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WITH THE COMPLIMENTS OF THE
MEDICAL OFFICER OF HEALTH.



CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

THIRTY-FOURTH

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of Newcastle-upon-Tyne.

WITH

TABULAR RETURNS

OF THE

SICKNESS AND MORTALITY

DURING THE YEAR 1906.

Newcastle-upon-Tyne :
EASEY & BEST, 142, PILGRIM STREET.

1907.

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TO MR. ALD. H. W. NEWTON, J.P., L.F.P.S., CHAIRMAN OF THE
SANITARY COMMITTEE OF THE CORPORATION OF NEWCASTLE-
UPON-TYNE.

SIR,

Herewith I beg to submit to you my Thirty-fourth Annual Report, viz., that for the year 1906.

The *Death-rate* (uncorrected) of Newcastle from "All Causes" during the year was 18·0 per 1,000 population. (See page 12). Details as to the general mortality in the different Registration Sub-districts will be found at pages 32-5. The Death-rate (uncorrected) from the seven "Chief Zymotic Diseases," i.e. Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, "Fever," and Diarrhoea* in Newcastle was 2·1 per 1,000 population, against a corresponding rate of 2·24 for the 76 largest English towns. (See page 37.)

Marriages (see page 14). In the year ended 31st March, 1906, 2,164 marriages were registered in the Registration District of Newcastle-upon-Tyne (which includes the sub-district of Benwell and Fenham, but not that of Walker), an increase of 17 on the number (2,181) during the previous twelve months.

Zymotic Diseases caused 574 deaths, against 348 in the previous year. The most prominent of these diseases were Diarrhoea,* Measles, and Diphtheria (including Membranous Croup), from which 257, 163, and 66 deaths occurred respectively, against 144, 37, and 52 in the previous year. (See page 13.)

The number of deaths from *Scarlet Fever* was 17 against 14 in the previous year. The mortality from that disease per cent. to cases notified was 2·3, as compared with a rate of 2·0 for the year 1905. 733 cases of Scarlet Fever were notified, an increase of 28 on the returns of the year before.

* Dysentery, Epidemic and Zymotic Enteritis, and Intestinal Catarrh included.

Enteric (or Typhoid) Fever caused 13 deaths, against 11 in the previous year. The rate of mortality to cases notified was 18·7 per cent., as compared with 22·0 in the year 1905. The number of cases notified (70) shews an increase of 20 on the previous year's return.

Typhus.—No case of Typhus occurred during the year. The last cases of this disease, 3 in number, were notified in 1903.

Diphtheria and Membranous Croup caused 66 deaths, against 52 in 1905. The rate of mortality to cases was 18·1 per cent., being the same as in the previous year. The total number of cases (364) notified shews an increase of 76 on those of the previous year.

Tuberculosis.—In April, I had the honour of submitting to the Committee a special Report on "Tuberculosis: Its Casualties, Causes, and Control," which was duly considered and afterwards, with their permission, extended in March, 1907, re-submitted and finally approved.

Hospitals for Infectious Diseases.—667 patients were admitted to the City Hospital for Infectious Diseases at Walker Gate. The proportion of patients removed to Hospital was 56·6 per cent. of the cases notified. The mortality to cases was 6·9 per cent. Details are given on pages 19 and 38. Owing to the crowded state of the Hospital it became necessary to use the Isolation House on the Town Moor as an overflow Hospital for Scarlet Fever Convalescents. This continued in operation until and after the end of the year.

Smallpox Hospital.—8 cases of Smallpox were admitted during the year. 63 "contacts" were isolated in Hospital, and 174 other persons were kept under observation at their homes. For details see Table VII., page 39. Cases of Measles were admitted under pressure to the Smallpox Hospital, then free from Smallpox, from various public Institutions (Royal Infirmary, Children's Hospital, etc.)

The number of *cases of Infectious Diseases notified* by medical practitioners (see page 15) is 1,369, against 1,860 (including 496 Chickenpox) in the previous year.

Infant Mortality.—The deaths of infants under one year of age (1,255) shew an increase of 89 on the returns for the year before (see pages 36 and 37.)

The *Uncertified Deaths* registered are 18, against 24 in the preceding year.

BACTERIAL EXAMINATIONS.

In the latter part of the year the Corporation entered into a temporary agreement with the College of Medicine to do the whole of the Bacteriological work of the Health Department for the sum of £300 a year, instead of at a fixed charge for each investigation as previously. This arrangement came into force in October and provides for

- (a) The examination of specimens for the diagnosis of Diphtheria, Enteric Fever, and Tuberculosis, for Medical Practitioners in the City;
- (b) Routine examinations of the water supply, and of milk sold in the City;
- (c) Special investigations when required.

The results of the examinations of specimens sent by Medical Practitioners throughout the year are given in Appendix A., Table XV.

Examination of the Water Supply.—In accordance with the above arrangement with the College of Medicine, four samples of water drawn from taps in different parts of the City are submitted weekly to bacteriological examination. The previous arrangement whereby four samples were examined each month terminated in June, and from June to October, pending the planning out of the new scheme, no examinations were made. The results of the examinations made from January to May inclusive are given in Appendix A., Table XVI.

From October to December inclusive, 33 samples were submitted for bacterial examination. Without here giving the technical details, it may in general terms be stated that, considering the period of the year at which the specimens were collected, the results of examination, although indicating the want of more thorough filtration, are on the whole fairly satisfactory.

Examination of Milk Supplies.—As a rule eight samples of milk are examined weekly. The investigation is directed to the finding of Tubercle Bacilli and organisms commonly associated with dirt. For the present, valuable information is thus being collected as to the bacterial condition of the various milk supplies. The tubercle-containing milk is traced back to the dairy farm and excluded from the City, and an attempt is made to remedy any insanitary conditions in connection with the production and storage of milk found to contain a large number of those organisms indicating the admission of dirt.

24 samples were examined for Tubercle Bacilli, which were found to be present in 2 cases.

30 samples were examined for organisms associated with dirt, and of these 10 were found to be unsatisfactory.

THE WORK OF THE HEALTH DEPARTMENT.

The Reports of the Inspectors are given on pages 23 to 29, and the returns of their work will be found in Appendix A (Tables X. to XXI.)

34,073 *Inspections of Tenement Property* have been made during the year. The number of contraventions of the By-laws returned is 2,604.

1,296 cases of *Nuisance, &c.* (including 1,183 for Lime-washing), were ordered to be taken before the magistrates. For details see Table XI.

Health Visitors.

The report of Inspector Wells on the work of the Health Visitors is given on pages 27 and 58. In June the number of these officers was increased to 6.

Midwives Act, 1902.

In connection with the above Act a Superintendent of Midwives, Miss Renaud, was appointed in March. In addition to the daily supervision of the midwives at their work, visits by this official are also paid to them at their homes in order to inspect the sanitary state of their dwellings and to see that their bags of instruments, etc., are kept in proper condition, and their case books are correctly filled in according to the Rules of the Central Midwives' Board. Weekly lectures and practical instruction are also given to midwives by the Superintendent at her office.

On receipt of a notification of a still-birth from a certified midwife or from the Superintendents of Cemeteries, who have undertaken to send to the Medical Officer of Health weekly returns of the burials of still-born children in their cemeteries, the Superintendent of Midwives investigates the case. She also enquires into and reports on cases of Puerperal Fever and other septic conditions occurring in the practise of a midwife.

Towards the end of the year your Committee authorised the payment of a fee of 1/- to midwives for notifying, within 24 hours to the Medical Officer of Health, any living birth which they had attended. All these infants are visited within the first week of birth by the Superintendent of Midwives, who instructs each mother as to the feeding and general care of her child. At the same time any circumstances bearing on the welfare of the family are noted, including the cleanliness of the home, want of accommodation, occupation, and health of the parents, &c. The further care of these children is

undertaken by the Health Visitors, who visit them at the end of the 1st, 3rd, 6th, and 12th month, and oftener if necessary.

A summary of the work done by the Superintendent of Midwives is given in Appendix A., Table XX.

According to the Roll issued by the Central Midwives Board in 1906, 67 midwives (resident in Newcastle) had been certified by the Board. Of this number 45 only notified the Medical Officer of Health of their intention to practise during the year.

Customs and Inland Revenue Act, 1890, s. 26 (2).

Applications for certificates entitling the owners to exemption from inhabited house duty have been made during the year in respect of 6 tenement houses. In each case a certificate was granted.

Factory and Workshop Act.

During the year 13 "workshops" were reported by H.M. Inspector of Factories to the Medical Officer of Health, on account of nuisance or sanitary defect. After examination, various insanitary conditions, as specified by the Inspector of Nuisances in his report (pages 26 and 27) were dealt with.

*Insanitary Dwellings dealt with under the
Newcastle-upon-Tyne Improvement Act, 1882, sec. 32.*

1, Back Stepney Bank.—Put into habitable repair.

5, High Fold.—Ditto.

65, 67, 69, 69A and 71, Byker Bank.—Ditto.

16, Thompson Street.—Ditto.

121, 123, 125, Albion Row.—Ditto.

- 8, 10, 12, 14, 16, Byker Village.—Closed, September, 1906.
- 27, 29, Byker Village.—Closed, July, 1906.
- 29, Cut Bank (1 holding only).—Put into habitable repair.
- 31, 33, 35, Akenside Hill.—Under consideration at the close of the year.
- 218, Pilgrim Street.—Ditto.
- 7, Silver Street.—Ditto.
- 23, Silver Street.—Ditto.
- 10, Manor Chare.—Ditto.
- 44, Carlton Street.—Ditto.
- 25, Stepney Road.—Ditto.
- 26, Fore Street.—Ditto.
- 31, 32, 33, 34, 35, 36, 37, 42, 43, 44, 45, Fore Street.—Ditto.
- Total: 43 tenement houses of 88 holdings, and 1 common lodging house, registered for 19 lodgers, of which 7 were closed, and 12 put into habitable order before the end of the year..

Housebuilding in the City.

New accommodation has been provided for 890 families, against provision for 615 families during the previous year. Details are given on page 30.

Resignation of Inspector Wm. Hedley.—I cannot close this letter without reference to the great loss the Health Department has sustained by the resignation, through ill-health, of Mr. William Hedley, who has during the past

thirty-six years, with singular ability, tact and fidelity, filled the office of Chief Inspector of Meat, Provisions, Cowsheds, and Dairies, and Inspector under the Diseases of Animals Acts.

I have the honour to be,

Sir,

Your obedient Servant,

HENRY E. ARMSTRONG, D.Hy.,

Medical Officer of Health.

Health Department,

Town Hall,

Newcastle-upon-Tyne,

April 25th, 1907.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

REPORT, 1906.

GENERAL STATISTICS.

Births and
Deaths (all
causes).

DURING the 52 weeks ended 29th December, 1906, 8,210 births and 4,831 deaths have been registered in the City. The births represent a rate of 30·5 and the deaths a rate of 18·0* per 1,000 of a population of 268,721 at all ages, as estimated by the Registrar General to the middle of the year.

The following is a Table of the recorded rates of mortality from "All Causes," and the seven "Chief Zymotic Diseases," for the year under report and previous years:—

RATES OF MORTALITY PER 1,000 POPULATION OF NEWCASTLE-UPON-TYNE.

A.D.	All Causes.			Seven "Chief Zymotic Diseases."		
	Average for the Decade.			Average for the Decade.		
1870	...	...	25·4	...	...	3·9
1871	...	...	32·2	...	...	9·3
1872	...	...	26·3	...	...	4·5
1873	...	...	30·1	...	...	6·9
1874	...	...	29·2	26·2	...	5·5
1875	...	...	26·1		...	3·6
1876	...	...	22·7		...	2·6
1877	...	...	22·3		...	2·5
1878	...	...	23·7		...	4·6
1879	...	...	23·5	...	...	3·9
1880	...	...	22·3	...	...	3·2
1881	...	...	21·7	...	...	2·6
1882	...	...	23·0	...	...	3·3
1883	...	...	25·4	...	...	4·3
1884	...	...	23·5	23·5	...	3·2
1885	...	...	26·0		...	4·4
1886	...	...	22·2		...	2·5
1887	...	...	25·2		...	3·3
1888	...	...	20·5		...	1·4
1889	...	...	25·0	...	...	3·0
1890	...	...	26·2	...	...	2·1
1891	...	...	23·6	...	...	2·5
1892	...	...	19·5	...	...	1·5
1893	...	...	20·9	...	...	2·3
1894	...	...	18·0	20·6	...	1·9
1895	...	...	20·0		...	2·1
1896	...	...	18·4		...	1·8
1897	...	...	18·7		...	1·6
1898	...	...	20·9		...	2·2
1899	...	...	20·2	...	...	1·6
1900	...	...	19·1	...	...	1·2
1901	...	...	21·2	...	...	2·2
1902	...	...	19·6	...	...	1·6
1903	...	...	18·6	...	...	1·1
1904	...	...	18·8	...	...	1·5
1905	...	...	17·4	...	...	1·3
1906	...	...	18·0	...	...	2·1†

* This return now includes all deaths in the City Hospitals for Infectious Diseases. By deducting the deaths in the Royal Infirmary of non-citizens (278), the rate is reduced to 16·9.

† Deducting deaths from diseases not ordinarily notifiable (Whooping Cough, 58; Diarrhœa, 257; Measles, 163), the rate is 0·4.

The numbers of births and deaths in the different Registration Sub-districts of the City during the year 1906, are given in Appendix A, Table I.

Births and Deaths.

The mortality from the "Chief Zymotic Diseases" during successive seasons of the year is as follows:—

“CHIEF ZYMOTIC DISEASES.”—NUMBER OF DEATHS IN 1906.

REGISTRATION SUB-DISTRICTS AND CITY.

	BENWELL.				ELSWICK.				ST. NICHOLAS.				ST. ANDREW'S.				ALL SAINTS.				BYKER.				WALKER.				CITY.											
	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.										
Smallpox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...									
Measles ...	1214	...	...	...	26	612	1	625	19	7	...	...	...	...	26	1	4	2	613	315	6	125	1020	4	2	36	...	...	...	...	...	...								
Scarlet Fever (Scarlatina)	1	1	3	...	...	...	1	1	2	1	...	...	...	...	1	...	...	...	...	...	...	1	2	...	6	9	4	3	1	9	17									
Diphtheria...	1	1	2	...	4	1	1	2	3	7	1	1	...	2	4	1	1	...	1	3	2	2	1	4	5	12	8	6	211	27	...	...								
Membranous Croup	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	1	...	1	2	1	4								
Whooping Cough ...	2	6	...	513	...	5	2	...	7	4	...	...	...	...	1	5	4	...	...	...	...	1	3	3	...	3	21	2	1	2	...	5	33	13	2	10	58			
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				
Enteric (or Typhoid) Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	3	...	...	...	...	...	1	4	...	510	1	6	1	5	13					
Simple Continued or Ill-defined Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				
Diarrhoea (including Dysentery, Epidemic or Zymotic Enteritis, and Intestinal Catarrh.)	...	...	14	9	23	1	2	29	7	39	1	1	34	13	49	...	16	4	20	...	1	27	5	33	...	1	41	18	60	...	1	29	3	33	2	6	190	59	257	
TOTALS ...	1621	17	15	69	...	13	18	32	18	81	26	9	34	16	85	6	7	19	11	43	6	19	33	8	66	28	26	50	29	133	12	14	38	33	97	107	114	223	130	574*

Mortality from Chief Zymotic Diseases.

* Representing a Rate of 2.1 per 1,000 population.

Diarrhœa,
Whooping
Cough,
and
Diphtheria.

The most fatal Zymotic diseases have been Diarrhœa (including Dysentery, Epidemic and Zymotic Enteritis, and Intestinal Catarrh), Measles and Diphtheria (including Membranous Croup) from which 257, 163, and 66 deaths respectively are returned.

INFANT MORTALITY.

Infant
Mortality.

The number of Infants dying before the completion of the first year of life is 1,255, as compared with 1,166, 1,067, and 1,142, respectively in 1905, 1904, and 1903.

REGISTRATION SUB-DISTRICTS.				Deaths of Children under 1 year of age.		Rates per cent. of Deaths under 1 year to Births registered.	
				1906.	1905.	1906.	1905.
Benwell	...	...	...	126	106	14.5	11.1
Elswick	...	...	...	222	214	13.6	12.6
St. Nicholas'	...	...	...	182	177	17.9	16.4
St. Andrew's	...	...	...	121	112	14.8	14.0
All Saints'	...	...	...	176	158	18.1	16.2
Byker	...	...	...	328	321	13.9	13.1
Walker	...	...	...	100	78	18.6	15.0
City	...	...	...	1,255	1,166	15.3	13.8

UNCERTIFIED DEATHS DURING THE YEAR 1906.

Uncertified
Deaths.

18 deaths have been registered for which no proper medical certificate has been given or inquest held, as compared with 24 during the previous year.

MARRIAGES.

Marriages.

The number of marriages registered in Newcastle-upon-Tyne (Superintendent Registrar's district†), during each of the past ten years (1897-1906), is as under :

Year ended March 31.	Number of Marriages.	Year ended March 31.	Number of Marriages.
1897	2,173	1902	2,277
1898	2,208	1903	2,167
1899	2,370	1904	2,133
1900	2,288	1905	2,181
1901	2,077	1906	2,164

† Includes the old Municipal area and the Townships of Benwell and Fenham, which were incorporated in November, 1904.

INFECTIOUS DISEASE INQUIRY.

CASES OF INFECTIOUS DISEASE KNOWN TO THE HEALTH DEPARTMENT.

Notification
of Infectious
Disease.

During the year under report the following cases of Infectious Disease have been made known to the Medical Officer of Health by medical practitioners and otherwise.

	CASES KNOWN TO THE HEALTH DEPARTMENT.	
	1906.	1905.
Smallpox	8	103
Chickenpox*	—	496
Scarlet Fever	733	705
Diphtheria	352	272
Membranous Croup... ..	12	16
Typhus	—	—
Enteric (or Typhoid) Fever	70	50
Simple Continued Fever	1	—
Puerperal Fever	6	5
Erysipelas	187	213
Relapsing Fever	—	—
TOTAL	1,369	1,860

The following Table shows the different diseases in the respective Wards of the City:—

Infectious
Diseases
in the
respective
Wards of
the City.

WARDS.	Smallpox.	Scarlet Fever.	Diphtheria.	Membranous Croup.	Enteric (or Typhoid) fever.	Continued Fever.	Puerperal Fever.	Erysipelas.	TOTAL.
Benwell	37	38	...	2	...	...	...	23	100
Fenham	26	26	...	1	...	...	...	9	62
Elswick East	15	8	2	...	...	...	...	3	28
Elswick North	46	24	...	1	...	...	...	7	78
Elswick South	57	11	...	1	...	1	...	13	83
Arthur's Hill	75	46	1	4	...	1	...	21	148
Westgate North	43	9	...	3	...	...	...	12	67
Westgate South	1	45	17	2	10	...	1	13	89
St. Andrew's North.	11	9	...	3	...	...	...	6	29
St. John's	2	...	...	...	...	...	...	1	3
St. Nicholas'	2	2	...	1	...	...	...	3	8
All Saints' West	4	2	...	1	...	...	...	2	9
All Saints' East	6	7	...	3	...	1	...	10	27
All Saints' North	1	16	22	...	2	...	...	4	45
St. Andrew's South.	...	9	2	...	1	...	...	1	13
Jesmond	4	55	25	...	10	...	...	2	96
Heaton	2	180	48	2	4	1	...	14	251
Byker	...	72	33	4	20	...	2	30	161
Walker	...	32	23	1	3	...	...	13	72
City	8	733	352	12	70	1	6	187	1,369

* Voluntarily notified until close of Smallpox Epidemic (Aug. 24th), 1905.

No. of
Infected
Households
&c.

RETURN SHOWING THE NUMBER OF HOUSEHOLDS, &C., IN WHICH
INFECTIOUS DISEASE WAS NOTIFIED DURING THE YEAR 1906.

DISEASES.	HOUSEHOLDS WITH							Public Institu- tions. *	TOTAL.
	Single Cases.	2 Cases each.	3 Cases each.	4 Cases each.	5 Cases each.	6 Cases.	7 Cases.		
Smallpox	5	1	...	...	...	...	...	1	7
Scarlet Fever ...	435	89	19	5	1	1	...	9	559
Diphtheria	285	21	4	...	...	...	...	5	315
Membranous Croup	12	...	...	...	...	...	...	...	12
Enteric (or Typhoid) Fever	46	...	...	...	1	1	1	3	52
Continued Fever ...	1	...	...	...	...	...	...	...	1
Puerperal Fever ...	6	...	...	...	...	...	...	...	6
Erysipelas	158	4	...	...	...	...	...	3	165
TOTAL	948	115	23	5	2	2	1	21	1,117

* See page 18.

Scarlet Fever
in relation to
School
Attendance.

Scarlet Fever in relation to School Attendance.—Of the households infected with Scarlet Fever, 494 contained scholars of one or other of 72 different schools in the City. Scholars of 16 of the largest elementary schools resided in upwards of 10 of such households during the year, the largest number of such households from which children attended any one school being 44.

In two schools there was infection in the household of its scholars during eleven months of the year, in two during ten months, and in one during nine months.

Rate of
Scarlet Fever
in Council
Schools.

