[Report 1922] / Medical Officer of Health, Newcastle-upon-Tyne City & County.

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CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of the City

DURING THE YEAR

1922.

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Members of Council who served on the

SANITARY COMMITTEE.

(This title was changed to HEALTH COMMITTEE in 1923).

Alderman C. T. STABLEFORTH, J.P., Chairman (died 21st April, 1922).

Councillor R. W. SIMPSON, M.B., Ch.B., Vice-Chairman (elected Chairman 8th May, 1922).

Councillor DAVID ADAMS, J.P., M.P., Sheriff (elected Vice-Chairman 8th May, 1922).

The Lord Mayor (Alderman R. H. MILLICAN, J.P.)

Alderman ADAM WILSON, J.P., F.R.C.S.

" RICHARD MAYNE, J.P.

" ALEX. WILKIE, C.H., J.P.

" JOHN PROCTOR, J.P.

Councillor WALTER LEE, J.P.	Councillor WM. BECKETT.
" G. D. NEWTON, L.R.C.P.	" W. R. WALLACE.
" W. H. WOODMAN.	" W. V. LONGFIELD.
" W. E. HARKER, J.P.	" JAMES BARTLETT.
" R. J. THOMPSON, J.P.	" JOHN BARKER.
" J. C. DOYLE.	" JAMES SMITH.
" WALTER THOMPSON.	" JOHN CHAPMAN, J.P.
" JAMES CAREY.	" EDWARD MIDDLETON.
" H. BENSON, J.P.	" GEO. DIXON.
" W. C. PERCIVAL.	

MATERNITY AND CHILD WELFARE COMMITTEE.

---

*Councillor John Chapman, J.P., Chairman.

†Mrs. H. Brackenbury, Vice-Chairman.

*Alderman Adam Wilson, J.P., F.R.C.S.

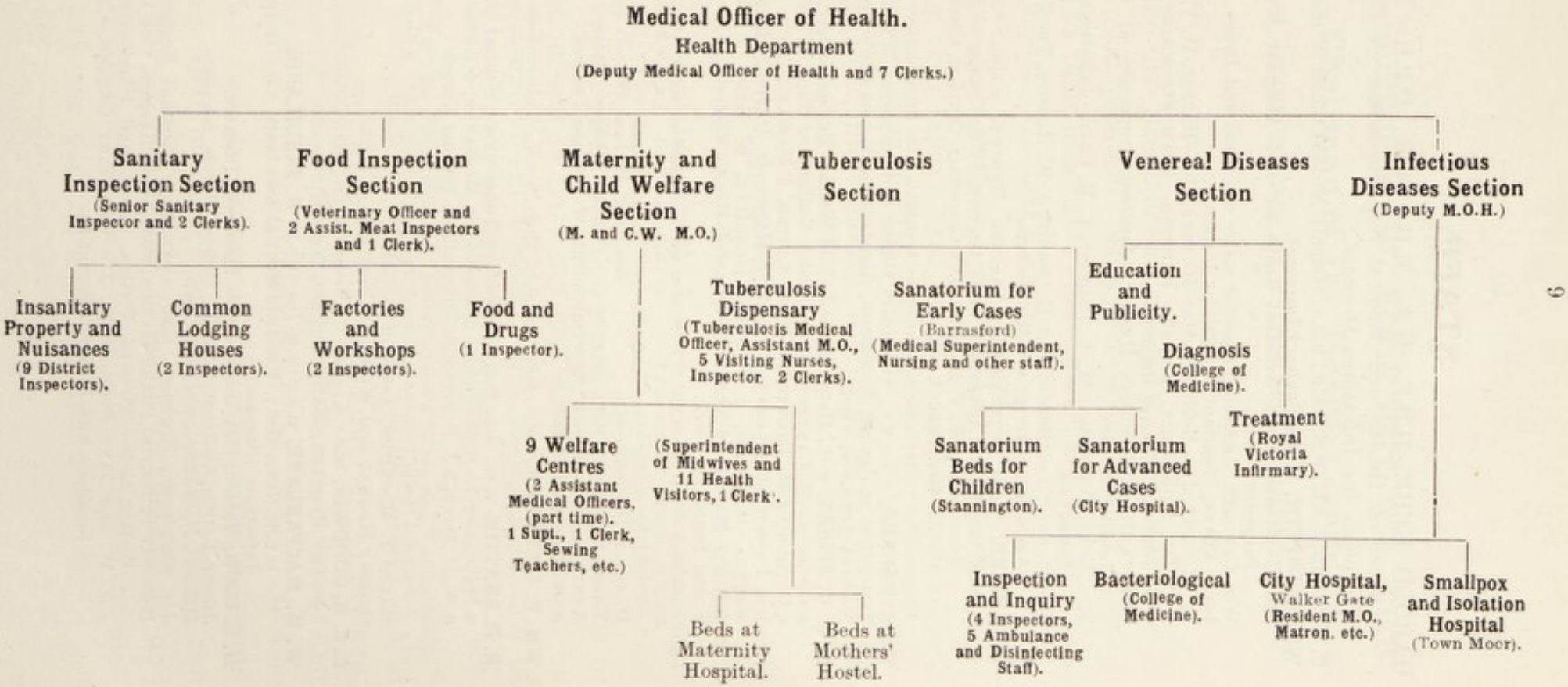
*Alderman C. T. Stableforth, J.P. (died 21st April, 1922).

‡Councillor W. A. Allan.
* ,, Walter Lee, J.P.
* ,, G. D. Newton, L.R.C.P.
* ,, W. H. Woodman.
* ,, R. W. Simpson, M.B., Ch.B.
‡ ,, G. T. de Loriol, J.P.
* ,, J. C. Doyle.
‡ ,, E. C. Dougherty.
* ,, Walter Thompson.
‡ ,, R. S. Stewart.
* ,, James Carey.
‡ ,, Anthony Oates.
* ,, Wm. Beckett.
‡ ,, Charles Pillar.
* ,, James Bartlett.
* ,, John Barker.

*Councillor David Adams, J.P., M.P. (Sheriff).
* ,, James Smith.
* ,, Edward Middleton.
‡ ,, Mary Laverick.
†Miss M. M. Buchanan.
†Mrs. J. L. Gibbon, J.P.
†Mrs. Louis.
†Dr. R. P. R. Lyle.
†Mrs. Moll.
†Miss G. Rowell.
†Dr. H. L. Rutter.
†Mrs. Todd (died June, 1922).
†Mr. Gladstone Walker.
†Mrs. A. J. Shortt.
†Mrs. C. Auld.

* Member of the Sanitary Committee.
† Co-opted member.
‡ Appointed by City Council.

Table showing the various Sections of the Health Committee's work which is under the direct charge of the Medical Officer of Health.



STAFF.

HAROLD KERR, O.B.E., M.A., M.D., Ch.B., D.P.H., Medical Officer of Health and Medical Superintendent of the City Hospitals for Infectious Diseases.

S. J. CLEGG, O.B.E., M.D., Ch.B., D.P.H. (Deputy Medical Officer of Health).

WM. HUDSPETH, Senior Sanitary Inspector.

CHRIS. RAIMES, Chief Assistant Inspector and Assistant Workshops Inspector.

WM. CATTLIFF, Assistant Inspector under the Food and Drugs Acts.

ISAAC CLARK, Assistant Workshops Inspector.

E. W. SCOTT, JAS. MCNICHOL, JAS. HUNTER, GEO. HARDIE, W. F. BACON, JAS. MCKENDRY, RICHARD REDPATH, ADAM FLOCKHART, L. W. JOHNSON, District Inspectors.

ARTHUR ROWE, THOMAS HESLOP, Assistant Inspectors of Common Lodging Houses.

WM. BEAN, WM. GRAY, W. E. PERKINS, C. R. CRAIG, Infectious Disease Inspectors.

JAS. ROBSON, JAS. BRUCE, JNO. R. CRAGIE, J. W. ROBSON, THOS. MOORE, Ambulance Drivers and Disinfectors.

WM. MILNE, *GEO. CUTHBERTSON, *ALFRED HEDLEY, M.S.M., *ALEC M. WALKER, JOS. GILHESPY, H. G. OLIVER, *WM. COCKBURN, TAYLOR RICHARDSON, F. T. H. BELL, IVY GOODHALL (Typist), Clerks in the Health Department.

(Those marked * hold the Sanitary Inspectors' Certificate of the Royal Sanitary Institute).

THOS. PARKER, F.R.C.V.S., Veterinary Officer and Inspector of Provisions.

THOS. DODDS, JAS. M. ANDERSON, Assistant Inspectors of Provisions.

NORMAN DICKSON, Clerk.

A. F. G. SPINKS, M.D., Maternity and Child Welfare Medical Officer.

a GEORGINA B. CAMERON, Chief Health Visitor and Supt. of Midwives.

a CATHERINE M. THEXTON, **c** MARY LEVINE, **b** MARIAN MOODY, **c** LIZZIE ISA. PRITCHARD, **c** LOUISE SHELL, **b** MAISIE L. HOPPER, **d** FLORENCE MARTHA HATFIELD, **c** JEANNIE GONZALEZ, **b** MARY I. WIGHAM, **d** HILDA MORTON, **d** NORAH B. WILLSON, Health Visitors.

EDITH RODGERS, Clerk.

(Qualifications of those marked **a** C.M.B., General and Fever Nursing and R.S.I. Certificates. **b** C.M.B., General Nursing and R.S.I. **c** C.M.B., and R.S.I. **d** C.M.B. and General Nursing.)

H. GLEN DAVISON, M.D. } Assistant Medical Officers (part
MABEL CAMPBELL, M.B., CH.B. } time), Welfare Centres.

ANNIE G. BAINBRIDGE, Superintendent of Welfare Centres.

AMY RODGERS, Clerk.

WM. H. DICKINSON, O.B.E., M.D., M.R.C.P., Ch.B., D.P.H., Tuberculosis Medical Officer.

N. R. BEATTIE, M.D., B.S., D.P.H., Assistant Tuberculosis Medical Officer.

a MARGARET L. HUTCHINSON, **c** CONSTANCE M. BAYNE, **d** ANNIE BOOTH, **a** W. E. DALE, **b** J. P. KENMIR, Tuberculosis Visiting Nurses.

(Qualifications of those marked **a** General Nursing. **b** General Nursing and C.M.B. **c** General Nursing and Health Visitors and School Nurses Certificates of R.S.I. **d** Fever Nursing).

RALPH T. MORRISON, Assistant Inspector.

GEORGE MAGNAY and WINIFRED MCGILLAN, Clerks.

C. G. R. GOODWIN, M.R.C.S., L.R.C.P., Medical Supt., Barrasford Sanatorium.

FRANCES BAGULEY, Matron; Sister, Nurses, Servants.

W. M. MACFARLANE, M.B., Ch.B. (to Oct.), **R. SANDILANDS,** M.B., Ch.B., D.P.H. (from Oct.), Resident Medical Assistants, City Hospitals for Infectious Diseases.

H. E. COOK, Matron, City Hospitals for Infectious Diseases.

JESSIE LAING, Assistant Matron. Sisters, Nurses, Servants.

HELENA N. HARRINGTON, Dispenser.

JAS. COCKBURN, Engineer. GEO. COCKBURN, Assistant Engineer.

HERBERT BLACKTIN, FRANK HARRINGTON, Lodge Keepers, City Hospital, Walker Gate. Firemen, Porters, Joiner, and Handyman.

JOS. W. and JANE STEPHENSON, JAS. and MARY GREGAN, Caretakers at Smallpox and Isolation Hospitals.

To Councillor R. W. SIMPSON, M.B., Ch.B., etc., Chairman of the Health Committee of the Corporation of Newcastle-upon-Tyne.

SIR,

Like its predecessor, the year 1922 was one of industrial depression. High prices and money shortage have had their inevitable effect, and trade, international and domestic, reached a low ebb.

The cost of living had reached its maximum of 176 per cent. above that of 1914 in November, 1920, and dropped steadily through 1921 to 99 per cent., and through 1922, more slowly, to 80 per cent. above the pre-war figure.

Meanwhile general reductions were taking place in wages, which accounted to a considerable extent for the falling costs. Industrial disturbances, however, were comparatively rare, and no doubt we owe this, as well as the maintenance of a high standard of public health, to the minimising of hardship and depression effected by the "unemployment benefit," and to the operation of the much-criticised National Health Insurance Act. To those who are in a position to judge, these measures stand very high in importance among public health legislation, and if there are, in connection with them, instances of abuse or hardship, these are isolated, and are certainly not characteristic of the whole. No one who has had experience of the two systems would exchange that of the Panel for the bad old clubs, run under grossly inadequate terms of remuneration, and only too frequently characterised by extreme dissatisfaction on the part of both patient and doctor.

Unemployment figures for the City improved somewhat upon the previous year as industry gradually recovered from the effects of the great coal strike of 1921. There were 16,000 men and 1,500 women on the unemployment register in January, and these figures improved slightly until April, when they were 14,700 and 1,400 respectively. From May on, however, conditions became rather worse, and by the end of the year 19,500 men and 1,200 women were idle.

Climatically the year was a good one for public health, but a bad one for personal comfort, the summer being relatively cold, sunless and wet.

Atmospheric pollution would appear to be on the down grade, since 1922 showed an improvement even on 1921, although this was due probably to some extent to trade depression.

But for the occurrence of another wave of *influenza* epidemicity in the first quarter of the year, with a heavy casualty list, the year was in every other respect a record one for general healthiness, the mortality figures under almost every head being the lowest yet attained.

The Registrar-General estimated the **POPULATION** at the middle of the year to be 281,600, as compared with 278,400 as found by the Census in 1921.

The number of **MARRIAGES** in the City during the year was 2,234, as compared with 2,567 in 1921 and 3,036 in 1920—the post-war high-water mark.

The **BIRTH RATE** was 24·8 per 1,000 population, as compared with 26·2 in 1921, and 28·0 in 1920—this last being the highest rate since 1910.

1922 was an exceedingly healthy year, but owing to the influenza epidemic already mentioned the **GENERAL DEATH RATE** very slightly exceeded that for the previous two years, being 14·2 deaths per 1,000 population in 1922, as compared with 14·1 in 1921, and 14·0 in 1920, the lowest hitherto experienced in Newcastle.

As compared with the country generally, Newcastle has a comparatively (only) high Birth Rate. The Death Rate is slightly above that for the 105 great towns (13·0), and this is probably ascribable to the overcrowded housing conditions which prevail.

The *Natural Increase* of population (births minus deaths) amounted to 2,975.

A broad analysis of the causes of death indicates that the one class of disease which takes steadily increasing toll is that affecting the **Circulatory System**—the heart and blood vessels. These diseases are generally associated with old age, prolonged physical strain, and a certain proportion with old venereal disease and alcoholic indulgence. Diseases of this class are chiefly characteristic of the later ages of life, and consequently we must expect to see a certain amount of increase, or at any rate little sign of decrease in them, with the steady fall that is being brought about in the number of deaths at earlier ages, and pending the discovery of practicable ways and means of obviating the effects of wear and tear upon the human frame.

Deaths from **Respiratory Diseases** show a slight increase upon the average, due doubtless to the influenza wave and consequent prevalence of pneumonia.

Diseases of the Nervous System, while causing slightly higher mortality than in the previous year, are still far below the war-time and even the pre-war time levels.

Continuing my thesis of last year regarding **Diseases of the Digestive System,** it is interesting to note that these have caused fewer fatalities than in at least the last 11 years, lower even than in 1918, when the choice of dietary was extremely limited, and of necessity confined to the plain and wholesome kinds of food. It would appear that the general shortage of money has exercised a parallel effect.

Cancer is a disease which has been brought very prominently before the notice of the public recently, for the reason that it is causing a steadily increasing proportion of the total deaths in the country each year, our position as a nation not being peculiar in this respect. To some extent at least this is accountable for by the fact that Cancer, like diseases of the Circulatory System, is a condition affecting the later periods of life, and consequently with the steadily increasing proportion of young people who now survive to middle and old age naturally the diseases of that period will appear more prominently in the death returns. The condition has been, and is at present, the subject of a vast amount of research, the results of which hitherto have been largely of a negative nature, that is to say, tending towards a solution by a process of exclusion of theories put forward and tested. The great danger in the disease is that its hidden or unrecognised commencement permits firm establishment, and this is the main obstacle to its cure, of which there is a fair prospect if the aid of the surgeon is invoked in the earliest stages; any abnormal lump or swelling or discharge, therefore, should have immediate medical attention. In Newcastle the disease has not shown any definite tendency to increase during the last fifteen years; even should this state of affairs continue, and a specific preventive be still lacking, in another

twenty years or so we should expect to find it increasing as the result of the enormous saving of child life that has taken place during the past 20 years. It is to be hoped, however, that ere then the precise nature of Cancer will have been determined, with the consequent evolvement of a cure.

