potteries Water-works Company. The villages of Dilhorn and Godley, which were formerly badly supplied, are now said to have a good

supply. A supply for Kingsley, a village of 1000 inhabitants, is now under consideration. The position of affairs at Wetley Rocks, would seem to be unchanged, for it is said the supply which is plentiful "only needs to be made more accessible."

Mr. Gosse, of Eccleshall, calls attention to the defective water-supply in many parts of the district, although mention is made of some improvement in this respect since his previous annual report was presented.

In Leek Rural District considerable advance has been made in the matter of water-supply; this is all the more satisfactory, seeing that the authority have previously been complimented in these reports upon their activity in this direction. In some parts of the district, beyond the reach of a public supply, trouble was experienced after the long dry summer. This was the case especially at Stanley and Baddeley Edge.

At Wombourne, in the Seisdon Rural District, the water-supply is still very defective, although a hope is expressed that when the works which are being carried out in this neighbourhood by the Bilston Authority are completed the difficulty will be at an end.

In the Tillington parish, in the Stafford Rural District, 135 houses have been supplied with excellent water by the extension into that district of the Stafford Corporation mains.

In Stoke-on-Trent Rural District, the village of Bagnall, which is badly provided with water, is about to be connected with the mains of the Potteries Water-works Company.

In Uttoxeter, the new water-supply has been found to be insufficient, and the works are now being extended.

In the Wolstanton and Burslem Rural District, in addition to a supply which has been provided for Whitehill, a pure supply of drinking water has been provided for Black Bank and High Lane, a district which before entirely depended upon its surface wells, and other doubtful sources, for its supply.

NUISANCE REMOVAL.

The experiment, started three years ago, of obtaining returns of work done in the nuisance removal department from the various sanitary inspectors in the administrative county, tabulated on a uniform basis, still proves most successful. The tables I have compiled from these returns will well repay some study, as they show at a glance the amount of work which is being done in the various districts, and the activity of the respective authorities.

BYE-LAWS.

In Newcastle, new Bye-laws, which had been long under consideration, are now established.

In Short Heath, much attention has been given to the subject by Mr. Hartill, who writes:—"The Board having resolved that Bye-laws should be made, invited my assistance, and a long special report containing suggestions which would have a direct or an

indirect bearing upon the sanitary condition of the district was made. Having had the advantage of criticism of this report by the County Medical Officer, I wrote a second report suggesting improvements on the first and additions thereto. After this your Clerk sent for my perusal the Bye-laws which the Board propose to adopt, and on January 3rd, 1894, a third special report on this subject with suggestions for further consideration was sent, some of which were, in my opinion, important, especially those which fixed the minimum distance between privies and ashpits and dwelling-houses. In due course, I understand, these proposed Bye-laws will be submitted to the Local Government Board for approval."

In Smethwick, Bye-laws for the regulation of slaughter houses have already been adopted, and as regards the general Bye-laws, the negotiations with the Local Government Board, which have been going on for some time, have so narrowed down that it is hoped new ones will be adopted.

The Bye-laws in force in Stoke-on-Trent are under consideration, with a view to revision, at the present time.

With regard to Tipton, Dr. Underhill writes:—"I would again urge upon you the necessity for re-constructing our Bye-laws which are quite obsolete, having been framed in the year 1855. Probably this step will be necessary after the passing of the 'Parish Councils Bill,' as some of your duties will then be transferred to the Parish Councils. In case of a disputed transaction, we are practically without any guide, and we should discover that much of our work is not legal, and that by the law it could be upset. There are Model Bye Laws recommended by the Local Government Board which could be easily modified to suit our requirements, and could be made law for us with a minimum amount of trouble."

As regards rural districts, the report for Seisdon points out the necessity for Bye-laws to regulate the removal of night-soil, &c., in certain parts of the district.

In Uttoxeter Rural District, special Bye-laws for the town of Uttoxeter have been adopted.

In Walsall Rural District, the Authority, with the sanction of the Local Government Board, have adopted a Bye-law "making it an offence for any person to let or occupy a new dwelling-house before the same shall be certified by an officer of the Authority as fit for human habitation."

DAIRIES, COWSHEDS, AND MILK-SHOPS.

The question of the sanitary supervision of dairies, cowsheds, and milk-shops does not receive that amount of attention in many of the reports which its importance deserves.

Among the reports for urban districts in which the question receives notice, may be mentioned:—Audley, Biddulph, Bilston, Burslem, Coseley, Handsworth, Newcastle, Quarry Bank, Tamworth, Sedgley, and Smallthorne; and in the case of rural districts, Eccleshall, Kidderminster, Leek, and Tamworth.

In Leek rural district there are 110 registered milk-sellers whose premises are regularly inspected. Details are given of the precautionary meassures which were adopted in the case of two of these premises where diphtheria occurred, and three where scarlet fever broke out.

SLAUGHTER-HOUSES AND BAKE-HOUSES.

Very much the same remarks apply to these as to dairies, &c., as regards the absence of information in many of the reports concerning their inspection.

RECENT SANITARY ACTS.

The Compulsory Notification of Infectious Diseases Act has already received notice; the position of the various districts with reference to the adoption or otherwise of the Infectious Diseases (Prevention) Act and the Public Health Acts Amendment Act will be seen by reference to the summary table at the end of this Report. One or both of the last mentioned Acts have been adopted by several authorities during the year, and those authorities who have not yet adopted them are urged to do so in several instances. I have referred in previous reports to the value of these Acts, so, beyond again commending them to the notice of those authorities who have not yet thought fit to avail themselves of the provisions they contain, I shall say no more on this occasion.

Factory and Workshops Act.—This Act which, in urban districts more especially, has imposed greatly increased duties on Sanitary Officers, receives much more prominent notice than in the reports for 1892, and in some of the districts a considerable amount of time must have been spent in the inspection of workshops.

Mr. Marsh Jackson, of Smethwick, writes:—"In addition to those matters that require consideration under this head there is now a new duty imposed on the Sanitary Staff in connection with the Factory and Workshops Act.

"The Sanitary Inspector has compiled a register of all the workshops in the district, in which particulars as to general sanitary conditions, lighting, ventilation, over-crowding, privy accommodation, etc., are noted. There are sixty workshops on this register, all of which have been visited and inspected by the Inspector, and most of them by myself also. Generally speaking there has been no reason to find much fault."

In Willenhall, the workshops are very numerous, and much time has been spent by Mr. Hartill in their inspection, as I pointed ont in my last-year's report. In his report for 1893 he says:—"In a letter to the Board, to which I expected the courtesy of a reply, written last July, I indicated my opinion that to inspect the workshops with regularity will entail 400 to 500 visits each year. To do this work I asked for assistance. The nature of the Board's reply when given will govern my future action as to the

inspection of workshops, and until then I think I shall be justified in making only such inspections as are deemed urgent.

"The introduction of a new manufacture—enamelling cast iron—has been followed by cases of lead poisoning. I wrote to the Proprietors indicating the best known methods to reduce the risk to a minimum, and having since inspected the works am pleased to record my satisfaction with the means adopted. One method I fancy may have more than local value. The dust is sprinkled from a sieve over the casting, which is held over a wire-mesh net. Beneath the net there is a movable metal drawer containing water. Much of the superfluous dust falls between the meshes into the water, and the amount of lead and arsenic dust in the air is thus greatly reduced. The casting is then placed in a "muffle" to be exposed to heat in such a way that no harm can arise from the vapour."

Among other reports which specially deal with the question of workshop inspection may be mentioned those for Biddulph, Bilston, Burslem, Handsworth, Leek, Newcastle, Rugeley, and Tamworth urban districts; also Tamworth rural district.

PRINTING OF REPORTS.

In my report for 1891, I called attention to the fact that an appeal from the County Council had been instrumental in inducing no fewer than twenty authorities, who had not previously done so, to print the annual reports of their Medical Officers of Health, and the following year four others were added to this number. This year, I am pleased to state, another authority, namely that of Wednesfield Urban District, has published the report of the Medical Officer of Health, but I very much regret to have to call attention to the fact that in two instances, namely Bilston and Brownhills, the reports which were previously published have not been so this year. I trust that in both cases this may only be a temporary omission, and that next year these reports will again be published. Taking this for granted, the following are the districts for which the reports are not printed:—Audley, Heath Town, and Kidsgrove urban districts, and Cheadle, Eccleshall, Leek, Newport, Shifnal, and Stone rural districts.

In conclusion, I would direct the attention of the Council to the extensive Statistical Tables appended to this report, which have been prepared with no small amount of labour, and which will prove of increasing value as indices, I hope, of future sanitary progress.

GEORGE REID,
County Medical Officer.

Stafford,
October, 1894.

NOTE.—In the following tables the individual zymotic mortality is given in order to indicate readily the class of disease that has mostly contributed to the gross rate. Apart from this, no accurate deductions can be drawn from such figures for one year only.

Urban.

Table showing Population, Number of Persons per Acre, Birth and Death-rates, as well as the Death-rates at all ages and among Children under 1 year, and the Death-rates from Zymotic Diseases, Phthisis, and Diseases of the Respiratory Organs.

DISTRICT.	Population at all ages.		Number of persons per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population.										Phthisis.	Diseases of Respiratory Organs.
														Fevers.			Diarrhœa and Dysentery.		
	Census, 1891.	Estimated to middle of 1893.						Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Whooping Cough.	Typhus.	Enteric or Typhoid.	Continued.			
AUDLEY	12631	13102	1·6	41·8	17·3	124	0·99	...	0·22	0·38	...	...	...	...	...	...	0·38	0·83	3·73
BIDDULPH	5290	5390	1·0	38·0	20·2	170	2·41	...	0·74	0·18	0·18	0·18	...	...	...	...	1·29	1·11	3·52
BILSTON	23453	23500	12·7	38·9	22·7	202	2·97	...	0·63	0·38	...	0·12	0·29	...	0·17	...	1·48	0.68	4·38
BRIERLEY HILL	11847	11897	11·5	39·1	18·9	167	2·68	0·42	...	0·08	..	0·16	0·42	...	...	...	1·76	0·84	3·53
BROWNHILLS	13703	13967	1·5	44·7	15·8	124	2·29	...	1·14	0·14	0·14	0·07	...	...	0·28	...	0·57	0·57	2·14
BURSLEM	31999	32935	12·7	37·6	21·3	194	3·64	...	1·12	0·54	...	0·18	0·15	...	0·09	0·03	1·70	1·00	4·43
CANNOCK	20613	21000	2·6	42·2	20·1*a*	192	3·38	...	1·66	0·38	0·04	0·04	...	...	...	...	1·28	0·61	3·76
COSELEY	21899	21950	5·5	37·4	21·0	177	1·64	...	0·13	0·13	0·04	...	0·09	...	0·22	...	1·00	0·54	4·82
DARLASTON	14422	14777	18·4	41·8	23·2	221	3·85	...	0·60	1·35	0·13	0·26	0·13	...	0·40	...	1·21	0·74	5·07
FENTON	16998	18000	11·2	45·1	23·0	193	3·00	...	0·38	0·22	0·16	0·05	0·55	...	0·44	...	1·22	0·88	5·44
HANDSWORTH	32756	36500	10·0	24·7	12·9*b*	144	1·31	0·02	...	0·05	0·05	0·02	0·38	...	0·05	...	0·73	0·90	2·76
HEATH TOWN	7075	7326	9·9	42·1	16·5*c*	158	3·54	...	0·13	0·27	....	...	...	...	0·27	...	2·86	1·22	2·86
KIDSGROVE	3841	...	3·5	34·3	20·3	166	Nil.	...	...	...	...	...	...	...	...	...	...	0·78	4·42

a Including 10 deaths which occurred within the district among persons not belonging thereto.
b „ 26 „ „ „ without „ „ „ „ belonging thereto.
c Not „ 9

Deaths registered during the year 1893, Classified according to Diseases, Ages, and Localities, together with Births registered during the year.

DISTRICT.	Registered Births.			Registered Deaths.			Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																		
																	Fevers.															
	Males.	Females.	Total.	Males.	Females.	Total.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Whooping Cough.	Diarrhœa or Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, & Pleurisy	Heart Disease.	Injuries.	All other Diseases.
AUDLEY	265	283	548	121	106	227	68	31	9	10	66	43	...	3	5	...	...	...	...	...	...	3	...	1	...	5	3	...	11	49	20	6	121
BIDDULPH	*	*	205	*	*	109	35	17	4	3	28	22	...	4	1	1	1	...	...	...	...	2	...	...	...	7	...	...	6	19	10	5	53
BILSTON	466	449	915	277	257	534	185	80	26	22	91	130	...	15	9	...	3	...	4	...	...	1	...	...	7	35	...	...	16	103	20	15	306
BRIERLEY HILL	238	228	466	128	98	226	78	33	11	7	50	47	5	...	1	...	2	...	...	...	...	...	...	...	5	21	...	...	10	42	18	5	117
BROWNHILLS	313	312	625	116	105	221	78	30	9	6	54	44	...	16	2	2	1	...	4	...	...	...	...	1	...	8	...	...	10	30	14	7	126
BURSLEM	640	601	1241	370	334	704	241	117	26	28	211	81	...	37	18	...	6	...	3	1	...	2	...	2	5	56	1	...	33	146	25	16	353
CANNOCK	458	430	888	223	200	†423	171	74	22	16	78	62	...	35	8	1	1	...	...	...	...	1	...	2	...	27	4	...	13	79	23	7	222
COSELEY	431	392	823	230	232	462	146	74	16	13	139	74	...	3	3	1	...	...	5	...	...	2	...	...	2	22	1	...	12	106	17	5	283
DARLASTON	342	276	618	183	161	344	137	58	15	9	72	53	...	9	20	2	4	...	6	...	...	...	...	...	2	18	...	...	11	75	12	1	184
FENTON	391	422	813	224	190	414	157	69	15	20	107	46	...	7	4	3	1	...	8	...	...	3	...	2	10	22	1	...	16	98	17	11	211
HANDSWORTH	456	448	904	243	229	‡472	131	34	17	20	153	117	1	...	2	2	1	...	2	...	...	2	...	4	14	27	4	...	33	101	22	11	246
HEATH TOWN	*	*	309	*	*	§121	49	18	4	9	29	12	...	1	2	...	2	...	2	...	...	...	...	...	...	21	...	...	9	21	4	2	57
KIDSGROVE	70	62	132	36	42	78	22	17	5	2	19	13	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	3	17	2	3	52

* Not sub-divided.