Rate of Scarlet Fever in City Council Schools.—Through the courtesy of the Secretary to the Education Committee, Mr. A. C. Coffin, who has furnished the average daily attendance at each of the Council Schools of the City, it has been possible to prepare the subjoined statement, shewing the percentage of

households of scholars in which Scarlet Fever was notified to the average number of scholars in each school:—

School.	Per cent. of Households infected with Scarlet Fever.
Arthur's Hill...	1.7
Bath Lane ...	0.9
Bentinck ...	1.0
Blenheim Street	0.4
Bolam Street...	0.7
Chillingham Road	3.9
Canning Street	1.0
Clarence Street	—
Diana Street...	1.8
Delaval ...	0.7
Elswick Road...	0.6
Heaton Park Road	2.6
Leighton Memorial	4.1
Mitford Street	0.3
North Heaton	2.9
North View ...	1.6
Ouseburn ...	0.3
Raby Street ...	0.6
Royal Jubilee	0.2
Scotswood ...	—
Shieldfield ...	0.3
South Benwell	0.6
Spital Tongues	—
Saint Peter's...	0.5
Sandyford Road	1.9
Todd's Nook ...	0.7
Victoria Jubilee	0.8
Walker East ...	0.7
Walker West...	0.8
Welbeck Road	—
Westmorland Road	1.5
Westgate Hill	2.3
West Jesmond	0.2
Wingrove ...	1.4

The Medical Officer of Health continues to inform principals of schools of the presence of infectious diseases in the homes of their pupils, as also of the cessation of infection.

Diphtheria in relation to Milk-supply.—The households affected were supplied by a large number of dealers. There is no reason to suppose that any outbreak was attributable to milk. 32 dairies supplied milk to more than one infected household, viz.:—

1 Dairy ...	*65 households
1 „ ...	*13 „
2 Dairies ...	7 „ each
2 „ ...	6 „ „
1 Dairy ...	5 „ „
2 Dairies ...	4 „ „
5 „ ...	3 „ „
18 „ ...	2 „ „

* Large Dairies. The cases were spread over many months of the year.

Diphtheria
and Milk
Supply.

Enteric
Fever and
Milk Supply.

Enteric Fever in relation to Milk-supply.—The milk supplies of the households infected with Enteric Fever were derived as follows :—

1 Dairy supplied	...	...	5 households
2 Dairies „	...	...	3 „ each

Each of the remaining households were supplied by a separate dairy.

Puerperal
Fever.

Puerperal Fever.—Enquiries were made in 6 households containing 6 cases. One of the cases was attended by a mid-wife, who was suspended from practice for a month, for which compensation was granted her.

Infectious
Diseases
Inquiry.

Infectious Disease Inquiry and Disinfection.—1,369 cases of notifiable infectious disease have been inquired into by the Special Inspectors, and the houses or rooms connected therewith disinfected. This does not include 571 cases of Tuberculosis, Measles, &c., in which fumigation of the infected premises was carried out. The bedding and other infected articles were removed to the Disinfecting Station, and, after purification, returned to the owners.

INFECTIOUS CASES NOTIFIED IN PUBLIC INSTITUTIONS, &c.

Infectious
Disease in
Public
Institutions,
&c.

INSTITUTIONS, &c.	Small-pox.	Scarlet Fever.	Enteric Fever.	Diphtheria.	Erysipelas.	TOTAL.
Royal Infirmary ...	1	12	4	3	9	29
Deaf and Dumb Institution ...	...	2	...	...	...	2
H.M. Prison ...	...	...	...	...	1	1
Fleming Memorial Hospital, North Road ...	...	4	...	1	...	5
Children's Hospital, City Road ...	...	2	...	...	...	2
Workhouse ...	...	3	1	1	11	16
City Hospital for Infectious Diseases..	...	1	...	...	...	1
Westgate Police Station	...	1	...	...	...	1
Blind Asylum, Benwell	...	6	...	...	...	6
Throat and Ear Hospital	...	1	...	...	...	1
Industrial School	...	...	1	...	...	1
Boy's Orphanage	...	...	...	7	...	7
Military Barracks	...	...	...	1	...	1
Total ...	1	32	6	13	21	73

CITY HOSPITAL FOR INFECTIOUS DISEASES.*

667 patients have been treated at the City Hospital for Infectious Diseases at Walker Gate during the year.

City Hos-
pital for
Infectious
Diseases

The cases were as follows:—

Admitted as		After observation proved to be																	
	No. of Cases.	Scarlet Fever.	Diphtheria.	Diphtheria and Scarlet Fever.	? Diphtheria.	Enteric Fever.	? Enteric Fever.	Measles.	German Measles	Measles and Scarlet Fever.	Tonsillitis.	Tubercular Peritonitis.	Acute Miliary Tuberculosis.	Heart Disease	Pleurisy.	Appendicitis and Liver Abscess.	? Subphrenic Abscess.	Pyomaine Poisoning.	Diseases of un- certain nature (not sent in as Scarlet Fever.
Scarlet Fever	451	441	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	2
Diphtheria	147	1	133	1	1	...	...	1	...	...	10	...	...	...	...	...	...	...	...
Diphtheria and Scarlet Fever	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	62	...	...	...	...	52	3	...	...	...	...	1	1	1	1	1	1	1	...
Measles	6	...	...	...	...	...	...	5	...	1	...	...	...	...	...	...	...	...	...
TOTAL	667	442	133	2	1	52	3	6	1	1	11	1	1	1	1	1	1	1	2

* For other details, see Appendix A, Table VI.

Smallpox
Hospital.

SMALLPOX HOSPITAL.

8 cases were admitted during the year. For other details see page 39.

City
Hospital for
Infectious
Diseases.

CITY HOSPITAL FOR INFECTIOUS DISEASES.

RATE PER CENT. OF CASES REMOVED TO HOSPITAL TO CASES NOTIFIED.

Scarlet Fever	...	...	...	61.5
Diphtheria and Membranous Croup				40.4
Enteric Fever	...	...	...	88.6
ALL CASES	...	...	...	<u>56.6</u>

Expenses of Maintenance.—Of the patients admitted, the expense of maintenance is charged as under:—

				Cases.
To the Newcastle Sanitary Authority	...	...	...	660
To private guarantors	...	...	...	<u>7</u>
Total	...	...	...	<u>667</u>

Summary of
Reports, &c.
made during
the year.

SUMMARY OF REPORTS MADE DURING 1906.

The following, among other matters, have been brought before the Sanitary Committee during the year:—

ZYMOTIC DISEASES.

Scarlet Fever at a public house	...	...	...	Feb.
Diphtheria at the Boys' Orphanage	...	...	...	Mar.
Diphtheria at Fleming Memorial Hospital—Account for examination of throats of "contacts"				Mar.
Diphtheria—Cases sent from Gateshead to Newcastle Institutions				Aug.
Measles—Admission of Cases to Isolation Hospital, Town Moor				April
Measles and Schools	...	...	...	April, May, June, Oct.
Smallpox in connection with the staff of a theatre, infection introduced from Spain				April
Smallpox at the Royal Infirmary in a sailor, who contracted the disease in Portugal				May, June, Aug.

CITY HOSPITAL FOR INFECTIOUS DISEASES.

Want of accommodation	...	...	...	Jan., July, Oct.
Charge for private wards	...	...	...	Feb., July
Scarlet Fever following discharge from Hospital after Diphtheria—Claim for compensation				June
Convalescents sent to Isolation Hospital, Town Moor	...			July, Oct.
Servants and superannuation	...	...	...	Sept.

LOCALITIES.

Rowton House, Dog Bank—Registration as a common lodging house	Feb.
Byker Hill—Nuisance from quarry pond	May.
Sallyport Tower—Insanitary condition of	June.
Westgate Road—Smells from street grates	Sept.
Railway Street— " "	Sept.
Town Hall Buildings—Drainage	Sept.
89, Blandford Street—Cellar kitchens	Sept., Oct.
Ouseburn—Pollution of	Oct.
Walker—Slaughter houses	Nov., Dec.
" Proposed cowbyre	Dec.
All Saints Cemetery	Dec.
Factory and Workshop Act, 1901—	
Underground Bakehouses—73, Westgate Road... ..	Jan.
5, Grainger Street	Jan.
52, Clayton Street	Feb.
120, Northumberland Street	Mar.
2, Grey Street	Sept.
37, Cut Bank	Sept.
37, Churchill Street	Oct.
162, Heaton Park Road	Nov., Dec.
Newcastle-upon-Tyne Improvement Act, 1882, Sec. 32 (Houses unfit for habitation)—	
31, 33, 35, Akenside Hill	Feb., Oct., Nov.
218, Pilgrim Street	Feb., Oct., Nov.
7 and 23, Silver Street	Feb., Oct., Nov.
10, Manor Chare	Feb., Oct., Nov.
1, Back Stepney Bank	Feb., Mar., May.
25, Stepney Road	Feb., Oct., Nov.
44, Carlton Street	Feb., Oct., Nov.
26, Fore Street, Jesmond Vale	Feb., Oct., Nov.
31, 32, 33, 34, 35, 36, 37, 42, 43, 44, 45, Fore Street, Jesmond Vale	Feb., Oct., Nov.
5, High Fold, Byker Bank	Feb., Mar., April, July.
65, 67, 69, 69a, 71, Byker Bank	Feb., Mar., May.
16, Thompson Street... ..	Feb., Mar., Apl.
121, 123, 125, Albion Row	Feb., Mar., Jun., Oct.
8, 10, 12, 14, 16, Byker Village	Feb., Mar., April, July, Oct.
27, 29, Byker Village... ..	Feb., Mar., July.
Johnson's Entry, Sandgate	Feb.
29, Cut Bank	May, Jun., Oct.

GENERAL.

Infantile Mortality	...	...	...	...	...	Jan.
„ National Conference on	...	...	...	...	Jan., April, Aug., Sept.	
Annual estimates of expenditure	...	...	...	...	...	Jan.
Conversion of privies into water-closets—Contributions by sanitary authorities						Jan.
Food and Drugs Acts—Circular from Editor of “British and Colonial Druggist”						Feb.
Bacterial Examinations...	...	...	...	...	Jan., Feb., Mar., April, May, July, Aug., Oct., Nov.	
Benwell—Nuisances from brick kiln and pit	...	...	...	...	...	Mar.
Vacant tenement dwellings	...	...	...	...	...	Mar.
Diseased meat (sending or depositing, <i>but not exposing</i> , for sale)						Mar.
Physical deterioration and alcohol	...	...	...	...	...	April.
Conference of Sanitary Inspectors' Association	...	...	...	...	...	April.
Appointment of two additional Health Visitors	...	...	...	...	...	May.
Tinned meats	...	...	...	...	...	June.
Education Bill	...	...	...	...	...	June.
International Congress on School Hygiene	...	...	...	...	...	July, Dec.
Flush to water-closets	...	...	...	...	...	July, Aug.
Delay in burial of corpses	...	...	...	...	...	Aug.
Overcrowding at Walker—Newspaper allegations	...	...	...	...	...	Aug.
Preservatives in Milk—Local Government Board Circular as to notice to milk traders						Sept.
Public urinals	...	...	...	...	...	Sept.
Offensive offal on carriers' carts	...	...	...	...	...	Sept.
Fish unfit for food	...	...	...	...	...	Oct.
Resignation of Mr. Wm. Hedley, Inspector of Provisions, etc.						Oct.
Prevention of Tuberculosis	...	...	...	...	...	Mar.
Notification of Phthisis—Circular from Kingston Board of Guardians						April.
Medical Officer of Health's Report on Tuberculosis	...	...	...	...	...	April, May.
Diarrhœa precautions	...	...	...	...	...	July.
Congress on Tuberculosis	...	...	...	...	...	Oct.
Prevalence of diarrhœa	...	...	...	...	...	Oct.
Unnecessary Street Noise	...	...	...	...	...	Oct., Nov.
Puerperal fever and midwifery practice	...	...	...	...	...	Nov.
Appointment of Veterinary Officer and Inspector of Provisions, etc.						Dec.
Additional legal powers required	...	...	...	...	...	Dec.
New tenement bye-laws...	...	...	...	...	...	Dec.

WORK OF THE INSPECTORS OF THE HEALTH DEPARTMENT.

The Report of Mr. W. H. Wells, Inspector of Nuisances, New House-Drainage, Common Lodging-houses, Workshops, and Food Adulteration, is given below :—

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I beg to present you my 17th report of the work done in my section of the Health Department during the year ended December 31st, 1906. See Tables XI. to XXI. (Appendix A).

General
Work of the
Health
Department

Nuisance Abatement.—The details of this work are given in Tables XI. and XII. 187 water-closets have been substituted for midden-privies. 296 ashpits and pail-closets have been removed in consequence of the Authority's gift of free ashtubs.

Nuisance
Abatement.

Magisterial Proceedings.—See Tables XIII. and XIV.

Magisterial
Proceeding.

Tenement Bye-Laws.—As reported last year, these Bye-laws are fairly well complied with. The Bye-law as to lime-washing continues, twice each year, to absorb a large amount of work by the officers of the Health Department. In the year under report, 8,832 visits were made in this respect alone.

Tenement
Bye-Laws.

Drains of New Buildings.—This work is shewn in the following Table :—

Drains of
New
Buildings.

No. of Drains Tested with Water.	No. of Drains Tested with Smoke.	Supplementary Tests.	Supervisions of works in Progress.	Inspections to learn if works were in progress.
977	49	1,455	3,273	603

The three Inspectors who do this work also collect the samples under the Food and Drugs and Margarine Acts.

Smoke
Inspections.

Smoke Inspections.—The following Table shews the details of this work :—

No. of chimneys watched.	No. of observations of chimneys made.	No. of chimneys from which black smoke issued in such quantity as to be a nuisance for periods of over 5 minutes in the aggregate in one hour.	No. of times when smoke issued so as to be a nuisance.	No. of notices served for the abatement of smoke nuisances.	
				Informal.	Statutory.
126	299	55	101	25	3

Offensive
Trades.

Offensive Trades.—The 43 premises in the City where these trades are carried on have been systematically visited. The trades referred to are : Tripe Boilers (8), Gut Scraper (1), Soap Boilers (2), Tanners (2), Leather Dresser (1), Fish Curers (5), Manure Manufacturers (2), Bone Store (1), Tallow Melters (2), Hide and Skin Dealers (3). Sixteen Marine Store Dealers are included in the total given above.

Common
Lodging-
houses.

Common Lodging-houses.—These houses have been well conducted. Two of the older ones have been closed. Four additional houses, and 5 rooms in other houses already registered, have been put on the Register. The number of common lodging-houses in the City at the end of the year was 73. The total number of lodgers for which the houses were registered was, at the close of the year 2,489 as against 2,389 at the end of 1905. The average number of lodgers per night was 1,849. The highest and lowest numbers on any one night were respectively 1,943 and 1,777. For details see Tables XIX. and XIXA.

Bakehouses

Bakehouses.—The retail bakehouses (105) have been systematically inspected. They are all kept in good order. Of the four underground bakehouses reported last year as being in process of alteration, two have been improved as required, and certified as being suitable, and two have been closed.

Adulteration Acts.—The number of samples of food and drugs dealt with during the year is 626. See Table XIV.

Adultera-
tion Acts.

The number of milk samples purchased is 305. All of these were submitted to the Public Analyst, who certified that 45 of them were adulterated and 260 genuine.

Of the total number of samples taken (626), 302 were collected "informally," through the agency of hired persons, viz:—

Butter 94	Camphorated Oil ... 3	Paregoric 8
Lard 24	Ground Ginger ... 11	Vinegar 7
Condensed Milk ... 20	Corn Flour 7	Sago 4
Margarine 20	Cream of Tartar ... 3	Tapioca 9
Cheese 18	Whisky 4	Tincture of Rhubarb 3
Ground Rice 14	Rum 3	Syrup of Rhubarb 9
White Pepper ... 12	Gin 2	Bread 7
Black Pepper ... 3	Spirits of Nitre ... 6	Flour 1
Olive Oil 8	Gregory's Powder 1	Milk Chocolate ... 1

The percentage of samples adulterated to the total number taken is 12·9, and the percentage of milk samples adulterated to the number of milk samples taken is 14·8. The total number of samples taken is at the rate of 2·3 per 1,000 of the population (estimated) of the City for the year 1906.

Margarine Act.—26 samples of Margarine (included in the above total) have been purchased and analysed. Six of them contained Boric Acid to the extent of 0·20, 0·28, 0·32, 0·16, 0·17, and 0·35 per cent. respectively. Four contained respectively 15, 15, 14, and 13 per cent. of butter fat. See Table XIV.

Margarine
Act.

Margarine Warehouses.—111 visits have been made to the margarine warehouses.

Houses Demolished.—20 tenemented houses (43 holdings), and 7 self-contained houses have been taken down to make room for business premises, for street improvements, &c.

Houses
Demolished

Factory and Workshop Act.—There are 859 Workshops on the Register, besides a large number of factories, workplaces, domestic workshops, outworkers' premises, &c. Particulars

of inspections made, defects found, outworkers, &c., are given in tables XVII. and XVIII.

A number of employers who probably have outworkers have not sent in lists as they should have done. Advertisements in newspapers and circular letters calling attention to the requirements of the law in this respect have been issued in the hope of inducing compliance without the necessity of legal proceedings.

During the year 13 complaints of insanitary conditions, &c., in factories and workshops were received from H.M. Inspectors of Factories. Particulars of these are given below:—

FACTORIES.			
Tailoring ...	...	Insufficient means of escape in case of fire.	Could not be dealt with as the number of workers was under 40.
Lead Works...	...	Sanitary accommodation for women defective, without door or partition, and dirty.	Plans have been submitted and approved by the Corporation for the removal of the present privies and ashpit, and substitution of 7 water-closets.
Lead Works...	...	Conveniences for women in defective and insanitary condition.	Long w.c. seat has been partitioned off, doors provided, &c., making separate conveniences.
WORKSHOPS.			
Slipper-making ...	...	W.C. accommodation for females in insanitary condition.	W.C. has been put in proper order.
Cabinet-making, &c.	...	Sanitary accommodation in dirty and unusable condition.	W.C.'s cleansed.
Cabinet-making ...	...	Sanitary accommodation not fit to be used.	W.C. cleansed.
Printing, &c. ...	...	Men's w.c. in dirty condition.	Do.
Making Wearing Apparel ...	...	Rooms overcrowded, (cubic space not stated on Abstract). Cellar workroom, gas-irons in use, low ceilings. Workroom badly ventilated.	Overcrowding abated, and ventilation of cellar workroom improved.
Tailoring ...	...	Foul w.c. pan.	W.C. cleansed.
Bakehouse ...	...	Open grate from drain in bakehouse.	Drain not in direct communication with sewer but made to discharge under grating of gully-trap in yard w.c. No action taken.

WORKSHOPS.—(Continued.)			
Rag-sorting ...	...	Cistern of sanitary convenience to be repaired. Excreta lying in basin.	W.C. cistern repaired, and closet cleansed.
Pickling Vegetables, &c. ...	...	Walls damp and dirty. Drain in middle of floor.	Matter in abeyance, as occupier intends to close the premises as a workshop.
Slipper-making ...	...	Premises dirty—especially staircase.	Walls and ceilings of workrooms and staircase cleansed and limewashed.

Health Visitors.—The good result of the work of these officers, in inducing cleanliness of homes and persons, begins to show a little more permanency, although, to see it at its best, one must follow closely on the track of the Health Visitor. With a little delay, some signs of relapse are observable, although, every here and there, most hopeful marks of stability are to be found. Whilst there are some tenement dwellers who never will be made better, there are others—not a few—who innately desire cleanliness, and these are supported and encouraged by the visits of the Health Visitor to neighbours less careful. But equally, if not the most valuable, are and will be the effects of the teaching given by these officers in connection with the feeding and care of infants.

For details of the work of the Health Visitors see Table XXI.

I am,

Your obedient Servant,

W. H. WELLS,

Inspector of Nuisances,

Common Lodging Houses, &c.

Health Department,

Town Hall,

Newcastle-upon-Tyne.

19th April, 1907.

The following is the Report of Mr. William Hedley, Inspector of Cattle, Cowsheds, Slaughter Houses, and Food :—

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I beg to present to you my Report for the year ending 31st December, 1906.

The *Cattle* in the City, and the animals exposed for sale in the weekly market, have all be found to be free from infectious disease, as defined by the Diseases of Animals Acts.

Two outbreaks of *Swine Fever* occurred, one at Fenham and one at Walker. They were dealt with by the Board of Agriculture and Fisheries. Nineteen pigs were destroyed, and compensation was allowed.

Cowsheds (43).—One cowkeeper removed out of town, and another died. Their cowsheds are now being used as stables. Several repairs, at various places have been done, on the verbal request of the Inspector.

The *Slaughter Houses* have been visited regularly. One was closed, the premises being considered unsuitable for the purpose, leaving 138 on the register.

Two *Butchers* were *proceeded against* for not causing the refuse to be removed from their premises, and were fined 5s. and costs each, with costs on summonses for not providing proper receptacles for the collection of the refuse.

One person was fined 20s. and costs for *not cleansing* his *Slaughter House* within the regulation time, and another was cautioned by letter from Town Clerk, for dressing the carcass of a pig in the back yard of his shop.

The returns of *suspected provisions* dealt with are given in Table X. Of the carcasses returned as destroyed, 70 of beef, 1 of veal, and 5 of pork were found to be affected with tuberculosis. Thirty-seven of the cattle had been purchased in the market, as healthy animals, by members of the Butchers' Association, and when slaughtered, being found diseased, were surrendered and destroyed.