The incidence of **EPIDEMIC AND INFECTIOUS DISEASE** was, with the exception of influenza, the lowest the City has yet experienced. **Influenza** struck the City with great suddenness about the 4th January, and was extremely prevalent until the end of January, after which it gradually declined, disappearing almost entirely about the end of February. There were 244 deaths, of which 79 occurred in the week ending January 21st, and 75 during the following week. The later ages suffered most severely in this outbreak, the younger persons escaping comparatively lightly. The schools were closed from the 10th to the 29th of January; 10 children of school age died, that is 4·1 per cent. of the total casualties, whereas school children constitute nearly 20 per cent. of the population. Altogether the disease accounted for 273 deaths, apart from such as were certified under the head of pneumonia, which may have been really due to influenza. With the exception of bronchitis, influenza was the principal killing disease of the year. **Typhus** and **Smallpox** were entirely absent in Newcastle. The latter disease is becoming steadily more and more prevalent in the country, cropping up sporadically in districts in all parts, and causing much anxiety and great expense wherever it appears. The type fortunately has been for the most part mild, though there have been severe forms, with deaths, in certain areas, *e.g.*, London (as in Glasgow in the previous year).

Newcastle has escaped this terrible scourge since 1910, when there were three cases in the City and one death ; but the persistently increasing avoidance of *Vaccination* of babies is lessening steadily our chances of quickly stamping out the disease when it does arrive, and it must be remembered that it is the very young who, in an ill-vaccinated population, suffer the greatest danger and disfigurement. Smallpox in its usual form is severe in its fatality, loathsome and painful in its immediate effect, and particularly disfiguring to its survivors, as can be readily confirmed by those who have travelled in countries where vaccination, the only certain protection against the disease, is not a national precaution. As stated, the type in the North Eastern parts of England is at present mild, but it can never be foretold when this may revert to its usual malignancy. Vaccination is so simple and trifling a process that to the normal educated mind the attitude of the anti-vaccinator is inexplicable, and the uncanny dexterity with which he can evolve a fallacious and misleading interpretation from official figures does credit to his ingenuity if not to his intelligence. Truly we are a curious race, for the orthodox is always suspect to a certain class, and there is a lure about the unorthodox that is as incomprehensible as it is real.

In Newcastle we have still a comparatively well vaccinated population, yet in 1922 vaccination exemption certificates were obtained for no less than 30·5 per cent. of babies. In surrounding areas it is doubtful if one in five infants born receive this treatment.

Nineteen cases of **Typhoid Fever** (with four deaths) occurred in the City. The corrected number of deaths, however, is five, one death being transferred to the City from an outside district. This is a considerable increase

on the previous year, when there were only seven cases, and is accounted for to some extent by the fact that there were seven cases in one group centreing upon a common dairy. The infection probably originated from one of the farms outside Newcastle from which this dairy obtained its supplies, but it was not traced. Although the City still contains 4,500 dry closets the incidence of typhoid fever no longer shows a direct selective connection with houses possessing these, and probably the continuance of the disease is now mainly to be looked for in the existence of "carriers," who have not necessarily themselves suffered at any time from typhoid.

No connection has been established here as yet between the disease and fish, as in London, where the distinguished Medical Officer of Health of the London County Council believes that the small dabs largely used ungutted by the fried fish shops in his area and caught off the estuary of the Elbe, which is sewage polluted, are not completely sterilized by the process of cooking. Only cleaned fish are used here (generally haddocks), and these are caught in the deep sea, well away from estuarial waters. Shell fish eaten raw used to be a frequent cause of the trouble here, but the gathering grounds are now greatly improved or guarded under direct legal powers; nor do watercress and similar raw vegetables appear to figure.

Diphtheria (254 cases, 15 deaths) and **Scarlet Fever** (663 cases, seven deaths) have rarely been less prevalent, and certainly have never caused nearly so low a fatality. These diseases are now-a-days so mild for the most part as to cause the greatest difficulty in their recognition, and indeed their persistence at all is probably due almost entirely to "missed cases" or "carriers."

The year was a low one for **Measles** of which there were 542 notifications, with nine deaths. As usual selected households were visited by a Health Visitor, and there is no question that mothers no longer regard the disease as a trifling infantile ailment requiring little or no care and attention. Since the period of this report there has been one of the biggest outbreaks of the disease that the writer has experienced, and there have been many deaths, but infinitely fewer than in the epidemics of the pre-Health Visitor days.

Whooping Cough caused 36 deaths, and **Infantile Diarrhœa** 56 deaths. The cold, dull wet summer was antagonistic to the latter, and the opportunities of infection were greatly lessened, as compared with conditions of say ten years ago, by the general use among non-breast-fed children of dried milk in place of the much more readily contaminated fresh form of the commodity. There is no doubt also that the teaching at the welfare centres, now attended by more than half of the mothers of the City, is having its effect, and the present-day Newcastle mother knows a great deal more about baby care than did her mother.

There were two outbreaks of **Food Poisoning,** which involved respectively three and 36 individuals. The first, in September, following closely upon the historic botulism tragedy at Loch Maree, caused some local alarm. Evidence pointed to the infection having occurred by way of soup made from a ham bone and left standing overnight in a warm place in the kitchen of a house in a poor neighbourhood. Of the three victims one died. Two other members of the household, though unaffected, were found to be harbouring the infecting organism, *bacillus enteritidis of Gaertner,* for a period of about a week. The other outbreak was

apparently due to a single tin of canned beef consumed in seven families. The symptoms were very acute, but passed off without fatal results in a couple of days. In neither of the outbreaks unfortunately was it possible to trace with certainty the actual source of infection.

Following upon the Loch Maree disaster, in deference to popular demand, the Ministry arranged for the stocking of supplies of botulinus anti-toxin in certain central Health Departments, of which Newcastle was one, to be available in any emergency within the surrounding area.

There was one case of **Acute Poliomyelitis,** or infantile paralysis, which recovered; four cases of **Cerebro-Spinal Fever,** two of which died; and four **Encephalitis Lethargica,** so-called "Sleepy Sickness," with one death. There were two other deaths assigned to different forms of "Encephalitis."

In the fight against **Tuberculosis** steady progress is being made, and here again we note another low record both in the disease as it affects the lungs and in other forms. Fuller reference is made to this under a special heading.

Hospitals for Infectious Diseases.—1,032 fever patients, together with 204 cases of pulmonary consumption, were isolated at the *City Hospital, Walker Gate.* The *fever* case mortality for the Hospital was 5·8 per cent. The *Smallpox and Isolation Hospitals* were in use from the 1st to the 28th of January for 26 Scarlet Fever convalescents from the City Hospital, Walker Gate.

The *Disinfecting Stations* at Walker Gate and on the Moor dealt with 38,083 articles from the City and Hospitals themselves.

The specialist service (by Dr. Neil Maclay) for the treatment of nose and ear discharges in scarlet fever patients at Walker Gate, inaugurated at the instance of Dr. S. J. Clegg in 1921, was continued. The average stay in hospital of patients suffering from this class of complication was reduced by 15 days in the first year of the working of the scheme, and in this (the second year) it was reduced by eight days which, while not quite so satisfactory as in the previous year, was still a valuable economy. Dr. Clegg states that no definite reason can be given for this difference in result, since the standard of treatment was the same as in the previous year, but suggests that defective nutrition, a condition that was characteristic of a considerable number of the children admitted to Hospital during the year, may have been a not unimportant factor. Tea and bread and margarine as a staple diet is unfortunately far too common, and there appears to be generally a great lack of knowledge of inexpensive essentials of a healthy diet. Some research work was carried on by the medical staff, in conjunction with Dr. David Thomson, of London, upon the prophylactic use of a detoxicated vaccine, prepared from cultures of organisms from cases of scarlet fever developing ear and nose discharge. The organisms predominating in each culture produced a mixed vaccine. The work is not yet completed, but the results attained so far are distinctly promising in that cases treated with the vaccine suffered one-half the incidence of complications of ear and nose that was found in the uninoculated.

With the return of the national life towards the normal after the great social upheaval caused by the war, there is every evidence of a substantial drop in the incidence of **Venereal Disease.** The public

facilities provided for the diagnosis and cure of these diseases by the most up-to-date and modern methods has played a considerable part in bringing about an improvement. Professor R. A. Bolam, Chief Specialist Medical Officer at the Clinic, reports that the fifth year of work there has been characterised by a greater amount of attention to a smaller number of patients. 2,559 persons from Newcastle attended 28,132 times at the out-patient clinic and occupied beds in the wards for 405 days, as compared with 29,813 attendances by 2,723 persons at the out-patient clinic and 606 in-patient days in 1921. There were 1,012 new cases in 1922, as against 1,169 in 1921, and 1,635 in 1920.

The clinic does work of a high order of excellence. Special efforts have been directed towards retrieving some of the considerable proportion of patients who cease attending for treatment before there is reasonable assurance of completion of cure. This proportion dropped from 30 per cent. in 1921 to 23 per cent. in 1922, still far too high, but encouraging to the following-up tactics of the medical staff. Medical opinion generally is strongly against any system of compulsory notification of the disease as yet, although this has been in force in regard to patients ceasing treatment before cure in many of our overseas dominions, and in a number of foreign countries, together with empowerment of the Local Authority to enforce continuance of treatment. At present a gap exists in the preventive machinery owing to the lack of hostel accommodation for infected girls and unmarried mothers, whose circumstances render them unable to obtain and continue treatment. Public education and propaganda have followed the line of occasional Press articles, and addresses by the Medical Officer of Health to various social bodies.

The four Police Women continued to do valuable work. Their service lay mainly in patrol duty in public places, and in detective work in connection with charges of abortion and treatment of disease by unqualified persons.

Under **MATERNITY AND CHILD WELFARE** the Health Department has to record another very fine success in that the **Infantile Mortality Rate** has fallen once again below its previous record, being equivalent to 92 deaths of babies under one year of age per 1,000 births. When it is considered that so recently as 1899 the Infantile Mortality Rate in Newcastle was 193, and that all progress has been coincident with the steadily increasing organisation of public effort towards this specific end, there is here indeed good reason for congratulation. Looked at in another way, if the same mortality rate existed to-day as in 1899, we should have lost last year, not 646 babies, but about 1,350, that is to say, a definite saving of 700 little lives per annum is being effected by this section of the Health Department effort alone. Looking over the figures for the various wards in the City we find that, generally speaking, poverty and child wastage go together, and as might be expected, the heaviest infantile mortality rate is seen in All Saints' (131), Elswick (128), St. John's (117), and Stephenson (114) Wards, whereas in Dene Ward the figure is only 45, or approximately one-third of All Saints', and in Arthur's Hill, in which in the previous year there was not a single infantile death, only six babies were lost in 1922, a mortality equal to 50 deaths per 1,000 births.

One notices again that high birth rates frequently coincide with high infantile mortality rates, and that the high birth rates occur for the most part among

populations least fitted to give the children a fair start in life through poverty, ignorance, or low standard of intelligence. St. John's has the highest birth rate in the City, 32·1 births per 1,000 population, and one of the highest infantile mortality rates. In All Saints' the birth rate is 27·9, whereas in Arthur's Hill the birth rate is only 12·1, and in Dene 13·8 ; an anomaly is seen in Elswick Ward which, with a birth rate of only 18·8 per 1,000 population has the very high infantile mortality rate of 128 deaths of infants per 1,000 births. There is no doubt that with the gradual postponement of marriage to later ages (the effect of modern economic conditions upon the professional and middle classes) maternal fertility is a declining factor. To this may be added the very general use of contraceptives among the educated classes, a practice which is rapidly extending downwards in the social scale. In consequence the heaviest recruitment of the population is from the lower intelligence levels.

It has been argued by sceptics that all the present day efforts to save the babies are illogical and in direct opposition to nature's principle of the survival of the fittest. Such an hypothesis will not bear the light of scrutiny since we find that it is not necessarily the most fit that constitute the survivors under a policy of *laissez faire* ; in a community which adopts no special safeguards epidemic disease attacks the fit equally with the unfit, and only too frequently it is the latter which survive. One must also consider the great amount of permanent damage suffered by many of those who do not actually succumb, damage that may be gauged by the lists of physical defects discovered by the School Medical Officer and by the recruiting officers for the Services. A comparison has been made in the present report between the

mortality each year among babies under twelve months of age per 1,000 births that year, and the mortality among young children between the ages of one and five years per 1,000 births during the preceding four years, over a period of twenty-five years, and it is clearly demonstrated from this that a fall in infant mortality is not followed by a rise in mortality during the subsequent four years of life, as would be the case were the saving of infants merely a prolonging of the life of weaklings who inevitably would go to swell the death rate in subsequent years. On the other hand throughout this period, during which the infantile mortality rate declined steadily, there has also been a parallel substantial fall in in the mortality during the subsequent four years of life.

The work of the Maternity and Child Welfare Medical Officer (Dr. A. F. G. Spinks) continued in 1922 under the hampering disabilities that befell it in 1921 on the grounds of "economy." Eight Health Visitors were dismissed in 1921, depleting the service from one Health Visitor to every 14,000 to one every 24,000 of population, and there was corresponding reduction of the medical service. In spite of this the welfare centres became steadily more and more overcrowded, particularly on the doctors' days, to such an extent as to handicap greatly their efficiency. 100 more children attended the welfare centres in 1922 than in 1921, and their total attendances amounted to no less than 36,000, the average number of attendances per individual having increased also from 6·8 to 7·4. At each session the medical officer was obliged to review an average of 47 children, a physical impossibility in the ordinary session of 2 to 2½ hours. The length of the session cannot be extended, as it is limited by the ability of the mothers to be absent from their homes. A gradual improvement is being

found in the attendances of expectant mothers, 350 of whom sought advice on 835 days, and their numbers continued to increase. This is a particularly valuable side of the work, because the great bulk of life-saving is effected by attacking the conditions operating after birth, whereas those that affect the unborn child, and which bring about more than one-third of all the deaths of babies, have scarcely been touched. They arise from all sorts of maternal circumstances, health, physical conditions, food, habits, environment, and so forth, many of which might be corrected if only the opportunity could be obtained.

The welfare centres exist not for the purpose of treating established disease, but for keeping healthy babies well. A notable point reported by Dr. Spinks is the fact that among the children attending the centres (more than one-third of all the babies in the City) the loss only amounted to something under one-quarter of the proportion for the City as a whole. Also that from the carefully kept records of the individual children it is found that when babies are brought to the centres after a more or less prolonged absence there has been a distinct falling off in progress (as compared with the regular attenders) in no less than 97 per cent. of them. Babies in need of medical treatment are referred to the family doctor or to an appropriate institution.

There is little material inducement to mothers to bring their babies to the centres other than this improvement, for less than one quarter of them obtain orders for free dried milk. In conjunction with the welfare centres the distribution of dried milk has continued under the closest scrutiny as regards its recipients. Orders for over 10 tons of dried milk, equivalent to approximately 14,000 gallons of fresh milk, were given gratis to 1,131

women and babies, and 18 tons, equivalent to approximately 25,000 gallons, were distributed at cost price to 1,759 persons. The former figure shews an increase of 170 pounds, and the latter a decrease of 5,723 lbs., compared with the previous year, the falling off in the cost price purchases, which was seen also last year, being due to the financial stringency among the poorer sections of the industrial classes.

The Health Visitors, part of whose time is occupied by duty in the centres on their respective districts, give their chief energies to the visiting of mothers and babies in their homes. Besides keeping under observation six-sevenths of the babies born in the City, each of whom they visited on an average three times (many, of course, receive a far greater number of visits than this), the Health Visitors in addition have to call upon a large proportion of the cases of measles and of pneumonia reported to the Department ; these on occasion monopolise a great part of the nurses' time, but it is work that is amply justified by the results.

The Health Visitors also assist in the care of cases of ophthalmia neonatorum ; of this too common and preventable cause of blindness in infancy it is satisfactory to find that the comparatively low incidence in Newcastle shows a substantial drop to 69 cases, as against 95 in 1921 and 116 in 1920. This fall is coincident with that in Venereal Disease, which is regarded as the direct cause of the majority of cases.