† Including 10 deaths which occurred within the district among persons not belonging thereto.

‡ „ 26 „ „ „ without „ „ „ „ belonging thereto.

§ Not „ 9 „ „ „ „ „ „ „ „ „

Urban—*continued.*

DISTRICT.	Population at all ages.		Number of persons per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population.									Phthisis.	Diseases of Respiratory Organs.
														Fevers.				
	Census, 1891.	Estimated to middle of 1893.						Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Whooping Cough.	Typhus.	Enteric or Typhoid.	Continued.	Diarrhœa and Dysentery.	
LEEK	14128	14406	9·8	29·5	20·2*a*	138	1·87	...	0·62	0·34	...	...	0·34	...	0·06	...	0·48	1·52	3·12
LICHFIELD	7864	7864	2·3	26·5	22·7*b*	186	1·07	...	...	...	...	...	0·63	...	...	...	0·38	1·07	3·81
LONGTON	34327	35240	17·6	40·2	25·0	225	4·00	...	1·27	0·14	0·14	0·22	0·28	...	0·70	0·05	1·38	1·44	4·79
NEWCASTLE	18452	19000	29·1	35·6	22·5	194	3·10	...	1·26	0·21	0·10	...	0·68	...	0·05	...	0·78	1·15	5·52
QUARRY BANK	6732	6862	6·9	39·4	17·4	162	1·74	0·14	0·14	...	...	...	0·87	...	...	0·29	0·29	0·14	2·76
ROWLEY REGIS	30791	32100	8·7	38·6	19·0*c*	173	2·21	0·03	0·15	0·06	...	0·40	0·87	...	0·28	...	0·81	0·68	3·70
RUGELEY	4181	4500	7·5	32·2	15·7*d*	103	0·44	...	...	...	0·22	...	...	...	...	...	0·22	1·33	2·22
SEDGLEY	14961	15000	3·9	39·0	21·0*e*	182	1·66	...	0·26	0·06	...	0·13	0·20	...	0·06	...	1·06	1·13	3·80
SHORT HEATH	2514	2600	4·7	41·9	18·0	146	1·53	...	0·38	...	...	...	...	...	...	...	1·15	1·53	6·15
SMALLTHORNE	5279	5519	10·4	38·4	16·8	216	1·99	...	...	0·36	...	...	...	...	0·18	...	1·44	0·90	1·86
SMETHWICK	36170	38500	20·4	37·5	17·5	179	2·49	·4	0·07	0·07	0·02	0·02	0·20	...	0·23	...	1·87	1·01	3·22
STAFFORD	*18732	*18912	18·6	30·4	17·5*f*	166	1·37	...	...	0·05	...	0·05	0·47	...	0·10	...	0·74	1·37	3·11
STOKE-ON-TRENT	24027	25345	14·6	33·3*h*	19·0*g*	159	2·64	...	0·86	0·11	0·07	0·07	0·23	...	0·35	...	0·98	1·18	2·84

a Including 10 deaths which occurred within the district among persons not belonging thereto. (Corrected rate 19·5.)
b Including deaths which occurred in the Union Workhouse among persons not belonging to the district. (Corrected rate 20·2.)
c Including 18 deaths which occurred without the district among persons belonging thereto.
d ,, 4 ,, ,, ,, within ,, ,, ,, ,, not belonging thereto. (Corrected rate 14·8.)
e Not ,, 100 ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,
f ,, ,, 151 ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,
g ,, ,, 238 ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,
h Not including 30 births which occurred in Union Workhouse not belonging to district.
* Excluding public Institutions.

Urban—*continued.*

DISTRICT.	Registered Births.			Registered Deaths.			Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																				
																	Fevers.																
	Males.	Females.	Total.	Males.	Females.	Total.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Whooping Cough.	Diarrhœa or Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, & Pleurisy	Heart Disease.	Injuries.	All other Diseases.
LEEK	203	222	425	151	141	*a*292	59	29	10	12	94	88	...	9	5	...	...	...	1	...	...	1	...	...	5	7	...	...	22	45	31	2	164
LICHFIELD	96	113	209	99	80	*b*179	39	9	5	3	59	64	...	...	...	...	1	...	...	...	...	1	...	1	5	3	...	...	8	30	26	2	102
LONGTON	719	699	1418	440	444	884	320	148	31	46	244	95	...	45	5	5	8	...	25	2	...	2	...	4	10	49	1	...	51	169	36	20	452
NEWCASTLE	346	332	678	213	215	428	132	55	20	22	114	85	...	24	4	2	...	...	1	...	...	3	...	1	13	15	...	...	22	105	14	...	224
QUARRY BANK	138	133	271	73	47	120	44	21	7	1	27	20	1	1	...	...	...	...	...	2	...	...	...	...	6	2	1	...	1	19	4	3	80
ROWLEY REGIS	623	619	1242	†	†	*c*613	215	107	27	29	130	105	1	5	2	...	13	...	9	...	...	1	2	2	28	26	1	...	22	119	21	20	341
RUGELEY	76	69	145	34	37	*d*71	15	5	5	2	24	20	...	...	...	1	...	...	...	...	..	...	...	...	1	...	...	...	6	10	7	3	43
SEDGLEY	283	302	585	164	152	*e*316	107	36	10	15	67	81	...	4	1	...	2	...	1	...	...	4	...	1	3	16	...	...	17	57	24	10	176
SHORT HEATH	58	51	109	28	19	47	16	4	2	1	17	7	...	1	...	...	...	...	...	...	...	...	...	...	...	3	...	...	4	16	2	...	21
SMALLTHORNE	105	107	212	*	*	93	46	7	1	6	21	12	...	...	2	...	...	...	1	...	...	...	...	...	...	8	...	...	5	10	4	...	63
SMETHWICK	740	706	1446	361	315	676	259	81	29	22	150	135	...	3	3	1	1	...	9	...	...	...	...	3	8	72	2	...	39	124	36	35	340
STAFFORD	290	286	576	†	†	*f*332	96	34	14	19	85	84	...	...	1	...	1	...	2	...	...	4	...	1	9	14	...	...	26	59	14	10	191
STOKE-ON-TRENT	†	†	*h*844	270	212	*g*482	†	†	†	†	†	†	...	22	3	2	2	...	9	...	...	1	...	...	6	25	2	...	30	72	41	8	259

* Not sub-divided.

† Owing to absence of data as regards deaths (or births) among persons outside the district but belonging thereto, these figures cannot be given.

a Including 10 deaths which occurred within the district among persons not belonging thereto.

b Including deaths which occurred in the Union Workhouse among persons not belonging to the district.

c Including 18 deaths which occurred without the district among persons belonging thereto.

d ,, 4 ,, ,, ,, within ,, ,, ,, ,, not belonging thereto.

e Not including 100 deaths which occurred within the district among persons not belonging thereto.

f ,, ,, 151 ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,

g ,, ,, 238 ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,

h ,, ,, 30 births ,, ,, in Union Workhouse not belonging to district.

Urban—*continued.*

DISTRICT.	Population at all ages.		Number of persons per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population.											Phthisis.	Diseases of Respiratory Organs.
	Census, 1891.	Estimated to middle of 1893.						Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Whooping Cough.	Fevers.			Diarrhœa and Dysentery.			
														Typhus.	Enteric or Typhoid.	Continued.				
STONE	5754	5904	5·9	25·2	14·0*a*	127	1·18	...	0·33	...	...	...	0·67	...	...	...	0.16		1·35	3·21
TAMWORTH	6614	6829	23·9	29·4	16·4*b*	184	3·36	...	1·17	...	...	...	...	...	0·14	...	2·05		Nil.	2·78
TETTENHALL.....	5145	5267	4·3	29·2	14·6	90	1·13	...	...	...	...	...	0·37	...	...	...	0·75		1·32	2·27
TIPTON	29314	29316	10·8	38 9	22·2	183	2·66	...	0·17	0·23	...	0·10	0·34	...	0·44	...	1·46		0·61	4·50
TUNSTALL	15730	16065	23·2	39·8	19·9	206	1·80	...	0·74	...	...	0·12	0.06	...	0·06	...	0·93		1·05	3·92
WEDNESBURY	25347	25311	11·8	33·4	18·6	173	1·61	...	0·23	0·43	...	...	0·15	...	0·11	...	0·66		0·51	4·70
WEDNESFIELD	4949	4970	1·9	22·3	11·0	144	2·21	...	1·00	...	...	..	...	...	...	...	1·20		0·60	2·01
WILLENHALL.....	16852	17457	13·9	39·2	20·8	207	2·17	...	0·05	...	0·05	...	0·63	...	0·11	...	1·31		1·31	4·92
Totals and Averages	544390	*c*561152	6·9	36·6	19·5	179	2·41	0·01	0·50	0·21	0·04	0·10	0·30	...	0·20		1·12		0·93	3·88
33 large towns in England, average population, 312882 ...	...	10325137	34.6	31·8	21·5	181	3·17	0·07	0·44	0·29	0·42	*d*	0·48	...	0·24		1·22		*d*	*d*

a Not including in case of General death-rate only 6 deaths which occurred within the district among persons not belonging thereto.
b Including 11 deaths which occurred outside the district among persons belonging thereto, and not including 15 deaths which occurred within the district among persons not belonging thereto.
c In those cases in which the population is not estimated for 1893, the 1891 population has been taken to give the total.
d Not given in the Registrar-General's Returns.

Urban—*continued.*

DISTRICT.	Registered Births.			Registered Deaths.			Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																			
																	Fevers.															
	Males.	Females.	Total.	Males.	Females.	Total.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards	Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Whooping Cough.	Diarrhœa or Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, & Pleurisy	Heart Disease.	Injuries.	All other Diseases.
STONE	72	77	149	42	47	*a*89	19	7	5	3	21	34	...	2	...	...	...	...	...	...	...	...	...	...	4	1	1	...	8	19	12	4	38
TAMWORTH	114	87	201	†	†	*b*112	37	7	9	3	23	33	...	8	...	...	...	...	1	...	...	...	...	...	...	14	1	...	...	19	11	4	54
TETTENHALL	*	*	154	*	*	77	14	3	3	1	20	36	...	...	...	...	...	...	...	...	...	...	...	...	2	4	1	...	7	12	5	1	45
TIPTON	588	553	1141	357	295	652	209	86	31	24	136	166	...	5	7	...	3	...	13	...	...	5	1 (English)	1	10	43	1	...	18	132	14	24	375
TUNSTALL	319	321	640	158	163	321	132	38	9	17	86	39	...	12	...	...	2	...	1	...	...	1	...	...	1	15	...	...	17	63	16	5	188
WEDNESBURY	454	393	847	258	215	473	147	63	17	13	102	131	...	6	11	...	4	...	3	...	...	5	...	1	4	17	2	...	13	119	28	6	254
WEDNESFIELD	52	59	111	28	27	55	16	6	3	3	12	15	...	5	...	...	...	...	...	...	...	...	...	...	...	6	...	...	3	10	...	...	31
WILLENHALL	357	328	685	206	158	364	142	42	10	10	102	58	...	1	...	1	...	...	2	...	...	...	...	...	11	23	...	...	23	86	4	7	206
Totals	*c*	*c*	20575	*c*	*c*	11011	*c*	*c*	*c*	*c*	*c*	*c*	8	283	119	24	59	...	112	5	...	45	3	27	171	632	27	...	525	2181	554	258	5978

† Owing to absence of data as regards deaths (or births) among persons outside the district but belonging thereto, these figures cannot be given.

* Not sub-divided.

a Including 6 deaths which occurred within the district among persons not belonging thereto.

b " 11 " " " outside " " " " belonging thereto, and

not " 15 " " " within " " " " not belonging thereto.

c Additions not given owing to want of uniformity in returns.

Rural.

DISTRICT.	Population at all ages.		Mean area per person in acres.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population.										Phthisis.	Diseases of Respiratory Organs.
														Fevers.			Diarrhœa and Dysentery.		
	Census, 1891.	Estimated to middle of 1893.						Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Whooping Cough.	Typhus.	Enteric or Typhoid.	Continued.			
ASHBOURNE ..... Staffs. portion.	4160	4160	5·8	‖	10·8	...	0·48	...	...	...	0·24	...	...	...	...	...	0·24	1·44	1·44
BURTON-ON-TRENT Staffs. portion.	9031	9282	2·7	29·5	14·8*	131	0·32	...	...	...	...	0·10	...	...	...	...	0·32	1·29	2·26
CANNOCK	15894	15997	3.2	31·7	17·0	139	1·68	...	0·68	0·06	0·12	...	0·25	...	...	...	0·56	1·06	4·18
CHEADLE	22302	...	2·0	31·8	16·6	129	1·52	...	0·13	0·08	0·08	0·13	0·26	...	0·35	...	0·58	0·89	2·15
ECCLESHALL	5698	5798	5·5	25·8	10·6†	66	0·86	...	0·34	...	...	...	0·34	...	...	...	0·17	0·34	1·89
KIDDERMINSTER... Staffs. portion.	647	647	6·0	30·9	21·6	150	...	...	...	...	...	...	...	...	...	...	...	1·54	1.54
LEEK	13998	...	4·8	33·6	14·6	106	1·21	...	0·07	0·35	0·21	0·07	0·14	...	0·14	...	0·28	0·64	3·42
LICHFIELD‡.....	22699	22699	2·6	33·7	16·1§	125	1·79	...	0·57	0·08	0·17	0·04	0·35	...	0·08	...	0·52	0·39	2·33
MARKET DRAYTON Staffs. portion.	2227	2222	6·1	32·4	14·4	83	0·45	...	0·45	...	...	...	...	...	...	...	...	0·90	1·80
NEWCASTLE	6174	6365	2·8	31·5	17·7	139	0·94	...	...	...	...	...	...	...	0·47	...	0·47	0·78	2·98
NEWPORT ..... Staffs. portion.	4366	4366	‖	29·3	11·9	93	1·14	...	0·23	...	...	...	0·23	...	...	...	0·68	0·68	2·29

* Not including 3 deaths which occurred within the district among persons not belonging thereto.