Fish Market, Close.—The supplies have been very small and irregular throughout the year. The quantity of fish destroyed is given in Table X.

I am, Sir,

Your obedient Servant,

WILLIAM HEDLEY,

Inspector of Cattle, Provisions, etc.

Health Department,

Town Hall,

Newcastle-upon-Tyne,

9th March, 1907.

HOUSES BUILT DURING THE YEAR 1906.

House-
building.

The following return of houses built during the year under report is supplied through the courtesy of the City Engineer:—

Newcastle-upon-Tyne.					Houses Self-contained.	Houses of Two Flats each.
Benwell	...	...	...	...	18	61
Fenham	...	..	...	...	48	—
Elswick Township	...	...	...	...	54	27
Westgate Township	...	...	...	...	—	—
Byker Township	...	...	...	...	6	86
Jesmond Township	...	...	...	...	160	42
Heaton Township	...	...	...	...	70	46
St. Andrew's Parish	...	...	...	...	—	—
St. John's Parish	...	...	...	...	—	—
St. Nicholas' Parish	...	...	...	...	—	—
All Saints' Parish	...	...	...	...	—	—
Walker	...	...	...	...	4	3
					360	265
					(for 530 families.)	

New
Accommo-
dation.

New accommodation has thus been provided for 890 families or at the rate of 5 persons to a family, 4,450 persons, as compared with accommodation estimated for 3,075 persons provided during 1905.

SANITARY ALTERATIONS.

35 plans for minor sanitary works have been examined and approved or otherwise by the Medical Officer of Health, and forwarded to the City Engineer for his consideration, as compared with 79 during the previous year.

HENRY E. ARMSTRONG, D.Hy.,

Medical Officer of Health.

Health Department,

Town Hall,

Newcastle-upon-Tyne.

25th April, 1907.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE, 1906.

APPENDIX A.

TABLE I.

POPULATION (ESTIMATED BY THE REGISTRAR-GENERAL TO THE MIDDLE OF THE YEAR), 268,721.

Registration Sub-districts and City.	Different Quarters of the Year.	Births Registered in 52 Weeks ended 29th December, 1906.			Deaths Registered in 52 Weeks ended 29th December, 1906.		
		Male.	Female.	Total.	Male.	Female.	Total.
Benwell	1st Quarter ...	113	112	225	54	40	94
	2nd " ...	107	111	218	41	46	87
	3rd " ...	108	106	214	49	46	95
	4th " ...	108	102	210	42	51	93
	Total ...	436	431	867	186	183	369
Elswick	1st Quarter ...	216	206	422	162	126	288
	2nd " ...	203	216	419	168	106	274
	3rd " ...	218	191	409	130	123	253
	4th " ...	187	194	381	134	121	255
	Total ...	824	807	1,631	594	476	1,070
St. Nicholas' ...	1st Quarter ...	134	120	254	159	96	255
	2nd " ...	139	133	272	154	89	243
	3rd " ...	139	123	262	145	116	261
	4th " ...	115	115	230	76	62	138
	Total ...	527	491	1,018	534	363	897
St. Andrew's ...	1st Quarter ...	114	98	212	49	58	107
	2nd " ...	91	106	197	81	58	139
	3rd " ...	124	93	217	87	76	163
	4th " ...	98	93	191	152	106	258
	Total ...	427	390	817	369	298	667
All Saints' ...	1st Quarter ...	130	134	264	67	58	125
	2nd " ...	124	132	256	52	61	113
	3rd " ...	110	105	215	76	64	140
	4th " ...	105	131	236	63	71	134
	Total ...	469	502	971	258	254	512
Byker	1st Quarter ...	331	268	599	145	124	269
	2nd " ...	304	295	599	127	127	254
	3rd " ...	275	292	567	99	134	233
	4th " ...	313	290	603	118	136	254
	Total ...	1,223	1,145	2,368	489	521	1,010
Walker	1st Quarter ...	82	65	147	48	32	80
	2nd " ...	66	63	129	38	22	60
	3rd " ...	69	66	135	41	38	79
	4th " ...	61	66	127	40	47	87
	Total ...	278	260	538	167	139	306
City	1st Quarter ...	1,120	1,003	2,123	684	534	1,218
	2nd " ...	1,034	1,056	2,090	661	509	1,170
	3rd " ...	1,043	976	2,019	627	597	1,224
	4th " ...	987	991	1,978	625	594	1,219
	Total ...	4,184	4,026	8,210	2,597	2,234	4,831

The Births represent a rate of 30·6, and the Deaths a rate of 18·0 per 1,000 estimated population.
The increase of Births over Deaths is 3,379 this year, as compared with 3,887 in 1905.

TABLE II.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1906.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.							
	City.	Benwell.	Elswick. [†]	St. Nicholas'. ^o	St. Andrew's. ^o	All Saints'.	Byker.	Walker.
Measles	163	26	25	26	13	25	36	12
Scarlet Fever	17	3	2	1	...	...	2	9
Epidemic Influenza	23	3	7	2	7	...	3	1
Whooping Cough	58	13	7	5	4	3	21	5
Diphtheria	62	4	7	4	3	5	12	27
Membranous Croup	4	...	1	...	...	...	2	1
Croup	9	...	3	2	1	2	1	...
Enteric Fever	13	...	...	...	3	...	...	10
Diarrhœa, Dysentery	136	17	21	28	9	26	18	17
Epidemic or Zymotic Enteritis	121	6	18	21	11	7	42	16
Other Epidemic Diseases	1	...	1	...	...	...	...	...
 Syphilis	 14	 ...	 3	 1	 2	 4	 4	 ...
 Erysipelas	 5	 ...	 1	 ...	 1	 1	 1	 1
Pyæmia, Septicæmia	13	...	2	4	3	2	1	1
Puerperal Fever	2	...	1	1	...	...	...	...
Infective Endocarditis	1	...	...	...	1	...	...	...
Other Septic Diseases	8	...	1	3	2	...	1	1
 Rheumatic Fever, Rheumatism of Heart	 16	 1	 5	 2	 ...	 4	 3	 1
Tetanus	2	...	...	...	1	...	1	...
 Tubercular Disease of Brain or Meninges, Acute Hydrocephalus	 73	 5	 15	 13	 10	 8	 19	 3
Laryngeal and Pulmonary Phthisis	401	29	117	63	38	37	95	22
Tabes Mesenterica, Tubercular Disease of Intestine	53	8	7	11	4	6	12	5
General Tuberculosis, Tubercular Disease of Undefined Position	34	1	7	5	5	4	9	3
Other forms of Tuberculosis, Scrofula	31	3	1	6	11	1	7	2
 <i>Total Tuberculosis</i>	 592	 46	 147	 98	 68	 56	 142	 35
 Thrush	 1	 ...	 ...	 ...	 ...	 ...	 1	 ...
 Starvation, Want of Breast Milk	 8	 ...	 3	 2	 2	 1	 ...	 ...
Rickets	23	2	1	2	3	7	8	...

TABLE II.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE
CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1906.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.							
	CITY.	Benwell,	Elswick,†	St. Nicholas,*	St. Andrew's‡	All Saints,§	Byker,	Walker.
Chronic Alcoholism	5	...	1	1	2	1	...	...
Acute Alcoholism, Delirium Tremens	2	...	...	1	...	...	...	1
Osteo-arthritis, Rheumatoid Arthritis	5	...	...	1	...	2	1	1
Gout	1	...	...	...	1	...	...	...
Cancer	222	15	57	52	39	17	34	8
Diabetes Mellitus	28	1	8	10	4	1	3	1
Purpura Hæmorrhagica	2	...	...	1	1	...	...	...
Anæmia, Leucocythæmia	21	2	2	4	5	1	7	...
Lymphadenoma	2	...	...	1	1	...	...	...
Premature Birth	181	21	33	22	13	25	49	18
Infantile Debility	260	24	37	22	29	34	92	22
Injury at Birth	11	...	3	...	1	1	6	...
Atelectasis	7	...	...	1	2	1	1	2
Malformation of Heart	4	...	2	...	1	...	1	...
Spina Bifida, Hydrocephalus	10	2	1	3	2	1	1	...
Imperforate Anus	2	...	...	1	...	1	...	...
Other Congenital Defects	23	1	4	4	5	4	4	1
Old Age, Senile Decay	259	18	117	24	32	15	41	12
Inflammation of Brain or Membranes .	56	2	10	12	9	9	11	3
Convulsions	111	17	18	19	7	17	29	4
Apoplexy	139	7	42	20	22	6	35	7
Softening of Brain	10	...	4	1	3	...	2	...
Hemiplegia, Brain Paralysis	38	2	19	2	3	3	5	4
Paralysis Agitans	1	...	1	...	...	...	...	...
Insanity, General Paralysis of Insane	7	...	4	1	1	...	1	...
Chorea	1	...	...	...	...	1	...	...
Epilepsy	22	1	4	5	3	3	2	4
Laryngismus Stridulus	5	...	...	1	...	2	2	...
Paraplegia, Disease of Spinal Cord .	10	...	2	...	4	1	1	2
Other and Undefined Diseases of Brain or Nervous System	44	2	9	16	8	...	8	1
Otitis, Otorrhœa	5	...	...	2	3	...	...	...
Endocarditis, Valvular Diseases of the Heart	111	7	17	33	10	8	30	6
Pericarditis	4	...	...	3	1	...	...	...
Angina Pectoris	10	1	5	1	1	...	1	1
Aneurism	9	...	1	3	2	1	2	...
Senile Gangrene	4	...	1	2	1	...	...	...

TABLE II.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1906.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.							
	CITY.	Benwell.	Elswick. [†]	St. Nicholas. ⁺	St. Andrew's. [‡]	All Saints'.	Byker.	Walker.
Embolism, Thrombosis	12	2	3	...	1	...	6	...
Varicose Veins	1	...	...	...	...	...	...	1
Other and Undefined Diseases of Heart and Circulatory System	225	18	87	29	34	16	34	7
Laryngitis	16	...	3	3	1	7	1	1
Other Diseases of Larynx and Trachea	1	...	...	1	...	...	...	...
Bronchitis	248	20	62	45	27	35	47	12
Lobar, Croupous Pneumonia	47	4	10	3	5	5	18	2
Lobular, Broncho-Pneumonia	172	13	19	22	19	35	58	6
Pneumonia, form not stated	151	15	45	29	19	10	29	4
Emphysema, Asthma	24	1	10	5	1	2	3	2
Pleurisy	12	2	1	5	2	1	...	1
Other and Undefined Diseases of Respiratory System	21	4	5	3	4	1	3	1
Diseases of Stomach	40	2	11	9	4	4	7	3
Enteritis	112	3	29	38	31	4	5	2
Cirrhosis of Liver	36	2	8	9	9	3	3	2
Obstruction of Intestine	58	...	2	22	22	1	10	1
Peritonitis	21	1	...	9	6	1	4	...
Other Diseases of Digestive System	92	8	13	23	19	9	15	5
Acute Nephritis	91	7	24	19	15	12	12	2
Bright's Disease, Albuminuria	38	3	10	10	10	2	2	1
Calculus	4	...	...	2	1	...	1	...
Disease of Bladder and of Prostate	18	...	3	4	9	...	1	1
Other and Undefined Diseases of Urinary System	31	1	9	6	12	...	3	...
Diseases of Ovaries	7	...	...	4	3	...	...	...
Diseases of Uterus and Appendages	7	...	1	6	...	...	...	...
Diseases of Vagina and External Genital Organs	1	1	...	...	...	...	...	...
Abortion, Miscarriage	4	...	...	1	...	...	3	...
Puerperal Convulsions	2	...	...	...	...	...	1	1
Placenta Prævia, Flooding	3	...	...	...	1	2	...	...

TABLE II.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1906.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.							
	CITY.	Benwell.	Elswick.†	St. Nicholas.*	St. Andrew's.‡	All Saints'.	Byker.	Walker.
Other and Undefined Accidents of Childbirth	8	1	...	2	1	...	3	1
Arthritis, Ostitis, Periostitis	5	...	...	2	2	...	1	...
Other and Undefined Diseases of Organs of Locomotion	7	...	3	3	...	1	...	...
Ulcer, Bedsore	2	...	1	...	...	...	1	...
Eczema	1	...	1	...	...	...	...	...
Other and Undefined Diseases of Integumentary System	1	...	...	1	...	...	...	...
<i>Deaths from Accident or Negligence—</i>								
In Mines and Quarries	4	1	...	3	...	...	...	...
By Vehicles and Horses	5	...	...	2	2	1	...	...
On Railways	5	...	1	3	...	...	1	...
On Ships, Boats and Docks (other than Drowning)	2	...	...	2	...	...	...	...
In Building Operations	1	...	...	1	...	...	...	...
By Machinery	1	...	...	1	...	...	...	...
Burns and Scalds	26	...	...	11	9	2	1	3
Poisons, Poisonous Vapours	8	1	1	1	2	...	3	...
Drowning	12	2	1	2	1	4	1	1
Suffocation, overlaid in bed	6	1	...	...	...	2	3	...
Suffocation, otherwise	4	2	1	...	...	...	1	...
Falls	11	...	1	3	2	2	3	...
Otherwise and not stated	76	1	5	45	16	1	6	2
Homicide	4	...	...	2	...	...	1	1
Suicide	17	2	3	4	3	...	4	1
Sudden Death (cause not ascertained)	7	1	2	1	1	1	1	...
Other Ill-defined and not Specified Causes	199	6	37	30	23	50	46	7
TOTAL	4,831	369	1,070	897§	667	512	1,010	306

† Includes Union Workhouse.

* Includes old Royal Infirmary, closed in September.

‡ Includes new Royal Victoria Infirmary, opened in September

§ The number of Deaths is increased by 430 in the Royal Infirmary and Royal Victoria Infirmary, 278 of which came to those Institutions from beyond the City. In 9 other of these cases the residences are not stated in the returns.

TABLE III.

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS
ENDING 29TH DECEMBER, 1906.

CAUSE OF DEATH.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	TOTAL.
Measles	18	15	6	5	44
Whooping Cough	17	7	1	3	28
Diphtheria	3	4	1	5	13
Croup	1	1	...	...	2
Diarrhœa, Dysentery	2	2	86	7	97
Epidemic or Zymotic Enteritis	...	2	46	28	76
Syphilis	2	4	5	1	12
Pyæmia, Septicæmia	...	...	...	1	1
Tubercular Disease of Brain or Meninges, Acute Hydrocephalus	2	3	5	3	13
Laryngeal and Pulmonary Phthisis	1	2	...	...	3
Tabes Mesenterica, Tubercular Disease of Intestine	...	3	4	2	9
General Tuberculosis, Tubercular Dis- ease of Undefined Position	1	...	2	...	3
Other forms of Tuberculosis, Scrofula	...	...	...	1	1
<i>Total Tuberculosis</i>	4	8	11	6	29
Thrush	1	...	...	...	1
Starvation, Want of Breast Milk	3	1	3	...	7
Rickets	4	2	2	...	8
Purpura Hæmorrhagica... ..	...	1	...	...	1
Premature Birth	43	51	48	39	181
Debility	65	52	80	61	258
Injury at Birth	3	2	5	1	11
Atelectasis	1	2	3	1	7
Malformation of Heart	...	2	1	...	3
Spina Bifida, Hydrocephalus	3	3	3	...	9
Imperforate Anus	...	...	1	1	2
Other Congenital Defects	2	5	9	6	22
Inflammation of Brain or Membranes	4	5	1	3	13
Convulsions	21	20	21	23	85
Hemiplegia, Brain Paralysis	...	...	1	...	1
Epilepsy	1	...	...	1	2
Laryngismus Stridulus	...	...	...	1	1
Laryngitis	...	3	...	...	3
Bronchitis	22	21	10	23	76
Lobar, Croupous Pneumonia	1	2	...	1	4
Lobular, Broncho-Pneumonia	17	11	9	27	64
Pneumonia, form not stated	11	3	5	8	27
Other and Undefined Diseases of Res- piratory System	...	1	2	1	4
Diseases of Stomach	6	2	1	1	10
Enteritis	2	4	31	9	46
Obstruction of Intestine	2	...	2	4	8
Peritonitis	...	...	...	1	1
Other Diseases of Digestive System	8	7	17	3	35
Other and Undefined Diseases of Urinary System	...	...	...	1	1
Arthritis, Ostitis, Periostitis	1	...	...	...	1
Eczema	1	...	...	...	1
Burns and Scalds	1	1	...	1	3
Suffocation, overlaid in bed	1	3	...	2	6
Suffocation, otherwise	1	1	...	...	2
Otherwise and not stated	...	2	...	...	2
Sudden Death (cause not ascertained)	...	...	...	3	3
Other Ill-defined and not Specified Causes	8	11	11	14	44
TOTAL	280	261	422	292	1,255

TABLE IV.

ANNUAL DEATH-RATE FROM ALL CAUSES AND FROM THE SEVEN "CHIEF ZYMOTIC DISEASES" PER 1,000 LIVING IN NEWCASTLE, COMPARED WITH THE AVERAGE RATES IN THE LARGE TOWNS IN THE UNITED KINGDOM.

	All Causes.		Seven "Chief Zymotic Diseases."*	
	1906.		1906.	
	Average in 76 Towns.	Rate in New-castle.	Average in 76 Towns.	Rate in New-castle.
1st Quarter ...	16·6	18·1	1·38	1·7
2nd „ ...	14·9	17·4	1·45	1·7
3rd „ ...	16·2	18·2	4·43	3·3
4th „ ...	16·2	18·1	1·72	1·9
Annual Rate ...	16·0	18·0	2·24	2·1

* Smallpox, Scarlet Fever, Diphtheria, Typhus, Enteric, and Continued "Fevers," Measles, Whooping Cough, and Diarrhœa, which now includes Dysentery, Epidemic and Zymotic Enteritis, and Intestinal Catarrh.

TABLE V.—AGES AT DEATH.

Periods.	REGISTRATION SUB-DISTRICTS.							
	Total in City.	Benwell.	Elswick.	St. Nicholas'.	St. Andrew's.	All Saints'.	Byker.	Walker.
Under 1 Year... ..	1,255	126	222	182	121	176	328	100
1 Year & under 5 Years	695	68	86	110	87	111	165	68
5 Years „ 20 „	354	29	43	86	73	24	65	34
20 „ „ 40 „	607	35	118	186	80	41	115	32
40 „ „ 60 „	855	40	221	179	134	91	156	34
60 „ „ 80 „	912	55	325	135	138	61	163	35
80 „ and upwards	153	16	55	19	34	8	18	3
Total (all ages) dying during 52 weeks ended 29th December, 1906)	4,831	369	1,070	897	667	512	1,010	306

TABLE VI.

ADMISSIONS TO AND DEATHS AT THE CITY HOSPITAL FOR INFECTIOUS DISEASES
(OTHER THAN SMALLPOX) DURING THE YEAR 1906.

DISEASES.	ADMISSIONS.												DEATHS.														
	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	
Scarlet Fever	23	22	36	39	41	33	20	34	54	59	56	25	442*	1	...	...	...	...	2	...	...	...	1	2	1	...	7
Measles and Scarlet Fever	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
Diphtheria	13	15	6	7	8	8	4	5	13	22	15	17	133	4	3	1	3	1	1	...	2	1	5	1	5	27	
Diphtheria and Scarlet Fever	...	...	...	...	1	...	...	...	...	1	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	
? Diphtheria	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
Enteric Fever	...	...	1	2	8	2	1	8	7	7	10	6	52	...	...	...	...	2	1	...	...	1	1	2	2	9	
? Enteric Fever	...	...	...	...	...	1	...	...	1	...	1	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	
German Measles	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
Measles	...	2	3	1	...	...	...	...	...	...	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	
Tonsillitis	1	...	2	...	1	3	...	...	...	1	3	...	11	...	...	...	...	...	...	...	...	...	...	...	...	...	
Tubercular Peritonitis	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	
Acute Miliary Tuberculosis	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	
Heart Disease	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
Pleurisy	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
? Subphrenic Abscess	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
Appendicitis and Liver Abscess	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	1	
Ptomaine Poisoning	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	
Diseases of uncertain nature (not infectious) sent in as Scarlet Fever	...	...	1	1	...	...	3	1	1	1	...	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	
TOTAL	37	39	52	51	60	48	28	49	77	93	85	48	667	5	3	2	4	3	5	...	2	3	8	4	7	46	

* Includes 1 Probationer and 1 Wardmaid.

TABLE VII.

SMALLPOX AND "CONTACT" ISOLATION HOSPITALS, 1906.

	SMALLPOX HOSPITAL.	"CONTACT" ISOLATION HOSPITAL.
	PATIENTS ADMITTED.	"CONTACTS" ADMITTED.
April . . .	3	7
May . . .	5	56
Total . . .	8	63

TABLE VIII.

INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH
DEPARTMENT.

	1906.	1905.
Half Straw Mattresses	94	44

TABLE IX.

INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS AT THE
CITY HOSPITAL FOR INFECTIOUS DISEASES, WALKER GATE.

ARTICLES FROM CITY.		ARTICLES—HOSPITAL PROPERTY.	
1906.	1905.	1906.	1905.
16,693	12,894	2,697	1,458

In addition to the above, 694 articles from the City were purified in the Disinfecting Apparatus at the Smallpox Hospital, Town Moor, during the year.

TABLE X.

RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS EXAMINED
DURING THE YEAR 1906.