The year under report has been signalised by much preparation for further development, and saw *inter alia* the definite promotion of a scheme by the Governors of the *Maternity Hospital*, in conjunction with the Corporation, for the evacuation of the small, antiquated and

hopelessly inadequate premises in New Bridge Street for the buildings to be shortly vacated by the Boys' Industrial School between Blagdon Street and City Road, a change which will afford the amplest accommodation for all extensions of the great work of the Hospital for a number of years to come, and incidentally for a ward for marasmic or wasting babies—a long felt want in Newcastle—and a welfare centre for the Health Department. It is not perhaps generally realised that about one-fourth of all the births in the City are attended by, or in, the Maternity Hospital. Midwives attend rather more than this, and private practitioners approximately one-half of the total.

The demand for additional welfare centres to relieve the great congestion in the existing ones and to serve the two extremities of the City (Scotswood and Walker) was expressed both by official representation and by public petition, and, subject to finances permitting, it was decided to make the necessary provision. It is satisfactory to record that these new centres have actually come into operation since the year under report, together with a further allowance for medical sessions at existing centres. While this will help to meet immediate needs, the work is increasing so greatly in public estimation and in real value that in all probability still further provision will be necessary at no very distant date.

The *Hostel for Unmarried Mothers* and the two *Day Nurseries* in the east and west ends of the City have continued their useful functions in co-operation with the general Maternity and Child Welfare Scheme for the City.

These is still a regrettably high loss of maternal life through child birth, no less than 28 mothers having

died during the year from various causes incidental to parturition. Here again little progress has been effected as yet since the days of the great revolution in midwifery practice that resulted from the introduction of antisepsis and asepsis in management. Of these deaths seven were registered as due to "puerperal fever," *i.e.*, sepsis, the others to various incidental circumstances, some at least of which might have been avoided by examination and advice, such as is obtainable in the ante-natal centres, some time before the birth was due. As shewn previously, skilled attendance is not lacking in Newcastle, there being very little scope for the irregular "handywoman" to-day. Further, owing to the unusually good provision of medical and hospital service, there are only 34 midwives on the local register, and speaking generally these are of a high order of ability. Close association continues between the Superintendent of Midwives (Miss G. B. Cameron) and the midwives, and in addition to her routine visiting and inspection there is a fortnightly meeting for midwives in the Health Department, when discussions take place and midwives are kept in touch with progress in midwifery methods. Doctors were sent for by midwives on account of complications or emergencies in 189 instances.

The limitation of **TUBERCULOSIS** is another object of organised endeavour which has been productive of remarkably good results. It is not possible to appreciate these over a very short period, for, as in most sections of public health work, results only accrue after years of toilsome and apparently resultless labour. Now, however, when the position in Newcastle is compared with that of say thirty years ago it is found that whereas tuberculosis produced a death rate then of 3·52 per

1,000 population, to-day it is only 1·50. In separating the deaths from pulmonary consumption from those from all other forms of tuberculosis, it is seen that in the same period the former have fallen from 2·13 per 1,000 population to 1·14, while those from other forms, particularly at the earlier ages (due largely to milk infections), have fallen from 1·39 to 0·35. To express it otherwise, as has already been done in discussing the saving of infant life, had the same death rate from tuberculosis occurred last year that was usual thirty years ago, instead of 422 deaths from consumption there would have been about 1,000, so that anti-tuberculosis work is effecting a saving of nearly 600 lives per annum. This is, of course, largely the result of a general improvement in sanitary condition and habits of the people, the necessary foundation upon which the specialised anti-tuberculosis service operates, and without which the latter would be of little value.

The report of the Tuberculosis Medical Officer (Dr. W. H. Dickinson) reviews the progress of ten years. He draws attention to the steady reduction that has taken place in the incidence and death rate from tuberculosis during that period, and to the fact that while there is substantial diminution in the death rate from consumption of the lungs, the reduction of deaths from other forms of tuberculosis has been more remarkable.

The tuberculosis rate in Newcastle, as in the other great towns of the North East, is relatively high as compared with the rest of the country, and this is probably largely due to the notoriously overcrowded conditions under which the population lives, and perhaps to some extent to the relatively small amount of sunshine that is experienced. This is not entirely

natural phenomenon, for the great pall that intervenes between us and the sun is to some extent made up of smoke and other impurities, as is evidenced by the fact that the soot fall in the centre of Newcastle was equivalent to 452 tons per square mile per annum, denoting a highly undesirable degree of atmospheric pollution.

Tuberculosis is undoubtedly curable, but the cure takes time—at least a year or two—and the chances diminish rapidly with postponement of the commencement of treatment. Consequently, since the vast majority of sufferers do not seek medical advice early, or the presence of the disease is not recognised until it is well established, there is always difficulty in obtaining the type of case which is likely to be cured by relegation to a sanatorium. The result therefore is that a comparatively small number of sanatorium beds suffice for the calls made upon them, and even so, some of the patients admitted to them are sent for arrest of the disease rather than cure. On the other hand, there is not nearly sufficient accommodation at the Sanatorium at the City Hospital, Walker Gate, for the more advanced cases of consumption. Here, with rest, a generous dietary, and good nursing, most of the patients improve markedly and receive a fresh lease of life, but cures are not yet to be looked for as a rule in this class of case. The chief value, however, of the Walker Gate institution is in the removal of the worst sources of infection from home conditions in which spread of the disease would otherwise be almost inevitable. The specific cure for tuberculosis has not yet been definitely evolved, but there is great hope to be derived from recent researches and discoveries by Spahlinger in Switzerland, and Dreyer at Oxford, and perhaps in the next year or two a real antidote for one of the most devastating diseases to which humanity is liable will be available.

Smallpox, diphtheria, anthrax, tetanus, to name only four diseases, have been mastered by bacteriological means, so why not tubercle? Prevention, however, is of infinitely greater importance than cure, and steady effort must be continued against those conditions which favour the incidence of the disease, such as poverty, underfeeding, overcrowding, squalor, physical or mental stress, employment under unhealthy conditions, and unwholesome habits (*e.g.*, alcoholism). The effects of these are cumulative, and any one of them may start the vicious circle leading to disease and death.

The most outstanding need in Newcastle at the present time is houses. A large proportion of the population has become so inured to overcrowding that it is only the extreme cases that excite special comment, and of these the members of the Health Committee and of the Housing Committee know only too well. The latter body is doing something to meet the need, and many houses have now been built, but nothing like enough if there is to be even reasonable accommodation for a closely-packed population. As usual the poorest and most congested wards show the highest prevalence of tuberculosis. The death rate from pulmonary tuberculosis was 2·24 per 1,000 population in All Saints' Ward, 1·97 in St. John's, 1·61 in Byker, while in Jesmond it was 0·37.

Tuberculous milk accounts for a considerable proportion of the "other forms" of tuberculosis chiefly affecting children, but in regard to these remarkable progress is being made. Probably this is to some extent due to the more general boiling of milk or the substitution of dried milk for fresh, for the number of samples of fresh milk found on examination to be tuberculous is nearly as high to-day as it was ten years ago.

The valuable work of the *Tuberculosis Dispensary* goes steadily on, and besides accumulating a vast amount of useful information regarding tuberculosis and its mode of spread, Dr. Dickinson and his staff have done much consultative and advisory work which has been of great benefit to persons suffering, or suspected to be suffering, from consumption. By means of the visiting nurses the patients are kept under observation, and they are also advised as to whether they should have institutional or other treatment. Many patients are sent for expert opinion by private practitioners.

The *Voluntary Tuberculosis Care Council* (to which the Health Committee is a contributor) has been very active during the year under the general direction of the Tuberculosis Medical Officer. The homes of patients have been visited by voluntary workers, through whom help is given in the way of extra food, loan of bedsteads and bedding, and assistance to find suitable employment, while an endeavour is made to encourage unfortunate sufferers and to prevent them from losing heart and slipping down hill. Perhaps the greatest value of this organised after-care is in regard to patients returned from institutional treatment, who are very apt to slide back into old habits and old ways, with the inevitable relapse of the disease, which with a little encouragement and help might have been avoided.

The 30 beds at *Stannington Sanatorium* have been kept fully occupied by tuberculous children throughout the year. The average stay for the boys was 324 days ; for the girls 187 days. Of the 38 patients admitted 18 were much improved, 17 improved, and three did not respond to treatment.

At *Barrasford Sanatorium*, the Corporation's own institution, 29 of the beds have been in constant occupation by Newcastle cases. Out of 267 total admissions 83 were from Newcastle. The average duration of stay of all cases who completed treatment during 1922 was 101·4 days—just over 14 weeks—entirely insufficient for a complete cure.

The Medical Superintendent (Dr. C. G. R. Goodwin) in his report emphasises the fact that treatment of consumption is not by any means merely a question of fresh air, but that rest is at least as important, if not more so, and success depends upon the strict regulation of exercise and exertion controlled by frequent careful medical examination. Rest is not only necessary for the body generally, but for the damaged lung, which is obtained in suitable cases by the operation of pneumo-thorax. In this, air is introduced between the chest wall and the lung, causing the lung to collapse and to be thrown out of work for the time being. This small operation is now being largely practised in Barrasford Sanatorium, in Walker Gate Sanatorium, and also at the Dispensary, and has yielded encouraging results.

Considerable improvements have been contrived in the amenities of Barrasford Sanatorium during the year, and much credit is due to the Medical Superintendent for his efforts in this direction, as also to those friends in Newcastle, on the Committee and otherwise, who have so generously responded to his suggestions. In an isolated community such as this continual mental occupation is always an urgent problem, and anything that will assist its solution is of material gain towards successful treatment.

Of the Newcastle Corporation cases the average length of stay was 135 days, barely five months. Women remain as a rule about a month longer than men. The results of treatment of Newcastle cases were, as estimated at the time of discharge by the Medical Superintendent :—

Fit for work, 34; improved, 23; without improvement, 15; worse 4; died in institution, 1. The Tuberculosis Medical Officer's opinion of the results was rather more optimistic.

The *Hospital for Advanced Cases*, an annexe of the City Hospital, Walker Gate, has a nominal 62 beds. It is capable, in summer at least, of accommodating a further 30 patients, but owing to financial strictures such extension, although greatly needed, is not being made use of. The special purpose of this Hospital has already been referred to. The patients enjoy a considerable degree of liberty, have occasional leave of absence, and their friends have ready access to them. They are well fed, well housed, and well nursed, with the result that many of them undergo sufficient improvement to permit of their return to work for a further period.

Reference was made in the report for 1921 to two notable lacks in the local machinery, of which the first is open-air schools for pre-tuberculous children, the second being convalescent accommodation for surgical cases after operation. It is understood that the Education Committee is still considering provision of the former, long overdue, but there have been no developments since the announcement by the Royal Victoria Infirmary a year ago of refusal in future to admit tuberculous cases requiring operation (the most certainly curable type of the disease) unless their home

conditions are such as will permit of the rest, care and attention essential to their condition, since the pressure on the beds of that institution does not allow of such cases being retained in Hospital for prolonged and indefinite periods to the exclusion of many other patients. Appreciative mention should be made here once more of the good work being done by the Education Committee towards the systematic care of children's teeth, a most important step towards closing the door to infection.

FOOD AND PROVISIONS. Bovine Tuberculosis.—171 samples of milk were examined for the presence of tubercle bacilli, which were found in 12, or 7·0 per cent. of them. This proportion is higher than in the previous year, when it was 5·5 per cent. The percentages in 1920 and 1919 were respectively 6·3 and 3·6, the last being the lowest experienced. The highest pre-war proportion was in 1912, namely, 10·4 per cent. The low figure quoted above occurred during the period of meat shortage when cows were being killed off before the usual age for development of tuberculosis. Owing to the lack of legal power, and of any noticeable anxiety for action amongst the various local authorities concerned, there is still considerable difficulty in dealing with milk found to be tuberculous.

The Veterinary Officer and Inspector of Provisions (Mr. Thomas Parker, F.R.C.V.S.) reports that the City now contains 25 cow keepers, occupying 39 cow sheds on 26 premises, with 489 milch cows, a decrease of 86 cows since the previous year. Inspection of the cow-sheds and dairies was not as complete as it should be owing to the continued pressure of work in other directions, more particularly meat inspection. This is unfortunate, as more could be done by regular examina-

tion of cows in the City byres to eliminate those yielding tuberculous milk and therefore extremely dangerous to young children.

Slaughtering is at present carried on in 102 separate premises situated in 15 different localities in the City, consequently it is quite impossible for the Veterinary Officer and his Inspectors (increased since the period of this report from two to three) to carry out anything like complete inspection of every animal killed in them, and the staff is too largely dependent upon the good will and integrity of the butchers for information as to carcases found to be "not right."

The only satisfactory remedy is the provision of a public abattoir and the prohibition of slaughtering elsewhere in the City. In connection with the public abattoir would be the cattle market and a meat market, through which all meat, dead or alive, entering the City, would pass; the completeness of inspection of dead meat arriving from outside is at present even less certain than that of animals killed within the area. Further advantage would be that of having all those trades (many of them classed as "offensive") dealing with the by-products of slaughtering placed within or adjacent to the abattoir. Proposals for such a scheme have already been before the Committee, and now that it would seem to be practically agreed that the proper place for markets and abattoirs is not as hitherto in the centre of the City, but on the outskirts, there would appear to be no reason why proposals should not be definitely formulated forthwith before all possible convenient sites have been otherwise disposed of. When during food shortage all slaughtering was under Government control, and compensation was being paid for

tuberculous animals, large numbers of the latter were killed and seized in Newcastle. Now, however, the quantity of meat so taken has fallen to its customary low figure, mainly owing to the fact that animals or meat that show any likelihood of proving diseased on inspection do not enter the City at all, but are diverted to surrounding districts, where inspection is not as complete as it is in Newcastle—an entirely unsatisfactory state of affairs from the point of view of the consumer in those areas.

The standard of inspection in force in Newcastle is that which Mr. Parker himself assisted to draft as the recommendation of the recent Departmental Committee on Meat Inspection, of which he was the only veterinary member.

200 food-carrying vessels came to the Quayside during 1922, as compared with 189 in 1921, and 61 in 1920. All imported articles were kept under supervision by Mr. Parker and his staff.

The raising of the embargo on the importation of Canadian cattle became *fait accompli* during the year, but the restrictions imposed have prevented the promoters' expectations of a large increase in imported beef cattle from being fully realised, and the prospects have not been sufficiently encouraging to induce the Newcastle Corporation to undertake the expenditure upon the wharfage necessary to accommodate cattle ships at the quayside.

Food and Drugs Adulteration Acts.—The Inspector under the Food and Drugs Acts (Mr. Wm. Hudspeth), reports the taking of 1,306 samples for analysis, including 1,049 of milk. Of the latter 691 were rough-tested in the Health Department and appeared to be

genuine. Of the remaining 358 the Public Analyst (Dr. J. T. Dunn) found 51 to be below the minimal limit fixed by the Sale of Food Regulations, 1901. Of the 257 samples of food and drugs other than milk, 11 were found to be "not genuine."

Since 1919 the proportion of milk samples certified "not genuine" has fallen from 11·5 per cent. to 4·8 per cent. 13 cases were taken to Court, and convictions were obtained in eight of them, with fines aggregating £11 10s. 0d.; cautions were issued in respect of 35; and no proceedings were taken, for various reasons, in three. There were two prosecutions for offences other than adulteration against one person, the offender being summoned, the fines totalling 10s. The fines imposed are hardly such as are usually likely to serve as deterrents to the dishonest or culpably careless.

In addition 171 samples of milk were examined for evidence of excremental pollution, which was found to an undesirable degree in 56 (or 32 per cent.) as compared with 60 per cent. in the previous year. This is a vast improvement, and indicates considerably greater care in the handling of this important food. A requirement that all empty milk churns shall be rinsed out with cold water before being returned to their respective farms was put into force at the end of 1921, and there is little doubt that the close observation of this by the retailers in the City has accounted for much of the great improvement that has been effected. Of 8,985 churns examined by the Inspectors only 230 were found unrinsed, and this proportion was steadily declining towards the end of the year, by which time such odd churns as were found in that condition were practically always so from unintentional oversight. The purpose of this rinsing is not to relieve the farmer

in any way of his responsibility for cleansing and scalding his milk vessels, but with the inadequate facilities that most of them possess, thorough cleansing of the churns is exceedingly difficult without a preliminary cold water rinsing before the milk has had time to dry in them. There is still much room for improvement.

One firm in the City retails " graded milk " produced by one farm. At the end of the year, however, two farms were producing " Certified " and six " Grade A. (Tuberculin-Tested)." Eleven samples were taken in the course of the year, and all maintained a high standard of purity.