† „ 3 „ „ „ „ „

‡ Excluding Burntwood Asylum.

§ Not including 20 deaths which occurred without the district among persons belonging thereto (corrected rate 17·0).

‖ No data to allow of calculation.

DISTRICT.	Registered Births.			Registered Deaths.			Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																			
	Males.	Females.	Total.	Males.	Females.	Total.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Fevers.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhœa or Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, & Pleurisy	Heart Disease.	Injuries.	All other Diseases.
																	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.											
ASHBOURNE ..... Staffs. portion.	...	...	*	†	†	45	6	4	2	3	14	16	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	6	6	4	4	23
BURTON-on-TRENT Staffs. portion.	151	123	274	62	76	a138	36	1	7	6	39	49	...	...	...	1	...	...	...	...	...	...	...	...	...	3	...	...	12	21	20	4	77
CANNOCK	274	234	508	158	114	272	71	30	11	11	63	86	...	1	2	...	...	...	...	...	1	...	...	11	4	9	2	...	17	67	18	10	130
CHEADLE	349	361	710	186	186	372	92	30	25	22	76	127	...	2	2	3	...	8	...	...	3	...	1	3	6	13	1	...	20	48	45	22	195
ECCLESHALL	74	76	150	28	34	b62	10	3	3	4	20	22	...	...	...	...	...	...	...	...	1	...	...	2	2	1	1	...	2	11	3	...	39
KIDDERMINSTER... Staffs. portion.	†	†	20	†	†	14	3	...	...	1	5	5	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	2	9
LEEK	256	215	471	106	99	205	50	26	8	14	47	60	...	5	3	1	...	2	...	...	...	...	...	1	2	4	1	...	9	48	17	9	103
LICHFIELD	400	367	767	210	158	c368	96	62	11	15	89	95	...	2	4	1	...	2	...	...	1	...	...	13	8	12	3	...	9	53	30	14	216
MARKET DRAYTON Staffs. portion.	38	34	72	16	16	32	6	5	1	0	7	13	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	2	4	9	1	15
NEWCASTLE	93	108	201	51	62	113	28	10	5	7	34	29	...	...	...	...	...	3	...	...	1	...	...	...	...	3	2	...	5	19	5	12	63
NEWPORT ..... Staffs. portion.	†	†	128	†	†	52	12	2	2	1	9	26	...	...	...	...	..	...	...	...	...	...	1	1	1	3	...	...	3	10	1	1	31

* No data. † Not sub-divided.

a Not including 3 deaths which occurred within the district among persons not belonging thereto.
b ,, ,, 3 ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,
c ,, ,, 20 ,, ,, ,, without ,, ,, ,, ,, belonging thereto.

Rural—*continued.*

DISTRICT.	Population at all ages.		Mean area per person in acres.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population.										Phthisis.	Diseases of Respiratory organs.
														Fevers.			Diarrhœa and Dysentery.		
	Census, 1891.	Estimated to middle of 1893.						Smallpox.	Measles.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Whooping Cough.	Typhus.	Enteric or Typhoid.	Continued.			
SEISDON	12137	12289	2·9	26·8	13·0	87	0·97	...	...	...	...	...	...	...	...	...	0·97	0·73	2·60
SHIFNAL	1601	1601	*	21·2	9·3 ¶¶	Nil	Nil	...	...	...	...	...	...	...	...	...	...	0·62	3·12
STAFFORD	10320	10420	5·0	27·1	12·8	84	1·24	...	0·09	...	0·28	...	...	...	0·28	...	0·57	0·57	1·72
STOKE-ON-TRENT	5122	5412	0·9	39·5	16·9†	200	2·40	0·18	1·29	...	...	0·18	0·55	...	...	...	0·36	0·73	2·13
STONE	8174	8344	2·7	24·2	12·7	89	0·71	...	0·23	...	...	...	0·23	...	...	...	0·23	0·83	2·39
STOURBRIDGE Staffs. portion.	20724	...	0·2	36·6	19·5	149	1·35	0·24	0·09	0·33	...	0·14	0·14	...	...	...	0·53	1·30	3·42
TAMWORTH Staffs. portion.	4770	4881	4·7	29·2	14·1‡	118	1·43	...	0·20	...	...	...	...	...	...	...	1·22	0·61	2·45
UTTOXETER Staffs. portion.	12027	...	3·9	31·2	17·3	109	1.66	...	1·08	0·16	...	...	0·08	...	...	...	0·33	1·41	2·57
WALSALL	9319	9692	1·2	36·9	21·7§	203	2·88	0·10	1·54	0·10	...	...	...	...	0·30	...	0·82	1·03	6·70
WEST BROMWICH Staffs. portion.	2310	2465	1·6	32·8	12·1‖	111	1·21	...	0·40	...	...	...	...	...	...	...	0·81	Nil	0·81
WOLSTANTON AND BURSLEM	32773	32083	0·3	43·0	19·1¶	130	2·77	0·09	1·15	0·21	0·09	0·18	0·02	...	0·28	0·06	0·84	1·18	3·33
Totals and Averages	226473	227704**	2·8	33·3	16·3	127	1·58	0·04	0·48	0·11	0·08	0·07	0·14	...	0·13	0·00	0·56	0·81	2·95

* No data to allow of calculation.

† Not including 6 deaths which occurred within the district among persons not belonging thereto.

‡ Including 3 deaths which occurred outside the district among persons belonging thereto, and not including 19 deaths which occurred within the district among persons not belonging thereto.

§ Including 4 deaths which occurred outside the district among persons belonging thereto.

‖ Not including 4 deaths which occurred within the district among persons not belonging thereto.

¶ ,, 33 ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,

¶¶ Including 6 ,, ,, ,, outside ,, ,, ,, ,, belonging thereto, and
not including 11 ,, ,, ,, within ,, ,, ,, ,, not belonging thereto.

** In those cases in which the population is not estimated for 1893, the 1891 population has been taken to give the total.

DISTRICT.	Registered Births.			Registered Deaths.			Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																				
																	Fevers.																
	Males.	Females.	Total.	Males.	Females.	Total.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Scarlatina.	Diphtheria.	Croup (not spasmodic).	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhœa or Dysentery.	Rheumatic Fever.	Ague.	Phthisis.	Bronchitis, Pneumonia, & Pleurisy	Heart Disease.	Injuries.	All other Diseases.
SEISDON	182	148	330	89	71	160	29	6	6	6	36	77	...	...	...	...	...	...	...	...	...	...	...	...	...	12	...	...	9	32	12	9	86
SHIFNAL Staffs. Portion.	†	†	34	†	†	15	...	...	...	...	5	10	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	5	2	...	6
STAFFORD	146	137	283	†	†	d134	24	7	11	7	41	44	...	...	3	...	...	3	...	...	...	...	...	1	...	6	1	...	6	18	22	9	65
STOKE-ON-TRENT	107	107	214	†	†	e92	43	9	3	6	18	13	1	...	...	1	...	...	...	...	...	...	..	7	3	2	2	...	4	11	6	2	53
STONE	102	100	202	56	50	106	18	6	1	8	28	45	...	...	...	...	...	...	...	...	...	...	3	2	2	2	...	...	7	20	11	9	50
STOURBRIDGE Staffs. portion.	393	367	760	222	183	405	114	48	17	15	83	128	5	7	...	3	...	...	...	...	1	1	1	2	3	11	...	...	27	71	21	15	237
TAMWORTH Staffs. portion.	67	76	143	†	†	f69	17	2	4	4	19	23	...	...	...	...	...	...	...	...	...	...	...	1	...	6	...	...	3	12	8	4	35
UTTOXETER Staffs. portion.	201	175	376	106	103	209	41	26	9	8	55	70	...	2	...	...	...	...	...	...	1	...	...	13	1	4	...	...	17	31	24	5	111
WALSALL	188	170	358	115	96	g211	73	32	16	7	45	38	1	1	...	...	...	3	...	...	...	...	...	15	...	8	...	...	10	65	11	9	88
WEST BROMWICH Staffs. portion.	37	44	81	†	†	h30	9	4	1	1	6	9	...	...	...	...	...	...	...	...	...	...	1	1	...	2	2	...	...	2	1	4	17
WOLSTANTON AND BURSLEM	696	684	1380	308	305	i613	180	87	27	26	150	143	3	7	3	6	...	9	2	...	4	...	2	37	1	27	2	...	38	117	42	15	298
Totals	j	j	7462	j	j	3717	958	400	170	172	889	1128	10	27	18	16	...	30	2	...	14	1	9	111	33	129	17	...	208	672	313	160	1947

† Not sub-divided.

d Including 6 deaths which occurred outside the district among persons belonging thereto, and
Not " 11 " " " within " " " " not belonging thereto.
e " " 6 " " " " " " " " " "
f " 3 " " " outside " " " " belonging thereto, and
Not " 19 " " " within " " " " not belonging thereto.
g " 4 " " " outside " " " " belonging thereto.
h Not " 4 " " " within " " " " not belonging thereto.
i " " 33 " " " " " " " " " "

j Additions not given owing to want of uniformity in returns.

Table showing Result of the Working of the Compulsory Notification of Infectious Diseases Act.

NOTE.—Cases of Measles and Whooping Cough are only given when these are included in the diseases compulsorily notified. Smallpox, Scarlet Fever, Diphtheria, and Fevers alone are included in the percentage calculation of hospital cases. In cases in which the Act was not in force during the whole year, the cost has been estimated for the year on the basis of the cost during the period when in force.

Hospitals exist in those districts against which an asterisk is placed.

Urban.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
AUDLEY.†	Houses infected	...	...	19	...	...	...	1	...	...	3	...	7		
13,102.	Cases	Under 5	...	32											
15/4		5 & upwards		18	...	...	...	1	...	...	3	...	7		
Nil.	Deaths.....	Under 5	...	2	...	...	...	...	...	...	...	...	...	3	
		5 & upwards	...	3	...	...	...	...	...	...	3	...	1		
	Cases treated in hospital.....	Under 5 ..... 5 & upwards													
	Deaths occurring in hospital	Under 5 ..... 5 & upwards													
BIDDULPH.*	Houses infected * ...	...													
5,390.	Cases	Under 5	...												
6/11		5 & upwards	...	11	2	...	...	...	...	...	...	...	2		
Nil.	Deaths.....	Under 5	...	...	...	...	...	...	...	...	...	..	...	4	
		5 & upwards	...	1	1	1	...	...	...	...	2				
	Cases treated in hospital.....	Under 5 ..... 5 & upwards													
	Deaths occurring in hospital	Under 5 ..... 5 & upwards													

† Date of introduction, April, 1893.
* Not specified.

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
BILSTON.* 23,500. £1. 11s. 1d. 41·8.	Houses infected	...	3	198	1	7	...	18	...	...	5	...	23		
	Cases	Under 5	4	235	1	7	...	18	...	...	5	...	23		
		5 & upwards													
	Deaths.....	Under 5	...	5	...	1	...	2	...	...	...	...	...	15	7
		5 & upwards	...	4	...	2	...	2	...	...	1				
	Cases treated in hospital	Under 5	...	108											
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													
BRIERLEY HILL.* 11,897. £1. 1s. 3d. 21·9.	Houses infected	...	29	26	1	2	...	7	...	...	...	...	17		
	Cases	Under 5	...	4	1	1									
		5 & upwards	39	28	...	1	...	10	...	...	...	...	17		
	Deaths.....	Under 5	1	1	...	1	...	...	...	...	...	...	...	...	5
		5 & upwards	4	...	...	1									
	Cases treated in hospital	Under 5													
		5 & upwards	17	1											
	Deaths occurring in hospital	Under 5													
		5 & upwards	1												
BROWNHILLS.† 13,967. 11/9. Nil.	Houses infected	...	3	15	7	1	...	6	...	...	...	...	12		
	Cases	Under 5	...	14	...	1									
		5 & upwards	3	17	9	...	...	10	...	...	...	...	12		
	Deaths.....	Under 5	...	2	1	1	...	...	...	...	...	...	...	16	
		5 & upwards	...	...	1	...	...	4	...	...	...	...	1		
	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													

† An old building in process of conversion into isolation hospital.