PROVISIONS EXAMINED.	Amount of Suspected Provisions Examined.	CONDITION.		BAD—HOW DISPOSED OF.	
		Fit for Food.	Unfit for Food.	Destroyed by Order of Justices.	Destroyed with Owner's Consent.
Carcases of Beef ...	165	62	103	2	101
Quarters of Beef ...	28	9	19	...	19
Beef (lbs.) ...	464	...	464	...	464
Carcases of Veal ...	18	3	15	...	15
„ Mutton ...	189	98	91	...	91
„ Pork ...	139	85	54	...	54
Ox Heads... ..	4	...	4	...	4
„ Tongues (lbs.) ...	48	...	48	...	48
„ Kidneys (lbs.) ...	878	...	878	...	878
„ Livers (lbs.) ...	1,030	...	1,030	...	1,030
„ Tails (lbs.) ...	973	...	973	...	973
„ Tripe (lbs.) ...	1,750	...	1,750	...	1,750
Calf Heads ...	4	...	4	...	4
„ Tongues (lbs.) ...	20	...	20	...	20
Sheep Heads ...	88	...	88	...	88
„ Plucks ...	167	...	167	...	167
„ Tongues (lbs.) ...	48	...	48	...	48
Sweetbreads (lbs.) ...	116	...	116	...	116
Pork Trimmings (lbs.) ...	100	...	100	...	100
Pig Kidneys (lbs.) ..	152	...	152	...	152
„ Plucks ...	76	...	76	...	76
Hams ...	2	...	2	...	2
Bacon (boxes) ...	5	5	...	...	...
Offal (sets) ...	15	...	15	...	15
Chickens ...	15	...	15	...	15
Rabbits (couples) ...	222	...	222	...	222
Rooks (stones) ...	18	...	18	...	18
Eggs (cases) ...	17	17	...	...	...
Grapes (barrels) ...	17	...	17	...	17
Plums „ ...	9	...	9	...	9
„ (baskets) ...	158	150	8	...	8
Pears (barrels) ...	2	...	2	...	2
„ (hampers) ...	7	...	7	...	7
Cherries (baskets) ...	4	...	4	...	4
Strawberries (baskets)...	6	...	6	...	6

TABLE X.—(Continued.)

RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS EXAMINED
DURING THE YEAR 1906.

PROVISIONS EXAMINED.	Amount of Suspected Provisions Examined.	CONDITION.		BAD—HOW DISPOSED OF.	
		Fit for Food.	Unfit for Food.	Destroyed by Order of Justices.	Destroyed with Owner's Consent.
Bananas (crates) ...	2	...	2	2	...
Cocoanuts (bags) ...	3	...	3	...	3
Red Cabbage (bags) ...	147	...	147	...	147
Shrimps (lbs.) ...	42	...	42	42	...
Fillets of Sole (lbs.) ...	3	...	3	3	...
Trout (lbs.) ...	539	...	539	...	539
Various kinds of Wet Fish (lbs.) ...	1,134	...	1,134	...	1,134
Prawns (lbs.) ...	1,319	...	1,319	...	1,319
„ (tins) ...	60	...	60	...	60
Mussels (lbs.) ...	244	...	244	...	244
Findon Haddocks (boxes)	53	...	53	...	53

Two persons were summoned in connection with one case, under section 65 of the Newcastle-upon-Tyne Improvement Act, 1892, for causing diseased meat to be deposited for the purpose of sale. One was fined £5 and costs. The case against the other was dismissed, guilty knowledge not being proved.

One person was cautioned by letter from the Town Clerk for exposing unsound shrimps for sale.

TABLE XI.

SUMMARY OF NUISANCES FOR THE ABATEMENT OF WHICH NOTICES
WERE SERVED DURING 1906.

Foul privies and ashpits (to replace with water-closets)...	{ Privies Ashpits	240 143
Defective "cell" privies in Benwell and Walker (to replace with water-closets)		84
Foul ashpits not connected with privies (to remove and provide tubs)		20
Insufficient water-closet or privy accommodation (additional water-closets ordered)		34
Defective or insufficient tubs for dry house refuse (to provide new or additional tubs)		565
Defective water-closets (to repair)		391
Water-closets without water supply (to provide water)		77
*Choked water-closets (mostly served on tenants)...		351
*Dirty water-closets (all served on tenants)		119
† Defective pail-closets		734
Foul pail-closets (to alter or replace with water-closets)		146
*Dirty pail-closets (all served on tenants)...		48
Want of drainage (to provide)		1
Defective drains (to repair, or construct new drains)		429
Choked drains, etc. (to cleanse)		904
Defective or choked sinks, soilpipes, etc. (to repair or cleanse)		179
Defective pavement in yards and passages (to repair)		139
Dirty or dilapidated rooms (to be cleaned or repaired)		437
Overcrowding (to abate)		60
Cellar dwellings not in conformity with law (to be closed or not used separately as dwellings)		5
Dirty yards and passages (to cleanse or limewash)		362
Animals, pigeons, and fowls improperly kept (to remove)		26
Offensive accumulations (to remove)		127
Accumulations of manure (to periodically remove)...		14
Broken roofs and water spouting (to repair)		301
Want of water (to provide supply)		145
Want of or defective sanitary conveniences in public houses (to provide or repair)		4
Smoke nuisances (to abate)		28
Want of proper ventilation to tenement rooms owing to window cords being broken (to provide proper sash cords)		131
Unclassified minor nuisances (to abate)		31
Total		6,275

* To cleanse.

† To provide new pans, or to repair the roofs, seats, floors, etc.

TABLE XII.

DETAILS RELATING TO CERTAIN WORKS CARRIED OUT IN THE ABATEMENT OF
NUISANCES AND TO INSPECTIONS MADE DURING 1906.

Length in yards of old drains removed	...	...	...	...	4,385
" " new " constructed	...	...	...	...	5,848
New trapped gullies provided to drains	...	...	...	...	720
Combined privies and ashpits removed	privies ... ashpits ...				*187
					*107
Water-closets provided	...	...	...	...	†352
Pail-closets removed	...	...	...	...	77
Defective water-closets removed, and closets of better design substituted	...	...	...	...	65
Dry ash-tubs substituted for dry ash-pits where water-closets existed, and provided in cases where pail-closets have been replaced by water-closets	...	...	...	...	‡301
No. of drains tested	...	...	...	...	1,126
No. of tests of above drains made by smoke and water	...	...	...	...	1,952
No. of complaints made at office (verbally or by letter)	...	...	...	...	777
No. of tenement inspections made	...	...	...	...	34,073
No. of contraventions of Tenement Bye-laws for which notices have been served to obtain remedy	...	...	...	...	§2,604
Inspections of houses made from complaints received outdoors or nuisances discovered in the districts, including a large number of minor nuisances, such as choked drains and dirty yards, the abatement of which was accomplished at the time of visit, and without legal notice	...	...	...	...	7,475
Inspections to learn if works ordered were in progress	...	...	...	...	8,848
Common yards and courts in the worst localities specially visited on Friday afternoons and Saturday mornings to obtain weekly cleansing of same	...	...	...	...	40,268
Inspections after infectious disease	...	...	...	...	1,061
Supervisions of works in progress	...	...	...	...	3,988
Inspections of milk shops and ice creameries	...	...	...	...	1,949
" bakehouses	...	...	...	...	478
" offensive trades	...	...	...	...	338
" wholesale margarine warehouses	...	...	...	...	111
" as to limewashing of tenements	...	...	...	...	8,832

* Some ashpits have more than one privy attached.

† 21 of these were provided on premises where the accommodation was previously insufficient.

‡ 296 of these resulted from the Corporation's offer of free tubs.

§ In addition to this number, the District Inspectors have daily had premises cleansed on verbal order.

TABLE XIII.

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE
THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, &c.,
DURING THE YEAR 1906.

NATURE OF COMPLAINT.	No. of Cases.	HOW DISPOSED OF.
Foul Privies and Ashpits.	6	Nuisances abated before the summonses were applied for.
Defective Yard Pavements.	2	Ditto.
Want of, or defective, Waste Pipes.	4	Ditto.
Want of, or defective, Spouting.	4	Ditto.
Choked Drains.	5	Ditto.
Defective Drains.	13	Ditto.
Defective Privy Floors, etc.	7	Ditto.
Foul Accumulations.	2	Ditto.
Defective Gully.	1	Nuisance abated before the summons was applied for.
Dirty Yard.	1	Ditto.
Want of efficient Drainage to Urinal.	1	Drainage provided before the summons was applied for.
<i>Factory and Workshop Act :—</i> Space occupied by Workers without proper Ventilation.	1	Workers ceased to be employed in room complained of; summons not applied for.
<i>Public Health Acts Amendment Act, 1890, Sec. 22 :—</i> No W.C. Accommodation for separate use of each sex of workers.	1	W.C. accommodation provided before the summons was applied for.
<i>Carried forward ...</i>	48	

TABLE XIII.—*Continued.*

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE
THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, &c.,
DURING THE YEAR 1906.

NATURE OF COMPLAINT.	No. of Cases.	HOW DISPOSED OF.
<i>Brought forward</i> ...	48	
<i>Newcastle-upon-Tyne Improvement Act, 1899, Sec. 46:—</i>		
Want of Water Supply.	5	In all cases the water was provided before the summonses were applied for.
<i>Public Health Act, 1875, Sec. 36:—</i>		
No W.C. Accommodation.	2	W.C.'s provided before the summonses were applied for.
Insufficient W.C.'s or Privies.	8	W.C.'s or privies put in order before the summonses were applied for.
Want of Ash-tubs.	11	Tubs provided before the summonses were applied for.
<i>Tenement Bye-laws:—</i>		
Contravention of Bye-laws 4 and 6 (Overcrowding).	3	Overcrowding abated before the summonses were applied for.
Contravention of Bye-law 12 (W.C. Accommodation)	3	Accommodation provided before the summonses were applied for.
Contravention of Bye-law 16 (W.C. Structure and Apparatus).	6	In all cases the work was done before the summonses were applied for.
Contravention of Bye-law 17 (Structure of Privies, and Maintenance in good order of Receptacles for Filth).	13	In 12 cases the work was done before the summonses were applied for. In 1 case the landlord was summoned, and fined 5s. and costs.
Contravention of Bye-law 24 (Cleansing of Room Floors).	1	Work done before the summons was applied for.
<i>Carried forward</i> ...	100	

TABLE XIII.—*Continued.*

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE
THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, &c.,
DURING THE YEAR 1906.

NATURE OF COMPLAINT.	No. of Cases.	HOW DISPOSED OF.
<i>Brought forward</i> ...	100	
Contravention of Bye-law 25 (Cleansing of Room Windows, etc.).	1	Work done before the summons was applied for.
Contravention of Bye-law 30 (Means of Ventilation of Rooms not maintained in good order).	4	Work done before the summonses were applied for.
Contravention of Bye-law 31 (Limewashing of Passages, Staircases, Yards, etc.).	1,183	In 1,022 cases the work was done before the summonses were applied for. Summonses issued in 161 cases, in 158 of which the limewashing was done, and the summonses withdrawn. Only 3 cases heard before the Magistrates; these resulted in a conviction and penalty of 1s. and costs in each case.
Contravention of Bye-law 32 (Rooms in Dirty Condition, walls and ceilings)	2	Rooms cleansed before the summonses were applied for.
Contravention of Bye-law 34 (Want of Water Supply)	6	In 5 cases the water was provided before the summonses were applied for. In 1 case the landlord was summoned, and fined 20s. and costs.
Total ...	1,296	Total amount of penalties, £1 8s.

TABLE XIV.

FOOD AND DRUGS ADULTERATION ACTS.

SAMPLES TAKEN FOR ANALYSIS DURING THE YEAR 1906.

Articles taken for Analysis.	Total No. of samples taken.	Result of Analysis.	Rotational No. of sample.	Proceedings taken and result.
New Milk	305	260 genuine.		
		1 deficient in milk-fat 3.3%	2	
		1 deficient in non-fatty solids 3.3%	18	
		1 deficient in milk-fat 5.0%	10	From one person. Summons not applied for, as it appeared that the farmer was responsible for the milk as sold. (See No. 22).
		1 deficient in non-fatty solids 6.3%	21	
		1 deficient in non-fatty solids 4.2%, and in milk-fat 3.3%	22	
		1 deficient in milk-fat 3.3%	46	
		1 deficient in milk-fat 23.3%	49	Vendor summoned. Case dismissed.
		1 deficient in milk-fat 13.3%	52	From one person. Fined 20/- and costs in respect of No. 52. Case dismissed on payment of costs <i>re</i> No. 64.
		1 deficient in milk-fat 13.3%	64	
		1 deficient in non-fatty solids 3.4%	71	Vendor cautioned.
		1 deficient in non-fatty solids 2.5%	72	Vendor cautioned.
		1 deficient in milk-fat 3.3%	118	Vendor cautioned.
		1 deficient in milk-fat 10.0%	143	
		1 deficient in milk-fat 6.6%	150	
		1 deficient in milk-fat 23.3% and contained boric acid 0.03%	146	From one person. Summoned only in respect of No. 146. Case dismissed on proof of warranty. Summons issued against giver of warranty who, however, could not be found; case therefore withdrawn.
		1 contained boric acid 0.02%	151	
Carried forward	305	Amount of penalties carried forward ...		£1 0 0

TABLE XIV.—CONTINUED.

FOOD AND DRUGS ADULTERATION ACTS.

SAMPLES TAKEN FOR ANALYSIS DURING THE YEAR 1906.

Articles taken for Analysis.	Total No. of samples taken.	Result of Analysis.	Rotational No. of sample.	Proceedings taken and result.
Brought forward	305	Amount of penalties brought forward ...		£1 0 0
New Milk (contd.)		1 deficient in milk-fat 13.3%	179	From one person. Cases dismissed as Magistrates did not think defendant had tampered with the milk.
		1 deficient in milk-fat 8.3%	182	
		1 deficient in milk-fat 13.3%	209	
		1 deficient in milk-fat 13.3%	225	
		1 deficient in milk-fat 10.0%	226	Taken by request of vendor of the four last-mentioned samples at his dairy farm.
		1 deficient in milk-fat 6.6%	191	Vendor cautioned.
		1 deficient in milk-fat 10.0%	192	Vendor cautioned.
		1 deficient in milk-fat 20.0%	230	Vendor summoned. Fined 10/- and costs.
		1 deficient in milk-fat 26.6%	231	From one person. Fined 40/- and costs in respect of No. 231. Case re 239 dismissed on payment of costs.
		1 deficient in milk-fat 13.3%	239	
		1 deficient in non-fatty solids 10.0%	236	From one person. Fined 40/- and costs in each case.
		1 deficient in non-fatty solids 7.5%, and in milk-fat 13.3%	241	
		1 deficient in non-fatty solids 1.2%	271	
		1 deficient in milk-fat 3.3%	272	From one person. Summoned in respect of Nos. 273 and 275. Cases dismissed.
		1 deficient in milk-fat 6.6%	273	
		1 deficient in milk-fat 6.6%	275	
		1 deficient in non-fatty solids 6.8%	295	Vendor cautioned.
		1 deficient in non-fatty solids 1.8%	298	
		1 deficient in milk-fat 13.3%	300	Vendor summoned. Case dismissed on payment of costs.
		1 deficient in non-fatty solids 2.5%	304	
Carried forward	305	Amount of penalties carried forward ...		£7 10 0

TABLE XIV.—CONTINUED.

FOOD AND DRUGS ADULTERATION ACTS.

SAMPLES TAKEN FOR ANALYSIS DURING THE YEAR 1906.

Articles taken for Analysis.	Total No. of samples taken.	Result of Analysis.	Rotational No. of sample.	Proceedings taken and result.
Brought forward	305	Amount of penalties brought forward ...		£7 10 0
New Milk (contd.)		1 deficient in non-fatty solids 3.1 %	312	Vendor cautioned.
		1 deficient in non-fatty solids 2.3 %	368	Vendor cautioned.
		1 deficient in non-fatty solids 3.5 %	369	From one person. Vendor cautioned.
		1 deficient in non-fatty solids 4.0 %	373	
		1 deficient in milk-fat 10.0 %	393	Vendor cautioned.
		1 contained boric acid 0.014 %	397	
		1 deficient in milk-fat 3.3 %	457	
		1 deficient in milk-fat 16.6 %	458	From one person. Fined 10/- and costs re No. 458. Case dismissed respecting No. 462.
		1 deficient in milk-fat 6.6 %	462	
Butter	103	90 genuine.		
		1 certified to be Margarine and to contain boric acid 0.26 %	84	Vendor summoned. Fined £50 and costs under Sale of Food and Drugs Act for selling margarine for butter, and £50 and costs under Margarine Act for selling to purchaser in plain paper.
		1 certified to be Margarine*	135	Further sample taken. (See No. 158).
		1 certified to be Margarine, and to contain boric acid 0.22 %	158	Vendor summoned under Margarine Act. Fined 10/- and costs for selling to purchaser in plain paper, and 10/- and costs for exposing for sale not labelled.
		1 certified to be Margarine*	170	Further sample taken. (See No. 207).
Carried forward	408	Amount of penalties carried forward ...		£109 0 0

*Informal Samples.

TABLE XIV.—CONTINUED.

FOOD AND DRUGS ADULTERATION ACTS.

SAMPLES TAKEN FOR ANALYSIS DURING THE YEAR 1906.

Articles taken for Analysis.	Total No. of samples taken.	Result of Analysis.	Rotational No. of sample.	Proceedings taken and result.
Brought forward	408	Amount of penalties brought forward ...		£109 0 0
Butter (<i>contd.</i>)		1 certified to be Margarine, and to contain boric acid 0·10%	207	Vendor summoned. Fined 5/- and costs, under Sale of Food and Drugs Act, for selling margarine for butter. Also summoned, under Margarine Act, for selling to purchaser in plain paper. Case dismissed on payment of costs.
		1 certified to be Margarine*	410	Further sample taken. (See No. 439).
		1 certified to be Margarine*	413	Further sample taken. (See No. 440).
		1 certified to be Margarine*	416	Further sample taken. (See No. 441).
		1 certified to be Margarine*	420	Further sample taken. (See No. 528).
		1 certified to be Margarine, and to contain boric acid 0·25%	439	Vendor fined 20/- and costs under Sale of Food and Drugs Act, for selling margarine for butter. Also summoned under Margarine Act, for selling to purchaser in plain paper. Case dismissed on payment of costs.
		1 certified to be Margarine, and to contain boric acid 0·07%	440	Do.
		1 certified to be Margarine, and to contain boric acid 0·14%	441	Vendor fined 10/- and costs under Sale of Food and Drugs Act, for selling margarine for butter. Also summoned under Margarine Act, for selling to purchaser in plain paper. Case dismissed on payment of costs.
Carried forward	408	Amount of penalties carried forward ...		£111 15 0

*Informal Samples.

TABLE XIV.—CONTINUED.

FOOD AND DRUGS ADULTERATION ACTS.

SAMPLES TAKEN FOR ANALYSIS DURING THE YEAR 1906.

Articles taken for Analysis.	Total No. of samples taken.	Result of Analysis.	Rotational No. of sample.	Proceedings taken and result.
Brought forward	408	Amount of penalties brought forward ...		£111 15 0
Butter <i>contd.</i>)		1 certified to be Margarine, and to contain boric acid 0.37%	528	Vendor fined 40/- and costs under Sale of Food and Drugs Act, for selling margarine for butter. Also summoned under Margarine Act, for selling to purchaser in plain paper. Case dismissed on payment of costs.
Margarine	26	17 genuine.		
		1 contained boric acid 0.20%	25	From one firm, who were summoned under Margarine Act, for selling margarine under another name. Summons withdrawn on appeal case being decided in favour of defendants.
		1 contained boric acid 0.28%	26	
		1 contained boric acid 0.32 %	27	Summoned under Margarine Act for selling margarine under another name. Case withdrawn for same reason as that respecting samples 25 and 26.
		1 contained boric acid 0.16 %	155	
		1 contained boric acid 0.17 %	156	
		1 contained boric acid 0.35 %, and butter-fat 15.0 %	157	Vendor summoned <i>re</i> the excess of butter-fat. Summons withdrawn by order of Sanitary Committee.
		1 contained butter-fat 15.0 %	574	
		1 contained butter-fat 14.0 %	575	
		1 contained butter-fat 13.0 %	586	
Corn Flour	8	6 genuine.		
		1 was entirely composed of rice starch*	259	Further sample taken. (See No. 302).
		1 was entirely composed of rice starch	302	Consideration of the matter postponed by Sanitary Committee.
Carried forward	442	Amount of penalties carried forward ...		£113 15 0

*Informal Samples.

TABLE XIV.—CONTINUED.
FOOD AND DRUGS ADULTERATION ACTS.
SAMPLES TAKEN FOR ANALYSIS DURING THE YEAR 1906.