Farmers generally are inclined to hold aloof from attempts to produce " graded milk " on account of an altogether exaggerated idea of the difficulties, but recent experience proves that quite a number of farmers are actually supplying milk to the City of a purity and quality fully equal to the highest class of " graded milk " without any apparent special effort, and without being aware of the fact.

As stated in the report last year, practically all the conditions in the present day transport of milk are thoroughly bad, and are a grave handicap to producer, retailer, and of course most of all to the consumer, and the responsibility for the condition of the article when it reaches its ultimate destination lies just as much with the railway companies as with the members of the trade.

There are 266 small shops in which milk is sold with other articles. This represents a further decrease upon 1921, when the number was 311, and denotes a very substantial weeding-out of undesirable retailers since efforts were first directed towards that end in 1918, when the number of small general shops selling milk was 668.

In each case special precautions are insisted upon to prevent contamination, and the shops, though many, and by no means perfect, represent a considerable improvement.

In addition there are 176 shops selling sterilised milk in sealed bottles. These also are under close supervision and control, and although the conditions of permit are not quite so strict as in the case of loose milk, the premises are fairly satisfactory.

Similar supervision has been exercised over the ice cream trade (both manufacturers and retailers), and numerous objections have been sustained to the commencement of businesses under unsuitable conditions. It has been the policy of the Department to educate wherever possible, and great credit is due to the larger ice cream manufacturers in this City for their ready response, and the practical way in which they have set about the application of the principles advocated. There is one aspect of the ice cream trade that has still to be faced, and which is likely to provide a difficult problem, viz., street vending, for while a vast improvement has taken place in outfits and methods, the procedure is obviously undesirable and dangerous.

Attention has been given to the growing practice by manufacturers of foodstuffs of adding chemical preservatives for the purpose either of preservation, or, less frequently, of concealing taint. While it is not usual to find such preservatives present in so large a quantity as to be directly harmful, it must be remembered that the practice is so general that in the course of even twenty-four hours a person is quite likely to consume a considerable amount of deleterious material. The

commonest substance found is borax, or boric acid, in itself comparatively harmless, but if taken in frequent small quantities as described above, it may be cumulatively very injurious to children, or to persons who suffer, possibly unwittingly, from certain physical weaknesses, *e.g.*, of certain organs, such as the kidneys.

In certain of our over-seas Dependencies, where much greater attention has been given to this subject than here, the presence of preservative, its nature and its quantity, is required to be declared on every container, and it is to be hoped that a similar edict will shortly be issued in this country.

Margarine warehouses, bakehouses, restaurant kitchens, and fried fish shops have all been carefully watched. The last named is scheduled as an "offensive" trade in Newcastle and permits or refusals are dealt with in Committee, and are frequently found to present decidedly embarrassing features. Impartial control of milk, ice cream, and fried fish businesses is a difficult matter, and requires firmness and the exercise of considerable tact, if action is to be justified by results.

In 189 samples of water examined for evidence of excremental pollution two were classified by the Bacteriologist as satisfactory, 71 were reported as doubtful, 100 as unsatisfactory, and 16 as bad–cogent proof of the need for the improvement in purification methods recently set on foot by the Water Company. In addition 12 samples of water were taken from public baths, and on the whole were fairly satisfactory.

THE HOUSE AND THE WORKPLACE.—Nuisance Abatement.—The Senior Sanitary Inspector (Mr. W. Hudspeth) reports only slightly decreasing difficulty in getting necessary improvements carried out in houses

shewing remediable defects. In spite of these difficulties, however, although 7,328 notices were served, in only 24 cases had summonses to be applied for, and 22 of these were withdrawn on the work being done. This is quite in accordance with the characteristic diplomacy with which Mr. Hudspeth and his assistants manage such matters.

Many houses, which by pre-war standards are quite unfit for human habitation, are still occupied, and the shortage of alternative accommodation renders it impossible even yet to undertake closures. Although building operations are now under way, it will still be some years before the congested conditions in the City are more than merely alleviated.

The Cleansing and Scavenging services (under the City Engineer) have not returned to their pre-war scale owing to the high cost entailed, but in no case is refuse removal carried out at a greater interval than a week.

Slow progress only has been made in the conversion of dry closets to the water carriage system, and 72 pail closets, 60 cell privies, and four midden privies (136 in all) have been removed during the year, together with 42 dry ashpits. There remain 4,544 of these abominations in the City, and it is still the cost of conversion which stands in the way of more rapid sanitary progress being made in this direction.

Atmospheric Pollution, as measured at the observation station in Davison's Yard, City Road, amounted to a deposit, in that part of the town, at the rate of 14·11 cwt. of solid impurity per acre per annum, or 452 tons per square mile. This represents a decided improvement since 1916, when the deposit was equivalent to 694 tons per square mile, but there is obviously some distance to

travel before the human part in the exclusion of sunlight has been reduced to its lowest dimension. 631 observations were made of 93 industrial chimneys, and 15 of them showed excessive output of smoke on 17 occasions. There were no prosecutions undertaken, but the representations of the Department were all accepted seriously, and distinct effort made to prevent a recurrence of the cause of complaint.

The gradual substitution of gas or electricity for the dirty and wasteful soft coal fire in the domestic grate is all to the advantage of the public health and of economy. The Corporation Housing Committee rendered excellent service and set a fine example when providing in each of its new houses only one coal fire, the remainder being for gas.

Housing.—An appreciable number of houses was added in the course of the year to the City's accommodation, viz., 59 erected privately, and 442 built by the Corporation on the Walker Estate, and 22 on the Pendower Estate. Some hundreds more were in course of construction under the Corporation's schemes at the end of the year. 523 new homes have thus been gained as compared with 305 in 1921, when the first additions since the war were realised. Very many more are still necessary to meet immediate needs.

In November, 1922, the City Engineer's census showed 137 empty houses in the City (there were 73 at the end of 1921), as against 244 in August, 1914, and 1,305 at the end of 1912. Overcrowding is the rule, and sub-letting is rife. There is no means of controlling this last as yet, and one constantly comes across the most heartless cases of profiteering at the expense of unfortunate tenants of so-called " furnished lodgings."

The population was not quite as well fed in 1922 as in immediately previous years, although, thanks to the unemployment dole, in infinitely better case than in pre-insurance times of industrial distress. Next to poverty, with its consequent privations, bad or insufficient housing is one of the greatest handicaps to the public health. Innumerable cases of gross overcrowding still come to notice, and it is to be hoped that there may be no undue obstacles to the promotion of housing schemes of every description, public or private.

As already mentioned, disease incidence is intimately associated with housing. In 1922 the general death rate was 20·3 and 18·0 per thousand population in All Saints' and St. John's Wards respectively, as compared with 9·1 in Dene and 11·1 in Fenham Wards. In All Saints' the death rate from all forms of tuberculosis was 2·91 per thousand population, while in Jesmond it was only 0·46. In All Saints' Ward 131 babies under one year of age died to every 1,000 born, in Elswick 128, and St. John's 117, whereas in Dene Ward the rate was only 45, and in Arthur's Hill 50, infants per 1,000 births. Over a period of 15 years the deaths of infants per 1,000 births in one-room, two-room and three-room houses have been respectively 147, 123, and 105.

Accommodation in the Common Lodging Houses continues to be ample. At the end of the year there were 47 such houses as against 48 at the close of 1921.

Factories and Workshops, Offices, Places of Amusement, and Schools.—8,726 inspections of factories and workshops were made and 646 notices to remedy defects were served. The homes of outworkers were also kept under observation.

Particular attention has been given by the Senior Sanitary Inspector and his assistants to theatres and cinemas, with special regard to cleanliness and sanitary accommodation, and improvements have been effected where necessary.

Six samples of rag flock were obtained and submitted to the Public Analyst; three were found to conform to the legal standard of cleanliness; one reached the maximal limit, one very slightly exceeded it, and one was greatly in excess. Prosecution was instituted in the last, and a penalty of £2 obtained.

In two instances certain minor defects and other insanitary conditions in connection with schools were reported to the Education Authority, who had them remedied.

COMMITTEE.—Reference was made in the previous report to the lamented death of the Chairman, Alderman Stableforth, J.P., on April 21st, 1922, since when Dr. R. W. Simpson was appointed to the Chairmanship of the Committee, and Councillor David Adams, J.P., M.P., succeeded to the Vice-Chair.

Regretful mention must also be made of the death on the 25th of April, 1923, of Councillor W. Beckett, an active and interested member of the Council and of the Health Committee since November, 1907.

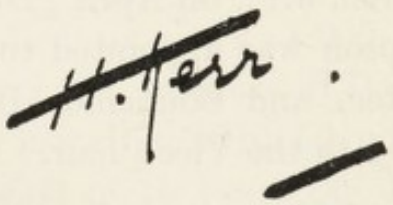
STAFF.—The year under report saw no changes of special note, though in the present year, 1923, the Department has lost two of its most valued members. Of these, Mr. William Hudspeth, Senior Sanitary Inspector, entered into a well-earned retirement after 42 years distinguished service. Mr. Hudspeth's absolute fairness, his strength and his never-failing urbanity, did much to enhance the credit and prestige of the Department.

Another great loss to the Department occurs with the appointment of Dr. S. J. Clegg, Deputy Medical Officer of Health, as Medical Officer of Health of Durban, Natal. Dr. Clegg joined the staff in January, 1911, and what has been said of Mr. Hudspeth applies very closely to him also. While under-studying the Medical Officer of Health in all his functions, his specialism was the epidemiological side of the Department, and in this, as in his management of the City Hospitals, he leaves a worthy record.

In conclusion, Sir, I would make grateful acknowledgment of the support afforded me at all times by the Committee, and especially by yourself.

I have the honour to be, Sir,

Your obedient Servant,



M.D.,
Medical Officer of Health.

Health Department,
Town Hall,
Newcastle-upon-Tyne,
18*th July,* 1923.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

Health Report, 1922.

I.—GENERAL.

MORTALITY TABLES,
SOCIAL CONDITIONS, CLIMATOLOGY,
WATER SUPPLY, DISPOSAL OF REFUSE.

Population, Birth Rate, and Special Mortality Rates during the period of the Notification of Infectious Diseases.

[illegible]	[illegible]	[illegible]

†Calculated on population for 1914. ‡Calculated on population of [illegible]. §Calculated on population of [illegible]. * Civilians only. ‡1 on inward transfer. ** Under the heading of Measles, Rubella is included from [illegible] onward. Prior to 1911 figures uncorrected for cases belonging to other Districts.

GENERAL STATISTICS.

POPULATION.—As estimated by the Registrar General at the middle of the year 1922—**281,600.**

RETURN SHEWING THE ESTIMATED POPULATION OF THE DIFFERENT WARDS IN THE CITY, ACREAGE, POPULATION PER ACRE, ETC.

Ward.	Population	Gross Area in acres	Less for Open Spaces in acres.	Nett Area in acres.	Population per acre, gross.	Nett.
St. Nicholas'	3,528	127	1	126	28	28
St. Thomas'	14,626	1,636	1,130	506	9	27
St. John's.....	15,686	169	1	168	93	93
Stephenson	19,635	215	..	215	92	92
Armstrong	16,235	178	31	147	91	110
Elswick.....	12,865	253	17	236	51	54
Westgate	15,861	90	1	89	176	178
Arthur's Hill	9,928	142	6	136	70	73
Benwell	20,068	550	28	522	36	38
Fenham	12,078	1,189	..	1,189	10	10
All Saints'	17,830	176	2	174	101	103
St. Andrew's	12,914	173	3	170	75	76
Jesmond	10,694	441	35	406	24	26
Dene	12,775	818	37	781	16	16
Heaton	14,689	225	76	149	65	98
Byker	17,941	140	..	140	128	128
St. Lawrence	20,172	181	3	178	111	114
St. Anthony's	17,222	601	..	601	29	29
Walker	16,853	1,149	37	1,112	15	15
CITY	281,600	8,453	1,408	7,045	33	40

INHABITED HOUSES.—According to the 1921 Census there were **59,131** inhabited houses, which, on the enumerated population, shows an average of 4·7 persons per dwelling.

RATEABLE VALUE.— **£1,948,923.** A penny rate produced £7,501.

SOCIAL CONDITIONS.—The principal **Trades and Occupations** are of a healthy nature, being generally engineering and machine making; conveyance of men, goods, and messages; building and works of construction, *e.g.*, ship building; and connected with ships and

boats, sea-faring and harbour work; food, tobacco, drink, and lodging; coal and shale mines; and commercial or business occupations.

The amount of **Poor Law Relief** granted during the year ended 31st March, 1922, was £264,233 for outdoor relief, and £44,090 for indoor maintenance, making a total of **£308,323,** as compared with **£140,882** in the previous year.

Registered unemployed rose from 17,500 at the beginning of the year, to 20,700 at its close.

The City contains many **Hospitals** and other medical charities, but as wide surrounding districts are also served by them, figures as to patients treated are not of local value.

MARRIAGES.—2,234 Marriages took place during the year, as compared with 2,567 in 1921, and 3,036 in 1920.

BIRTHS.—6,987, equivalent to a rate of 24·8 per 1,000 population.

DEATHS.—(All causes)—4,698, equivalent to an uncorrected rate of 16·7 per 1,000 population, and, after deduction of the deaths of 831 non-citizens, and addition of 145 Newcastle residents who died elsewhere, to a corrected rate of 14·2 per 1,000 population. In 1921 the death rate was 14·1.

21 deaths were *uncertified* (Debility from Birth, 2; Bronchitis, 4; Croup, 1; Convulsions, 4; Premature Birth, 1; Cerebral Hæmorrhage, 2; Heart Failure, 4; Heart Disease, 1; Natural Causes, 1; Intestinal Obstruction, 1).

20 **Orders for Burial** (Newcastle-upon-Tyne Improvement Act, 1882, Sec. 47) were given, 5 being in respect of bodies lying in inhabited rooms, and 15 being cases from hospital.

TOTAL DEATHS DURING RECENT YEARS FROM CERTAIN CLASSES OF DISEASE.

Classification in Table III. of Ministry of Health.

	II. Nervous System.	III. Circulatory.	IV. Respiratory.	V. Digestive.	XIII. External Causes.
1912	410	435	603	204	152
1913	457	453	722	332	114
1914	448	505	863	465	142
1915	470	635	873	361	163
1916	477	448	856	281	117
1917	497	478	864	268	135
1918	498	503	957	252	135
1919	439	497	1,040	272	133
1920	384	534	861	275	124
1921	347	581	726	297	113
1922	363	689	913	181	92

INFANTILE MORTALITY.—646 infants died before completing the first year of life, representing a rate of **92** deaths per 1,000 births.

ZYMOTIC DEATH RATE.—There were 145 deaths from the " Chief Zymotic Diseases "—Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever (Typhus, Simple Continued, and Enteric) and Diarrhœa (all ages)—equivalent to 0·5 deaths per 1,000 population.

TUBERCULOSIS.—422 persons died from various forms of Tuberculosis, 322 being from Pulmonary, and 100 from Other Forms. The equivalent death rates are *All Forms* 1·50, *Pulmonary*, 1·14 ; and *Other Forms than Pulmonary* 0·35 per 1,000 population.

For comparison of death rates with previous years see large table page 48A.

For particulars of deaths, as to site of disease, age, etc., see table, page 56A.

GEOLOGY.—The geological formation of the area consists of heavy clay on the top of hard sandstone, which overlies coal seams.

CLIMATOLOGY.—The mean barometer reading was 29·90 in.

The mean maximum temperature was 57·6° F., and the mean minimum 37·3° F.

Measurable rain fell on 184 days, amounting in all to 28·75 inches, and as the district average is 27·89 inches, there was an excess of 0·86 inches.

The characteristic feature of the year was the absence of " summer " weather, conditions being cold, wet and unseasonable in the summer period. On the other hand, excess of rainfall is only shown in January, February, July, September and December.

July was the wettest month, with a rainfall of 5·18 inches, showing an excess over the average of 1·66 inches. It was the wettest July experienced for twenty-six years.

The wettest day was July 6th, with a rainfall of 2·15 inches, probably a record downpour for a July day.

The driest month was November, the total rainfall amounting to only 0·73 inches, as compared with an average of 2·40 inches. It is thirteen years since there was such a dry November.