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
BURSLEM.*	Houses infected	...	1	385	8	8	...	27	6	...	4	...	50	180	70
32,935.	Cases	Under 5	...	151	3	6	...	1	5	...	...	...	7		
£1. 19s. 6.		5 & upwards	1	264	8	2	...	26	1	...	4	...	43		
10·4	Deaths	Under 5	...	...	...	6	...	1	...	...	...	...	1	36	5
		5 & upwards	...	...	...	...	...	2	1	...	2	...	1	1	
	Cases treated in hospital	Under 5													
		5 & upwards	1	46	...	...	...	1							
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
COSELEY.	Houses infected	...	...	66	1	2	...	19	...	...	5	...	36		
21,950.	Cases	Under 5	} ...	98	2	2	...	22	...	...	5	...	36		
18/9		5 & upwards													
Nil.	Deaths	Under 5	...	1	1	...	...	...	...	...	...	...	...	3	2
		5 & upwards	...	2	...	...	...	5	...	...	2				
	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
DARLASTON.*	Houses infected† ...	...													
14,777.	Cases	Under 5	...	106	...	...	...	4							
£2. 2s. 9d.		5 & upwards	11	99	3	...	...	24	...	...	...	...	6		
4·0.	Deaths	Under 5	...	16	...	4	...	1	...	...	...	...	...	9	2
		5 & upwards	...	4	2	...	...	5							
	Cases treated in hospital	Under 5	2												
		5 & upwards	8												
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													

† Not specified.

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
FENTON.*	Houses infected † ...	...													
18,000.	Cases	Under 5	4	66	21	1	...	38	...	...	3	...	32		
		5 & upwards													
£1. 2s. 10d.	Deaths	Under 5	...	4	1	1	...	...	...	...	...	...	...	7	10
		5 & upwards	...	...	2	...	...	8	...	...	3	...	2		
3·1.	Cases treated in hospital	Under 5	4												
		5 & upwards													
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
HANDSWORTH.*	Houses infected	...	35	130	13	1	...	9	...	...	2	...	20		
36,500.	Cases	Under 5	1	48	5	1	...	1	...	...	...	...	1		
		5 & upwards	41	148	10	...	...	9	...	...	2	...	19		
19/6	Deaths...	Under 5	...	...	2	1	...	...	...	...	...	...	1	...	14
		5 & upwards	1	2	...	...	...	2	...	...	2	...	3		
32·3.	Cases treated in hospital	Under 5	...	12											
		5 & upwards	33	40											
	Deaths occurring in hospital	Under 5													
		5 & upwards	1	1											
HEATH TOWN.*	Houses infected †.....	...													
7,326.	Cases	Under 5	...	44	1	...	...	14	2	...	1	...	4		
		5 & upwards													
£1. 2s. 6d.	Deaths.....	Under 5	...	2	...	2	...	..	...	...	...	...	...	1	
		5 & upwards	...	...	...	...	...	2							
Nil.	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													

† Not specified.

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
KIDSGROVE.	Houses infected† ...	...													
3,841.	Cases	Under 5	...	17	1	...	...	...	...	...	1	...	5		
15/6		5 & upwards													
Nil.	Deaths	Under 5	...	...	...	...	...	...	...	...	...	1			
		5 & upwards													
	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
LEEK.*	Houses infected	...	...	110	1	...	...	11	...	1	1	...	8		
14,406.	Cases	Under 5	...	52	...	..	...	1	...	...	...	...	2		
		5 & upwards		67	1	...	...	11	...	2	1	...	6		
£1. 4s. 9d.	Deaths.....	Under 5	...	5	...	...	...	1	...	...	...	...	...	9	5
		5 & upwards	...	...	...	...	...	...	...	...	1				
62·6.	Cases treated in hospital.....	Under 5	...	30											
		5 & upwards	...	52	1	...	...	1							
	Deaths occurring in hospital	Under 5	...	3											
		5 & upwards	...	1											
LICHFIELD.*	Houses infected	...	...	29	...	1	...	2	...	...	1	...	10	36	
7,864.	Cases	Under 5	...	14	...	...	...	...	...	...	...	...	1	18	
		5 & upwards	...	18	...	1	...	2	...	...	1	...	9	23	
£1. 7s. 6d.	Deaths.....	Under 5	...	...	...	1	...	...	...	...	...	..	1	...	5
		5 & upwards	...	...	...	...	...	...	...	...	1				
41·1.	Cases treated in hospital.....	Under 5													
		5 & upwards	...	14											
	Deaths occurring in hospital	Under 5													
		5 & upwards													

† Not specified.

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
LONGTON. 35,240. £1. 11s. 0d. 7·5.	Houses infected	...	26	80	6	4	...	138	...	5	12	...	33		
	Cases	Under 5	31	139	7	4	...	200	...	8	12	...	37		
		5 & upwards													
	Deaths.....	Under 5	...	2	5	8	...	3	...	...	...	...	1	41	10
		5 & upwards	...	3	...	...	...	22	...	2	2	...	3	4	
	Cases treated in hospital	Under 5	29												
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													
NEWCASTLE.* 19,000. 15/7. 14·2.	Houses infected	...	...	33	4	...	...	17	...	...	5	...	39		
	Cases	Under 5	...	36	4	...	...	2	...	...	...	...	44		
		5 & upwards	...	10	2	...	...	16	...	...	5	...	...		
	Deaths.....	Under 5	...	3	2	...	...	...	...	...	...	...	...	23	13
		5 & upwards	...	1	...	...	...	1	...	...	3	...	1	1	
	Cases treated in hospital	Under 5	...	10											
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													
QUARRY BANK.* 6,862. £1. 2s. 11d. 37·2.	Houses infected	...	22	7	...	...	...	7	2	...	...	...	4	1	6
	Cases	Under 5	1	2	...	...	..	1							
		5 & upwards	39	6	..	...	...	8	2	...	...	...	4		
	Deaths.....	Under 5	...	...	...	...	...	...	..	...	...	...	...	1	6
		5 & upwards	1	...	...	...	...	...	2						
	Cases treated in hospital	Under 5	1												
		5 & upwards	21												
	Deaths occurring in hospital	Under 5													
		5 & upwards	1												

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
ROWLEY REGIS.* 32,100. £1. 1s. 9d. 5·0.	Houses infected	...	6	7	10	23	...	46	3	...	3	8	47	5	28
	Cases	Under 5	...	35	1	17	...	3	...	...	...	...	4		
		5 & upwards	10	78	12	6	...	56	3	...	3	8	45		
	Deaths	Under 5	...	2	...	10	...	...	...	...	...	...	1	4	28
		5 & upwards	1	...	...	3	...	9	...	...	1	2	1	1	
	Cases treated in hospital	Under 5													
		5 & upwards	10												
	Deaths occurring in hospital.....	Under 5													
		5 & upwards	1												
RUGELEY. 4,500. £1. 6s. 0d. Nil.	Houses infected	...	...	19	8	...	...	3	...	...	1	...	3		
	Cases	Under 5	...	21	3	...	...	4	...	...	...	...	3		
		5 & upwards	...	5	10	...	...	...	...	...	1				
	Deaths	Under 5	...	...	...										
		5 & upwards	...	...	1										
	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
SEDGLEY.* 15,000. £1. 9s. 9d. Nil.	Houses infected† ...	...													
	Cases	Under 5	13	62	7	16	...	30	...	...	8	...	43		
		5 & upwards													
	Deaths	Under 5	...	1	...	2	...	...	...	...	...	...	1	1	2
		5 & upwards	...	...	...	...	...	1	...	...	4				
	Cases treated in hospital	Under 5	1												
		5 & upwards	20												
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													

† Not specified.

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
SMETHWICK.* 38,500. £1. 3s. 4d. 6·5.	Houses infected	...	17	160	12	1	...	37	...	...	...	...	39		
	Cases	Under 5	1	78	2	...	...	3	...	...	...	...	5		
		5 & upwards	20	163	10	1	...	43	...	...	...	...	34		
	Deaths	Under 5	...	2	1	...	...	1	...	...	...	...	3	2	7
		5 & upwards	...	1	...	1	...	8	...	...	...	...	...	1	1
	Cases treated in hospital	Under 5	1												
		5 & upwards	20												
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
STAFFORD.* 18,912. £1. 11s. 0d. 61·3.	Houses infected	...	1	133	1	...	...	31	1	...	5				
	Cases	Under 5 ..... / 5 & upwards	1	169	1	...	...	39	2	...	5	...	18		
	Deaths...	Under 5	...	1	...	1									
		5 & upwards	...	...	...	...	...	2	...	...	4	...	1		
	Cases treated in hospital	Under 5 ..... / 5 & upwards	1	111	...	...	...	18							
	Deaths occurring in hospital	Under 5 ..... / 5 & upwards	...	1											
STOKE-ON-TRENT.* 25,345. £2. 3s. 6d. 20·7.	Houses infected	...	...	212	28	2	...	64	4	...	2	...	34		
	Cases	Under 5	...	75	7	1									
		5 & upwards	...	224	24	1	...	66	4	...	2	...	38		
	Deaths.....	Under 5	...	1	1	1	...	..	...	...	...	...	...	20	6
		5 & upwards	...	2	1	...	...	5	...	...	1				
	Cases treated in hospital	Under 5 ..... / 5 & upwards	...	83											
	Deaths occurring in hospital	Under 5 ..... / 5 & upwards	...	2											

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
STONE.*	Houses infected.....	...	2	4	...	...	...	3	...	...	...	...	6	12	21
	Cases	Under 5													
		5 & upwards	3	4	...	...	...	3	...	...	...	...	6		
5,904.	Deaths	Under 5	...	...	...	...	...	...	...	...	...	...	...	1	4
		5 & upwards	...	...	...	...	...	...	...	...	...	...	...	1	
6/9	Cases treated in hospital	Under 5													
		5 & upwards	2	1	...	...	...	1							
40·0.	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
TAMWORTH.*	Houses infected	...	1	3	...	...	...	1	...	...	...	...	5		
	Cases	Under 5													
		5 & upwards	1	3	...	..	...	1	...	...	...	...	6		
6,829.	Deaths.....	Under 5	...	...	...	...	...	...	...	...	...	...	...	5	
		5 & upwards	...	...	...	...	...	1	...	...	...	...	..	3	
4/-	Cases treated in hospital.....	Under 5													
		5 & upwards	...	1											
20·0.	Deaths occurring in hospital	Under 5													
		5 & upwards													
TETTENHALL.*	Houses infected	...	...	...	1										
	Cases	Under 5	...	9											
		5 & upwards	1	20	1	...	...	6	...	...	...	...	1		
5,267.	Deaths.....	Under 5	...	...	...	...	...	...	...	...	...	..	...	...	2
		5 & upwards													
18/-	Cases treated in hospital.....	Under 5	...	5											
		5 & upwards	...	8	...	...	...	3							
43·2.	Deaths occurring in hospital	Under 5													
		5 & upwards													

Urban—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
TUNSTALL.* 16,065. £1. 0s. 6d. 2·2.	Houses infected	...	1	26	19	4	...	29	5	...	4	...	34		
	Cases	Under 5	...	20	...	5									
		5 & upwards	1	13	19	...	...	30	6	...	4	...	34		
	Deaths.....	Under 5	...	...	...	2	...	...	...	...	...	...	...	12	1
		5 & upwards	...	...	...	...	...	1	...	...	1				
	Cases treated in hospital	Under 5													
		5 & upwards	...	...	...	...	...	1	1						
	Deaths occurring in hospital	Under 5													
		5 & upwards													
WILLENHALL. * † 17,457. £1. 2s. 8d. 0·8.	Houses infected	...	4	70	6	2	...	13	...	...	...	...	16	8	29
	Cases	Under 5	...	51	2	2	...	3							
		5 & upwards	4	48	5	...	...	15	...	...	...	...	16		
	Deaths.....	Under 5	...	...	1	...	...	...	...	...	...	...	...	1	11
		5 & upwards	...	...	...	...	...	2							
	Cases treated in hospital	Under 5													
		5 & upwards	1												
	Deaths occurring in hospital	Under 5													
		5 & upwards													

† Date of introduction, February 13th, 1893.

Rural.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
CANNOCK.*	Houses infected	...	...	67	3	...	...	3	...	...	1	...	13	27	33
15,997.	Cases	Under 5	...	64	1	...	...	...	...	...	...	...	...	265	
		5 & upwards	...	97	2	...	...	4	...	...	1	...	13	173	
£4. 16s. 9d.	Deaths	Under 5	...	...	1	...	...	...	...	...	...	...	...	10	4
		5 & upwards	...	1	1	...	...	...	...	...	1	...	...	1	
Nil.	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													
CHEADLE.	Houses infected † ...	...													
22,302.	Cases	Under 5	2	28	3	...	...	2							
		5 & upwards	9	38	9	1	...	26	...	...	1	...	12		
14/8	Deaths	Under 5	...	2	1	1	...	...	...	...	...	...	...	3	5
		5 & upwards	...	...	1	2	...	8	...	...	3	...	1	...	1
7·6.	Cases treated in hospital	Under 5	2												
		5 & upwards	7												
	Deaths occurring in hospital	Under 5													
		5 & upwards													
ECCLESHALL.* ‡	Houses infected	..	...	9	...	...	...	6	...	...	...	...	1		
5,798.	Cases	Under 5													
		5 & upwards	...	12	...	...	...	6	...	...	...	...	1		
16/4.	Deaths	Under 5	...	1	...	2	...	...	...	...	...	...	...	1	2
		5 & upwards	...	...	...	...	...	1	...	...	...	...	...	1	
5·5.	Cases treated in hospital	Under 5	...	1											
		5 & upwards													
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													

† Not specified.

‡ Date of introduction, June, 1893.