Articles taken for Analysis.	Total No. of samples taken.	Result of Analysis.	Rotational No. of sample.	Proceedings taken and result.
Brought forward	442	Amount of penalties brought forward ...		£113 15 0
Ground Rice	14	All genuine.		
White Pepper	12	All genuine.		
Black Pepper	3	All genuine.		
Ground Ginger.	11	All genuine.		
Gregory's Powder	1	Genuine.		
Flour	1	Genuine.		
Cream of Tartar	3	All genuine.		
Whisky	5	4 genuine. 1 contained 24.4 % excess of water*	263	Further sample taken, which was genuine.
Rum	4	2 genuine. 1 contained 18.6 % excess of water*	264	Further sample taken. (See No. 328).
		1 contained 10.3 % excess of water	328	Vendor summoned, and fined 20/- and costs.
Gin	2	Both genuine.		
Paregoric Elixir	8	All genuine.		
Spirits of Nitre.	6	1 deficient in ethyl nitrite 27.4%*	276	Further sample to be taken
		1 deficient in ethyl nitrite 6.3%*	277	Do.
		1 deficient in ethyl nitrite 4.0%*	278	Do.
		1 deficient in ethyl nitrite 39.4%*	279	Do.
		1 deficient in ethyl nitrite 35.4%*	280	Do.
		1 deficient in ethyl nitrite 30.9%*	281	Do.
Lard	24	All genuine.		
Condensed Milk	20	All genuine.		
Vinegar	7	All genuine.		
Sago	4	1 genuine. 1 consisted entirely of Tapioca.*	545	
		1 consisted entirely of Tapioca.*	564	
		1 consisted entirely of Tapioca.*	565	
Tapioca	9	All genuine.		
Tincture of Rhubarb	3	All genuine.		
Syrup of Rhubarb	9	All genuine.		
Cheese	18	All genuine.		
Bread	7	All genuine.		
Milk Chocolate	1	Genuine.		
Olive Oil	8	All genuine.		
Camphorated Oil	3	All genuine.		
Coloured Lozenges	1	Free from injurious constituents.		
TOTAL	626	Total amount of penalties.		£114 15 0

* Informal Samples.

BACTERIAL EXAMINATIONS.

TABLE XV.

EXAMINATIONS OF SPECIMENS FOR THE DIAGNOSIS OF DIPHTHERIA,
ENTERIC FEVER, AND TUBERCULOSIS.

	No. of Specimens.	RESULTS OF EXAMINATIONS.		
		Positive.	Negative.	Doubtful.
Tubercle	273	95	177	1
Diphtheria	456*	148	308*	—
Enteric Fever	53	18	34	1
TOTAL	782	261	519	2

* Includes Specimens from persons convalescent from Diphtheria, and from "contacts" with that disease.

TABLE XVI.

EXAMINATION OF THE WATER SUPPLY.
SUMMARY OF RESULTS.

Sample No.	Date of Collection.	GELATINE PLATE CULTIVATION FROM 1 C.C. OF WATER.			STRONG SMELL BY GROWTH OF BACTERIA.		CONDITION.				
		BACTERIA FOUND.					Very Satisfactory.	Satisfactory.	Fairly Satisfactory.	Not Satisfactory.	
		Number Liquefying Gelatine.	Number not Liquefying Gelatine.	Total.	No.	Yes.					
1	1906.	11	123	134	1	...	...	1	...	...	
2	Jan. 8	14	212	226		...	...	...	1	...	
3		23	221	244		...	...	...	1	...	
4		21	307	328		...	...	...	...	1	
1	Feb. 6	3	29	32	1	...	1	...	...	...	
2		16	73	89		...		...	...	...	...
3		8	48	56		...		...	...	...	...
4		2	31	33		...		...	...	...	...
1	Mch. 6	12	18	30	1	...	1	...	...	...	
2		8	46	54		...		...	...	...	...
3		28	69	97		...		...	...	...	...
4		7	31	38		...		...	...	...	...
1	April 5	11	11	22	1	...	1	...	...	...	
2		7	5	12		...		...	...	...	...
3		4	5	9		...		...	...	...	...
4		18	17	35		...		...	...	...	...
1	May 7	23	37	60	1	...	1	...	...	...	
2		11	32	43		...		...	...	...	...
3		23	49	72		...		...	...	...	...
4		10	26	36		...		...	...	...	...

TABLE XVII.
FACTORY AND WORKSHOP ACT.

	On Register at end of 1905.	Number Removed from Register.	Number Added to Register.	Number on Register at end of 1906.	Number of Inspections made during the year.
Workshops	813	139	185	859	3,552
Domestic Workshops	74	18	47	103	591
Workplaces	...	...	92	92	277
Laundries	27	8	39	58	313
Bakehouses	85	6	26	105	269
Totals	999	171	389	1,217	5,002

DEFECTS FOUND AND DEALT WITH.	No. of Cases.
Workrooms overcrowded	23
Workrooms dirty (walls, ceilings, floors, etc.)	230
Water-closets dirty	248
Insufficient water-closet accommodation	38
No water-closet accommodation	25
Defective water-closets	71
Gas-stoves in workrooms without means for carrying off fumes	61
Foul accumulations	5
Workroom over stable	1
Bakehouse without ceiling... ..	1
Laundry wash-house badly ventilated	1
Unpaved area attached to bakehouse	1
Workrooms imperfectly ventilated	11
Defective waste-pipes	5
Restaurant kitchens, without ceilings	6
.. .. defective floors	5
Workrooms damp	5
Workrooms badly lighted	7
Defective privies	7
No Abstract of Factory and Workshop Act posted on premises (Notification sent to H.M. Inspector of Factories)	40
Total	791

SUMMARY OF WORK DONE AND VISITS MADE DURING THE YEAR 1906.

Number of Houses on the register at the end of the year	73
Applications for registration (all granted)	4
New houses registered	4
Additional rooms registered in old houses	5
Houses closed	2
Inspections made in the day-time	12,928
„ „ night-time	686
Notices served { <i>re</i> washing of bed clothes 286)	429
{ „ limewashing of houses 143)	
Contraventions of Bye-laws :—	
<i>Re</i> Cleaning and ventilation of houses	20
„ Insufficient supply of bedclothes	2
„ Cleansing of clothes	2
„ Removal of liquid filth	7
„ Cleansing of yard	1
Structural defects in houses	22
Defective water-closets and drains	33
Choked drains, water-closets, &c.	40
Defective roofs and spouts	12
Dirty water-closets	7
Want of, or defective, ash-tubs	9
Defective waste-pipes	2
Deaths reported (non-infectious disease)	10
Cases of infectious disease reported	4

TABLE XIX_A.

LODGERS OCCUPYING COMMON LODGING HOUSES IN THE CITY
DURING THE YEAR 1906.

		Year 1906.	Corresponding Nos. for Year 1905.
Average number of Lodgers per night		1,849	1,816
Highest number on any one night		1,943	1,855
Lowest " " "		1,777	1,735
Number of Lodgers for whom accommodation was provided in the Common Lodging Houses of the City at the end of the year		2,489	2,389

TABLE XX.
MIDWIFE'S ACT, 1902.
SUMMARY OF WORK DONE BY THE SUPERINTENDENT OF MIDWIVES.
APRIL 1ST TO DECEMBER 31ST 1906.

Visits.		Notices to Local Supervising Authority received
To Midwives at their homes ...	417	from midwives who had sent for
" Unqualified women at their homes ...	185	medical help ...
" Midwives not found at home on visit ...	67	
" Expectant mothers ...	118	Notification of living births received from
" Lying-in women (to supervise work of		midwives from October 17th to
midwife and advise as to care of		December 31st ...
mother and child) ...	307	
" Special visits to infants ...	30	Lectures given to midwives ...
" Investigation of still-births... ..	25	Health talks at mothers' meetings ...
" " deaths of infants ...	6	Individual instruction given to midwives at office
" " death of mother ...	1	
" " cases of puerperal fever ...	3	
TOTAL ...	1,159	Insanitary dwellings reported ...

TABLE XXI.

SUMMARY OF WORK DONE BY HEALTH VISITORS.

Reports made as to:—				
Minor Insanitary conditions	...	...	...	200
Nuisances	...	...	...	55
Breaches of regulations for tenement dwellings	...	...	...	386
Cellar dwellings not in conformity with law	...	...	...	4
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Improvements effected generally in the above matters	...	...	...	3,927
Number of instances in which directions have been given as to method of making applications to Dispensary, Poor Law, Infirmary, and Children's Hospital				
	...	...	...	364
Leaflets distributed	...	...	...	5,367
Total number of visits made. In each case advice was given as to ventilation, food, clothing, temperance, thrift, and the carrying out of sanitary precautions				
				27,159

WITH THE COMPLIMENTS OF THE
MEDICAL OFFICER OF HEALTH.



CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

TUBERCULOSIS:

ITS

CASUALTIES,

CAUSES, AND CONTROL.

A REPORT

TO THE

SANITARY COMMITTEE

BY THE

MEDICAL OFFICER OF HEALTH.

APRIL, 1906.

WITH AMENDMENTS—JANUARY, 1907.

Newcastle-upon-Tyne:

EASEY & BEST, 142, PILGRIM STREET.

1907.

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CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

TUBERCULOSIS.

EXTRACT FROM THE MINUTES OF THE SANITARY COMMITTEE.

The Sanitary Committee, at a Special Meeting held on Monday, 11th March, 1907, considered the draft Report of the Medical Officer of Health relative to "Tuberculosis: its Casualties, Causes and Control."

The Medical Officer of Health read the report, drawing the attention of the Committee to the new matter which had been introduced since the report was last under consideration.

After discussion, in the course of which various slight amendments were agreed to by the Committee, it was unanimously resolved that the report of the Medical Officer of Health, as amended, be approved of by this Committee, and that "the Committee desire to place on record their high appreciation of the very admirable, instructive, and useful report presented to them by Dr. H. E. Armstrong, which, in the opinion of the Committee, will not only be valuable in their own deliberations but also to the country generally in dealing with the important question of Tuberculosis."

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

THE PREVENTION OF TUBERCULOSIS.

REPORT

BY THE

MEDICAL OFFICER OF HEALTH.

I.—HUMAN TUBERCULOSIS: ITS EXTENT
AND FATALITY.

Tuberculosis is one of the most prevalent and most fatal of the diseases of mankind. In England and Wales upwards of 60,000 persons per annum die from this cause alone, a mortality equivalent to about 2·5 per 1,000 of the entire population. The following table shews the number of deaths and the death rates from Tuberculosis at all ages and under 1 year of age, in English Towns with a population of over 260,000 (including Newcastle-upon-Tyne), and the three neighbouring towns.

TABLE I.

NUMBER OF DEATHS AND DEATH RATES FROM TUBERCULOSIS
DURING THE YEAR 1905.

Towns with a population of over 260,000, including Newcastle-upon-Tyne.	Number of Deaths from Tuberculous Diseases.		Death rate per 1000 popn. from the foregoing (all ages).	Rate per cent. of Deaths under 1 year from the foregoing, to Births registered.
	All ages.	Under 1 year.		
Birmingham	999	75	1·8	0·5
Bristol	559	41	1·6	0·4
Bradford	442	26	1·5	0·4
Leeds	846	82	1·9	0·7
Liverpool	1,648	130	2·2	0·7
London	9,323	764	2·0	0·6
Manchester	1,362	123	2·2	0·7
Newcastle-upon-Tyne ...	608	54	2·3	0·6
Sheffield... ..	701	72	1·6	0·5
<i>Three neighbouring towns—</i>				
Gateshead	171	7	1·4	0·2
South Shields	191	10	1·7	0·3
Sunderland	359	41	2·4	0·8

The mortality from Tuberculous diseases in this country is nearly one-third more than that of all Infectious Fevers and Diphtheria. Thus, during the decade 1881-90, the death rates in England and Wales from Consumption and other Tuberculous diseases was 2,420 per million population at all ages; whilst the death rate per million from the six following diseases combined, viz.: Smallpox, Measles, Scarlet Fever, "Fever," Diphtheria, and Whooping Cough, was 1,667.

The four following Tables give details as to the fatality of Tuberculosis in Newcastle at all ages and in infants.

TABLE II.
NEWCASTLE-UPON-TYNE.

NUMBER OF DEATHS AND DEATH RATES FROM TUBERCULOSIS (ALL AGES)
DURING THE 5 YEARS 1901-1905.

	NUMBER OF DEATHS.					
	1901.	1902.	1903.	1904*	1905*	Average for five years.
Tabes Mesenterica, etc. ...	59	48	60	47	49	53
Tubercular Meningitis, Hydrocephalus, etc. ...	62	75	97	78	86	80
†Phthisis (Pulmonary and Laryngeal) ...	428	357	371	377	397	386
Other Tubercular and Scrofulous Diseases ...	47	45	44	52	76	53
*TOTAL ...	596	525	572	554	608	571

	Death Rate per 1,000 population.					Average for 5 years.
†Phthisis (Pulmonary and Laryngeal) ...	2.0	1.6	1.7	1.7	1.5	1.7
*Total Tuberculous Diseases ...	2.8	2.4	2.6	2.5	2.3	2.5

* The boundary of the City was extended in November, 1904.

TABLE III.

NEWCASTLE-UPON-TYNE.

NUMBER OF DEATHS AND DEATH RATES FROM TUBERCULOSIS DURING THE
5 YEARS 1874-1878, AND 5 YEARS 1901-1905.

	1874	1875	1876	1877	1878	Average for 5 years.	1901	1902	1903	* 1904	* 1905	Average for 5 years.
Number of Deaths from Tuberculous Diseases (all ages)	516	491	492	474	529	500	596	525	572	554	608	571
Death Rate per 1,000 population from above	3.8	3.6	3.5	3.3	3.7	3.6	2.8	2.4	2.6	2.5	2.3	2.5
Number of Deaths from Tuberculous Diseases (under 1 year of age)												
Tabes Mesenterica, etc.	74	57	52	42	31	51	17	11	21	11	11	14
Tubercular Meningitis, Hydrocephalus, etc...	7	9	10	6	4	7	11	18	25	16	24	19
Phthisis(Pulmonary and Laryngeal)	9	6	1	6	4	5	3	2	1	5	3	3
Other Tuberculous and Scrofulous Diseases...	...	7	4	6	16	7	3	2	7	...	16	6
Total under 1 year of age	90	73	67	60	56	69	34	33	54	32	54	41
Rate per cent. of above deaths (under 1 year) to births registered...	1.6	1.3	1.1	1.1	1.0	1.2	0.5	0.5	0.8	0.5	0.6	0.6

TABLE IV.

NEWCASTLE-UPON-TYNE.

NUMBER OF DEATHS UNDER 5 YEARS FROM TUBERCULOSIS AND
FROM ALL CAUSES.

5 Years 1875-1879.

5 Years 1901-1905.

	1875	1876	1877	1878	1879	1901	1902	1903	1904*	1905*
Tuberculosis ...	161	120	124	128	141	115	119	137	124	139
All Causes ...	1,605	1,426	1,354	1,504	1,506	1,833	1,595	1,623	1,652	1,762

Deaths under 5 years from Tuberculosis, average 135.

From Tuberculosis, average 127.
(Improvement of second period
over first, 6%).

Equals a death rate of 6.57 per 1,000
pop. under 5 years.

Equals death rate of 4.4 per 1,000
pop. under 5 years.

(Pop. under 5 years at census
1881, 20,557.)

(Pop. under 5 years at census
1901, 28,901.)

* The boundary of the City was extended in November, 1904.

TABLE V.
NEWCASTLE-UPON-TYNE.

DEATH RATES PER 1,000 POPULATION FROM THE "SEVEN CHIEF ZYMOTIC DISEASES" AND TUBERCULOUS DISEASES (ALL AGES) DURING THE 5 YEARS 1901-1905.

	1901	1902	1903	1904*	1905*
"Seven Chief Zymotic Diseases" (all ages)	2.2	1.6	1.1	1.5	1.3
Tuberculous Diseases (all ages) ...	2.8	2.4	2.6	2.4	2.3

The average death rate of the city during the past five years from the "Seven Chief Zymotic Diseases," per 1,000 population, was 1.5, and from Tuberculous Diseases, 2.5.

The above figures shew a marked reduction in the later as compared with the earlier years of the periods to which they respectively refer. This does not justify the assumption that Tuberculosis is diminishing, although the figures alone seem to indicate such a conclusion. The diminution in the number of these deaths is largely, if not entirely, the result of improved accuracy of diagnosis, and may therefore be only apparent and not actual.

II.—THE DUTY OF THE SANITARY AUTHORITY AS TO THE CONTROL OF TUBERCULOSIS.

In a circular recently issued to Sanitary Authorities and others by Sir Wm. Broadbent, M.D., Chairman of Council of the National Association for the Prevention of Consumption and other Forms of Tuberculosis, attention is earnestly and forcibly called to the prevention of this disease as being a social and public question of vast national importance. The disease is contagious, and therefore preventable. It is very costly to the nation, being a source of both direct and indirect loss in many ways, but perhaps in none more positively than as being a serious cause of pauperism.†

* The boundary of the City was extended in November, 1904.

† Dr. Nathan Raw, of Liverpool, ascertained that out of 4,000 Consumptive paupers under his care, "60 per cent. became paupers because they were phthisical, and not phthisical because they were poor."

There can be no doubt, on the other hand, that Consumption is largely dependent on various conditions attendant on poverty.

The circular in question points out that Sanitary Authorities, being "charged with the responsibility of protecting the community from preventable disease, ought to regard it as a duty to take an active part" in the work of coping with Tuberculosis.

The discharge of this important duty includes the carrying out of all measures for the extinction of the disease in man and animals under domestication.

As has recently been well observed by Dr. J. E. Squire,* the care of the poor, among whom Consumption is most prevalent, should not be left to private charity, which is demoralising to them, but should be dealt with by some national scheme, by which every individual, however poor, could earn the right to be taken care of when sick, as is the case in Germany, where this question is treated imperially, whereas in England it is parochial.

One object of the present Report is to shew that this dire disease is a penalty for neglect of hygienic law.

III.—THE CAUSES OF TUBERCULOSIS.

The primary cause of Tuberculosis is a bacillus which circulates throughout the body by means of the blood—and lymph—vessels. These bacilli multiply and increase to immense numbers. They are invisible to the naked eye. At a certain stage in their life-history, they begin to form visible masses which are termed "*tubercles*." These tubercles may occur in almost any or every part of the system; they are, however, most commonly found in the abdominal cavity in children and in the lungs of adults, where they not

*Article on "The Results of the Sanatorium Treatment of Consumption." *Tuberculosis* for November, 1906.

unfrequently attain to a great size. The simultaneous presence of one or two small isolated masses of tubercle in remotely distant parts of the body—a matter of common occurrence—is not in any sense a proof of the so-called “localization” of the disease itself. It merely indicates to the unaided eye that certain of the bacilli, having reached given spots, mark the advance of the disease into its *second or visible stage* in those particular parts; just as in smallpox the germ of infection remains in the system for twelve days, unrecognised and without causing symptoms of ailment; then the patient feels ill, and on the third day of his illness—but not earlier—the characteristic pocks appear on his skin. In this case, as every one knows, it would be wrong to say that the disease was localized in the skin, and began only with the eruption of spots. So in Tuberculosis before the production of “tubercle,” there is a stage of the disease of unknown duration, during which the bacilli multiply and circulate throughout the body.

In evidence—if not, indeed, in positive proof—of this statement, we have the universally acknowledged fact that the reaction of the tuberculin test may be obtained at any and every stage of the disease—even when the visible tubercle is very small in amount and situated in a part remote from that at which the tuberculin was introduced into the body of the affected animal.

Even were the idea of “localisation” of Tuberculosis absolutely correct, it would be of little use as a guide in meat-inspection; because the extent of the tubercle in a given carcase can only be ascertained after cutting up the flesh into pieces so small as to render the meat unsaleable. Short of this, to attempt to lay down a rule as to what portions of a tuberculous carcase may, and what may not, be eaten with safety by man, is as unsound in principle as unsafe in practice, and would be unhesitatingly condemned by any customer to whom a joint from such a carcase was offered for

sale. To regard Tuberculosis as beginning with and being localized in, Tubercle, is to fail to recognize the purely bacillary stage of the disease, and is therefore wrong. This special feature of the disease has been brought into prominence here, and will be so afterwards in this Report, inasmuch as its recognition is a matter of much import in the early and thorough application of certain preventive measures. Recent non-recognition or neglect of it on the part of persons in highly responsible positions is, and probably will be in the future, the cause of much apathy of private individuals and of opposition from those commercially interested in the two great food trades to which the spread of the disease is chiefly due, viz., those of milk and meat. The subject will be again referred to in considering these prominent articles of human diet as agents in the spread of Tuberculosis.

The *infectiousness* and *communicability* of Tuberculosis from the sick to the healthy was taught long ago by Morgagni, Villemin, and others.

THE VEHICLES OR MEDIA BY WHICH THE BACILLUS OF TUBERCULOSIS GAINS ENTRANCE INTO THE BODIES OF PREVIOUSLY HEALTHY HUMAN BEINGS are the following, viz.—

- (a) The milk and milk-products* of tuberculous cows consumed as food.
- (b) The milk of a tuberculous human mother.
- (c) The flesh of tuberculous animals consumed as food.
- (d) Dried expectorated matters and other infectious discharges of consumptive persons inhaled or swallowed as atmospheric dust, &c.
- (e) Heredity.
- (f) Marriage of the tuberculous; other vehicles, &c.

*The term "milk products" includes, of course, butter, buttermilk, whey, and cheese. Each of these substances, except the last named, have recently been proved experimentally by Prof. Delépine to be capable of conveying Tuberculosis to animals. (*Rept. of Cheshire C.C.—1st March, 1906*).

MILK.

THE MILK AND MILK-PRODUCTS OF TUBERCULOUS COWS.