Westerly winds blew on the greatest number of days, but there was an unusual number of days on which the wind came from a northerly direction, and this no doubt accounts for the generally low temperature in the summer months. Winds from the N.E., N.W., and N. were recorded on 103 days. The frequency of the direction is shown by the following table :—

W.	on 93	days.
N.	on 31	,,
N.E.	on 27	,,
N.W.	on 45	,,
S.	on 24	,,
S.E.	on 32	,,
E.	on 32	,,
S.W.	on 36	,,

This information is supplied through the courtesy of the proprietors of the *Newcastle Chronicle.*

WATER SUPPLY.—The City is served by the Newcastle and Gateshead Water Company with a plentiful supply of pure upland surface water, collected from large catchment areas at Catcleugh, close to the Cheviots, and in lower Northumberland.

It is stored in large impounding reservoirs at Catcleugh, Hallington, and Whittle Dene, and passes through sand filters at Whittle Dene and Throckley.

In the vast majority of cases the household taps are served directly from the mains without intervening cisterns.

A separate trade supply is piped to some of the great riverside works from a point above the filters.

The Bacteriological reports upon the water are given on page 125.

The consumption of water in the City has increased of late years, chiefly on account of the greater requirements of industry. Coincidently there has been no increase in the area of the filter beds, nor in the storage capacity of the reservoirs, and it is not surprising that the results of the bacteriological examinations should show a somewhat high degree of organismal contamination, although the water is of high chemical purity.

SEWERAGE.—There are 286 miles and 640 yards of sewers discharging at various points along the seven miles of river frontage directly into the Tyne, which is tidal.

CLEANSING AND SCAVENGING.—With the exception of certain areas, the ashbins are now only emptied once per week instead of twice. With the prevailing high

costs it is improbable that the frequency of removal can be increased.

There are 53,334 dry ashtubs and galvanised iron bins, and 52,715 water closets and 4,544 conservancy system closets in the City. Conversion of the latter was proceeding steadily up to the outbreak of war, at the rate of 600 to 700 per annum. During 1922 72 pail-closets, 60 cell privies and 4 midden privies were removed and water closets substituted. All the schools are served by the water-carriage system.

ADOPTIVE AND LOCAL ACTS IN FORCE.

Adopted Acts.—Infectious Disease (Prevention) Act, 1890. Section 4.

Public Health Acts Amendment Act, 1890.—Part III—Whole of; Part IV.—Whole of.

Notification of Births Act, 1907.

Public Health Acts Amendment Act, 1907.—Part II.—Sections 20, 22, 23, 26, 27, 28, 29, 30, 31, and 33; Part III.—Sections 34, 35, 36, 37, 38, 43, 45, 48, 49, 50 and 51; Part IV.—Sections 52, 53, 56, 58, 59, 61, 62, 63, 64, 65 and 68; Part X.—Whole of.

Local Acts.—Newcastle-upon-Tyne Improvement Act, 1837.
" " 1846.
" " 1853.
" " 1865.
" " 1870.
" " 1882.
" " 1892.
Newcastle-upon-Tyne Tramways and Improvement Act .. .. 1899.
Newcastle-upon-Tyne Corporation Act .. 1911.

VITAL STATISTICS, YEAR 1922.

COMPARISON WITH OTHER DISTRICTS.

DISTRICT	Birth Rate.	General Death Rate.	Infantile Mortality Rate.	Death Rate per 1,000 from Enteric Fever, Smallpox, Scarlet Fever, Measles, Whooping Cough, and Diphtheria	Tuberculosis (all causes) Death Rate.
England and Wales	20·6	12·9	77	0·47	†
105 Great Towns (includ. London)	21·4	13·0	82	0·60	†
NEWCASTLE-UPON-TYNE	**24·8**	**14·2**	**92**	**0·26**	**1·50**
Hull	24·2	14·3	106	0·42	1·33
Leeds.....	19·8	13·9	101	0·72	1·43
Bradford	17·92	14·02	87	0·28	1·02
Sheffield	20·67	11·67	80	0·48	1·22
Manchester	21·23	14·26	96	0·80	1·60
Salford	22·1	14·61	112	0·95	1·6
Liverpool	26·1	14·6	96	0·59	1·6
Nottingham	21·18	12·5	82	0·5	1·24
Leicester	19·45	12·72	87	0·43	1·51
Stoke-on-Trent	25·9	14·3	115	0·89	1·31
Birmingham	21·5	12·1	86	0·61	1·13
Cardiff	21·6	13·2	81	0·36	1·27
Bristol	20·1	12·8	71	0·48	1·30
Portsmouth	22·1	12·1	63	0·61	1·10
London (County).....	21·0	13·3	74	0·92	1·24
Gateshead.....	26·9	15·4	105	0·44	1·83
South Shields	26·6	13·8	94	0·27	1·68
Tynemouth	25·03	13·2	80	0·18	1·59
Sunderland	28·6	15·7	105	0·41	1·34
Middlesbrough	27·99	14·54	111	0·44	1·26
*County of Northumberland	22·5	12·7	87	0·28	1·19
*County of Durham	25·96	12·70	97	0·36	1·12

* Administrative County. † Not available.

TABLE I. OF MINISTRY OF HEALTH.

Vital Statistics of Whole District during 1922 and previous Years.

Year.	Population estimated to Middle of each Year.	Births.			Total Deaths Registered in the District.		Transferable Deaths		Nett Deaths belonging to the District.			
		Uncorrected Number	Nett.		Number	Rate.	of Non-residents registered in the District.	of Residents not registered in the District.	Under 1 Year of Age.		At all Ages.	
			Number	Rate.					Number	Rate per 1,000 Nett Births.	Number	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1906	257,113	8,210	..	..	4,831	18·8	..	..	..	..	..	..
1907	259,082	8,093	..	..	4,594	17·7	..	..	..	..	..	..
1908	261,065	8,382	..	..	4,801	18·4	..	..	..	..	..	..
1909	263,064	7,682	..	..	4,459	16·9	..	..	..	..	..	..
1910	265,077	7,543	..	..	4,252	16·0	..	..	..	..	..	..
1911	267,261	7,089	7,082	26·5	4,667	17·5	448	165	973	137	4,384	16·4
1912	269,193	7,219	7,194	26·7	4,221	15·7	529	146	727	101	3,838	14·3
1913	271,295	7,480	7,460	27·5	4,611	17·0	560	141	908	122	4,192	15·5
1914	271,523	7,564	7,538	27·8	5,069	18·7	546	138	1,029	137	4,660	17·2
1915	278,107	7,575	7,545	27·8†	5,257	18·9	693	207	1,007	133	4,771*	17·2*
1916	278,107	7,332	7,248	26·2	4,875	17·5	680	232	899	123	4,427*	15.9*
1917	278,107	6,548	6,495	23·4	4,646	16·7	718	246	732	113	4,174*	15·0*
1918	278,107	6,555	6,468	23·3	5,380	19·3	872	308	692	107	4,816*	17·3*
1919	275,099	6,793	6,674	23·3§	5,358	19·5	737	234	806	120	4,855*	17·6*
1920	286,061	8,433	8,070	28·0‡	4,609	16·1	779	195	817	101	4,025	14·0
1921	278,400	7,720	7,284	26·2	4,602	16·5	817	142	699	96	3,927	14·1
1922	281,600	7,432	6,987	24·8	4,698	16·7	831	145	646	92	4,012	14·2

Area of District in acres (exclusive of area covered by water) 8,453.
Total population at all ages at census 1921, 278,400.
† In accordance with the instructions of the Supt. of Statistics, General Register Office, Somerset House, this rate is calculated on the population for 1914. * Civilians only.
§ Calculated on a population of 286,571. ‡ Calculated on a population of 287,255.

Corrected Death Rates in different Wards, 1922.

St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	City.
14·4	* 12·3	18·0	16·1	15·4	16·9	13·4	* 13·3	12·7	11·1	* 20·3	14·2	13·2	9·1	15·3	14·0	13·4	11·6	* 13·9	14·

* All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

TABLE II. OF MINISTRY OF HEALTH.

(*See under* **INFECTIOUS DISEASES,** *page 93*).

TABLE IV. OF MINISTRY OF HEALTH.

(*See under* **INFANTILE MORTALITY** *page 60a*).

TABLE III. OF THE MINISTRY OF HEALTH.

RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED 30TH DECEMBER, 1922.

CAUSE OF DEATH.	AGE PERIODS. GROSS. Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL (GROSS).	AGE PERIODS. NETT. Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL (NETT).	WARDS—NETT DEATHS. St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	TRANSFERABLE DEATHS. Inward.	Outward.	Deaths in Institutions in the City of "Residents" or "Non-Residents."
I.—GENERAL DISEASES.																																							
Enteric Fever	..	..	..	..	3	1	..	..	4	..	..	..	..	4	1	..	..	5	..	..	..	..	..	..	..	..	2	..	..	2	1	..	..	..	..	..	..	1	..	4
Malaria	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Measles	2	..	5	2	..	..	..	..	9	2	5	2	..	..	..	..	..	9	..	..	..	..	..	..	..	..	..	..	..	1	4	2	1	1	..	..	1	..	1
Scarlet Fever	1	..	..	2	2	1	..	..	6	1	..	2	2	2	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Whooping Cough	11	15	10	..	..	..	..	..	36	11	15	10	..	..	..	..	..	36	..	..	5	..	1	2	2	3	..	1	1	1	..	1	4	4	1	2	2	1	2
Diphtheria	..	4	8	6	..	..	1	..	19	..	4	6	5	..	..	..	..	15	..	..	1	2	5	1	..	3	..	1	..	..	1	..	..	6	2	2	..	4	16	..
Croup	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	23	27	16	13	8	49	54	73	263	23	27	16	12	8	50	61	76	273	4	11	24	22	22	18	15	10	19	12	25	17	7	8	14	13	16	8	8	12	2	16
Erysipelas	..	..	..	1	..	1	1	..	4	..	..	..	1	..	1	1	1	4	..	..	..	..	..	2	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	3
Pyæmia, Septicæmia	1	..	..	..	1	5	2	1	10	1	..	..	..	..	2	2	1	6	..	1	..	1	1	..	..	..	..	1	1	..	..	..	1	..	..	..	..	4	..	6
Tetanus	1	..	..	1	1	1	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4
Pulmonary Tuberculosis (not acute)	..	5	3	12	65	111	53	7	256	..	5	3	12	69	116	54	7	266	5	5	21	20	11	8	21	9	16	7	33	15	3	7	6	26	20	20	13	18	8	88
Phthisis (not defined as Tuberculosis)	..	..	1	1	11	28	12	..	53	..	..	1	1	11	29	12	..	54	..	1	10	1	1	3	1	..	2	3	7	5	1	1	5	2	6	3	2	1	..	14
Acute Phthisis	..	..	..	..	1	2	..	..	3	..	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
Acute Miliary Tuberculosis	..	..	1	1	6	..	..	..	8	..	..	..	..	..	4	..	..	4	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Tuberculous Meningitis	6	10	12	21	8	3	1	..	61	5	8	8	16	4	3	1	..	45	..	1	..	3	2	5	4	..	2	3	5	3	..	..	4	4	2	4	3	1	17	33
Tuberculosis of Peritoneum and Intestines	4	2	6	12	7	5	3	..	39	4	2	6	5	5	3	2	..	27	..	3	..	1	3	4	..	2	..	3	3	..	1	..	..	3	2	3	2	..	12	21
Tuberculosis of Spinal Column	..	..	1	2	1	4	1	..	9	..	..	1	1	..	2	1	..	5	..	..	..	..	..	..	..	..	..	2	1	..	..	1	..	..	1	..	..	..	4	5
Tuberculosis of Joints	..	1	1	1	..	1	1	..	5	..	..	1	1	..	2	1	..	4	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	1	1	2	4
Tuberculosis of other Organs	..	1	1	..	2	2	1	..	7	..	..	1	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	5	7
Disseminated Tuberculosis	..	..	4	4	8	1	..	..	17	..	..	3	3	6	1	..	..	13	1	1	..	..	2	..	..	..	1	2	1	..	..	..	1	..	..	2	2	..	4	11
TOTAL TUBERCULOSIS	10	19	29	54	104	163	72	7	458	9	15	23	39	97	160	72	7	422	6	11	31	25	20	20	28	11	21	19	52	23	5	8	17	36	31	33	25	21	57	189
Rickets, Softening of Bones	2	1	2	..	..	..	..	..	5	2	1	1	..	..	..	..	..	4	..	..	..	..	1	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	1	2
Syphilis	10	..	1	..	4	4	..	..	19	9	..	1	..	3	3	..	..	16	..	..	1	2	3	..	..	..	..	..	5	1	..	..	..	1	3	..	..	..	3	10
Cancer of the Buccal Cavity	..	..	..	..	1	13	12	26	..	..	..	..	..	..	11	11	22	..	1	5	1	..	2	1	1	..	1	..	..	2	3	1	1	2	..	4	10	..	..	..
Cancer of the Stomach, Liver, etc.	..	..	..	..	13	78	47	138	..	..	..	..	..	6	53	38	..	97	..	8	6	4	7	9	5	4	3	2	2	3	9	6	3	8	7	6	5	3	44	66
Cancer of the Peritoneum, Intestines and Rectum	..	..	1	..	1	6	47	39	94	..	..	1	..	1	3	29	39	73	..	10	4	5	4	..	6	1	6	4	3	4	1	6	4	5	1	3	6	3	24	35
Cancer of the Female Genital Organs	..	..	..	..	..	7	29	4	40	..	..	..	..	..	6	22	4	32	..	3	1	2	1	..	2	2	1	1	3	2	2	2	4	2	1	2	1	..	8	9
Cancer of the Breast	..	..	..	..	..	5	10	3	18	..	..	..	..	..	4	10	3	17	1	..	1	..	..	1	..	1	1	2	..	2	4	..	2	2	..	..	..	..	1	2	2
Cancer of the Skin	..	..	..	..	..	1	1	2	..	..	..	..	..	..	1	1	..	2	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2
Cancer of other or unspecified Organs	..	..	1	..	6	11	38	25	81	..	..	..	..	4	6	31	18	59	1	6	2	5	2	2	1	4	6	3	2	1	5	2	6	3	2	2	4	..	22	34
Other Tumours (situation undefined)	..	..	..	..	2	3	2	7	..	..	..	..	..	..	1	2	2	5	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2	1	..	..	2	3
Rheumatic Fever	..	..	..	5	3	6	4	18	..	..	..	..	5	2	6	3	..	16	..	1	1	1	..	..	2	..	1	..	5	..	1	1	1	..	..	1	1	..	..	4
Chronic Rheumatism, Osteo-Arthritis	..	..	..	..	..	2	3	4	9	..	..	..	..	..	2	3	4	9	..	3	2	..	1	..	1	..	1	..	1	..	..	..	..	..	..	1	..	..	..	1
Diabetes	..	..	..	3	4	10	16	8	41	..	..	..	..	2	3	8	10	5	28	..	3	..	1	3	3	1	1	3	1	..	2	1	2	..	2	1	1	3	..	13	21
Exophthalmic Goitre	..	..	..	..	4	4	1	1	10	..	..	..	..	..	2	3	1	..	6	..	1	1	..	1	..	1	..	..	1	..	1	2	..	..	..	..	..	..	..	4	7
Addison's Disease	..	..	..	..	1	1	..	..	2	..	..	..	..	1	1	..	..	2	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Leucocythæmia, Lymphadenoma	..	..	1	3	..	..	4	..	8	..	..	1	3	..	..	1	..	5	..	..	..	..	1	1	..	..	..	..	..	..	1	1	..	..	1	1	..	..	..	3	6
Anæmia, Chlorosis	..	..	..	1	..	9	18	1	29	..	..	..	..	..	6	13	1	20	..	..	..	2	2	1	1	1	1	..	2	2	3	..	1	..	1	2	..	..	9	15
Other General Diseases	..	..	..	1	..	1	1	1	4	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	2	4
II.—DISEASES OF NERVOUS SYSTEM AND ORGANS OF SPECIAL SENSE.																																							
Encephalitis	..	1	1	..	1	2	2	..	7	..	..	1	..	1	..	1	..	3	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	4	5
Cerebro-Spinal Fever	3	1	1	..	1	..	..	..	6	3	..	1	..	1	..	..	..	5	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	3
Meningitis, other forms or undefined	8	7	8	3	3	2	2	1	34	6	7	8	3	..	..	1	..	25	1	3	2	1	4	3	2	..	1	1	2	..	1	..	..	1	1	2	..	9	13
Locomotor Ataxy	..	..	..	..	..	8	2	10	..	..	..	..	..	..	8	2	..	10	..	..	..	..	1	1	..	..	2	..	1	1	1	..	..	1	1	..	..	..	1	3
Other Diseases of the Spinal Cord	1	..	..	..	..	6	9	5	21	1	..	..	..	..	5	6	4	16	..	1	..	3	1	1	1	2	..	..	1	..	..	3	2	1	..	..	5	14
Cerebral Hæmorrhage, Apoplexy	1	..	..	..	..	1	70	108	180	1	..	..	..	..	1	72	100	174	2	6	5	10	10	10	19	9	13	7	19	10	7	4	11	6	8	11	7	2	8	44
Softening of the Brain	..	..	..	..	..	..	2	3	5	..	..	..	..	..	..	2	3	5	..	..	..	1	..	1	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..
Hemiplegia	..	..	..	..	..	1	4	10	15	..	..	..	..	..	1	4	10	15	..	1	..	2	..	..	1	2	1	..	1	..	..	1	2	..	..	..	1	3	..	3
General Paralysis of the Insane	..	..	..	..	..	1	..	..	1	..	..	..	..	..	8	8	..	16	1	1	2	1	..	..	..	1	2	1	..	2	1	1	..	3	1	..	..	2	15	..	1
Other forms of Mental Alienation	..	..	..	..	2	1	..	..	3	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	3
Epilepsy	..	..	..	1	3	4	1	..	9	..	..	..	..	1	3	6	1	11	2	..	1	..	3	..	..	..	..	..	..	..	..	..	1	2	1	..	1	4	2	5
Convulsions (non-puerperal; 5 years and over)	..	..	..	..	1	1	..	..	2	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Infantile Convulsions (under 5 years)	42	6	..	..	..	..	..	..	48	39	6	..	..	..	..	..	..	45	2	2	4	3	5	1	..	..	5	..	6	..	3	..	4	2	4	2	2	..	3	1
Chorea	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Other Diseases of the Nervous System	1	..	..	2	2	7	8	1	21	1	..	..	..	6	11	3	21	..	1	3	1	..	..	1	2	1	1	1	..	1	2	2	..	3	1	1	11	11	13
Diseases of the Eye and Annexa	..	1	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Mastoid Disease	1	..	2	1	2	2	..	1	9	1	..	1	..	1	..	..	1	4	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	5	7
Other Diseases of the Ears	6	4	2	2	1	4	4	..	23	6	..	2	2	..	2	1	..	13	..	..	3	1	..	..	3	..	1	1	1	..	..	..	1	..	..	2	..	10	14
III.—DISEASES OF CIRCULATORY SYSTEM.																																							
Pericarditis	..	..	..	1	..	2	..	..	3	..	..	..	..	1	3	6	2	12	2	..	..	..	..	1	..	1	2	..	1	2	1	1	..	1	1	1	1	..	1	1
Acute Endocarditis	..	..	..	2	7	20	5	2	36	..	..	..	..	1	3	6	2	14	..	..	..	..	..	..	..	..	2	1	1	1	1	1	1	1	1	1	1	..	22	28
Valvular Disease of the Heart	1	..	..	2	9	35	94	69	210	1	..	..	..	2	6	29	93	66	197	3	10	14	14	9	10	12	6	11	4	11	4	10	10	17	16	9	14	13	7	20	63
Fatty Degeneration of the Heart	..	..	..	..	..	2	9	7	18	..	..	..	..	..	2	12	9	23	..	..	..	1	1	1	2	1	..	2	2	1	1	1	2	2	3	3	1	..	6	1
Other Organic Disease of the Heart	..	1	..	2	1	16	59	100	179	..	1	..	2	1	15	59	104	182	8	10	4	13	12	14	6	5	11	9	21	14	7	2	12	11	10	7	6	14	11	68
Angina Pectoris	..	..	..	..	..	2	8	9	19	..	..	..	..	..	2	8	9	19	..	..	1	2	1	2	1	1	1	2	..	1	1	1	1	1	2	1	1	..	..	..
Aneurysm	..	..	..	..	..	4	9	2	15	..	..	..	..	..	3	8	1	12	..	2	..	..	1	1	1	..	1	1	..	1	1	1	1	1	1	1	1	1	4	7
Arterial Sclerosis	..	..	..	..	..	4	47	173	223	..	..	..	..	..	3	43	171	217	..	9	21	25	8	15	16	16	8	7	26	10	5	6	7	7	11	11	9	7	13	141
Other Diseases of Arteries	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Cerebral Embolism and Thrombosis	..	..	..	..	..	..	7	13	20	..	..	..	..	..	..	5	13	18	..	..	..	..	1	2	..	..	..	3	..	2	1	4	..	2	2	..	..	1	..	2	5
Other Embolism and Thrombosis	..	..	..	2	..	2	1	..	5	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	5	5
Diseases of the Veins (Varices, Hæmorrhoids, Phlebitis, etc.)	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Diseases of the Lymphatic System	1	..	1	..	1	1	..	..	4	1	..	..	..	..	..	..	..	2	..	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	2
Hæmorrhage	..	..	..	..	1	..	1	..	2	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
IV.—DISEASES OF RESPIRATORY SYSTEM.																																							
Diseases of the Larynx	3	..	2	..	..	..	..	..	5	3	..	..	..	..	..	..	..	3	..	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	2	1
Bronchitis	82	23	18	1	4	16	57	191	392	82	23	18	..	3	16	57	189	388	3	14	27	28	25	27	17	11	30	6	46	22	15	6	19	28	29	15	20	3	7	51
Broncho-Pneumonia	127	94	38	10	6	11	30	20	336	124	88	37	9	6	9	27	18	318	1	5	40	22	19	3	11	1	33	6	41	13	3	2	10	17	30	24	37	1	19	55
Lobar Pneumonia	2	3	3	..	7	30	13	11	69	2	3	3	1	7	26	14	12	68	1	6	5	5	4	2	4	..	6	2	8	3	1	1	3	6	4	2	5	5	6	15
Pneumonia (type not stated)	11	11	11	8	7	19	22	28	117	11	11	10	7	6	17	20	27	109	1	6	9	16	4	7	3	3	8	2	13	5	5	1	6	4	9	5	2	2	16	42
Pleurisy	3	5	6	3	1	4	7	1	30	2	..	3	..	..	2	4	1	12	..	..	2	2	1	..	1	..	..	2	..	..	..	1	1	2	..	..	..	..	18	25
Pulmonary Congestion, Pulmonary Apoplexy	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Asthma	..	..	..	..	1	..	5	4	10	..	..	..	..	1	..	5	4	10	..	..	..	1	..	..	..	..	..	1	..	..	..	2	2	2	1	1	..	..	..	..
Pulmonary Emphysema	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Other Diseases of the Respiratory System	..	..	..	..	..	..	2	1	3	..	..	..	..	..	..	2	1	3	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Carried forward	351	228	167	131	195	505	890	993	3460	339	207	147	98	163	435	806	964	3159	37	140	230	238	185	163	170	102	211	102	310	148	108	89	165	202	211	168	180	122	423	1119