Rural—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
KIDDERMINSTER.* 647. £2. 14s. 0d. 78·5.	Houses infected † ...	...													
	Cases	Under 5	...	1											
		5 & upwards	...	13											
	Deaths	Under 5													
		5 & upwards													
	Cases treated in hospital	Under 5	...	1											
		5 & upwards	...	10											
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
LICHFIELD.* 23,299. £1. 2s. 8d. 8·8.	Houses infected	...	...	119	16	2	...	9	...	...	3	...	12		
	Cases	Under 5	...	48	8	1	...	2							
		5 & upwards	...	113	12	1	...	10	...	...	3	...	14		
	Deaths...	Under 5	...	2	4	1	...	...	...	...	...	...	...	13	8
		5 & upwards	...	...	...	...	...	2	...	...	1				
	Cases treated in hospital	Under 5	...	2											
		5 & upwards	...	14	1										
	Deaths occurring in hospital	Under 5													
		5 & upwards													
MARKET DRAYTON. 2,222. 2/3. Nil.	Houses infected	...	...	...	...	...	...	1							
	Cases	Under 5													
		5 & upwards	...	...	...	...	...	2							
	Deaths.....	Under 5	...	...	...	...	...	..	...	...	...	...	...	1	
		5 & upwards													
	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													

† Not specified.

Rural—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
NEWCASTLE.	Houses infected.....	...	...	25	2	1	...	7	...	...	...	...	64		
6,365.	Cases	Under 5	...	12	...	1									
£2. 7s. 9d.		5 & upwards	...	34	2	...	...	9	...	...	...	...	64		
Nil.	Deaths	Under 5													
		5 & upwards	...	...	...	...	...	3							
	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital.....	Under 5													
		5 & upwards													
NEWPORT.	Houses infected	...													
4,366.	Cases	Under 5													
Nil.		5 & upwards													
Nil.	Deaths.....	Under 5													
		5 & upwards													
	Cases treated in hospital.....	Under 5													
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													
SEISDON.*	Houses infected	...	...	21	1	...	...	1	...	...	...	...	9		
12,289.	Cases	Under 5	...	6											
8/11		5 & upwards	...	27	1	...	...	1	...	...	...	...	9		
2·8.	Deaths.....	Under 5													
		5 & upwards													
	Cases treated in hospital.....	Under 5													
		5 & upwards	...	1											
	Deaths occurring in hospital	Under 5													
		5 & upwards													

Rural—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
SHIFNAL.	Houses infected	...													
1,601.	Cases	Under 5													
Nil.		5 & upwards													
Nil.	Deaths.....	Under 5													
		5 & upwards													
	Cases treated in hospital	Under 5													
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													
STAFFORD.*	Houses infected	...	...	15	2	...	...	5	...	...	...	...	4		
10,420.	Cases	Under 5	...	7	1										
7/5		5 & upwards	...	12	2	...	...	5	...	...	...	...	4		
18·5.	Deaths.....	Under 5	...	...	1	...	...	...	...	...	...	...	...	1	
		5 & upwards	...	...	2	...	...	3	...	...	...	1			
	Cases treated in hospital	Under 5	...	1											
		5 & upwards	...	4	...	...	...	...	...	...	...	...	1		
	Deaths occurring in hospital	Under 5													
		5 & upwards													
STOKE-ON-TRENT.*	Houses infected	...	...	9	2	1	...	5	...	...	...	...	...	7	3
5,412.	Cases	Under 5	1	31	3	...	...	3							
19/4		5 & upwards													
34·2.	Deaths.....	Under 5	...	3	...	1	...	...	...	...	...	...	...	6	3
		5 & upwards	1	3	...	...	...	...	...	...	...	...	...	1	
	Cases treated in hospital	Under 5	...												
		5 & upwards	...	13											
	Deaths occurring in hospital	Under 5													
		5 & upwards													

Rural—*continued.*

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
STONE.* †	Houses infected	...	...	36	1	...	...	7	...	...	1	...	8	30	18
8,344.	Cases	Under 5	...	38											
4·6.		5 & upwards	...	19	1	...	...	7	...	...	1	...	8		
£2. 4s. 2d.	Deaths	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	2
		5 & upwards	...	...	...	...	...	...	...	...	...	...	3	2	
	Cases treated in hospital	Under 5 ..... / 5 & upwards	...	2	...	...	...	1							
	Deaths occurring in hospital	Under 5 ..... / 5 & upwards													
STOURBRIDGE.*	Houses infected ‡ ...	...													
20,724.	Cases	Under 5 ..... / 5 & upwards	42	217	2	1	...	19	...	...	1	1	34		
£1. 18s. 2d.	Deaths	Under 5 ..... / 5 & upwards	5	7	...	3	...	...	...	...	1	1	1	2	3
12·8.	Cases treated in hospital	Under 5 ..... / 5 & upwards	28	6	...	...	...	2							
	Deaths occurring in hospital	Under 5 ..... / 5 & upwards	2												
TAMWORTH.*	Houses infected.....	..	2	...	...	...	...	1	...	...	...	...	4		
4,770.	Cases	Under 5	...	1											
6/9.		5 & upwards	1	5	...	...	...	2	...	...	...	...	4		
33·3.	Deaths	Under 5 ..... / 5 & upwards	...	...	...	...	...	...	...	...	...	...	...	1	
	Cases treated in hospital	Under 5 ..... / 5 & upwards	...	3											
	Deaths occurring in hospital	Under 5 ..... / 5 & upwards													

† Date of introduction, June, 1893.

‡ Not specified.

Rural—*continued*

District. Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
WALSALL. 9,692. £1. 2s. 5d. 15·0.	Houses infected.....	...	9	41	1	..	...	8	...	...	...	...	7		
	Cases	Under 5	...	15	...	...	...	2							
		5 & upwards	14	37	1	...	...	11	...	...	...	...	7		
	Deaths	Under 5	...	...	1	...	...	...	...	...	...	...	...	12	
		5 & upwards	...	1	...	...	...	3	...	...	...	...	...	3	
	Cases treated in hospital	Under 5													
		5 & upwards	12												
	Deaths occurring in hospital.....	Under 5													
		5 & upwards	1												
WEST BROMWICH. 2,465. 18/3. 7·1.	Houses infected	...	2	6	1	...	...	2	...	...	...	...	4		
	Cases	Under 5	...	3											
		5 & upwards	3	5	1	...	...	2	...	...	...	...	4		
	Deaths.....	Under 5	...	...	...	...	...	...	...	...	...	...	...	1	
		5 & upwards	...	...	...	...	...	...	..	...	...	...	1		
	Cases treated in hospital	Under 5	1												
		5 & upwards													
	Deaths occurring in hospital	Under 5													
		5 & upwards													
WOLSTANTON&BURSLEM* 32,083. £1. 1s. 6d. 15·4.	Houses infected	...	2	79	19	3	...	33	11	...	5	...	52		
	Cases	Under 5	...	49	7	2	...	2							
		5 & upwards	21	64	16	1	...	44	11	...	5	...	54		
	Deaths.....	Under 5	...	5	2	5	...	...	..	...	...	...	...	36	1
		5 & upwards	3	2	1	1	...	9	2	...	4	...	2	1	
	Cases treated in hospital	Under 5	...	...	1	...	...	5							
		5 & upwards	15	10	2										
	Deaths occurring in hospital	Under 5													
		5 & upwards	...	1											

Summary of Sanitary Inspectors' Work.

Urban.

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal boats.	Ashpits and privies.	Deposits of refuse & manure	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.						
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective traps.	No disconnection.	Other faults.								Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Audley. 13,102.	Inspections & observations made	6	7	9	2	...	1	...	...	...	...	98	4	...	41	7	...	...	5	...	...	...	...	180											
	Formal notices by authority	2	2	5	2	...	1	...	...	...	...	20	2	...	10	2	...	...	2	...	...	...	...	48											
	Nuisances abated after notice	6	3	9	2	...	1	...	...	...	...	94	4	...	41	7	..	...	5	...	...	...	...	172	...	...	...	6	3			6				
Biddulph. 5,390.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																	
	Formal notices by authority																																		
	Nuisances abated after notice																																		
Bilston. 23,500.	Inspections & observations made	27	...	9	17	38	75	117	41	87	55	8207	97	22	41	...	127	1	87	4	...	...	39	9091												
	Formal notices by authority	1	...	4	11	...	...	...	...	...	...	...	...	1	...	...	2	...	2	...	...	...	...	21												
	Nuisances abated after notice	1	...	4	11	...	...	...	...	...	...	...	...	1	...	...	2	...	2	...	...	...	...	21	...	...	...	...	...	2	211					
Brierley Hill 11,897.	Inspections & observations made	32	...	15	2	...	23		18	12	...	192	57	22	33			42	21	50	...	...	...	519												
	Formal notices by authority	...	...	...	...	...	Inspected quarterly and found satisfactory.		...	...	...	...	...	...				...	...	...	...	...	...	...												
	Nuisances abated after notice	...	...	...	...	...			...	...	...	...	...	...	...			...	...	...	...	...	...	...	6	...	...	9	9	34	63	6	...	...	1	1
Brownhills. 13,967.	Inspections & observations made	...	...	...	...	...	111		36	56	36	...	...	...	...			...	...	...	...	...	1607	1846												
	Formal notices by authority	...	...	8	107*	...	...	...	...	...	...	133	14	...	100			83	...	15	...	...	35	511												
	Nuisances abated after notice	...	...	8	107*	...	...	...	...	...	...	133	14	...	100			83	...	15	...	...	35	511	...	...	...	7	6	2	3					

Urban—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure	Water-closets.	House drainage.			Water supply.	Pigsties.		Offensive trades.	Smoke nuisance.	Other nuisances.	Totals.	Food supply & water.					Precautions against infectious disease.					
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.			Animals improperly kept.					Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Burslem. 32,935.	Inspections & observations made	45	40	30	25	120	125	56	48	100	51	1700	40	76	500			...	24		14	12	...	3006										
	Formal notices by authority	15	25	7	12	...	6	2	3	5	6	157	26	54	15	20	123	1	4	10	4	...	...	495										
	Nuisances abated after notice	15	25	7	12	...	6	2	3	5	6	157	26	54	15	20	123	1	4	10	4	...	...	495	1	...	...	...	1	375	375					
Cannock. 21,000.	Inspections & observations made	6	2	14	1	15	...	...	...	18	91	80	2	9	25	52	6	1	5	...	...	...	5	332										
	Formal notices by authority	...	...	10	1	...	...	...	...	18	19	37	...	...	7	6	...	...	1	...	...	...	...	99										
	Nuisances abated after notice	6	2	14	1	15	...	...	...	18	19	78	2	9	25	52	6	1	5	...	...	...	5	258	1	...	...	1	1	1	2				
Coseley. 21,950.	Inspections & observations made	89	6	21	39	...	124	158	48	90	178	5041	55	...	9	...	10	70	...	13	...	...	8	5959										
	Formal notices by authority	89	6	21	39	...	...	15	...	...	2	...	...	...	9	...	...	...	...	13	...	...	8	202										
	Nuisances abated after notice	89	6	21	39	...	...	15	...	...	2	...	...	..	9	...	...	...	...	13	...	...	8	202	...	...	...	2	2	...	34				
Darlaston. 14,777.	Inspections & observations made	...	...	9	...	...	25	52	30	68	105	2120	7	...	5	...	...	...	1	1	...	...	...	2423										
	Formal notices by authority	...	...	9	...	...	...	4	...	5	1	16	7	...	5	...	...	...	1	1	...	...	...	49										
	Nuisances abated after notice	...	...	9	...	...	...	4	...	5	1	16	7	...	5	...	..	...	1	1	...	...	...	49	...	...	...	...	...	6	29				
Fenton. 18,000.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																
	Formal notices by authority																																	
	Nuisances abated after notice																																	

Urban—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.						
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Handsworth. 36,500.	Inspections & observations made	31	42	...	12	...	144	72	65	283	...	3720	20	120	29	19	242	12	...	27	6	...	26	4870											
	Formal notices by authority	12	24	...	3	...	...	5	4	3	...	89	5	50	27	8	84	5	..	9	2	...	5	335											
	Nuisances abated after notice	12	23	...	3	...	...	5	4	3	...	84	5	48	27	8	84	5	...	9	2	...	5	327	...	...	...	...	...	130	197					
Heath Town. 7,326.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																	
	Formal notices by authority																																		
	Nuisances abated after notice																																		
Kidsgrove. 3,841.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																	
	Formal notices by authority																																		
	Nuisances abated after notice																																		
Leek. 14,406.	Inspections & observations made	5	57	4	2	55	8	120	30	72	45	19	16	13	20	1	57	1	1	1	2	5	50	584											
	Formal notices by authority	5	57	4	2	1	...	1	...	1	...	19	12	13	20	1	57	1	1	1	2	5	20	223											
	Nuisances abated after notice	5	55	4	...	1	...	1	...	1	...	16	22	12	18	1	50	1	1	1	2	5	20	216	1	...	...	...	...	522	26	7				
Lichfield. 7,864.	Inspections & observations made	6	4	2	1	...	...	...	...	...	...	94	7	28	44	3	25	...	10	...	1	...	25	250											
	Formal notices by authority																																		
	Nuisances abated after notice	6	4	2	1	...	...	...	...	...	...	92	7	28	44	3	25	...	10	...	1	...	23	246	...	...	...	...	...	...	15					