This division of the subject may be considered under the following heads, viz :—

1. The prevalence of Tuberculosis among Dairy Cattle.
2. The entrance of Tubercle-Bacilli into milk—and the state of milk-supplies in town and country dairies in relation to Tuberculosis.
3. The extent of the disease causable by milk and its products.
4. The difficulty of detecting or judging of Tuberculosis in Dairy Cattle by ordinary methods.
5. The Tuberculin test as a means of detecting Tuberculosis in Cattle, and an important agent in the extinction of the disease.
6. The possibility of the elimination of Tuberculosis in Cattle. Action taken in England and elsewhere.
7. The control of the Milk Supply.—Regulations.—Procedure.
8. Action desirable.
9. The attitude of recent Royal Commissions and its consequences.
10. Law.

1. THE PREVALENCE OF TUBERCULOSIS AMONG DAIRY COWS.

The Report of the Royal Commission on Tuberculosis issued in 1898 states that “of all the animals slaughtered for food in Great Britain and Ireland those of the bovine race seem to be more largely affected with Tuberculosis than any

other." In the absence of statistical information as regards our own country the Report proceeds to show that in Leipzig, of 9,303 cows slaughtered, 4,048 or 43·51 per cent., were tuberculous. The proportion of such diseased cattle in English cow-houses, which has been publicly and authoritatively stated at about 30 per cent., (MacFadyean)§ may not be excessive.

In the year 1901 there were 1,887,414 milch cows in England, and 4,102,061 in the United Kingdom.* 30 per cent. of these means upwards of 560,000 tuberculous milch cows for England alone, and nearly 1½ millions for the United Kingdom. The bare idea of the amount of possible human tuberculosis from the milk of so immense a number of diseased cows is appalling. Notwithstanding this truly dreadful possibility the Report above quoted gives prominence to the following statement. "It was not proved to our satisfaction that tubercle bacilli had ever been detected in milk unless drawn from a cow with tuberculosis of the mammary gland."†

2. THE ENTRANCE OF TUBERCLE BACILLI INTO MILK, AND THE STATE OF MILK SUPPLIES IN RELATION TO TUBERCULOSIS.

In a well known work‡ the means of entrance of Tuberculosis into healthy cows is described, and may be summarised as follows:—

- (a) Tuberculous excretions and discharges conveyed to soil, air, water, fodder, and general surroundings (premises, stables, straw, stable refuse, utensils).
- (b) The milk of a tuberculous animal may be consumed by other animals.
- (c) The bacilli may be distributed by the cough of a tuberculous cow (Ravenel) or

§Trans. Brit. Cong. on Tuberculosis, 1901.

* Rept. of Roy. Com. p. 4. † p. 13., s. 28.

‡ "The Bacteriology of Milk," Harold Swithinbank and George Newman, M.D., London, 1903.

- (d) By the saliva of a cow in licking. In this way she may also infect the surface of her udder, and thereby the milk, by means of the hands of the milker.

Each or all of these ways may lead to the contamination of the milk after yield. By the repulsive habit of spitting on the hands before milking, or by dried expectoration in a cowhouse, a consumptive milker may infect the milk after it has left the teats of the cow.*

STATE OF COWHOUSES.

The foul state of many cowhouses both in town and country is only too well known, and ample illustration of this is on record.† It is right to add that of late years great improvement has taken place in many town cowhouses—but most of those in rural districts are as insanitary as ever. Dr. Hope, of Liverpool, has shewn that in town-yielded samples of milk the tubercle bacillus was found in 2·8 per cent., whereas in supplies sent from the country 29·1 per cent. were found to be tuberculous.

Speaking from personal experience, the writer affirms that the cowhouses in Newcastle and the surrounding country districts are in much the same condition as in other places; and he has every reason to believe that a bacteriological examination of the different urban and rural milk supplies sold in the city would disclose results similar to those found in Liverpool and elsewhere.

Even accepting the untenable hypothesis that cow's milk is only rendered infectious when the udder becomes diseased—the difficulty of diagnosing such disease at an early stage in time to prevent the use of the milk for food is so great as to put beyond the range of practical utility most of the apparent value of the suggestion.

* "The Bacteriology of Milk," Harold Swithinbank and George Newman, M.D., London, 1903.

† Rept. Roy. Com. on Tuberculosis, 1898, ss. 45, 46.

3.—THE EXTENT OF THE DISEASE CAUSED OR CAUSABLE BY MILK AND ITS PRODUCTS.

The milk-trade is one of the most complex of organizations. Under defective management it may become a most elaborate means for the spread of different infectious diseases, and of none more frequently than Tuberculosis. The fact that milk as sold to consumers is the mixed yield of perhaps from 10 to 50 different cows—a certain proportion (perhaps a large one) of which are possibly tuberculous, renders the entire product, if so infected, a most potent agent of evil. As milk is distributed night and morning to the houses of dairy customers, by many of whom—especially the children—it is consumed raw, the opportunities of the dissemination broadcast of the virus of Tuberculosis or other disease are far beyond comparison greater than with any other article of diet. The spread of infection from a diseased cow may go on for many months without detection, whilst her milk is being consumed without suspicion. That the many forms of Tuberculosis among the young, and indeed at all ages, are not oftener traced to the milk-supply is the consequence, not of the harmlessness of the milk itself, but of the complexity of the circumstances attending its distribution, together with the very nature of the disease and the conditions of its development. In the case of an outbreak of Scarlet or Enteric Fever, of which there have been several hundreds within the last twenty years or so, the suddenness of the outburst, the nature of the ailment, the common routine of inquiry invariably made by the special inspector, and a host of other circumstances, point at the outset to the milk-supply as the possible, if not probable cause. But, with Tuberculosis this is not so. This disease is insidious in its approach; its period of incubation is unknown; the signs of its presence are for a considerable time indistinguishable from those of other ailments; and the means of tracing its probably remote origin are not available. Hence the impossibility in the present state of our knowledge of presenting evidence of the extent to which the disease may be attributed to milk or any other

individual cause. This circumstance has led to the idea on the part of some that "if there had been anything like the danger from the meat and milk of tuberculous cattle that Medical Officers of Health say there is, we should all have been dead of Tuberculosis long ago!" Such an idea, if true, would apply to all infectious diseases, which would never cease till they had exterminated the entire human race. But they do not spread in this way for several well-known reasons which it is unnecessary here to state; and the same applies to Tuberculosis, with respect to which it may be added that special predisposition on the part of some persons and exactly the opposite condition on the part of others, are special characteristics of that disease.

It is stated on good authority that about 90 per cent. of the cases of Tuberculosis among calves and swine have been proved to originate in feeding with infected milk.*

4.—THE DIFFICULTY OF RECOGNIZING TUBERCULOSIS IN DAIRY CATTLE BY ORDINARY MEANS.

The difficulty of diagnosing Tuberculosis by ordinary physical means at any but the most advanced stages of the disease is universally recognized; and this very fact is an element of the greatest mischief in the possibility it allows for the continuous spread of infection for a long period, from a diseased cow. Daily visitations at cowhouses afford but little information to the Inspectors of the Sanitary Authority as to the health of Dairy Cattle.

5. THE TUBERCULIN TEST AS A MEANS OF DIAGNOSING TUBERCULOSIS OF CATTLE.

The Royal Commission of 1898 in their Report, s. 15, "recommended that funds be placed at the disposal of the Board of Agriculture in England and Scotland, and of the Veterinary Department of the Privy Council in Ireland, for the preparation of commercial tuberculin, and that stock-

* L. Rabinoswitsch, Trans. Brit. Cong. of Tuberculosis, 1901, Vol. III., p. 508.

owners be encouraged to test their animals by the offer of a gratuitous supply of tuberculin and the gratuitous services of a veterinary surgeon on certain conditions."

"These conditions shall be:—

- (a) That the test be applied by a veterinary surgeon.
- (b) That tuberculin be supplied only to such owners as will undertake to isolate reacting animals from healthy ones.
- (c) That the stock to be tested shall be kept under satisfactory sanitary conditions, and more especially that sufficient air-space, ventilation, and light be provided in the buildings occupied by the animals."

The Commission further recommended the circulation among agricultural societies of instructions for the proper use of the tuberculin test, with explanation of the significance of reaction, and direction for effective isolation of re-acting animals.

The above recommendations are sufficient proof of confidence in the value of the tuberculin test. Although made eight years ago, so far as is known to the writer they *have led to no practical result whatever on the part of the British Government*. For this reason and seeing the well known disinclination of farmers to speculation, and their not unnatural hesitation to experiment with the object of discovering disease in their herds, it is perhaps not surprising that the test has not become popular among them. The responsibility incidental to such a discovery may not be unconnected with their failure to adopt it.

The magnitude of the task, and the claims for compensation involved have doubtless deterred the Government from pushing the subject forward on their part. Hence little or no progress has been made in England toward the elimination of bovine tuberculosis as a commercial project. Its compulsory extinction as a source of the greatest danger to human life has never yet, it is believed, been seriously proposed. What is the reason? "*If preventible, why not prevented?*"

6.—POSSIBILITY OF ELIMINATING TUBERCULOSIS OF CATTLE.

In reviewing the pros and cons of this momentous question the chief points for consideration appear to be the following :—

- (a) The tuberculin test is admittedly reliable as a means of detecting the disease.
- (b) Voluntary attempts to eliminate Tuberculosis have been freely tried in Denmark and have met with a very large measure of success. To ensure complete success of the process compulsory and universally complete application of the principle is necessary.
- (c) The process of elimination should involve the immediate slaughter of all re-acters and the destruction of their carcasses. Stockowners should not be responsible for the carrying out of this great work for the public benefit; neither should they be at any pecuniary loss in its execution.

Fair compensation should be granted on compliance with requirements during a stated period whilst the process is in operation. Doubtless the knowledge of the sum of money that would be required for this purpose is the main objection to the enforcement of the measure by Government. Such an objection would not hold in the case of an acute and wide-spread epizootic of other disease, say of cattle plague, an outbreak of which in this country in 1865-6 involved the death of upwards of 233,000 head of stock. Here the first consideration was the stamping out of the disease, as quickly as possible, and at any cost. Tuberculosis of animals is more widely spread than cattle plague has ever been; it is always chronically prevalent in our herds and dairies; whereas visitations of cattle plague are few and far between: and what is worst of all, it causes a vast amount of human sickness and death, which cattle plague does not do. Hence its extinction,

both on hygienic and economic grounds, is more urgently called for than would be that of an epizootic disease of different kind. It is estimated that the disease in animals may be eliminated in a single year. It might be attacked in single counties or districts in successive years to diffuse over a longer period the cost of dealing with it. All fresh importations of cattle into a district after a given date should be subject to the test.

If all stockowners and butchers were required to purchase subject to guarantee against tuberculosis, as proved either by the tuberculin test or by inspection after slaughter, the test would rapidly become general. Owners would only be too glad to adopt it in self defence, and other action necessary for the extinction of the disease would soon follow.

7.—THE CONTROL OF THE MILK-SUPPLY BY SANITARY AUTHORITIES.

The control of the Milk-supply of any district, to be satisfactory or complete, involves of necessity the frequent bacteriological examination of specimens drawn from the udders of each and all of the cows yielding milk for the supply of that district. This means that such examination should apply to the produce of dairies within the district and others sending supplies to it from without. A Sanitary Authority may take power to obtain the required specimens, and may carry it into effect in its own district; but to do so in the case of districts at a distance would be difficult and troublesome unless through the co-operation of the Sanitary Authorities of such districts. But under present conditions such co-operation is scarcely to be expected. For example: a large amount of milk is sent daily to London from Cheshire. Are the different Rural Authorities of the latter county to be expected to bestir themselves vigorously in order to condemn, in the interest of the distant Metropolis, the cowsheds and milk-supplies of their own farmers, many of whom may be members of these same Authorities? And how can London supervise the Cheshire dairies for itself?

The necessity for the regular and frequently repeated bacteriological examination of the milk-supply from every dairy cannot be too strongly insisted on. Tuberculosis of the udder is a well-known, though not by any means a common, form of the disease in cows, and the great danger in such cases of spreading the disease to consumers of the milk is admitted, even by the late Royal Commission, who cannot justly be charged with undue severity—at least to the dairy-trade—in their proposals for dealing with the milk of tuberculous cows, seeing that their protective recommendations extend only to animals with obvious disease of the *udder*, notwithstanding the fact that the milk of cows *without visible sign of tuberculosis of the udder* has been shewn by many bacteriologists to be infectious.*

This systematic and general bacteriological examination of milk is all the more urgently required by the fact that dairy farmers are not yet compelled by law to take steps to ascertain whether their milch-cattle are all tubercle-free.

The possibilities of spreading tuberculosis through the milk-supply are very great, inasmuch as in case of one cow only having the disease in a large dairy-herd, her milk, mixed with that of the other cows, will contaminate the entire supply, which, being distributed twice a day for a lengthened period, and consumed largely by children and principally uncooked—whether in its natural state or in the form of butter or cheese—has thus greater probabilities for conveying infection than any other article of food.

The ramifications of the Milk Trade throughout Great Britain are so complex and so intricate that no proper supervision in the interest of the consumer is at present practicable. Such supervision is possible only by the union of representatives of County Councils and District Authorities, both Urban and Rural, in one general body, with power to

* L. Rabinowitsch: Trans. Brit. Cong. on Tuberculosis, 1901. Vol. III., pp. 508-9, and Swithinbank and Newman's "Bacteriology of Milk," pp. 240-1.

organize and cause to be carried out all such measures for the regulation of the production and distribution of milk as are required for the protection of the health of the consumers. The action of such a body need not by any means be limited to the control of the milk supply. In the national interest it might extend to the extinction of bovine tuberculosis, and other matters relating to public hygiene.* The work for such an organization is abundant, and if taken in hand will be found to increase year by year.

A Sanitary Authority should have power to collect at the place of production samples of any milk intended for sale within their district.

No power is given to deal with any form of Tuberculosis in a dairy, no matter how extensive, other than the comparatively rare one in which the udder is affected; and how is the dairyman to be proved to know that a disease of his cow's udder is tuberculosis? The application of the tuberculin test to dairy cattle, even in case of suspected Tuberculosis of the udder, is not provided for.

The Liverpool milk clauses also fail to afford the protection against, and means of detection of, Tuberculosis among the dairy cattle yielding the milk-supply for the City, which the public health demands. The Medical Officer of Health may, it is true, by a very tedious and roundabout process, obtain an order to prohibit the sale of milk at any dairy, but *not unless he is of opinion that such milk has caused, or is likely to cause, Tuberculosis to its consumers!* How, without previous application of the tuberculin test, is he to obtain the information on which to form such opinion? How long may the distribution of such milk have to continue to cause Tuberculosis before the Medical Officer can possibly feel justified in concluding that it has done so? As it stands, the supposed "power" is a pure delusion.

* See p. 41.

8.—ACTION DESIRABLE.

Every Sanitary Authority should have power to enforce, and should be required to enforce, the following provisions, viz. :—

- (1) To apply the Tuberculin test to, and
- (2) To take such specimens as may be required of the milk of any cow, the yield of which is intended for sale in the district of such Authority ;
- (3) To prevent the sale of the milk of any cow re-acting to the tuberculin test, or found to be affected with tuberculosis in any form whatever.
- (4) To destroy any dairy cow re-acting to the tuberculin test and to compensate the owner, in the event of his compliance with the requirements being approved by the Sanitary Authority.
- (5) To require that no fresh cow shall be brought into any dairy for the production of milk for sale, that has not previously been recently tested with tuberculin and failed to re-act thereto.

The administration in detail of the foregoing and other requirements for the regulation of the milk trade ought, in the national interest, to be directed by a combination of Sanitary Authorities, as elsewhere indicated in the present report.

9.—THE ATTITUDE OF THE LATE ROYAL COMMISSION IN RESPECT TO THE MILK OF TUBERCULOUS COWS, AND ITS CONSEQUENCES.

Among much that is valuable in the report of the Royal Commission of 1898, there is also much that is grievously disappointing. The observations on milk-supply (ss. 39 and 42) and recommendations 7 and 8 on the same subject are,

as already stated, directed against the milk of cows with diseased udders only. The sale of the milk of other tuberculous animals is not condemned and therefore, by inference, is sanctioned by the Commissioners. In view of the abundance of proof as to the deadly nature of such milk, this is a lamentable fault in the report. As a whole, the sections of the report above referred to may, not inaptly, be characterised as milk and water.

The effect of the pronouncement of the late Royal Commission (quoted on page 13 of the present report) on their want of evidence as to the danger from the milk of a tuberculous cow, unless her udder was diseased, has naturally been to convey the general impression that the Commission did not regard such milk as dangerous, no matter how extensive the disease of the cow in the rest of her body—an admission only too likely to be taken as a rule for universal guidance. This opinion of the Commission is confirmed by subsequent sections* of their report, in which the protective measures recommended relate only to milk from cows with udder disease. That the conclusion of the Commission is absolutely incorrect and the doctrine advanced upon it dangerous to the highest degree, is proved by scientific evidence, part of which was before the world long before the sitting of the Commission, but of which they appear to have had no knowledge, and part of which was published subsequently. Thus Bollinger in 1880 produced tuberculosis by inoculation with the milk of a cow whose udder was not tuberculous; Hirschberger (1889) found milk infective from a cow affected with slight tuberculosis of the *lung only*; Ernst found in 114 samples of milk from 36 tuberculous cows, shewing no udder lesion, that 28·57 per cent. were infective; Smith and Schroeder found the milk infective in two cases out of six; and Delépine found the same in five out of twenty-four tuberculous cows with no udder lesion.†

* ss. 39, 42, and 43.

† *Lancet*, 20th January, 1900.

Again: " . . . The presence of tubercle bacilli in the milk of cows that respond to the tuberculin test without showing clinical evidence of tuberculosis was proved in the same year (1899) by the thorough experiments of Adami and Martin. A further proof in support of this theory was furnished by my last year's observations on milk supplied to infants in Berlin. . . . The supply of milk taken from animals . . . contained tubercle bacilli, though they shewed no clinical symptoms of Tuberculosis."*

The attitude of the Royal Commissioners on the matter of tuberculous meat will be referred to later.

10.—LAW IN RELATION TO TUBERCULOUS MILK.

Special powers for dealing with Tuberculosis and Milk have been obtained by the authorities of Glasgow, Manchester, Liverpool† and many other English towns. Most of these powers, as ultimately granted, are based on the findings and recommendations of the Royal Commission of 1898, and for that reason alone, and others also, fall far short of requirements. The Corporations of Manchester and several other towns "sought unlimited power of inspection of the cows on all farms supplying them respectively with milk; and of exclusion of milk of cows with any form of udder disease or suffering from advanced‡ tuberculosis." These proposals were modified considerably by the Local Government Board, the Board of Agriculture, and the Associated Chambers of Agriculture—and finally, the Corporations in question obtained the very limited power (1) to fine a dairyman who sold milk from a cow with a tuberculous udder, or continued to keep a diseased cow among other dairy cattle; (2) to require dairymen to notify tuberculosis of the udder.

*Dr. L. Rabinowitsch, Trans. Brit. Cong. on Tuberculosis, 1901. Vol. III., pages 508-9.

† The Liverpool Clauses are given in extenso in the Appendix to this Report, p. 51.

‡ The Sanitary Committee of Newcastle-upon-Tyne are of opinion that the word "advanced" should be omitted from the list of powers to be sought for the City.

MEAT.

THE DANGER OF THE USE OF THE FLESH OF TUBERCULOUS
ANIMALS FOR FOOD. *

In matters concerning meat and other foods, with the older sanitarians "Purity" was the aim, and "Avoid every appearance of evil" the motto. But, like Molière's Physician in spite of himself, "we have changed all that," and henceforth we are to practise hygiene on entirely new methods! As regards the consumption of tuberculous meat, our rule in future is to be "go as near to danger as possible, without absolute proof of injury" (which it is often impossible to obtain!). In other words, we are to attempt to find out by practical processes whether or not "a man can eat a peck of dirt before he dies!" This, at least, appears to be the opinion and teaching of the Royal Commission on Tuberculosis, 1898. In commenting on the inspection as carried on in Edinburgh,^{*} the Commissioners, although favourably impressed with the organisation, state that "the standard by which the meat of tuberculous carcasses was judged appeared to us unnecessarily severe." They think that an exaggerated view has been taken of the extent of the danger arising from tuberculous meat (ss. 25-34). They quote the example of Saxony shewing that Tuberculosis was found to exist in 22,758 carcasses, or upwards of 27 per cent, of the whole, and yet 92½ per cent. of these diseased carcasses were *passed as fit for food!* 5½ per cent. were disposed of in the Freibank as inferior meat at a fixed cheap rate, and "the remainder or 2 per cent. of the whole number pronounced tuberculous . . . were condemned as unfit for food and destroyed."[†]

The Royal Commission were favourably impressed with what they aptly term the "peculiar institution," known in Germany as the Freibank, where diseased meat after sterilization, or raw, as the case is considered to warrant, is sold at half price! They do not, however, go quite so far as to

* Report, s. 21.

† Ibid, s. 25.

recommend the introduction of this "peculiar institution" into England.

The Commission comment on the evils and commercial inconveniences arising from the want of uniformity of action in condemning tuberculous meat, and recommend for adoption a decidedly low standard,* of which the general effect will probably be to cause the passing of a large amount of meat which without it would be condemned. In the first place this standard specifies certain very marked conditions of tuberculous disease, in which the entire carcase and all the organs *may* (not *must*) be seized. It then proceeds to define four other conditions in which the lesions, no matter how extensive, are "confined respectively to (a) the lungs, etc., or (b) to the liver, or (c) to the pharyngeal lymphatic glands, or (d) to any combination of the foregoing, but collectively small in extent," and prescribes in any of these that "the carcase, *if otherwise healthy* (!) shall not be condemned, but every part of it containing tuberculous lesions shall be seized."