TABLE III. OF THE MINISTRY OF HEALTH.—*Continued.*

RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED 30TH DECEMBER, 1922.

CAUSE OF DEATH.	AGE PERIODS. GROSS. Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL (GROSS).	AGE PERIODS. NETT. Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL (NETT).	WARDS—NETT DEATHS. St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	TRANSFERABLE DEATHS. Inward.	Outward.	Deaths in Public Institutions.
Brought forward	351	228	167	131	195	505	890	993	3460	339	207	147	98	163	435	806	964	3159	37	140	230	238	185	163	170	102	211	102	310	148	108	89	165	202	211	168	180	122	423	1119
V.—DISEASES OF DIGESTIVE SYSTEM.																																								
Diseases of the Teeth and Gums	2	..	..	..	..	1	..	..	3	1	1	..	..	..	1	..	..	3	..	..	..	..	..	..	..	1	..	..	1	..	..	1	..	..	..	..	..	1	1	..
Diseases of the Pharynx, Tonsillitis	..	..	..	2	..	..	..	1	3	..	..	..	1	..	..	..	1	2	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Diseases of the Œsophagus	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Perforating Ulcer of Stomach	..	..	..	..	3	6	9	5	23	..	..	..	..	1	2	4	5	12	..	1	..	..	1	..	1	..	1	..	..	1	1	..	..	3	..	1	..	..	1	12	11
Inflammation of Stomach	5	..	1	1	..	4	..	3	14	5	..	1	1	..	3	..	3	13	1	..	..	2	..	1	..	1	1	..	..	1	..	1	1	..	3	1	1	..	1	1
Other Diseases of the Stomach	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diarrhœa and Enteritis (under 2 years), including Dysentery, Epidemic or Zymotic Enteritis, and Intestinal Catarrh	46	12	..	..	..	..	..	..	58	44	12	..	..	..	..	..	..	56	..	2	4	7	8	3	1	2	1	1	9	..	..	..	2	4	5	2	5	1	2	29
Diarrhœa and Enteritis (2 years and over)	..	..	3	2	1	15	14	3	38	..	1	3	2	..	5	3	4	17	1	3	..	..	3	1	2	1	..	..	2	2	..	1	..	..	..	1	1	1	36
Appendicitis	1	1	..	11	15	7	12	4	51	..	..	..	2	4	1	3	2	13	..	1	1	1	..	1	..	..	..	1	..	1	2	..	..	2	..	..	1	2	34
Hernia, Intestinal Obstruction	18	3	..	2	4	9	28	13	77	8	..	..	..	1	1	3	6	24	1	1	2	2	..	2	1	1	1	4	3	1	1	..	1	2	..	..	..	2	46
Other Diseases of the Intestines	2	1	..	..	..	..	3	1	7	2	1	..	..	..	..	3	1	7	..	1	..	2	..	1	1	1	1	..	..	..	1	..	..	..	..	..	..	1	6
Acute Yellow Atrophy of Liver	..	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Cirrhosis of the Liver (Non-Alcoholic)	1	..	..	..	..	2	4	5	12	1	..	..	..	..	1	2	5	9	..	..	1	..	2	..	..	..	1	1	..	2	..	1	..	..	1	..	..	1	3
Cirrhosis of the Liver (Alcoholic)	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Biliary Calculi	..	..	..	..	..	..	9	4	13	..	..	..	..	..	..	4	2	6	..	..	..	1	..	..	..	1	1	..	..	..	1	..	..	1	..	..	..	..	2
Other Diseases of the Liver	1	..	..	1	..	1	10	4	17	..	..	..	1	..	1	5	2	9	..	..	1	1	1	..	1	..	1	..	1	..	1	1	..	..	..	..	..	8	11
Peritonitis (cause unstated)	..	..	1	4	4	..	3	1	13	..	..	..	..	1	..	3	1	5	..	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..	..	2	..	..	8	8
Other Diseases of the Digestive System	..	..	..	..	..	3	6	1	10	..	..	..	..	..	1	1	1	2	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3	8
VI.—NON-VENEREAL DISEASES OF GENITO-URINARY SYSTEM AND ANNEXA.																																							
Acute Nephritis	1	..	2	5	5	9	5	3	30	1	..	1	1	3	6	4	3	19	..	1	1	2	1	4	..	..	..	1	1	..	1	2	3	..	1	1	..	1	11	16
Bright's Disease	..	..	..	..	1	18	46	39	104	..	..	..	..	1	8	43	37	89	3	2	4	9	7	8	4	5	4	1	5	7	7	9	5	2	4	1	2	1	15	32
Other Diseases of the Kidney and Annexa	..	..	..	1	..	3	8	5	17	..	..	..	1	..	1	5	2	9	..	..	..	1	..	..	1	1	2	..	..	1	1	2	..	..	..	..	..	..	6	8
Calculi of the Urinary Passages	..	..	..	1	..	5	1	1	8	..	..	..	..	..	1	1	..	2	..	1	..	..	..	2	..	1	..	..	..	..	1	..	1	..	..	..	..	..	6	6
Diseases of the Bladder	..	..	..	..	..	4	2	4	10	..	..	..	..	..	1	2	4	7	..	..	..	1	1	..	2	..	1	..	..	..	1	..	1	..	..	..	..	1	4	6
Diseases of the Urethra, Urinary Abscess, &c.	..	..	..	..	..	1	1	..	2	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Diseases of the Prostate	..	..	..	..	..	..	2	19	21	..	..	..	..	..	..	..	8	8	..	..	..	2	..	..	..	1	1	..	1	..	1	..	1	..	1	..	..	..	12	20
Non-Venereal Diseases of the Male Genital Organs	2	..	..	..	..	1	..	..	3	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2
Uterine Tumour (non-cancerous)	..	..	..	..	1	2	4	..	7	..	..	..	..	1	1	2	..	4	..	..	..	..	..	1	..	1	..	..	..	1	..	..	1	..	..	..	..	..	3	3
Other Diseases of the Uterus	..	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Ovarian Cyst, Tumour (non-cancerous)	..	..	..	..	..	1	2	3	6	..	..	..	..	..	..	1	1	2	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	4	3
Other Diseases of the Female Genital Organs	..	..	..	..	..	3	1	..	4	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	3
VII.—THE PUERPERAL STATE.																																							
Abortion	..	..	..	..	1	4	..	..	5	..	..	..	..	1	3	..	..	4	..	..	..	1	1	..	..	..	..	..	1	..	..	..	1	..	..	..	..	1	2	..
Accidents of Pregnancy	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..
Puerperal Hæmorrhage	..	..	..	..	1	6	..	..	7	..	..	..	..	1	6	..	..	7	..	..	..	..	1	..	..	..	1	..	1	..	..	1	1	..	2	..	..	4	4
Other Accidents of Childbirth	..	..	..	..	1	4	..	..	5	..	..	..	..	..	3	..	..	3	..	..	1	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	2	1
Puerperal Fever	..	..	..	..	3	8	1	..	12	..	..	..	..	3	4	..	..	7	..	..	..	..	1	1	..	..	2	..	..	..	..	..	2	1	..	..	..	5	9
Puerperal Albuminuria and Convulsions	..	..	..	..	5	4	..	..	9	..	..	..	..	1	3	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	..	..	..	5	7
Puerperal Embolism and Sudden Death	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1
Puerperal Insanity	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
VIII.—DISEASES OF SKIN AND CELLULAR TISSUE.																																							
Senile Gangrene	..	..	..	..	..	..	2	6	8	..	..	..	..	..	..	1	5	6	..	1	..	..	..	..	1	..	..	1	..	..	1	..	..	1	..	..	..	1	2	4
Gangrene, other types	1	..	1	..	..	..	1	..	3	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	2	3
Carbuncle—Boil	..	..	..	..	1	2	1	..	4	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	3
Phlegmon, Acute Abscess	5	..	..	..	..	2	1	..	8	1	..	..	..	1	2	1	..	5	1	1	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	..	1	4	3
Diseases of the Integumentary System	5	1	..	..	..	..	3	..	9	5	1	..	..	..	2	..	..	8	..	..	1	2	..	..	..	..	..	..	2	..	..	..	..	..	1	2	..	1	4	4
IX.—DISEASES OF BONES, etc.																																							
Diseases of the Bones	1	..	2	9	1	3	1	..	17	1	..	..	2	..	2	1	..	6	..	..	..	2	..	..	2	..	..	1	..	1	..	..	..	..	..	..	..	..	11	15
Diseases of the Joints	..	..	1	1	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2
Other Diseases of the Locomotor System	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
X.—MALFORMATIONS.																																							
Congenital Malformations	28	1	1	1	..	..	..	..	31	19	..	1	1	..	..	..	..	21	..	..	1	..	..	..	4	1	..	2	3	1	..	1	1	2	1	1	3	..	10	10
XI.—DISEASES OF EARLY INFANCY.																																							
Premature Birth	143	..	..	..	..	..	..	..	143	129	..	..	..	..	..	..	..	129	3	1	14	18	14	6	6	2	6	2	7	8	2	3	5	5	11	6	10	..	14	20
Infantile Atrophy, Debility, and Marasmus	69	..	..	..	..	..	..	..	69	66	..	..	..	..	..	..	..	66	1	1	5	9	7	5	4	..	4	3	3	..	1	..	..	3	6	3	11	..	3	6
Icterus Neonatorum, Sclerema and Œdema Neonatorum	4	..	..	..	..	..	..	..	4	3	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	1	4
Other Diseases peculiar to Early Infancy	19	..	..	..	..	..	..	..	19	17	..	..	..	..	..	..	..	17	..	3	..	1	..	..	2	..	1	..	1	..	..	1	1	2	3	1	1	..	2	6
XII.—OLD AGE.																																							
Old Age	..	..	..	..	..	..	..	128	128	..	..	..	..	..	..	..	129	129	..	7	5	8	4	15	5	3	5	8	4	3	6	4	18	10	13	4	7	2	1	6
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																																							
Suicide by Poison	..	..	..	..	..	3	..	..	3	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	1	..	2
,, Asphyxia	..	..	..	..	..	2	3	..	5	..	..	..	..	..	2	3	..	5	..	..	..	1	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
,, Hanging and Strangulation	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
,, Drowning	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
,, Firearms	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
,, Cutting and Piercing Instruments	..	..	..	..	2	6	1	9	..	..	..	..	..	2	3	1	6	..	1	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
,, Jumping from High Place	..	..	..	..	..	2	..	2	..	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	3	4
,, Crushing	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Poisoning by Food	..	..	..	1	..	..	..	1	2	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Acute Poisoning	..	..	1	..	..	..	1	..	2	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Burns (conflagration excepted)	..	3	14	8	4	2	2	1	34	..	1	11	4	..	..	..	..	16	..	1	2	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2
Suffocation by Fumes, &c.	2	..	..	..	..	1	1	..	4	2	..	..	..	..	1	..	..	3	..	..	1	..	..	..	..	1	..	2	2	1	..	1	1	..	..	2	..	18	29
Accidental Drowning	..	..	..	1	..	..	..	1	2	..	..	..	1	..	1	..	1	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1
Injury by Fall	..	..	..	5	2	3	5	7	22	..	..	..	3	..	2	3	5	13	..	2	..	2	2	1	..	1	..	..	1	..	1	..	..	..	..	2	..	..	14
Injury in Mines and Quarries	..	..	..	3	5	9	5	1	23	..	..	..	2	..	..	..	..	2	..	..	1	..	..	..	1	..	..	1	1	..	..	..	1	..	1	2	..	9	14
Injury by Machines	..	..	..	1	1	..	2	1	5	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	23	23
Injury by other Crushing (vehicles, railways, landslides, &c.)	..	..	3	7	8	7	9	6	40	..	..	2	3	1	7	5	4	22	1	4	..	..	..	..	2	..	4	..	1	1	1	..	1	3	2	1	1	4	22	33
Injury by Animals	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Fractures (cause not specified)	..	..	..	1	..	..	3	3	7	..	..	..	..	..	..	..	4	4	..	1	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	1	4	5
Other Violence	..	1	..	4	..	1	2	2	10	..	1	..	3	..	1	1	..	6	..	1	..	1	..	..	..	..	..	..	1	..	..	1	1	1	..	1	1	5	6
War—Gunshot Wounds, &c.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..
XIV.—ILL-DEFINED CAUSES.																																							
Dropsy	..	1	..	..	..	..	1	..	2	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1
Syncope (aged 1 year and under 70)	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Heart Failure (aged 1 year and under 70)	..	..	..	1	..	..	2	3	6	..	..	..	1	..	..	2	3	6	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Other ill-defined deaths	1	4	..	..	..	..	1	..	6	1	3	..	..	..	..	1	..	5	..	..	..	..	1	..	..	..	..	..	1	..	1	..	1	..	..	..	1	..	1
Cause not specified	..	..	..	..	1	1	1	..	3	..	..	..	..	..	2	1	1	4	..	..	..	1	1	..	1	..	..	..	1	..	..	..	2	1	..	..	2	1	..
TOTAL	708	256	197	204	268	669	1121	1175	4698	646	228	167	129	183	520	930	1209	4012	51	180	282	317	250	217	213	132	254	134	363	183	141	116	225	251	270	199	234	145	831	1691