Urban—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.					
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Longton. 35,240.	Inspections & observations made																																
	Formal notices by authority	...	21	2	...	...	...	...	...	...	...	106	4	17	8	...	88	7	1	...	...	...	41	295										
	Nuisances abated after notice	...	21	2	...	...	..	...	...	...	...	106	4	17	8	...	88	7	1	...	...	...	41	295	...	...	...	3	...	57	37					
Newcastle. 19,000.	Inspections & observations made	500	100	8	11	200	40	30	30	80	...	700	35	40	50	38	20	20	18	12	20	12	...	1964											
	Formal notices by authority	135	40	2	11	4	6	4	4	2	...	140	8	10	20	30	18	12	9	2	...	1	...	458											
	Nuisances abated after notice	135	40	2	11	4	6	4	3	2	...	136	8	10	20	30	18	12	9	2	...	1	...	453	2	15	2	2	...	25	80	...	1	1		
Quarry Bank. 6,862.	Inspections & observations made	3	...	12	4	...	30		3	4	...	30	5	...	...	2	6	40	4	...	...	...	4	147											
	Formal notices by authority	3	...	12	4	...	...	...	...	...	...	30	5	...	...	2	6	22	4	...	...	...	4	92											
	Nuisances abated after notice	3	...	9	4	...	...	...	...	...	...	25	5	...	...	2	6	14	4	...	...	...	4	76	...	...	...	5	3	...	18					
Rowley Regis 32,100.	Inspections & observations made	211	33	9	17	...	29	265	...	153	70	53	32	...	8	...	31	422	117	15	1	...	31	1497											
	Formal notices by authority	137	15	8	15	...	2	...	...	5	1	45	18	...	7	...	18	39	49	15	...	...	11	385											
	Nuisances abated after notice	137	12	8	14	...	2	...	...	5	1	44	18	...	7	...	18	37	45	15	...	...	11	374	...	...	...	43	37	395	230	1				
Rugeley. 4,500.	Inspections & observations made	...	1	1	...	9	27	13	9	32	34	20	1	3	2	2	4	4	3	1	6	...	1	173											
	Formal notices by authority	...	...	1	...	...	...	...	...	1	4	...	1	...	...	...	...	...	2	...	...	...	...	9											
	Nuisances abated after notice	...	...	1	...	...	...	...	...	1	4	...	1	...	...	...	...	...	...	...	...	...	...	7	...	...	...	...	...	...	38				

Urban—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisance.	Other nuisances.	Totals.	Food supply & water.					Precautions against infectious disease.						
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Sedgley. 15,000.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																	
	Formal notices by authority																																		
	Nuisances abated after notice																																		
Short Heath. 2,600.	Inspections & observations made	...	403	...	...	...	10	10	2	4	...	All	...	...	...	...	...	...	All in district.	...	...	...	9													
	Formal notices by authority																																		
	Nuisances abated after notice	...	3	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...		...	...	...	9	13											
Smallthorne. 5,519.	Inspections & observations made	4		1	...	...	14	11	7	4	...	All	1	7	11	...	12	...		...	...	...	...	72											
	Formal notices by authority	4		1	...	...	...	...	...	...	...	29	1	...	11	...	12	...		...	...	...	...	58											
	Nuisances abated after notice	4		1	..	..	...	...	...	...	...	29	1	...	11	...	12	...		...	...	...	...	58											
Smethwick. 38,500.	Inspections & observations made	28	14	15	...	...	*	*	*	*	227	1020	72	5	256			51	76	6	3	12	70	1855											
	Formal notices by authority	14	7	...	...	...	...	...	...	..	28	380	...	5	128			15	...	...	...	2	70	649											
	Nuisances abated after notice	14	6	5	...	...	...	...	...	...	50	310	36	5	95			14	38	2	1	1	56	633	...	...	...	18	14	255	179	1				
Stafford.† 20,170.	Inspections & observations made	12	17	...	...	10	104	104	76	124	...	1211	...	...	52	...	18	334	...	24	2	...	24	2112											
	Formal notices by authority	12	17	...	...	...	...	...	...	4	...	...	...	...	52	...	18	...	...	24	2	...	24	153											
	Nuisances abated after notice	12	17	...	...	...	...	...	...	4	...	...	..	...	52	...	18	...	...	24	2	...	24	153	1	...	...	334	334	300	156	13	2	2	2	2

* Frequently inspected, and informal notices given on each inspection when necessary.

† Including Public Institutions.

Urban—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal boats.	Ashpits and privies.	Deposits of refuse & manure	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.						
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective traps.	No disconnection.	Other faults.								Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Stoke-on-Trent. 25,345.	Inspections & observations made	84	82	14	40	20	80	50	60	140	10	5700	...	150	31	118	118	7	12	4	20	25	...	6765										
	Formal notices by authority	84	82	14	10	4	80	...	...	Abated. Verbal	32	79	1	30	31	118	118	7	2	4	1	25	...	722										
	Nuisances abated after notice	84	82	14	10	4	...	...	...		32	79	1	30	31	118	118	7	2	4	1	25	...	642	...	...	...	1	...	...	434	...	...	...	...
Stone. 5,904.	Inspections & observations made	1	2	4	...	4	17		13	8	51	35	12	2	...	5	9	74	...	...	...	...	...	237										
	Formal notices by authority	1	2	4	...	...	...		...	...	5	17	2	1	...	1	3	24	...	...	...	...	...	60										
	Nuisances abated after notice	1	1	2	...	...	...		...	...	3	15	2	1	...	1	3	22	...	...	...	...	...	51	...	...	...	...	...	...	5	...	...	...	...
Tamworth. 6,829.	Inspections & observations made	5	8	2	8	2	10	3	10	11	...	46	6	4	115	...	36	...	33	4	2	4	76	385										
	Formal notices by authority	4	8	2	...	...	10	1	7	4	...	8	6	...	12	...	24	...	30	4	...	4	101	225										
	Nuisances abated after notice	5	6	2	...	...	...	1	6	4	...	8	6	4	12	...	20	...	30	4	...	3	1	112	...	...	...	...	...	2	4				
Tettenhall. 5,267.	Inspections & observations made	...	3	4	23	...	...	...	...	...	...	3	5	...	59			...	...	12	3	...	26	138										
	Formal notices by authority	...	...	2	3	...	...	...	...	1	...	49	5	...	43			...	...	12	3	...	26	144										
	Nuisances abated after notice	...	3	4	23	...	...	...	...	1	...	49	5	...	59			...	...	12	3	...	26	185	...	...	...	21	16	1	21				
Tipton. 29,316.	Inspections & observations made																																	
	Formal notices by authority	72	18	6	39	...	No record.	No record.	No record.	No record.	No record.	80	No record.	No record.	36			3	No record.	3	7															
	Nuisances abated after notice	53	18	5	20	...						60			31			1		3	7	...	...	...	1	...	...	3	3	No	record.				

Urban—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.						
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Tunstall. 16,065.	Inspections & observations made	383	3	3	4	4	310		30	620	74	78	3	99	162			...	3	2	...	...	19	1797						1	6					
	Formal notices by authority	36	3	3	4	4	...		...	...	2	...	...	...	...			...	3	...	...	...	...	55											
	Nuisances abated after notice	383	3	3	4	4	...		...	...	2	...	...	...	...			...	3	...	...	...	...	402	...	...	...	...	...						
Wednesbury 25,311.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																
	Formal notices by authority																																	
	Nuisances abated after notice																																	
Wednesfield. 4,970.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																
	Formal notices by authority																																	
	Nuisances abated after notice																																	
Willenhall. 17,457.	Inspections & observations made																																	
	Formal notices by authority	1	...	...	...	...	...	...	...	10	...	4	...	...	...	...	2	...	...	...	...	...	...	17											
	Nuisances abated after notice	1	3	9	1	...	...	...	18	6	...	39	1	1	...	6	...	...	8	...	...	...	12	105	...	...	...	...	...	2	17				

Rural.

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.					
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Ashbourne.* 4,160.	Inspections & observations made	4	11	1	...	...	...	...	...	...	...	8	2	2	...	5	7	4	2	2	...	...	5	53										
	Formal notices by authority	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	2	1	...	...	...	...	...	4										
	Nuisances abated after notice	3	7	1	...	...	...	...	...	...	...	5	2	1	...	5	6	4	2	2	...	...	4	42										
Burton.* 9,282.	Inspections & observations made	5	5	1	6	...	...	99	6	...	...	21	15	4	13	14	25	2	6	...	...	2	21	245										
	Formal notices by authority	...	...	...	...	...	...	...	1	...	...	1	...	...	1	...	1	1	...	...	...	...	1											
	Nuisances abated after notice	3	5	1	5	...	...	1	2	...	...	14	10	2	8	2	17	1	5	...	...	1	8	...	...	...	...	4	...	2	9 (52 visits made)				
Cannock. 15,997.	Inspections & observations made	3	4	3	3	...	36	36	10	...	19	7	2	...	...	10	...	7	2	...	...	...	1	143										
	Formal notices by authority	3	4	3	3	...	...	...	...	...	...	7	...	...	...	10	...	7	2	...	...	...	1	40										
	Nuisances abated after notice	3	4	3	3	...	..	...	...	...	...	7	...	...	...	10	...	7	2	...	...	...	1	40	...	...	...	4	2	...	45	3			
Cheadle. 22,302.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																																
	Formal notices by authority																																	
	Nuisances abated after notice																																	
Eccleshall. 5,798.	Inspections & observations made	4	6	3	...	2	30		6	9	...	56	33	...	...	12	46	33	6	1	...	...	...	247										
	Formal notices by authority	4	3	3	...	1	...		...	...	...	23	7	...	...	3	11	2	3	1	...	...	...	61										
	Nuisances abated after notice	4	3	3	...	1	...		...	...	...	18	7	...	...	3	8	1	3	1	...	...	...	52	...	...	...	...	...	...	8				

* Staffordshire portion.

Rural—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisance.	Other nuisances.	Totals.	Food supply & water.					Precautions against infectious disease.					
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Kidderminster.* 647.	Inspections & observations made	Suggested form of Inspector's Return not adopted.																															
	Formal notices by authority																																
	Nuisances abated after notice																																
Leek. 13,998.	Inspections & observations made	3	2	3	11	12	110		...	20	94	97	12	3	31	19	36	29	8	...	40	1	15	546										
	Formal notices by authority	3	2	3	11	...	...	...	...	1	1	97	12	3	31	19	36	29	8	...	...	1	15	272										
	Nuisances abated after notice	3	2	3	11	...	...	...	...	1	1	94	12	3	25	16	28	29	8	...	...	1	15	252	...	...	...	2	2	15	15				
Lichfield. 23,299.	Inspections & observations made	7	10	7	7	...	...	40	...	2	8	157	23	8	28	23	73	33	22	10	2	1	40	501										
	Formal notices by authority	...	...	...	1	...	...	...	...	...	...	2	...	...	...	1	1	23	...	...	...	...	...	28										
	Nuisances abated after notice	7	10	7	7	..	...	40	...	2	8	154	23	8	26	20	71	33	22	10	2	1	40	491	...	...	...	10	10	98	108				
Market Drayton.* 2,222.	Inspections & observations made	2	...	...	2	...	2	...	...	...	...	...	2	...	...	...	...	2	...	1	...	...	...	11										
	Formal notices by authority	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	4										
	Nuisances abated after notice	...	1	...	2	...	...	...	...	...	...	...	2	...	...	...	...	2	...	...	...	...	...	7										
Newcastle.† 6,365.	Inspections & observations made	...	...	1	...	...	5	10	...	2	...	9	2	...	48		...	32	3	2	...	...	...	114										
	Formal notices by authority	...	...	1	...	...	...	1	...	2	...	9	2	...	48		...	32	3	2	...	...	...	100										
	Nuisances abated after notice	...	...	1	...	...	...	1	...	2	...	9	2	...	31		...	19	3	2	...	...	...	70	...	...	...	5	2	...	24				

* Staffordshire portion. † From September, 1893, to March 24th, 1894.

Rural—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal boats.	Ashpits and privies.	Deposits of refuse & manure	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.					
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective traps.	No disconnection.	Other faults.								Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Newport. 4,366.	Inspections & observations made						..					33	35	...		30		...	...	...	...	...	...	98											
	Formal notices by authority	...	...	...	...	...		...	...	...	...														...	...	...								
	Nuisances abated after notice	...	...	...	...	...	...	...	...	...	...	...	...	...		...		...	...	...	...	...	...	...				1	1						
Seisdon. 12,289.	Inspections & observations made	43	17	2	5	...	4	64	7	13	95	204	35	17	46	...	65	40	14	34	...	...	...	1706											
	Formal notices by authority	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	222											
	Nuisances abated after notice	43	17	2	5	...	...	...	...	...	...	204	35	17	46	...	65	40	14	34	...	...	...	1523	...	...	...	7	4	...	29				
Shifnal. 12,222.	Inspections & observations made	141	340	4	...	1	5	8	3	2	...	420	30	...		220		...	26	...	...	...	...	1200											
	Formal notices by authority	79	4	...	...	...	...	...	...	...	...	230	12	...		37		...	...	...	1	...	...	363											
	Nuisances abated after notice	79	4	...	...	...	...	...	...	...	...	230	12	...		36		...	...	...	1	...	...	362	...	...	...	1	1						
Stafford. 10,420.	Inspections & observations made	95	...	1	5	...	105		6	10	95	165	...	...		45		135	80	1	...	...	...	643											
	Formal notices by authority	...	...	1	5	...	...		...	...	2	...	...	...		45		...	...	1	...	...	...	54											
	Nuisances abated after notice	...	...	1	5	...	...		...	...	2	...	...	...		45		...	...	1	...	...	...	54	...	...	...	...	30	15	15				
Stoke-on-Trent. 5,412.	Inspections & observations made	40	88	...	...	...	82	...	...	...	...	32	4	...	12	...	11	...	...	14	...	...	...	283											
	Formal notices by authority	36	72	...	...	...	...	...	...	...	...	32	4	...	12	...	11	...	...	14	...	...	...	181											
	Nuisances abated after notice	36	72	...	...	...	...	...	...	...	...	32	4	...	12	...	11	...	...	14	...	...	...	181	...	...	...	6	1	36	28				