These very remarkable principles, intended for the general instruction and guidance of meat inspectors, suggest the following observations: In the very worst cases of tuberculosis the seizure is left to the option of the officer. In other cases, the parts to which the tuberculous lesions are confined, and these parts only, are to be seized. The rest of the carcase, "if otherwise healthy," is to be passed. How can it be otherwise healthy in the circumstances? Without extensive dissection of the entire carcase, how is an inspector to determine whether the lesions are limited to a particular set of organs? By the term "lesions" is evidently meant "signs of disease apparent to the naked eye." The parts not containing such signs, *i.e.*, the remainder of the carcase, may, according to the Royal Commission, be sold for food. This assumes that the disease is confined to the visible deposits of tubercle, which is erroneous.

* Report of Royal Commission, 1898, pp. 21 and 22.

The danger of consuming the flesh of animals affected with tuberculosis, when such flesh does not contain obvious tubercle, was proved by Dr. Sidney Martin* before the Royal Commission of 1895, in his experiments on guinea-pigs. The Report of this Commission (s. 18) says: "We cannot but regard these differential experiments as shewing a danger to a healthy animal from the introduction into its food of material taken from a tuberculous animal." The experiments in question were not made with "material containing tuberculous matter recognised as such," but "with some material, sometimes meat, much in the sense that a butcher might speak of meat derived from a tuberculous animal."†

Notwithstanding the foregoing evidence, the Royal Commission of three years later advises that a carcase having tubercle in only one of the great sets of organs should not be condemned! What would be said of a proposal to destroy the visible diseased parts of a carcase of trichinatous pork, and allow the remainder to be sold for food?

To assume, as the later Commission appears to have done, that visible tubercle in one part only of a carcase does not imply infection in the rest of the flesh, is, it is submitted, unjustifiable. To ignore the presence of tubercle bacilli in such circumstances would be no less dangerous than to disregard those in the air of the bedroom of a consumptive person.

A pronouncement such as that of the Royal Commission of 1898 above referred to, cannot but be far-reaching in its effects, and is likely to lead to the passing of large quantities of diseased meat in this country, which but for it, would be condemned. Through it, the action of officers is now questioned, as the following illustration shews. In May, 1903, the following letter was addressed by the Assistant Secretary of the Local Government Board to the Town Clerk of Newcastle-upon-Tyne:—

* R. C. Report, 1895, pp. 9, 10.

† Ibid.

LOCAL GOVERNMENT BOARD,

WHITEHALL, S.W.,

12, May 1903.

SIR,

I am directed by the President of the Local Government Board to state that he has been furnished by Mr. W. Field, M.P., with a statement, of which the accompanying is a copy, respecting seizures of carcasses made in the City of Newcastle-upon-Tyne in the years 1899-1902.

The President would be glad to be furnished with information as to the circumstances in which these seizures were made, and with any observations which the Town Council may have to offer on the matter.

I am, Sir,

Your obedient Servant,

JOHN LITHIBY,

Assistant Secretary.

*The Town Clerk,**Newcastle-upon-Tyne.*

The statement above referred to consisted of a list of ninety so called "locally affected" carcasses condemned and destroyed by the officers of the Newcastle Corporation in the four years named, giving the date, cost, and other particulars of each animal referred to: including, in several instances, observations as to the extent of the visible disease; the objection of the owners to destruction of the carcasses; the alleged remarks of the Medical Officer of Health, etc.

At the request of the Sanitary Authority the Medical Officer of Health replied at length on the foregoing question in a report from which the following particulars are taken. The carcasses in question belonged to members of a Butchers' Company, and were "surrendered" by their owners. In all 104 such carcasses belonging to the members of this company had been so "surrendered" during the years 1899-1902. So far as could be remembered, in every instance the carcass was tuberculous to a very marked degree.

The records of the Butchers' Society shewed that of upwards of 60,000 cattle insured by the members in the years 1899-1902, only 104 had been condemned, *i.e.*, 1 in 584 of all classes, or about 1 in 38 cows, and 1 in 848 other kinds of cattle, at a total loss to the Society of 4'05d. per head insured, paying two-thirds of the cost price of each animal. The report concluded as follows:—

"The statement of Mr. Field, M.P., appears to be an indictment of the action of the Medical Officer of Health in condemning diseased meat belonging to members of the Newcastle and District Butchers' Insurance Society.

"Under the circumstances above described, the Medical Officer of Health, whilst sympathising with the owners of the meat, fails to recognise the ground of their special complaint against him, or to understand how he can impartially discharge his duty to the public if his decision is to be influenced by the pecuniary considerations involved."

This ended the matter, so far as is known to the Medical Officer of Health. It can scarcely be said that the number of carcasses condemned as above described is excessive, and yet an explanation of his action was required from the officer responsible. To those who know the real proportion of tuberculous animals in our markets, the figures above given, instead of being an indication of excessive activity on the part of the officials, suggest that a great many diseased carcasses were sold for food which were never inspected. With a public abattoir such a thing would not take place.

Seeing the indifference with which all but the most advanced cases of tuberculosis in cattle, the flesh of which is intended for human food, are regarded in high official quarters, it is no wonder that the trade begins to make objection to the action of the officers of certain Sanitary Authorities who, recognising that Tuberculosis is something more than mere tubercle, do not hesitate to condemn the flesh of animals so affected to any considerable extent in any single part or organ of the carcase, even though the other parts fail to shew visible signs of disease, and are not deterred, through an undue sense of the commercial as against the human interests involved, from the execution of their duty under the powers conferred on them by section 116 of the Public Health Act, 1875.

Butchers complain that tuberculous meat is destroyed at their expense, whilst the farmers who sell the living animals escape scot free. This contention at first sight seems to contain an element of justice, but as the butchers can, if they choose, buy on warranty of freedom from disease, which the farmers may with the aid of the tuberculin test very safely give, the former have the remedy in their own hands. Even without warranty, by insurance to two-thirds the value of the cattle the loss to the butchers through condemnation is reduced to insignificance.

MEAT INSPECTION.

The importance of having trained, certificated meat inspectors can scarcely be too strongly insisted on. In Newcastle there are three skilful and experienced officers for this purpose, and, so far as is possible without a public abattoir, their work is exceedingly well done. But they are not ubiquitous, and it must be obvious to everyone that there is ample opportunity for concealment and disposal of diseased meat in the slaughter houses scattered over a city seven miles in extent.

OTHER CAUSES OF TUBERCULOSIS.

In the foregoing observations, the consideration of the causes of Tuberculosis has been limited to articles of diet. But the introduction of the tuberculous infection into the human system by way of the respiratory passages is quite as common as that by the alimentary canal. Pulmonary Consumption is the direct result of the inhalation of the bacillus of tuberculosis floating in the air as dust. The conditions leading to this inhalation of tubercle bacilli comprise the following:—

Atmospheric pollution in houses and rooms occupied by consumptive persons. This may arise from want of care with regard to expectorated matters which, if allowed to dry, are readily diffusible through the air. Consumptive persons should always expectorate into special bottles. By coughing into the air (without expectoration), or even by sneezing, the

bacilli may be ejected from the chest of a consumptive. Such actions should always be done by the patient with a pocket handkerchief before the face. The handkerchiefs and articles of apparel, etc., soiled by expectoration should be frequently changed, the used ones being placed in disinfectant. The floors of infected rooms should be sprinkled with disinfectant, and all dust should be carefully swept up and destroyed by fire.

The dangers of infection in dwellings are multiplied by over-crowding, defective ventilation, dirt, and want of light. Fresh air and sunshine are the best disinfectants. As *slum dwellings* are among the most prolific causes of consumption, special efforts should be made to improve their condition with the object of minimising their ill effects, and thereby preventing the disease.

Spread of tuberculosis is favoured by the crowding together of persons, including one or more consumptives, in assemblies, *e.g.*, places of worship or amusement. In such assemblies the ventilation, which is usually very bad, contributes greatly to the chances of healthy persons catching infection. The waiting rooms for patients at ordinary hospitals and dispensaries are especially dangerous, for there many consumptives sit for hours among crowds of other persons, all more or less predisposed by their delicate health to develop tuberculosis from germs they inhale. On this account special dispensaries for Tuberculosis, such as have been so successful at Lille and in other parts of France and Germany, are likely to be most beneficial.

Spitting on the streets and in any public place is very objectionable, and on the part of consumptives, very dangerous, and should be prohibited in England as it is in America. The issue from time to time of placards and notices in public places, tram-cars, etc., has done some good, but the habit of spitting in public has not yet been put a stop to. For this reason, among others, street dust is always infection-laden. One of the most objectionable customs in all towns is that of *sweeping the footways with ordinary brooms*.

This process is carried out by shop-keepers in all main thoroughfares at the time when they are crowded with foot passengers on their way to business; and the *dust*, especially in windy weather, is both disgusting and a serious source of disease. The invention of *an apparatus* after the style of the household carpet sweeper *for taking the dust from footways without creating a nuisance, would be a public boon*. Sanitary Authorities would insist on its adoption, and it would rapidly gain favour with shopkeepers.

PREDISPOSITION TO TUBERCULOSIS.

Among other causes of Tuberculosis *special conditions of the body*, and certain *habits and customs*, play important parts by creating in persons, otherwise strong and healthy, a predisposition to develop the disease. Tuberculosis bacilli are so very generally diffused in food or in the atmosphere that there are probably few persons who do not at one time or another inhale or swallow them. But with the majority of such persons some protective agency in the system prevents for longer or shorter periods the development of these disease-germs, otherwise there would be no limit to their harmfulness. Certain conditions of the body appear to diminish or destroy this protective agency, and thus allow or facilitate the development of the disease-germs in question. This state of matters constitutes at least one of the phases of "predisposition." Any condition or circumstance which causes, or contributes to, predisposition is therefore an essential factor in the production of the disease. These conditions vary widely in nature, including as they do, heredity, alcoholism, and other debilitating influences. Heredity was formerly considered to be the chief, and often the sole, cause of pulmonary consumption, the tendency of which to appear in successive generations, both of human beings and animals, is well known. But it is now taught that the offspring of tuberculous parents are, with very few exceptions, born free of the disease. The predisposition to it is inherited, but seldom anything more. If the new born child or calf of a tuberculous mother is immediately removed into tubercle-free

surroundings and fed on tubercle-free food, there is very little likelihood of its developing tuberculosis ; but if fed on the mother's milk, or allowed to inhale the air she breathes out, infection may be conveyed to it, from the effects of which, through its already inherited predisposition, it has but small chance of escape.

Alcoholism is probably by far the most potent predisposing cause of consumption in adults. The marriage of a tuberculous person with a previously healthy one is a frequent cause of disease in the latter. Insufficient respiratory action from prolonged sedentary attitude, stooping deportment of the body, and faulty breathing habits, are each and all fertile predisposing causes of the same disease in children and adolescents. Failure to change thoroughly and frequently the residual air in the extremities of the air passages of the lungs by deep inspirations and expirations, is a habit which children at desks in school and others very readily acquire, and should always be carefully taught to avoid as a danger to health. Drill-exercises, gymnastics, running, jumping, skipping, and dancing, are all excellent counter-agents to predisposition towards pulmonary consumption in the young ; but the practice of steady and prolonged in-and-out drawing of the breath as deeply and as slowly as possible is probably better than any of these.

IV.—THE EXTINCTION OF TUBERCULOSIS.

In the foregoing account an attempt has been made to indicate the prevalent causes of Tuberculosis and the means by which they act. In the control of the operation of these lies the possibility of the extinction of the disease. Whether this control shall be exercised, and to what extent, depends on public opinion. So far as it relates to the two chief articles of diet, meat and milk, the question resolves itself mainly into one of expense. Is it worth while trying ? To this the reply is undoubtedly "Yes !" For although the cost of exterminating tuberculosis in food-yielding

animals must of necessity be great, and is likely to be opposed by persons whose private interests may be touched, and by party politicians, yet the prospect of the benefit in view to the State and suffering humanity, and the hope of obtaining it, are greater still.

V.—ADMINISTRATIVE MEASURES FOR THE NATIONAL AND LOCAL TREATMENT AND PREVENTION OF TUBERCULOSIS.

If Tuberculosis is to be attacked with the hope of securing its ultimate extinction—and being a preventable disease such hope is well grounded—the measures requisite for dealing with it must be complete in conception and thorough in execution. These measures include the following:—

1. The compulsory notification of all cases of pulmonary consumption and other forms of tuberculosis attended with infective evacuations or discharges.
2. The isolation and treatment of the foregoing diseases in institutions specially provided for the purpose, and the prevention of such treatment in other institutions.
3. The prevention of the danger of infection through the digestive and respiratory passages of man and the domesticated animals.
4. The education of public opinion as to the nature and causes of Tuberculosis and the means of preventing it.
5. The acquisition and application of legal power to carry out the foregoing requirements.
6. The establishment of a *Supreme National Health Authority* charged, *inter alia*, with the special duty of administering and executing the measures required for the treatment and prevention of Tuberculosis.

With respect to the measures above indicated—the following observations are offered.

1.—COMPULSORY NOTIFICATION.

Voluntary notification is insufficient. The notification of pulmonary consumption only, leaves out of consideration other forms of the disease attended with discharges by which infection may be spread, and which ought to be dealt with by the Sanitary Authority.

2.—INSTITUTIONS FOR THE ISOLATION AND TREATMENT OF TUBERCULOSIS AT DIFFERENT STAGES.

These include (a) *Sanatoria* in healthy situations for isolation and curative treatment of cases *at an early stage*; (b) *Hospitals* for the isolation and palliative treatment of advanced cases and (c) *Dispensaries* for the special treatment of Infantile Tuberculosis.

Every Sanitary Authority should have the means of isolating early cases of Consumption and other forms of Tuberculosis attended with evacuations or discharges. At present Sanatoria are principally employed for the reception of the pulmonary form; but with the development of public opinion it is hoped that the other forms may be dealt with in the same manner. One bed per 5,000 population seems a suitable basis on which to calculate the amount of accommodation to provide. This for Newcastle will represent a total of 54 beds for a Sanatorium. As a commencement in this direction it is suggested that the Sanitary Committee arrange with the Newcastle and Northumberland Branch of the National Society for the prevention of Tuberculosis, to have the use of, say 20 beds for patients in their recently erected Sanatorium near Barrasford, North Tyne. The site, situation, surroundings, and structure of this Sanatorium are all that could be desired for the purpose.

This isolation of *advanced cases* of consumption, &c., is as urgently necessary in the interest of public health as for any other infectious disease. The Corporation have an excellent hospital for Incurables at Moor Lodge. For some reason

unknown to the writer consumptives are not admitted there. Being equally hopeless of cure as others, if not more so, and being also infectious, they have a double claim to the benefit of the Charity.

ANTITUBERCULOUS DISPENSARIES.

Apart from the cases admitted into Sanatoria or Hospitals for the hopelessly incurable, there will always be a numerous class of others including a large proportion of children and of adults able to go about, or even to work, who, for one reason or another remain at home. These require medical treatment, and among the working class population, usually attend as out-patients at the public hospitals or general dispensaries of their town to the great danger of other patients. There should be special Antituberculous Dispensaries for the treatment of such cases, and their visits to other medical institutions should be prohibited. Such institutions are in active operation in France and Germany and are doing good work. At these Dispensaries the consumptive patient is provided with a pocket spittoon in which he is instructed to bring a specimen of his sputum for bacterial examination. If the disease is tubercular, the patient is furnished with printed instructions as to precautions to be taken to prevent spread of infection, &c.; he is provided with pocket and table spittoons, and disinfectants. A personal enquiry is made into the circumstances and surroundings of the sick person. The soiled linen of the household is removed to a special laundry for disinfection and cleansing. The sick-room, walls, floors, &c., are disinfected.

At the Lille Dispensary, arrangements are also made for the provision of food and maintenance for the families of the sick. Registers are kept shewing the occupations of the patients, the causes of their illness, the state of their habitations, and other particulars bearing on the cases.*

The establishment of an Antituberculous Dispensary for Newcastle on the lines above described is greatly needed.

* "The Emile Roux Antitubercular Dispensary at Lille."—Paper by Dr. A. Calmette. Trans. Brit. Cong. on Tuberculosis. Vol. II., p. 447, &c.

3.—PREVENTION OF INFECTION THROUGH THE DIGESTIVE AND RESPIRATORY PASSAGES.

To prevent the infection of tuberculosis from gaining access to the body *through the mouth* implies the strict regulation of Cattle and Cow-houses, Meat and Slaughter-houses, and the supply of Milk and Milk-products. The dangers from these several causes have been plainly stated in the foregoing pages. The administrative and other measures required for dealing with them may be summarised as follows :—

A.—THE COMPULSORY ELIMINATION OF BOVINE TUBERCULOSIS FROM ALL BRITISH CATTLE.

This should be carried out compulsorily and universally by means of the tuberculin test on the lines recommended for voluntary application by the Royal Commission of 1898.* All re-acting animals whatever should be forthwith sterilized and destroyed.

All cattle freshly brought into a district or market after the carrying-out of the foregoing measure of elimination, should be subject to warranty of freedom from tuberculosis, or they should be tested immediately after arrival, and all re-acters should be promptly dealt with as in the preceding section.

All sales of living cattle or pigs should be made on similar conditions to those described in the two preceding paragraphs.

B.—MEAT INSPECTION.

An abattoir is an absolute necessity for the proper supervision of meat in towns. The sale in towns of the flesh of animals not slaughtered in an abattoir or otherwise not submitted to official inspection should be made illegal.

Meat passed as fit for food, after inspection should be stamped as such by the Inspector.

Rural Slaughter-houses should be supervised by the County Councils and made subject to regulations as in towns,

*Rept. 1898. Ss. 15 and 16.

Meat of quadrupeds slaughtered in one district and sent for sale to another, should be accompanied by an official certificate of freedom from tuberculosis, or should be subject to confiscation, and its sender to penalty.

The doctrine of tuberculosis at any stage being "localised" is false and mischievous and should be utterly abolished.

C.—MILK AND DAIRIES.

No milk or milk-product of any cow should be allowed to be sold unless such cow have previously been subjected to the tuberculin test and failed to react.

The limitation of the prohibition of the use of the milk or milk-products of tuberculous cows to such cows only as have disease of the udder is mischievous and should be utterly condemned.

The officers of the Sanitary Authority should have full power to take from any cow, the milk of which is sold or offered for sale in their district, such samples of milk for examination as they consider necessary.

The Sanitary Authority of a district to which milk or a milk product is sent for sale from another district, should have full power to require the sanitary regulation to their satisfaction of the cow-house and dairy in which such milk or milk-product was produced. For this purpose, they should have through their officers readier access to outside cow-houses and dairies than they have at present.

The "Milk-clauses" of the Liverpool Corporation Act 1900* are (subject always to the exceptions specified in the four preceding paragraphs and certain others) recommended as a general basis for imitation.

Sterilization of milk as a protection against tuberculosis and other infectious diseases is unsafe and otherwise objectionable. The only real safeguard lies in the prevention of the sale of the milk from a tuberculous cow.

* See Appendix—page 51.

Samples of the mixed milk of every dairy should be taken at frequent intervals for bacteriological examination. In the event of tuberculosis bacilli being found in any such mixed sample, a detailed enquiry should be forthwith carried out to ascertain the particular cow or cows in the dairy which had yielded the diseased milk. Any such cow should be forthwith removed from the byre and slaughtered and the carcase destroyed.

4.—THE EDUCATION OF PUBLIC OPINION AS TO TUBERCULOSIS AND ITS PREVENTION.

In the campaign against Tuberculosis, not by any means the least important item of the programme of requirements is the instruction of the people, both children and adults, in the general principles of hygiene, especially in points bearing directly on the causes of this particular disease in the individual, and the means which everyone, to a certain extent, possesses of preventing their action in his own person. The direct advantage to health from the regular practice of early rising, open-air exercise, and cleanliness; the great value of fresh air and direct sun-light as destroyers of disease germs; the strength, energy and happiness which ensue as the direct results of correct breathing habits, athletics, gymnastics, drill exercises, and erect carriage of the body; these are matters the systematic inculcation of which is infinitely more important to the young than some of the subjects now taught in our schools, and might with untold benefit be learnt and practised by persons at every age. Adults should have impressed upon them by addresses, lectures, and other means, the importance of lighting and free ventilation in tenement and private dwellings, in offices, workshops, and places of assembly for worship or amusement. If clergymen were only taught to realize how weary and sleepy their hearers often become before the close of even a stirring sermon, and to recognise that this is (perhaps entirely) due to the effects of long continued breathing and re-breathing of each others' breaths during the service,

the lesson would speedily lead to structural changes for the bodily and spiritual welfare of the worshippers.

Workmen and others should be thoroughly instructed as to the special insalubrity of certain occupations, the circumstances that give rise to and aggravate it, and the means of preventing their evil consequences. They would thus learn to take an intelligent interest in the sanitary aspects of their work which could not but lead to good practical result.

Butchers, cowkeepers, dairymen, and farmers, should be taught to understand and appreciate fully the immense and direct influence of their respective avocations on public hygiene and on the health of private individuals. Further, after a given date, special training, examination, and certification in the principles and practice of sanitation as applied to each of these businesses respectively should be held as a necessary qualification for every person proposing to follow any one of them.