REPORT OF THE
MATERNITY AND CHILD WELFARE
MEDICAL OFFICER.

II.—THE CHILD.

INFANTILE MORTALITY, MATERNITY AND
CHILD WELFARE.

INFANTILE MORTALITY.

SUMMARY OF BIRTHS AND DEATHS, 1922.

	LEGITIMATE.			ILLEGITIMATE.			Grand Total.
	M.	F.	Total.	M.	F.	Total.	
Total Births in the Year ..	3,666	3,448	7,114	158	160	318	7,432
Nett „ „ „	3,489	3,236	6,725	129	133	262	6,987
Nett Deaths..... (under 1 year of age).	381	234	615	16	15	31	646
Death Rate per 1,000 births	..	..	91	..	..	118	92

BIRTHS (CORRECTED) IN WARDS IN THE DIFFERENT QUARTERS OF THE YEAR 1922.

WARD.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	TOTALS.
St. Nicholas'	21	16	13	8	58
St. Thomas'.....	65	64	49	47	225
St. John's	143	144	122	94	503
Stephenson	153	164	128	125	570
Armstrong	124	138	91	115	468
Elswick	59	65	67	51	242
Westgate	103	87	95	86	371
Arthur's Hill	34	25	32	29	120
Benwell	155	130	122	127	534
Fenham	65	69	58	49	241
All Saints'	138	129	132	97	496
St. Andrew's	103	81	81	71	336
Jesmond	48	29	28	22	127
Dene	54	40	43	39	176
Heaton	69	74	71	65	279
Byker	155	145	137	126	563
St. Lawrence	152	174	161	150	637
St. Anthony's	155	121	118	106	500
Walker	133	152	132	124	541
CITY	1,929	1,847	1,680	1,531	6,987

DISTRIBUTION OF DEATHS.

WARDS.	Nett Deaths of Children under 1 year of age in 1922.					Children under 1 year of age– Death rate per 1,000 Births.	Birth Rate per 1,000 Population (corrected).
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Whole Year.		
St. Nicholas' ..	2	1	..	3	6	103	16·4
St. Thomas' ..	8	6	1	2	17	75	15·4
St. John's	27	13	7	12	59	117	32·1
Stephenson ...	26	17	6	16	65	114	29·0
Armstrong ...	20	17	7	5	49	105	28·8
Elswick	13	7	8	3	31	128	18·8
Westgate	7	9	3	5	24	65	23·4
Arthur's Hill .	3	3	..	..	6	50	12·1
Benwell	26	16	7	6	55	103	26·6
Fenham	7	5	1	3	16	66	19·9
All Saints'	28	13	12	12	65	131	27·9
St. Andrew's .	14	3	5	1	23	68	26·0
Jesmond.....	7	2	1	..	10	79	11·9
Dene	3	4	1	..	8	45	13·8
Heaton	12	3	6	3	24	86	19·0
Byker	18	8	6	12	44	78	31·4
St. Lawrence .	19	15	8	11	53	83	31·6
St. Anthony's .	11	5	12	9	37	74	29·0
Walker	23	13	6	12	54	100	32·1
CITY.....	274	160	97	115	646	92	24·8

All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

TABLE IV. OF MINISTRY OF HEALTH.

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 30TH DECEMBER, 1922.

CAUSE OF DEATH.	AGE PERIODS.																					
	GROSS.										NETT (after allowing for transfers).											
	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	Deaths in Institutions in the City of "Residents" or "Non-Residents"
I.—GENERAL DISEASES.																						
Measles	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..	2	..	2	..
Scarlet Fever	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	..
Whooping Cough	..	..	..	..	..	3	2	5	1	11	..	..	..	..	..	3	2	5	1	11	..
Influenza	1	..	..	1	2	..	8	6	7	23	1	..	..	1	2	..	8	6	7	23	..
Pyæmia, Septicæmia	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..
Tetanus	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Tuberculous Meningitis	..	..	..	..	..	..	1	4	1	6	..	..	..	..	..	..	1	3	1	5	1
Tuberculosis of Peritoneum and Intestines	..	..	..	..	..	1	2	1	..	4	..	..	..	..	..	1	2	1	..	4	1
TOTAL TUBERCULOSIS	..	..	..	..	..	1	3	5	1	10	..	..	..	..	..	1	3	4	1	9	2
Rickets, Softening of Bones	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..	2	..	2	..
Syphilis	3	2	..	2	7	2	1	..	..	10	3	1	..	2	6	2	1	..	..	9	5
II.—DISEASES OF NERVOUS SYSTEM AND ORGANS OF SPECIAL SENSE.																						
Meningitis, other forms or undefined	1	..	..	1	2	1	4	1	..	8	1	..	..	1	2	1	3	..	..	6	2
Other Diseases of the Spinal Cord	..	1	..	..	1	..	..	..	..	1	..	1	..	..	1	..	..	..	..	1	1
Cerebral Hæmorrhage, Apoplexy	1	..	..	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	..	1	1
Infantile Convulsions	19	3	2	..	24	7	6	2	3	42	17	3	2	..	22	7	6	2	2	39	7
Other Diseases of the Nervous System	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	1	..
Mastoid Disease	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	..
Other Diseases of the Ears	..	1	..	..	1	1	2	..	2	6	..	1	..	..	1	1	2	..	2	6	3
III.—DISEASES OF CIRCULATORY SYSTEM.																						
Valvular Disease of the Heart	1	..	..	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	..	1	..
Diseases of the Lymphatic System	..	1	..	..	1	..	..	..	..	1	..	1	..	..	1	..	..	..	..	1	..
IV.—DISEASES OF RESPIRATORY SYSTEM.																						
Diseases of the Larynx	1	..	..	..	1	..	1	1	..	3	1	..	..	..	1	..	1	1	..	3	..
Bronchitis	..	1	2	4	7	31	18	17	9	82	..	1	2	4	7	31	18	17	9	82	4
Broncho-pneumonia	..	..	1	1	2	32	44	32	17	127	..	..	1	1	2	32	43	31	16	124	14
Lobar Pneumonia	..	1	..	..	1	..	..	1	..	2	..	1	..	..	1	..	..	1	..	2	..
Pneumonia (type not stated)	..	..	..	..	..	..	5	4	2	11	..	..	..	..	..	..	5	4	2	11	2
Pleurisy	..	..	..	..	..	..	2	1	..	3	..	..	..	..	..	..	2	..	..	2	2
Carried forward	27	10	6	9	52	79	98	80	42	351	25	9	5	9	48	79	96	76	40	339	45

TABLE IV. OF MINISTRY OF HEALTH.—Continued.

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 30TH DECEMBER, 1922.

CAUSE OF DEATH.	AGE PERIODS.																				
	GROSS.										NETT (after allowing for transfers).										Deaths in Institutions in the City of "Residents" or "Non-Residents."
	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Total under 1 Year of Age.	
Brought forward	27	10	6	9	52	79	98	80	42	351	25	9	5	9	48	79	96	76	40	339	45
V.—DISEASES OF DIGESTIVE SYSTEM.																					
Diseases of the Teeth and Gums	..	..	..	..	..	1	..	..	1	2	..	..	..	..	..	1	..	..	..	1	
Inflammation of the Stomach	..	1	..	..	1	2	..	1	1	5	..	1	..	..	1	2	..	1	1	5	1
Diarrhœa and Enteritis *including* Dysentery, Epidemic or Zymotic Enteritis, and Intestinal Catarrh	..	2	3	..	5	21	14	2	4	46	..	2	3	..	5	21	12	2	4	44	22
Appendicitis	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1
Hernia, Intestinal Obstruction	1	..	..	..	1	2	9	5	1	18	1	..	..	..	1	1	2	4	..	8	15
Other Diseases of the Intestines	1	..	1	..	2	..	..	..	..	2	1	..	1	..	2	..	..	..	..	2	
Cirrhosis of Liver (Non-Alcoholic)	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	
Other Diseases of the Liver	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1
VI.—NON-VENEREAL DISEASES OF GENITO-URINARY SYSTEM AND ANNEXA.																					
Acute Nephritis	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	
Non-Venereal Diseases of the Male Genital Organs	..	..	1	..	1	1	..	..	..	2	..	..	1	..	1	..	..	..	..	1	1
VII.—DISEASES OF SKIN AND CELLULAR TISSUE.																					
Gangrene	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1
Phlegmon, Acute Abscess	..	..	..	..	..	3	..	1	1	5	..	..	..	..	..	1	..	..	..	1	4
Diseases of the Integumentary System.....	..	2	1	1	4	..	..	..	1	5	..	2	1	1	4	..	..	..	1	5	1
VIII.—DISEASES OF BONES, &c.																					
Diseases of the Bones	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	1
IX.—MALFORMATIONS.																					
Congenital Malformations	13	6	2	1	22	2	2	..	2	28	11	5	1	..	17	1	..	..	1	19	10
X.—DISEASES OF EARLY INFANCY.																					
Premature Birth	118	11	6	1	136	5	1	1	..	143	106	10	6	1	123	5	1	..	..	129	20
Infantile Atrophy, Debility, and Marasmus.....	27	6	4	5	42	20	3	2	2	69	27	6	4	5	42	19	1	2	2	66	6
Icterus Neonatorum, Sclerema and Œdema Neonatorum	3	1	..	..	4	..	..	..	..	4	3	..	..	..	3	..	..	..	..	3	3
Other Diseases peculiar to early infancy	17	1	1	..	19	..	..	..	..	19	15	1	1	..	17	..	..	..	..	17	6
XI.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																					
Suffocation from Fumes, etc.	1	..	..	..	1	1	..	..	..	2	1	..	..	..	1	1	..	..	..	2	..
Ill-defined Causes	1	..	..	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	..	1	..
TOTAL	209	40	25	17	291	139	129	92	57	708	191	36	23	16	266	133	113	85	49	646	139

ANALYSIS OF INFANTILE MORTALITY SINCE COMMENCEMENT OF ORGANISED MATERNITY AND CHILD WELFARE WORK BY THE HEALTH DEPARTMENT.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Death-rate of Infants *under* 1 *year* per 1,000 births	177	139	166	155	138	153	126	139	122	123	137	101	122	137	133	123	113	107	120	101	96	92
Death-rate of Infants *under* 3 *months* per 1,000 births	83·8	74·8	84·9	82·6	71·6	75·6	68·6	76·6	64·8	66·9	71·5	60·3	67·7	70·7	68·2	66·2	58·7	37·7	64·1	62·1	61·0	57·2
Death-rate of Infants from *Premature Birth*, per 1,000 births	20·1	20·7	25·1	20·9	19·7	22·0	21·2	24·8	19·8	18·8	21·7	19·3	22·0	19·5	24·0	22·0	22·3	27·4	24·6	20·6	22·2	18·4
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Premature Birth*, plus all *Congenital Causes**	40·8	51·7	62·1	60·6	52·1	61·5	43·0	44·6	42·3	42·6	43·9	48·0	57·4	51·1	56·6	51·0	46·0	45·3	51·5	43·1	39·0	34·8
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Diarrhœa and all other Digestive Diseases* †	45·7	12·8	26·9	21·8	22·4	35·2	12·7	24·8	13·5	16·7	25·1	7·8	16·6	25·3	20·1	14·3	14·8	11·9	14·7	14·9	16·0	9·1
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Infantile Atrophy, Debility and Marasmus*	15·8	19·8	30·8	29·2	24·4	31·4	11·1	10·6	14·6	13·5	22·7	21·4	25·6	23·0	25·0	22·4	17·7	13·0	18·0	16·9	13·0	9·4
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Measles*	..	..	..	..	..	5·35	2·60	0·60	3·64	2·26	4·95	3·61	2·28	4·65	6·90	2·50	2·46	0·77	3·89	0·99	2·88	0·29
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Whooping Cough*	..	..	..	..	..	3·42	7·30	5·73	4·30	5·05	7·35	2·78	5·50	5·20	5·17	4·10	3·70	6·65	0·60	3·1	3·7	1·6
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Respiratory Diseases*	..	..	..	..	..	20·8	24·6	27·0	24·4	25·2	26·4	20·4	22·2	30·6	24·9	28·0	27·0	20·9	27·6	26·9	18·7	32·0
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Tuberculosis* (all forms)	..	..	..	..	..	3·53	3·71	4·65	4·55	4·25	2·40	3·20	3·88	3·88	3·40	2·60	1·54	2·63	1·80	1·36	1·51	1·29

Prior to 1911 figures uncorrected for cases belonging to other districts.

*" *All Congenital Causes* " includes Syphilis and congenital defects.

†" *Diarrhœa and all other Digestive Diseases* " includes Diarrhœa, Dysentery, Epidemic or Zymotic Enteritis, Rickets, Diseases of the Stomach, Enteritis, Obstruction of Intestine, Peritonitis and other Diseases of the Digestive System.

For particulars of deaths, as to causes, etc., see Tables on pages 56A and 60A.

DEATHS OF CHILDREN UNDER SCHOOL AGE.

The mortality rate among children, aged 1 to 5 years, in 1922, per 1,000 births in the years 1918 to 1921 (inclusive) was 13·8. The corresponding figure for each of the previous four years was as follows:—1921, 15·0; 1920, 12·4; 1919, 20·2; 1918, 19·7.