Rural—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.						
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Stone. 8,344.	Inspections & observations made	3	5	4	...	...	79		4	9	47	78	87	...	...	49	43	36	3	1	...	...	...	448											
	Formal notices by authority	3	1	4	...	...	...		...	...	...	16	45	...	...	8	6	8	3	1	...	...	...	95											
	Nuisances abated after notice	3	1	3	...	...	...		...	...	...	13	40	...	...	7	6	6	3	1	...	...	...	83	...	...	...	...	...	...	4				
Stourbridge* 20,724.	Inspections & observations made	667	...	18	...	...	2	40	8	20	25	214	87	1	12	8	178	72	2	2	...	...	9	1365											
	Formal notices by authority	4	...	6	...	...	...	...	...	...	...	90	...	...	...	...	12	40	1	...	...	...	...	153											
	Nuisances abated after notice	667	...	18	...	...	...	12	2	6	...	214	87	1	12	8	178	72	2	2	...	...	9	1290	...	...	...	8	6	8	219	...	...	...	1	1
Tamworth.* 4,881.	Inspections & observations made	...	15	4	3	...	36	6	6	6	...	16	2	3	20	...	15	50	8	1	...	...	30	221											
	Formal notices by authority	...	13	6	3	...	8	3	6	3	...	16	2	2	15	...	16	20	8	1	...	...	33	155											
	Nuisances abated after notice	...	12	4	2	...	7	3	5	3	...	12	2	2	15	...	13	18	8	1	...	...	20	127	...	...	...	6	2	2	10	1				
Uttoxeter.* 12,027.	Inspections & observations made	17	5	2	3	...	251		21	23	...	127	19	35	41	26	5	52	27	4	1	1	1	661											
	Formal notices by authority	3	2	2	2	...	2		1	2	...	3	...	...	...	...	...	...	...	...	...	...	...	17											
	Nuisances abated after notice	3	2	2	2	...	2		1	2	...	3	...	...	...	...	...	...	...	...	...	...	...	17	...	...	...	9	3	3	9	4				
Walsall. 9,692.	Inspections & observations made	5	...	4	12	...	32	59	...	10	14	151	13	2	35	5	3	...	18	...	...	...	...	363											
	Formal notices by authority	5	...	3	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20											
	Nuisances abated after notice	5	...	3	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...	...	...	...	...	3	21	2				

* Staffordshire portion.

Rural—*continued.*

District and Population.		Dwelling-houses and Schools.				Lodging-houses	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure	Water-closets.	House drainage.			Water supply.	Pigsties.	Animals improperly kept.	Offensive trades	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water.					Precautions against infectious disease.					
		Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.										Defective Traps.	No disconnection.	Other faults.								Seizures of unwholesome food	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Lots of infected bedding stoved or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
West Bromwich.* 2,465.	Inspections & observations made	20	...	...	...	...	9	35	2	...	...	97	7	...	...	...	24	9	...	...	...	...	1	204										
	Formal notices by authority	1	...	...	...	...	...	...	...	...	...	2	...	...	...	..	2	1	...	...	...	...	...	6										
	Nuisances abated after notice	8	...	...	...	...	3	35	1	...	..	67	3	...	...	...	12	4	...	...	...	...	1	134	...	...	...	...	...	†	7				
Wolstanton & Burslem. 32,083.	Inspections & observations made	10	70	11	56	...	536	528	322	372	42	454	28	6	296	40	246	252	18	30	...	...	38	3353										
	Formal notices by authority	5	61	4	29	...	2	...	...	...	...	222	13	2	145	16	121	111	6	13	...	...	35	785										
	Nuisances abated after notice	5	61	4	25	...	2	...	...	...	...	222	13	2	145	16	121	111	6	13	...	...	35	781	...	...	...	9	8	51	51				

* Staffordshire portion. † Fumigated with the houses.

Urban.

Table of Vital Statistics for the year 1893; showing also the practice in each District with regard to the printing of Annual Reports, the Adoptive Acts in force, and the prominent features in the Medical Officers' Reports.

DISTRICT AND MEDICAL OFFICER.	Area in Acres.	Population estimated to middle of 1893.	Birth-rate per 1000 of Population.	Death-rate per 1000 of Population.	Deaths in Infants under one year per 1000 registered Births.	Zymotic death-rate per 1000 of Population.	Phthisis death-rate per 1000 of Population.	Annual Report printed.	Adoptive Acts. Contagious Diseases (Animals) Act, 1878.	Infectious Disease (Notification) Act, 1889.*	Public Health Acts Amend. Act, 1890.†	PROMINENT FEATURES OF REPORT.
AUDLEY J. Vernon, M.B.	8000	13102	41·8	17·3	134	0·99	0·83	No	Yes	Yes	Yes	Only 17 houses within range of public water-supply now not connected withit. Unsanitary privies being improved. Authority recommended to undertake the whole of the work of excretal removal. Isolation hospital wanted.
BIDDULPH J. M. Fox, M.R.C.S., L.S.A.	8057	5390	38·0	20·2	170	2·41	1·11	Yes	Yes	Yes	Yes	Temporary isolation hospital erected. Imperfect disposal of sewage, it is said, will receive attention in due course.
BILSTON T. Ridley Bailey, M.D.	1837	23350	38·9	22·7	202	2·97	0·68	No	Yes	Yes	Parts 1, 2 & 3.	Iron building erected for isolating smallpox cases. Eleven houses been closed during the year as unfit for habitation. Infant death-rate, although high, is lower than previous year.
BRIERLEY HILL H. D'Arcy Ellis, L.R.C.P., M.R.C.S.	1027	11897	39·1	18·9	167	2·08	0·84	Yes	Yes	Yes	No‖	Temporary isolation hospital and steam disinfector been erected. Engineer been called in to advise as regards sewage disposal. Water mains been extended and now less complaint of deficiency. Scavenging should be undertaken by Authority.
BROWNHILLS J. C. Maddever, M.D.	6772	13967	44·7	15·8	124	2·29	0·57	No	Yes	No	No	Fatal type of measles prevalent during portion of year. Building in process of being converted into isolation hospital. Improvement recorded in refuse removal. Authority recommended to be more determined in enforcing notices. Questions of sewage disposal and water-supply still require attention.
BURSLEM J. M. Taylor, L.R.C.P., L.S.A., M.R.C.S., D.P.H.	2385	32935	37·6	21·3	194	3·64	1·00	Yes	Yes	Yes	Parts 1, 2, 3 & 4.	Many sanitary improvements said to have been effected during the year. Night-soil removal greatly improved since undertaken by Corporation. Less prejudice than formerly against the removal of infectious cases to hospital.
CANNOCK J. C. Blackford, M.R.C.S., L.S.A.	8009	21000	42·2	20·1	192	3·38	0·61	Yes	Yes	No	No	Notification Act been adopted. Water mains been extended, and over 100 houses connected with mains during the year.
COSELEY J. G. Clendinnen, L.R.C.S.I., L.A.H. Dub.	3973	21960	37·4	21·0	177	1·64	0·34	Yes	Yes	Yes	Parts 2, 3 & 5.	Public water-supply been extended, and it is hoped that Cinder Hill will be connected without delay. A permanent increase in staff engaged in excrement removal recommended. Considerable action has been taken under the Housing of the Working Classes Act.
DARLASTON S. Partridge, M.R.C.S., L.S.A.	800	14777	41·8	23·2	221	3·85	0·74	Yes	Yes	Yes	Yes	Exceptionally high death-rate, said to be owing to the fatal prevalence of measles, scarlatina, diarrhœa, and diseases of the respiratory organs. The isolation hospital is said to have been the means of preventing a wide-spread epidemic of small-pox. Scavenging said to have been better looked after. Considerable improvement in streets and footpaths.
FENTON A. V. Griffiths, M.R.C.S., L.S.A.	1599	18000	45·1	23·0	193	3·00	0·88	Yes	Yes	Yes	Parts 2, 3 & 5.	Exceptional prevalence of enteric fever attributed to the privy-midden system, the gradual abolition of which is recommended. Disinfecting apparatus much needed. High infant mortality attributed to parents' neglect.
HANDSWORTH J. B. Welch, M.B.	3638	36500	34·7	12·9	144	1·31	0·90	Yes	Yes	No	No	Smallpox occurred in 35 families, but by the prompt isolation of cases, in no instance did it extend beyond the houses infected. Authority contemplate providing a disinfecting apparatus for their own use. Owing to appointment of Assistant Inspector it has been possible to institute a systematic inspection of district. System of scavenging by contract said not to be satisfactory. Water-closets gradually being substituted for privies.
HEATH TOWN J. Green, M.R.C.S., L.S.A.	738	7326	42·1	16·5	158	3·54	1·22	No	Yes	Yes	No	Report only contains statistical figures; no account of sanitary work given.
KIDSGROVE J. Steele, L.R.C.P.	1082	3841	34·3	20·3	166	Nil.	0·78	No	Yes	Yes	Yes	Efforts being made to improve the system of excrement removal.
LEEK J. J. Ritchie, M.R.C.S., L.S.A.	1460	14406	29·5	20·2	138	1·87	1·32	Yes	Yes	Yes	Yes	Considerable improvement effected under the Housing of the Working Classes Act. A number of offensive privies converted into water-closets.
LICHFIELD J. Clark, M.D.	3458	7864	26·5	22·7	186	1·07	1·07	Yes	Yes	Yes	Yes	Isolation hospital accommodation been improved. New sanbalance in process of construction. Considerable improvement of streets and roads. Additional land has been purchased for sewage disposal purposes.
LONGTON W. J. Dawes, M.R.C.S., L.M., L.S.A.	2000	35240	40·2	25·0	225	4·00	1·44	Yes	Yes	Yes	Parts 2 and 3.	High death-rate said to be owing, as usual, to the high infant mortality rate. Land for erection of isolation hospital been purchased. Sanitary work said to make steady progress.
NEWCASTLE W. H. Hallam, L.R.C.P., M.R.C.S.	652	18000	35·6	22·5	194	3·10	1·15	Yes	Yes	Yes	Parts 2, 3 & 5.	Sewers considerably extended during the year. Excrement disposal a difficult question. General introduction of a water-carriage system would be welcome. New bye-laws been adopted.
QUARRY BANK W. H. Thompson, M.D.	983	6962	39·4	17·4	162	1·74	0·14	Yes	Yes	No	No	Many drainage faults exist which, it is hoped, will be remedied by the new sewerage scheme. Privies improved, but still much room for improvement. Local wells gradually being abolished. Temporary isolation hospital provided jointly with Brierley Hill.
ROWLEY REGIS J. G. Beasley, L.R.C.P. Edin., L.F.P.S. Glas.	3670	32100	39·6	19·0	173	2·21	0·68	Yes	Yes	Yes	Parts 1, 2, 3 & 5.	Increase in zymotic diseases attributed in great measure to impure surface wells. Outbreak of reputed cholera specially reported on. Improvement still desirable in system of excrement removal.
RUGELEY J. H. Freer, L.R.C.P., M.R.C.S.	600	4500	32·2	15·7	103	0·44	1·33	Yes	Yes	Yes	No	Refuse removal improved since new contractor been appointed. It is proposed to take steps to improve the ventilation of the sewers. M.O.H. suggests that the question of the better disposal of the sewage should be considered. Provision of isolation hospital and disinfecting apparatus desirable.
SEDGLEY J. Siggers, M.D.	3770	15000	39·0	21·0	182	1·06	1·13	Yes	Yes	Yes	Parts 2, 3 & 5.	Public water-supply considerably extended. Temporary isolation hospital been erected. Question of sewage disposal under consideration.
SHORT HEATH J. T. Hartill, L.R.C.P., M.R.C.S.	550	2600	41·9	18·0	146	1·53	1·53	Yes	No	No	No	Authority's attention again called to the intermittent water-supply at New Invention. Many defective privies in district. Question of sewage disposal receives prominent notice. The adoption of the Notification Act strongly urged.
SMALLTHORNE J. Swift Walker, M.D.	529	5519	39·4	16·8	216	1·99	0·90	Yes	No	No	Part 3	Considerable improvement in house accommodation. Want of isolation hospital accommodation referred to.
SMETHWICK W. F. Marsh Jackson, L.R.C.P., L.M., M.R.C.S.	1982	38500	37·5	17·5	179	2·49	1·01	Yes	Yes	Yes	Yes	Smallpox effectually averted by isolation, disinfection, and re-vaccination. Public water-supply laid on to 101 old houses during the year. Enteric fever prevailed during the year; attributed to dryness of weather, and unwholesome privies and ashpits. Bye-laws for slaughter-houses have been adopted, and general bye-laws are under consideration.
STAFFORD F. M. Hoare, M.B.	1084	16912	30·4	17·5	166	1·37	1·37	Yes	Yes	Yes	Parts 1, 2 & 5.	Exceptionally low phthisis mortality. Outbreak of small-pox probably checked by prompt isolation, &c. 1329 houses connected with public water-supply during year. Efficient steam disinfecting apparatus been erected.
STOKE-ON-TRENT Saml. Johnson, M.D.	1720	25345	33·3	19·0	159	2·64	1·18	Yes	Yes	Yes	Yes	Enteric fever very prevalent. Provision of public abbatoir desirable. Efficient disinfector much needed. Nuisance experienced from night-soil removal. More use being made of isolation hospital. Sanitary staff, it is said, should be strengthened.
STONE E. Fernie, M.D., D.P.H.	1000	2904	26·2	14·0	157	1·18	1·35	Yes	Yes	Yes	Part 3	More than half the houses now connected with new water-supply. Temporary isolation hospital erected in conjunction with Rural District. Disinfecting apparatus still urgently needed. Sewerage scheme been approved of by Local Government Board. Improvement been effected in night-soil removal.
TAMWORTH H. J. Fausset, M.D.	295	6629	29·4	16·4	184	3·36	Nil.	Yes	Yes	Yes	Yes	Permanent isolation hospital erected jointly with Rural District. Disinfecting apparatus should be provided. Subsoil water considerably lowered since removal of weir. Privies gradually being abolished in favour of water-closets.
TETTENHALL W. H. T. Winter, L.R.C.P.I., M.R.C.S., L.M.	1220	8267	29·2	14·6	90	1·13	1·32	Yes	Yes	Yes	Yes	More than half the houses now connected with new sewers. 40 houses connected with public water-supply during the year. Regular system of scavenging by Board much needed.
TIPTON A. S. Underhill, M.D., D.P.H.	2697	29316	38·9	22·2	183	2·66	0·61	Yes	No	Yes	Yes	Adoption of new bye-laws again recommended. Outbreak of small-pox probably prevented by prompt isolation. System of night-soil removal insufficient. Public water-supply extended to 171 houses during year. Adoption of Compulsory Notification Act again urged.
TUNSTALL W. Partington, M.B.	690	16065	39·8	19·9	206	1·80	1·05	Yes	Yes	Yes	Yes	Slop-closets being substituted for privies. Authority urged to undertake work of night-soil removal. Strong prejudice exists among the people against removal to isolation hospital.
WEDNESBURY W. C. Garman, M.B.	2130	25311	33·4	18·6	173	1·61	0·51	Yes	No	Yes	Parts 1, 2? & 5.	Epidemic of small-pox said to have been prevented by prompt isolation. Authority again urged to adopt the Compulsory Notification Act. It is hoped that a site for isolation hospital will be obtained before the year expires. 1004 houses connected with new sewers during year.
WEDNESFIELD A. Hands, L.R.C.P., M.R.C.S.	2536	4070	32·3	11·0	144	2·21	0·60	Yes‡	No	No	No	Authority again urged to adopt the Compulsory Notification Act. Since date of report, isolation hospital been provided in conjunction with Heath Town. Improved water-supply much needed for part of district.
WILLENHALL J. T. Hartill, L.R.C.P., M.R.C.S.	1249	17457	29·2	20·8	207	2·17	1·31	Yes	Yes	No	Part 3	Compulsory Notification Act adopted in February, 1893. Recommends a systematic house-to-house inspection annually. Work of connecting houses with sewers progressing too slowly.