The evil of unnecessary pollution of the atmosphere from any source, but more especially by dust from floor—and foot-path—sweeping, which is very apt to carry into the air the germs of consumption and other forms of tuberculosis, should be brought before shopkeepers from time to time by circulars and notices. The disgusting and dangerous practice of spitting in public places should be discouraged by the enlightenment of public opinion through placards and posters, and after a time by fine on conviction.

Not only should the personal advantages of combatting consumption and other forms of tuberculosis be inculcated. The benefits thereof to the public health and to the State should be impressed as continuously and as forcibly as possible on the popular mind by bodies of specially informed and public spirited persons, such as the National Association for the Prevention of Consumption, with its many branches, the Physical Culture Society, and others.

Every Sanitary Authority would do well to appoint for itself a Special Committee of experts to report on the local reforms desirable to combat the various forms of Tuberculosis at any and every period of life; to advise as to the action needed to carry them out, and to superintend their progress.

5.—THE ACQUISITION AND APPLICATION OF THE NECESSARY POWER TO CARRY INTO EFFECT THE FOREGOING RECOMMENDATIONS :—

The adoption of the "Liverpool Milk Clauses" has, subject to certain amendments, already been recommended. As time goes on, the need of further powers in this direction will probably be recognized.

6.—THE ESTABLISHMENT OF A SPECIAL AUTHORITY TO INITIATE, ADMINISTER, AND EXECUTE THE MEASURES REQUIRED FOR THE NATIONAL TREATMENT AND PREVENTION OF TUBERCULOSIS, AND OTHER REFORMS FOR THE PROMOTION OF THE PUBLIC HEALTH.

A NATIONAL SANITARY AUTHORITY.

The object outlined in the foregoing paragraphs, viz. :—the treatment of tuberculosis as a serious national menace, is one of the highest imaginable, and one to the promotion of which any man may be glad to devote the best energies of his life. Such a work to succeed must be carefully planned and energetically executed. Its scope extends far beyond the selfish aims of party politics or the restricted sphere of an incorporeal Local Government Board; it requires for its conception, initiation and direction, a governing body freed from narrow interests and local prejudices, and having in view only the good of the State; a body so constituted as to represent the hygienic interests of all classes of the community alike; and prepared to give to the public health service that continuity of attention and breadth of treatment which the subject demands.

An Authority, constituted of representatives of County Councils, Metropolitan and Provincial, and the large Sanitary Authorities, Urban and Rural, of the Kingdom would form a truly representative and popular

SUPREME NATIONAL HEALTH AUTHORITY

to consider and deal with all questions of purely Public Hygiene, including *inter alia*

- Tuberculosis in man and animals ;
- Milk and meat supplies ;
- Infant mortality ;
- Occupational diseases ;
- Water supply ;
- Vagrancy ;
- Vaccination ;
- Physical degeneration ;
- The disposal of sewage ;
- The pollution of rivers ;
- The prevention of disease through shellfish in polluted waters ;
- The promotion and encouragement of the use of Bacteriology as a preventive measure in relation to disease ;
- The prevention of Syphilis as a national evil ;
- The Housing question in all its phases ;
- The stimulation of lax local authorities and the assistance of others in the carrying out of necessary sanitary reforms in their respective districts, &c., &c.
- The securing of the necessary powers and funds to carry out the requirements in respect of the foregoing matters ; and
- Any other questions relating to Public Health.

In the contemplation of an original scheme of the nature and extent above indicated, among the first questions likely to arise are those as to the necessity for it. It may be asked "Are not the means already available for promoting the physical health of the population sufficient for the purpose ?

If not, in what respect do they fall short, and what are the advantages of the innovation proposed over those of existing institutions ? ”

The answers to the foregoing queries are as follow :—

The consideration and carrying out of all matters relative to the maintenance and improvement of the public health at present rest with

1. Parliament.
2. The Local Government Board.
3. Occasional Royal Commissions and Departmental Committees.
4. Local Sanitary Authorities.

With respect to the first of these, it has been truly said that Parliament has neither time, opportunity, or inclination for the study of public health questions, each political party being too much absorbed in its own immediate concerns to be able to attend to matters of mere general sanitary interest, unless these are forced into notice, for example, by the dread of some impending epidemic. If it be advanced that the above drawback is met by the establishment of the Local Government Board, the reply is that that Board has already as much work to do as, *from its singular constitution*, it can manage.* Moreover, its organisation and the character of its existing duties unsuit it for the consideration and treatment of questions such as those at issue. Of strictly orthodox views, it perceives from the outside only, and fails to appreciate, the difficulties which Sanitary Authorities see and feel from within. Accustomed to stereotyped methods of procedure and averse to new departures, instead of leading, it discretely sails in the wake of public opinion.

Royal Commissions and Departmental Committees do unquestionably excellent service in collecting and analysing information on matters of public importance. But their function is advisory, not administrative ; their investigations

*See Annual Reports of the Local Government Board.

are merely special in character and limited in scope; and their work usually ends with the issue of their report.

Local Sanitary Authorities, as at present constituted, being isolated from each other and entirely self-centred, have no common bond of union, such as the health of the population at large, for which to work. That they are quite able and willing to combine in the promotion of such objects is proved by their readiness to meet in conferences for the consideration of questions of public health, and by the unanimity of their conclusions on these occasions. Here again the efforts of a large assembly of Authorities are apt to fail in effect through want of continuity of action and permanent cohesion on the part of its members.*

Popular interest in sanitation is, as goes without saying, stimulated by the officers of the Public Health Service, by the medical profession generally, and by Societies, Institutions, and Congresses for the advancement of Hygiene. The influence, however, of these, although undoubtedly beneficial, is chiefly educational and circumscribed.

State Medicine demands fuller and more special attention than under existing circumstances it either receives or can be expected to receive. The remedy for this is the establishment of a permanent *Supreme National Health Authority*, representative of the whole of the Sanitary Authorities of the kingdom, and entrusted with the sole object of safe-guarding and improving the bodily health of the race. Such an Authority will find ample scope for its deliberations and ever-increasing demands on its energies.

*This was only too plainly demonstrated at the Conferences convened by the London County Council on Smallpox in relation to Vagrancy in 1894 and 1904. The resolutions passed at the first of these Conferences were forwarded to the Local Government Board, and were heard of no more. At the second Conference a Committee was appointed to wait on the President of the Local Government Board, but the then President declined to receive the deputation. Shortly afterwards, on this gentleman leaving office, his successor was induced to receive the deputation, and did so, but almost immediately had to relinquish office on a change of Government. Since then, so far as is known to the writer of the present report, no further steps have been taken in the matter.

VI.—SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS.

(A.) OBSERVATIONS.

- 1.—The extent and fatality of Tuberculosis are a grave national menace.
- 2.—The Control of Tuberculosis in man and animals under domestication is the duty of the Sanitary Authority.
- 3.—Tuberculosis is *not* a "localised" disease but always involves the entire system of the person or animal affected, as proved by the Tuberculin test.
- 4.—The extinction of Tuberculosis is possible and worth attempting.
- 5.—The use of the flesh of tuberculous animals for food is dangerous.
- 6.—The spread of Tuberculosis by the consumption of the flesh of a tuberculous animal was proved before the Royal Commission of 1895.
- 7.—The Local Government Board inquiry as to seizures of tuberculous carcasses in Newcastle, and its result.
- 8.—The importance of trained and qualified Meat Inspectors.
- 9.—The milk of tuberculous cows has been abundantly proved to be dangerous even *when their udders are not diseased*. The neglect of the Royal Commission of 1898 to point this out is a serious omission.
- 10.—The bacterial examination and control of the milk supply should be carried out by the Sanitary Authority, and any tuberculous milk found should be traced to the cow that yielded it.
- 11.—Certain causes of Tuberculosis other than those above indicated. (Insanitary dwellings, overcrowding, habits, predisposition, etc., etc.)
- 12.—The beneficial effect of respiratory and gymnastic exercises.

(B.) RECOMMENDATIONS.

The following measures are recommended for general adoption by Sanitary Authorities :—

HUMAN DISEASE.

- 1.—The compulsory general notification of human pulmonary consumption and other tubercular diseases attended with discharges or evacuations.
- 2.—The isolation and treatment of the disease in special institutions (Sanatoria, Anti-Tuberculous Dispensaries, Hospitals for Incurables), and the prevention of its treatment in other institutions.
- 3.—The prevention of infection through the digestive and respiratory passages of man and the domesticated animals, as indicated on page 34 of the present report and otherwise.

CATTLE AND SWINE.

- 4.—The compulsory application of the Tuberculin test to all British cattle and swine by competent Veterinary officials, and the branding and destruction of all re-acters. Owners complying with this requirement within a specified time from the date of the power coming into operation to be compensated. The application of the test by any unauthorised person to be made illegal.
- 5.—All sales of cattle and swine to be subject to the foregoing conditions, and to be made on warranty, by the seller, of freedom from Tuberculosis. The seller of a tuberculous animal to be subject to penalty.

MEAT.

- 6.—Every Urban District Council should have an abattoir of its own. The sale in towns of the flesh of animals slaughtered elsewhere than in an abattoir, or otherwise not submitted to official inspection, should be made illegal.

- 7.—Meat passed, after inspection, as sound, wholesome, and fit for food, should be stamped as such by the Inspector.
- 8.—Rural slaughterhouses should be supervised by the County Councils, and made subject to regulation as in towns. Meat of animals slaughtered in one district and sent for sale to another, should be either officially stamped as sound, wholesome, and fit for food, or be accompanied by an official certificate of its freedom from tuberculosis and fitness for food in all other respects, or be subject to confiscation.
- 9.—After a given date, every person intending to commence and carry on the business of a butcher, cowkeeper, or dairyman, should be required to undergo special training, and to produce a certificate, after examination, of qualification in the principles and practice of sanitation as applied to such business.
- 10.—Every Meat Inspector should, before appointment, produce evidence of sufficient training and qualification (after examination) for office.

MILK.

- 11.—Every Sanitary Authority should arrange for the systematic bacterial examination, and, as far as possible, the control, of the milk supply of its district.
- 12.—Every dairy farmer or producer of milk for sale should, before offering such milk for sale in any district, and whenever required by the Sanitary Authority of such district, satisfy such Sanitary Authority that the cattle yielding such milk are, each and all of them, free from tuberculous disease, as proved, after the application of the tuberculin test, by the certificate of the Veterinary Inspector of the district in which such milk is produced.
- 13.—With or without suspicion of any milk or milk-product having caused or being likely to cause infectious

disease, every Sanitary Authority should have full power—

- (a) To inspect the cowsheds and dairy premises of any farm or dairy supplying the district of such Authority with milk or a milk-product, and prevent the sale of such milk or its product in their district unless and until they are satisfied as to the sanitary condition and regulation of the cowshed and dairy premises generally in which such milk is produced ;
- (b) To inspect, examine, and apply the tuberculin test to any cow ;
- (c) To collect at the place of production or elsewhere such samples as they may require of the milk of any cow, the yield of which is intended for sale within the district of such Authority. Dairymen should be required to render assistance, and any person obstructing should be liable to penalty ;
- (d) To prevent under penalty the sale of the milk of any cow re-acting to the tuberculin test, or found to be affected with any form of Tuberculosis whatsoever, or any other disease of the udder ;
- (e) To brand and cause to be destroyed any dairy cow re-acting to the Tuberculin test ; the State to compensate the owner in the event of his compliance with the requirements being approved by the Sanitary Authority ;
- (f) To require under penalty that a cow shall not newly be brought into any sanitary district or allowed to remain therein for the production of milk for sale unless and until such cow has been recently, and within a specified time, officially tested with tuberculin and failed to re-act thereto.

- 14.—The limitation of the prohibition of the use of milk or milk-products of tuberculous cows to such cows only as have disease of the udder should be abandoned as mischievous.
- 15.—It should be the duty of every Sanitary Authority (Medical Officer of Health) of a district in which milk sent there for sale from an outlying district is found to be tuberculous, without delay to report the fact to the Sanitary Authority (Medical Officer of Health) of such outlying district, and the County Council in which such district is situated. On receipt of such information by the Sanitary Authority (Medical Officer of Health) of such outlying district it shall be their (his) duty without delay to cause the tuberculin test to be applied to each cow of the dairy at which such tuberculous milk was produced, and to cause all such steps to be taken as are indicated in the preceding par. 13, sections (d) and (e). Until the completion of such testing, they (he) should prevent the sale of any milk from the dairy in question, and should without delay inform the Sanitary Authority of every district ordinarily supplied with such milk, that they have (he has) done so. It should be the duty of the County Council to see to the carrying out of all of the foregoing requirements, and any farmer, dairyman, &c., who, after prohibition as above indicated, sends milk or its products to any district for sale, should be liable to penalty.

Every Sanitary Authority should be empowered and required to license for a stated period every dairy and cowshed in their district or in any outlying district in which milk is produced and sent to their district for sale; and to require as one of the conditions of every such licence or its renewal that all cows of such dairy, including new additions, be proved by official veterinary certificate, after applica-

tion of the tuberculin test, to be free from tuberculosis before their milk shall be offered for sale. Any unlicensed milk dealer selling or offering milk for sale should be liable to penalty.

Such of the "Milk Clauses" of the Liverpool Corporation Act, 1900, amended in the appendix to this Report, as may be necessary to supplement the present recommendations, should be adopted by all Sanitary Authorities.

EDUCATION.

All Sanitary Authorities should be encouraged to promote, by means of lectures and addresses, the education of the inhabitants of their respective districts as to the nature and causes of Tuberculosis, the measures for its prevention, and the duty of private persons and the public generally in respect thereto.

The Sanitary Authorities of Great Britain should unite to establish a Board of Representatives as

A SUPREME NATIONAL HEALTH AUTHORITY,

to deal with Tuberculosis and other national disease, physical degeneration, and the various matters relating to Public Health indicated on page 42 of the present report.

A special Council of Representatives should be appointed to consider and report on the foregoing recommendations, and the action desirable to give effect thereto.

As all Sanitary Authorities are equally interested in this great question, they are earnestly requested to consider and as far as possible to co-operate in carrying out the foregoing proposals.

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

*Health Department,
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*Newcastle-upon-Tyne,
10th January, 1907.*

APPENDIX.

THE
MILK CLAUSES
OF THE
LIVERPOOL
CORPORATION ACT,
1900,
(AMENDED).

THE LIVERPOOL MILK CLAUSES.*

The Liverpool Corporation Act, 1900, contained, amongst others, the following important clauses, designed to protect consumers of milk from the dangers of Tuberculosis:—

17.—In this part of this Act—

“Dairy” shall include any farm, farmhouse, cowshed, milk store, milk shop, or other place from which milk is supplied, or in which milk is kept for the purpose of sale.

“Dairyman” shall include any cowkeeper, purveyor of milk, or occupier of a dairy.

“Medical Officer” means the medical officer of health for the ~~city~~, (district), and includes any person duly authorised to act temporarily as medical officer of health.

18.—Every person who knowingly sells or suffers to be sold or used for human consumption within the ~~city~~ (district) the milk of any cow which is suffering from tuberculosis ~~of the udder~~, shall be liable to a penalty not exceeding ten pounds.

19.—Any person the milk of the cows in whose dairy is sold or suffered to be sold or used for human consumption within the ~~city~~, (district), who after becoming aware that any cow in his dairy is suffering from tuberculosis ~~of the udder~~, keeps or permits to be kept such cow in any field, shed or other premises along with other cows in milk, shall be liable to a penalty not exceeding five pounds.

20.—Every dairyman who supplies milk within the ~~city~~, (district), and has in his dairy any cow affected with, or suspected of, or exhibiting signs of tuberculosis ~~of the udder~~, shall forthwith give written notice of the fact to the medical officer, stating his name and address, and the situation of the dairy or premises where the cow is.

* It is suggested that the words ruled out be omitted, and that the words in brackets, where they occur, be substituted.

Any dairyman failing to give such notice shall be liable to a penalty not exceeding forty shillings.

21.—(1) It shall be lawful for the medical officer or any person provided with and if required, exhibiting the authority in writing of such medical officer, to take within the ~~city~~ (district) for examination samples of milk produced, or sold, or intended for sale within the ~~city~~ (district).

(2) The like powers in all respects may be exercised outside the ~~city~~ (district) by the medical officer or such authorised person if he shall have first obtained from a Justice, having jurisdiction in the place where the sample is to be taken, an order authorising the taking of samples of the milk which order any such Justice is hereby empowered to make.

22.—(1). If milk from a dairy situate within the ~~city~~ (district) is being sold or suffered to be sold or used within the ~~city~~, (district), the medical officer or any person provided with and, if required, exhibiting the authority in writing of the medical officer, may ~~if accompanied by a properly qualified veterinary surgeon,~~ at all reasonable hours, enter the dairy and inspect the cows kept therein; and if the medical officer or such person has reason to suspect that any cow in the dairy is suffering from tuberculosis of the udder he may require the cow to be milked in his presence and may take samples of the milk, and the milk from any particular teat shall, if he so requires, be kept separate and separate samples thereof be furnished, *and may apply or cause to be applied to such cow the tuberculin test.*†

(2) If the medical officer is of opinion that tuberculosis is caused or is likely to be caused to persons residing in the ~~city~~ (district) from consumption of the milk supplied from a dairy situate within the

† The words in italics are suggested as an amendment.

city (district) or from any cow kept therein, he shall report thereon to the ~~Corporation~~, (Sanitary Authority), and his report shall be accompanied by any report furnished to him by the veterinary surgeon, and the ~~Corporation~~ (Sanitary Authority) may thereupon serve on the dairyman notice to appear before them within such time, not less than twenty-four hours, as may be specified in the notice to shew cause why an order should not be made requiring him not to supply any milk from such dairy within the city (district) until the order has been withdrawn by the ~~Corporation~~ (Sanitary Authority).

- (3) If the medical officer has reason to believe that milk from any dairy situate outside the city (district) from which milk is being sold or suffered to be sold or used within the city, (district), is likely to cause tuberculosis in persons residing within the city, (district), the powers conferred by this section may in all respects be exercised in the case of such dairy, ~~provided that the medical officer or other authorised person shall first have obtained from a Justice having jurisdiction in the place where the dairy is situate, an order authorising such entry and inspection, which order any such Justice is hereby empowered to make.~~
- (4) Every dairyman, and the persons in his employment, shall render such reasonable assistance to the medical officer or such authorised person or veterinary surgeon as aforesaid, as may be required by such medical officer, person, or veterinary surgeon for all or any of the purposes of this section ; and any person refusing such assistance, or obstructing such medical officer, person, or veterinary surgeon in carrying out the purposes of this section, shall be liable to a penalty not exceeding five pounds.

- (5) If, in their opinion, the dairyman fails to show cause why such an order may not be made as aforesaid, the ~~Corporation~~ (Sanitary Authority) may make the said order, and shall forthwith serve notice of the facts on the county council of any administrative county in which the dairy is situate and on the Local Government Board, and if the dairy is situate outside the ~~city~~ (district) on the council of the borough or county district in which it is situate.
- (6) The said order shall be forthwith withdrawn on the ~~Corporation~~ (Sanitary Authority) or their medical officer being satisfied that the milk supply has been changed or that it is not likely to cause tuberculosis to persons residing in the city.
- (7) If any person, after any such order has been made, supplies any milk within the ~~city~~ (district) in contravention of the order, or sells it for consumption therein, he shall be liable to a penalty not exceeding five pounds, and if the offence continues, to a further penalty not exceeding forty shillings for every day during which the offence continues.
- (8) A dairyman shall not be liable to an action for breach of contract if the breach be due to an order under this section.
- (9) The dairyman may appeal against an order of the ~~Corporation~~ (Sanitary Authority) under this section, or the refusal of the ~~Corporation~~ (Sanitary Authority) to withdraw any such order either to a petty sessional court having jurisdiction within the ~~city~~, (district), or at his option, if the dairy is situate outside the ~~city~~ (district) to the Board of Agriculture, who shall appoint an officer to hear such appeal. Such officer shall fix a time and place of hearing within the ~~city~~, (district), and give notice thereof to the dairyman and the ~~town~~.

clerk, not less than forty-eight hours before the hearing. Such officer shall, for the purposes of the appeal, have all the powers of a petty sessional court.

- (10) The Board of Agriculture may, at any stage require payment to them by the dairyman of such sum as they deem right to secure the payment of any costs incurred by the Board of Agriculture in the matter of appeal.

24.—Offences under this part of this Act may be prosecuted and penalties may be recovered by the Corporation (Sanitary Authority) before a petty sessional court, having jurisdiction in the place where the dairy is situate or the offence is committed, and not otherwise.

Sections 9 and 11 of the Sale of Food and Drugs Act, 1899, which came into operation on 1st January, 1900, contain the following clauses:—

9. "Every person who, himself or by his servant, in any highway or place of public resort sells milk or cream from a vehicle or from a can or other receptacle shall have conspicuously inscribed on the vehicle or receptacle his name and address, and in default shall be liable on summary conviction to a fine not exceeding two pounds."

11. "Every tin or other receptacle containing condensed, separated, or skimmed milk must bear a label clearly visible to the purchaser on which the words 'Machine-skimmed milk' or 'Skimmed milk' as the case may require, are printed in large and legible type, and if any person sells or exposes or offers for sale condensed, separated, or skimmed milk in contravention of this section he shall be liable on summary conviction to a fine not exceeding ten pounds."