* Where no mention of sections appears, the whole Act has been adopted.

† " " " " parts " " " " " " "

‡ For the first time this year. ‖ Under consideration.

Rural.

Table of Vital Statistics for the year 1893; showing also the practice in each District with regard to the printing of Annual Reports, the Adoptive Acts in force, and the prominent features in the Medical Officers' Reports.

DISTRICT AND MEDICAL OFFICER.	Area in Acres.	Population estimated to middle of 1893.	Birth-rate per 1000 of population.	Death-rate per 1000 of population.	Deaths in Infants under one Year per 1000 registered births.	Zymotic death-rate per 1000 of population.	Phthisis death-rate per 1000 of population.	Annual Report printed.	Adoptive Acts.			Prominent Features of Report.
									Compulsory Notification of Infectious Diseases Act, 1889.	Infectious Diseases (Prevention) Act, 1890.*	Public Health Acts Amendment Act 1890.†	
ASHBOURNE ..... P. R. Littleton, M.R.C.S.	24377	4160	¶	10·8	¶	0·48	1·44	Yes	No	No	No	Adoption of Compulsory Notification Act again urged. Statistics defective owing to irregular return of births.
BURTON ..... J. Hay Moir, M.D.	25916	9282	29·5	14·8	131	0·32	1·29	Yes	No	No	No	Adoption of Compulsory Notification Act again urged. Authority recommended to adopt a more comprehensive scheme of sewage disposal for Tutbury, recommended by Engineer who was consulted.
CANNOCK ..... W. Hosegood, M.B.	52222	15997	31·7	17·0	139	1·68	1·06	Yes	Yes	No	Part 4	Refuse removal very defective in certain parts of district. Improved water-supply much needed in Cheslyn Hay and Great Wyrley parishes. In conjunction with urban district, dwelling house has been adapted for isolating small-pox cases.
CHEADLE ..... H. L. Webb, M.R.C.S., L.S.A.	55140	22302	31·8	16·6	129	1·52	0·89	No	Yes	No	No	Provision for isolating small-pox cases much needed. Dilhorne and Goodley villages now said to have good water-supply; supply defective at Dilhorne Common and Kingsley. Considerable improvement effected in the sewers of the town of Cheadle.
ECCLESHALL ..... H. W. Gosse, L.R.C.P., L.M., M.R.C.S.	32278	5798	25·8	10·6	66	0·86	0·34	No	Yes	No	No	Authority congratulated on provision of isolation hospital, and on the satisfactory working of the Compulsory Notification Act. Disinfecting apparatus is still required, and M.O.H. hopes a portable one will be provided. Water-supply at Cold Meece still defective. Sewerage of the town of Eccleshall now under consideration.
KIDDERMINSTER ..... Trevor Webster, M.R.C.S.	3913	647	30·9	21·6	150	Nil.	1·54	Yes	Yes	No	No	Nothing calling for notice in the Staffordshire portion of the district.
LEEK ..... T. E. Dakeyne, L.R.C.P., L.M., M.R.C.S.	68363	13998	33·6	14·6	106	1·21	0·64	No	No	No	Section 49.	Most of the important pollutions of streams have been abated. Considerable improvement in refuse removal. The question of water-supply in some parts of the district has received considerable attention.
LICHFIELD ..... J. Clark, M.D.	60792	22699	33·7	16·1	125	1·79	0·39	Yes	Yes	No	No	The question of water-supply throughout the district receives prominent mention. Sanitary condition of the district at the end of the year said to be very satisfactory.
MARKET DRAYTON ..... F. J. Sandford, M.D.	13662	2222	32·4	14·4	83	0·45	0·90	Yes	Yes	Yes	Part 3	Land secured for erection of tents for isolating infectious cases if necessary. The district on the whole seems to be well supplied with water.
NEWCASTLE ..... R. H. Dickson, L.R.C.S.I., L.R.C.P.I., L.M.	17922	6365	31·5	17·7	139	0·94	0·78	Yes	Yes	Yes	Yes	Provision for isolating infectious cases much needed. Authority should call in Engineer to advise as regards pollution of rivers. The water-supply in some parts of the district continues unsatisfactory.
NEWPORT ‡ ..... W. N. Thursfield, M.D., D.P.H.	§	4366	29·3	11·9	93	1·14	0·68	No	Yes	Yes	Part 3	Sanitary defects, particularly as regards drainage and privy accommodation, are said to be common. The question of rivers pollution at Gnosall and Gnosall Heath is referred to.
SEISDON ..... W. Spackman, M.D.	35718 ‖	12289	26·8	13·0	87	0·97	0·73	Yes	Yes	Yes	No	Defective water-supply of Wombourn, Codsall, and Kinver, specially mentioned. Drainage defects found at Codsall and Kinver. Adoption of Bye-laws recommended.
SHIFNAL ..... W. N. Thursfield, M.D., D.P.H.	46070	1601	21·2	9·3	Nil.	Nil.	0·62	No	Yes	No	No	Nothing in the Staffordshire portion of the district appears to call for special notice.
STAFFORD ..... S. Butler, L.F.P.S.G., L.M., L.S.A.	52103	10420	27·1	12·8	84	1·24	0·57	Yes	Yes	Yes	No	The most populous part of Tillington parish now connected with Stafford water-supply. More use has been made of isolation hospital.
STOKE-ON-TRENT ..... J. Swift Walker, M.D.	5699	5412	39·5	16·9	200	2·40	0·73	Yes	Yes	Sec. 4 to 9, 13 & 14, & 16 to 20	No	Refuse removal by contractor fairly satisfactory. Arrangements about to be made to supply village of Bagnall with water. The question of sewerage and sewage disposal at Bucknall progressing.
STONE ..... E. Fernie, M.D., D.P.H.	23318	8344	24·2	12·7	89	0·71	0·83	No	Yes	No	No	It is feared the isolation hospital will not prove sufficient for the purpose. The question of sewage disposal throughout the district is receiving attention. Water-supply of Barlaston and Trentham about to be made.
STOURBRIDGE ..... E. Turner, M.R.C.S., L.S.A.	6083	20724	36·6	19·5	149	1·35	1·30	Yes	Yes	No	No	72 houses have been connected with the public water-supply during the year. Refuse removal still badly done in some parts of the district, and there are many uncovered ashpits.
TAMWORTH ..... H. J. Fausset, M.D.	23353	4881	29·2	14·1	118	1·43	0·61	Yes	Yes	Yes	Yes	Isolation hospital been found to be very valuable. Efforts are being made to effect an improvement in the removal of refuse throughout the district. The question of sewage disposal is receiving attention. The removal of the Alders weir recommended.
UTTOXETER ..... B. H. Herbert, M.R.C.S., L.M., L.S.A.	47802	12027	31·2	17·3	109	1·66	1·41	Yes	No	No	Secs. 23, (1) (2) & 4), also 25 & 33 for part of dist.	New water-works being extended. Little progress has been made in the matter of rivers pollution. Bye-laws being adopted for several parts of the district.
WALSALL ..... J. Wood, M.B.	12302	9692	36·9	21·7	203	2·88	1·03	Yes	Yes	No	No	Considerable improvement in the drainage of houses and in the privy accommodation been effected during the year. Public water-supply laid on to 79 houses. Removal of refuse under the contract system unsatisfactory.
WEST BROMWICH ..... J. B. Welch, M.B.	4043	2465	32·8	12·1	111	1·21	Nil.	Yes	Yes	No	No	Arrangements made with West Bromwich County Borough for isolation of small-pox and scarlet fever cases. M.O.H. suggests that some arrangements should be made for disinfection of clothing, &c. House property throughout the district said to be good. The question of the drainage of Hampstead calls for attention.
WOLSTANTON & BURSLEM F. de B. Collenette, L.R.C.P., M.R.C.S., L.S.A.	9728	32083	43·0	19·1	130	2·77	1·18	Yes	Yes	Yes	No	Good water-supply now provided for White Hill, Black Bank and High Lane. The question of the sewering of Pitts Hill, Cheil and other parts of the district under consideration.

* Where no mention of sections appears, the whole Act has been adopted.

† " " " " parts " " " " " " "

‡ Staffordshire portion. § No data.

‖ Including portion not in Staffordshire.

¶ No data to allow of calculation.

DIAGRAM
of the
SANITARY DISTRICTS
in
STAFFORDSHIRE
indicating those in which the
COMPULSORY NOTIFICATION OF INFECTIOUS DISEASES ACT
has been adopted,
as well as those possessing an
INFECTIOUS HOSPITAL
AND
DISINFECTING APPARATUS.

SEPTEMBER-1894.

No	U.S. DISTRICTS
1	KIDSGROVE
2	TUNSTALL
3	SMALLTHORNE
4	BURSLEM
5	HANLEY
6	STOKE upon TRENT
7	NEWCASTLE under LYME
8	FENTON
9	LONGTON
10	BROWNHILLS
11	TETTENHALL
12	SHORT HEATH
13	WILLENHALL
14	SEDGLEY
15	COSELEY
16	HANDSWORTH
17	DUDLEY
18	BRIERLEY HILL
19	QUARRY BANK
20	HEATH TOWN OR WEDNESFIELD HEATH

CHESHIRE
DERBYSHIRE
SHROPSHIRE
WARWICKSHIRE
WORCESTERSHIRE
STAFFORDSHIRE
LEEK UNION
BIDDULPH
LEEK
WOLSTANTON AND BURSLEM UNION
NEWCASTLE UNDER LYME UNION
STOKE UPON TRENT PARISH
CHEADLE UNION
ASHBOURNE UNION
TRENTHAM
DRAYTON UNION
STONE UNION
STONE
ECCLESHALL
UTTOXETER UNION
NEWPORT UNION
STAFFORD UNION
STAFFORD
BURTON UPON TRENT UNION
BURTON UPON TRENT
LICHFIELD UNION
LICHFIELD
CANNOCK
CANNOCK UNION
SHIFNAL UNION
TAMWORTH UNION
TAMWORTH
BROWNHILLS
WALSALL UNION
WEDNESFIELD
TETTENHALL
WOLVERHAMPTON UNION
WILLENHALL
SEISDON UNION
COSELEY
SEDGLEY
DUDLEY UNION
TIPTON
WEST BROMWICH UNION
HANDSWORTH
STOURBRIDGE UNION
KINGS NORTON UNION
KIDDERMINSTER UNION

REFERENCES.
Compulsory Notification of Infectious Diseases Act Adopted
Act adopted since August 1893.
Do. not Adopted.
Isolation Hospital provided ■
Disinfecting Apparatus provided ●

NOTES.
Ⓒ County Boroughs.
§ Calvert portable Disinfecting Apparatus.
✠ For Smallpox only.
S An old building in process of conversion into Isolation Hospital.

No	U.S.D.
1	KIDSGROVE
2	LONGTON
3	SMALLTHORNE
4	BURSLEM
5	HANLEY
6	STOKE [illegible]
7	NEWCASTLE
8	TENTON
9	LONGTON
10	BROMWICH
11	TETTENHALL
13	SHORT HE
13	WILLENHAL
14	SEDGLEY
15	COSELEY
16	HANDSWO
17	BRIERLEY

WARWICKSHIRE
NUNEATON
BURTON UPON TRENT
ughs.
ble Disinfecting Apparatus
pox only.
ilding in process of
te Isolation Hospital.