Death Rate Per 1,000 Population from " The Puerperal State."

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Population	216,150	216,275	217,010	217,862	255,160	257,113	259,082	261,065	263,064	265,077	267,261	269,193	271,295	271,523	278,107	278,107	278,107	278,107	275,009	286,061	278,400	281,600
Deaths ...	31	39	20	30	23	19	16	27	27	24	29	29	23	22	28	37	18	21	29	27	24	28
Rate	0·14	0·18	0·09	0·14	0·09	0·07	0·06	0·13	0·12	0·09	0·19	0·17	0·13	0·08	0·10	0·13	0·06	0·08	0·10	0·09	0·09	0·10

Report of the Maternity and Child Welfare Medical Officer.

To the Medical Officer of Health.

Sir,

General.

Owing to the continuance of industrial depression in the City, and the paramount necessity to economise in public expenditure, the year 1922 was disappointing from a Maternity and Child Welfare point of view, and the vast possibilities which the work has in store have been very little, if at all, added to during the twelve months under review. But Maternity and Child Welfare is founded on such sure premises, that nothing, in my opinion, can adversely affect it more than temporarily, and in spite of a depleted staff and other drawbacks, there is definite evidence of satisfactory progress made during the year; thus 100 more children attended the Centres in 1922 than attended in 1921, and the total attendances made reached the gratifying figure of 36,020, the average attendance per individual rising from 6·8 to 7·4.

When the year opened an extensive epidemic of a somewhat mild type of Influenza was prevailing, and it was thought advisable to diminish the normal activities of the Centres, and so prevent the usual overcrowding. Weighing was entirely suspended for four weeks, and only special and not thriving cases were allowed to attend.

During this, as in other epidemics of infectious disease occurring in the City, the Health Visitors devoted a good deal of their time to visiting infected houses and

persons, and rendering all possible aid in arresting the spread of the disease and improving the condition of the sufferers. This duty, of course, interfered with the normal birth visiting; but even so, of the 5,953 births visited and re-visited during the year, each received an average of three visits, which, while falling short of the normal six—the figure we aim at—must be considered satisfactory under the circumstances.

Sex Infant Mortality.—Of the 6,987 children who were born in the City during the year, 3,618 were boys and 3,369 were girls; that is, there were 249 more boys than girls. If this statement could be left unqualified it would probably be considered a matter for satisfaction to most people, because the war, with its appalling wastage of nearly a million male lives, is still fresh in the memories of all; but unfortunately, while nature is generous in giving more male human lives than female, she is also more prodigal in dealing with them, and so we find that at the end of twelve months that of the above mentioned girl babies only 249, or 73·9 per 1,000 had died, whereas of the boys 397, or 109 per 1,000 were lost. These phenomena are not peculiar to Newcastle, nor even to the nation generally, but are practically universal, and all the world over we find that for every 100 girl babies who die during the first year, from 120 to 140 boys die in the same period. Why this should be so is not known, and I am not at present able to offer any suggestion. But after examining many thousands of young children I am impressed with the difference in the behaviour of the two sexes.

Ante-Natal.—Three hundred and fifty expectant mothers made 835 attendances at the ante-natal clinics during the year: an average attendance by each mother of 2·4. These clinics are well established and

much appreciated by those for whom they are intended, and patients are now attending voluntarily in place of having to be urged to do so as formerly. Valuable co-operation was given by practitioners, midwives, voluntary societies and the Hospitals of the City, all of whom referred cases in which education and help was needed. The ten beds in the Maternity Hospital for which the City Council pays an annual subsidy have been of the greatest value to the Medical Officers, both in providing hospital treatment for expectant mothers requiring it, and indoor attendance for those whose home conditions were unsuitable for the lying-in period. Much valuable help was given to this branch of the work by the staff of the Royal Victoria Infirmary, who throughout the year have generously treated all cases sent to them. Necessitous cases sent to the clinics from various sources were helped with small supplies of dried milk, the good effects of which were subsequently shown in the ability of the mother to feed her child naturally in place of artificially, as in previous instances.

The authorities of the Rose Joicey Convalescent Home at Whitburn accepted all cases sent to them during the year, and the rest and change proved invaluable to the overtired or anæmic mother and her child.

Reports.

The following special reports have been submitted to the Committee during the year, and the information in them will be found embodied in the following pages :—

(1) Report on suggested additions to present facilities.
(2) Report on new Centres required.
(3) Report on attendances.
(4) Percentage receiving free milk.

Welfare Centres.

Owing to the unsuitability of the premises and the unsatisfactory conditions under which they are held, it was decided that a new home be found for the present Barrack Road Centre, and two alternative sites were inspected, viz., (*a*) the old School, and (*b*) the Mission Hall—both in Diana Street, and both centrally and conveniently situated for the district work. After inspection and thorough investigation the Committee decided to slightly alter and make safe the old School premises, and these will be ready for use sometime in the present year.

Benwell Centre, in Clara Street, was entirely closed for four weeks for the purposes of structural alterations and additions, and during this period the work of the Centre was carried on partly in the district and partly in the Town Hall and in the dismantled Centre.

New Maternity Hospital.

At the beginning of the year a valuable proposal was put forward by the Maternity Hospital Authorities, whose premises in New Bridge Street have long since ceased to provide adequate accommodation for the rapidly growing institutional midwifery needs of the community, and it was suggested that the City Road Industrial School premises, which were shortly to be vacated, should be secured and adapted for the purposes of a Maternity Hospital. The premises are centrally situated in a thickly populated part of the City, and lend themselves for ready adaptation to the suggested purpose for which they are to be used. From the outset the City Council gave sympathetic consideration to the roposition, and as a result of a mutual policy of give and

take between them and the Maternity Hospital Committee the scheme fructified and is at present well on the way to completion. When completed, the premises will provide, in addition to much improved and more extensive facilities for midwifery cases, (*a*) an infants' ward and (*b*) accommodation for a Child Welfare Centre.

(*a*) A Hospital Ward kept exclusively for infants or very young children will be a great convenience to those of us who have to deal with the health of children at the outset of their lives, and it will be of inestimable value to the children themselves, because each day we meet at the Centres with cases in which—in order to give the child the best chance of recovering health and perhaps saving life—it is necessary to put both the mother and the child under medical observation throughout the whole twenty-four hours for a week or more. These children may not be suffering from any pathological condition, and therefore are not eligible for admission to the ordinary hospitals; more often than not the difficulty is the one commonest to early life, viz., the finding of a suitable diet on which a certain child will thrive best, and this can often only be done after several alternatives have been tried and the results expertly observed. It might be thought that this could best be done by the mother herself, and in her own home; but unfortunately there still exists among the maternal members of the community a good deal of want of knowledge, mistaken ideas, and some superstition as regards infant feeding, which after all is a natural function, and should not be the cause of the trouble and suffering that it is. Steady and persistent efforts are being made at the Centres to counteract these shortcomings, and it may safely be stated that each year will see them diminished as a result of the educational campaign being waged.

(*b*) By providing fresh Welfare Centre accommodation the new Maternity Hospital will give us improved facilities and other substantial advantages.

District Nurse.

At the beginning of the year a Voluntary Committee was formed in the Spital Tongues district of the City for the purpose of providing the district with a District Nurse. So far as present experience goes the scheme has been very successful, and the services of the Nurse have been freely called upon and much appreciated.

Committee.

There have been several changes in the personnel of the Maternity and Child Welfare Committee during the year, and death unfortunately has robbed the Committee of one valuable member in the person of the late Mrs. Todd, whose interest in the work was always keen, and whose services were always freely given.

Ministry Inspection.

In June Dr. Janet Campbell, Senior Medical Officer of the Ministry of Health, visited Newcastle and inspected the proposed new Maternity Hospital and the general work in Maternity and Child Welfare done by the City Council. Dr. Campbell expressed satisfaction with what was being done for the City's mothers and children, and was apprehensive lest the diminution in the number of the staff of Health Visitors, rendered necessary by economic pressure, should unduly curtail the work.

Ministry Circular.

At the beginning of the year a circular (No. 267) was received from the Ministry of Health suggesting that it would be preferable to give to nursing and

expectant mothers a midday meal in lieu of the milk which is now supplied. The suggested cost of the meal was to be sixpence per head to the local authority, and other conditions were laid down by the Ministry. From a theoretical standpoint this suggestion has much to commend it, but from a practical point of view there are many disadvantages in it, and after careful consideration it was decided that—at any rate so far as Newcastle is concerned—the disadvantages more than outweighed the advantages, and the suggestion was not adopted by the Maternity and Child Welfare Committee.

Centre Attendances.

So far as the Centres are concerned, as will be seen from the following tables, the numbers attending are increasing yearly, and have at the present time reached such proportions as to be unwieldy. At the 623 Medical Sessions held there was an average attendance of 47·7 mothers with their children, which means that on every day of the five full Centre days in each week throughout the year, nearly 200 women and children attended at each of the nine Child Welfare Centres in the City, and at one of our Centres we have had on several occasions during the year over 300 individuals attending on the one day. It will be quite obvious that it is impossible to deal adequately and thoroughly with such masses in the space of time at our disposal, and the attempt to do so involves a good deal of both physical and—especially—mental strain on the staff employed.

It is to be hoped, therefore, that the time is not far distant when economic conditions will allow us to have the facilities we require for doing this nationally important work as it ought to be done. At several of our Centres where the numbers attending are excessively large,

two Centre days in each week in place of one would help to relieve the congestion at present prevailing, and be better in every way for all concerned.

Of the beneficial results of getting mothers to take their children regularly to the Centres for examination and observation there can be no doubt, but it will be interesting to those not very well acquainted with the subject to know, that in the recent examination of a series of charts of children who had been brought back to the Centres after a more or less prolonged absence, it was found that while the child's progress was continuous and well marked during the time it was brought to the Centre regularly, 97 per cent. were found to have deteriorated in weight or general condition, or both, when re-examined after being kept away from the Centre for some time. Personally, I cannot overestimate the value of the Centres, especially in towns like our own, where efforts are made by the Medical Officers to establish a personal equation between themselves and their patients ; and, in addition to the above evidence, there is the significant fact—noted in previous reports—that the death rate among children attending the City Centres is extraordinarily small—22·7 per 1,000 in 1922.

Additional Facilities.—In accordance with instructions given at the May meeting of the Committee, suggestions were submitted for extending and completing the facilities for carrying on the Maternity and Child Welfare work in the City.

It was recommended that two additional Centres be opened—one in Scotswood and one in Walker, and that an additional medical session be provided at the three Centres which had only one on half a day in each week, viz., Benwell, Portland Street, and City Road.

The Committee was reminded that the establishment of the two above-mentioned Centres was sanctioned by it nearly two years ago, but was not then proceeded with for economic reasons. As the child population increases annually so does the need for these two new Centres.

So far as Scotswood is concerned, there is a large colony living in and around the hutments that has now no Centre accommodation nearer than Clara Street, Benwell, and in Walker there is a still larger population for whom the nearest Centre is St. Peter's in Glasshouse Street. The establishment of Centres in these two districts would enable the Medical Officers to see many hundreds of children who are not at present under supervision. The popularity of the existing nine Centres is indicated by the following figures, which give the attendances for the last four complete years :—

1918	4,813
1919	8,383
1920	22,596
1921	32,538

It was thought that several circumstances during the last twelve months (such as reduction in the staff of Health Visitors, the Influenza epidemic—when the Centres were practically closed for three weeks—and the tramway strike) would adversely affect this year's attendances and bring them below last year's figures, but so far from this being the case, there was an increase of 3,482.

1921.	1922.
32,538.	36,020 = 3482 increase.

In justification of the recommendation of extra medical sessions at the three existing Centres in Benwell, Portland Street, and City Road, it is found by practical

experience that the medical advice given at the Centres is the principal attraction, and in those Centres (such as the above three) where the doctor only attends for part of the day the numbers that he then has to see are too large to be adequately dealt with, and so prevent the best use being made of the medical services available. The numbers attending the medical sessions are practically twice as large as those attending the non-medical sessions, the following being actual figures for various months in this year, and are given for comparison only :—

Medical Sessions.	*Non-Medical Sessions.*
152	54
228	98
259	69

The additional medical sessions will probably increase the attendances, but these will be spread over a whole day in place of being mainly compressed into half a day, with the result that the congestion at present prevailing will be considerably relieved.

Attendances at Maternity and Child Welfare Centres.

Year.	No. of Attendances.	No. of Individuals.	Average Attendance per Individual.	Average Attendance at each Session.
1918	4,813	..	..	..
1919	8,383	..	..	..
1920	22,596	3,751	6·02	44·2
1921	32,538	4,734	6·8	40·72
1922	36,020	4,835	7·4	44·9

Dried Milk.—During the year 22,883 lbs. of dried milk were given gratis, and 39,672 lbs. were distributed at cost price.

These figures are of special interest in that they not only give an idea of the needs of certain members of the community and how these needs are being dealt with by the Local Authority, but they also adequately meet and provide a convincing reply to those critics who say—unfairly because without knowledge—that the Welfare Centres attract by giving something for nothing.

Even in these hard times, when there would be some justification for giving material help to every mother attending the Centres, it is found that only 20·9% received free milk during the year 1922. In all cases the financial position of the applicant was enquired into before the privilege was granted, and each was required to conform to a scale which was practically as follows :—

For free milk a weekly income of approximately not more than 5/- per head after paying rent.

And for cost-price milk a weekly income of not more than 10/- or 15/- per head according to the size of the family.

Each case was considered on its merits, the above scale being used as a guide. In the cases where free milk was given, the majority belonged to the very poor, and were either the families of unemployed or destitute men, or unskilled labourers working part time. Others were illegitimate children where the granting of free milk not only assisted in the nourishment of the child but also freed the mother and enabled her to seek for work. Poor widows with young children formed another group. Milk was only given at the discretion of the Medical Officers, and it was given to mothers to assist in the nourishment either of themselves or their children.

The women who got it for their own use were either nursing or expectant mothers, and the welfare of the actual or prospective infant was the aim in view.

For children it was given to replace breast feeding at weaning time or to supplement other nourishment.

The quantity given has been 6lbs., which is a month's supply and which yields, when suitably diluted, a little more than a pint of milk a day. This is a convenient quantity and is the amount sanctioned by the Ministry of Health to Local Authorities receiving its grant.

When confined strictly to suitable cases and given in quantities and dilutions applicable to the age and physical conditions of the child for whom it is intended, nothing but good resulted from the distribution of this dried milk, and it was especially useful during the critical diarrhœa months of the summer. But its use is sometimes attended by abuse, scores of mothers having welcomed it and regarded it as a substitute for and an improvement on their own milk, which in most cases it is not and was never meant to be.

The following table shews the quantity of dried milk distributed each month during the year :—

DRIED MILK.

Month.	Free. lbs.	At Cost Price. lbs.
January	1,058	3,464
February	1,273	4,103
March	1,912	4,406
April	1,724	3,412
May	1,716	3,125
June	2,014	3,552
July	1,902	3,370
August	1,849	2,745
September	2,417	3,527
October	2,139	2,688
November	2,419	2,197
December	2,460	3,083
	22,883	39,672

Number of children attending Centres :—4,835.

Number of children who were given free milk :—1,011 or 20·9 per cent. of those who attended the Centres.

Number of children who received orders for milk at cost price :—1,326, or 27·4 per cent.

Of the total amount given free :—

22,132 lbs. were given to children.

611 lbs. were given to expectant mothers.

140 lbs. were given to pneumonia cases.

Number of expectant mothers who attended Ante- or Post-Natal Clinics:—350.

Number of above who received free milk:—120, or 34 per cent.

MATERNITY AND CHILD WELFARE CENTRES.

Month.	Ante-Natal Sessions.	Ante-Natal.		Post-Natal.		New Babies.			Individuals.			Attendances.			Medical Sessions.		Non-Medical Sessions.		Attendances at Sessions.	
		Attendances.	Individuals.	Attendances.	Individuals.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Number.	Average Attend'ce.	Number.	Average Attend'ce	Medical.	Non-Medical.
January ...	8	35	26	14	11	109	20	129	655	297	952	1005	396	1401	50	22·9	14	18·2	1145	256
February ..	8	35	25	13	11	230	51	281	857	424	1281	1719	716	2435	56	37·5	12	27·8	2101	334
March	10	53	39	16	12	312	54	366	1039	492	1531	2482	1069	3551	70	43·9	15	31·8	3074	477
April	6	43	34	11	9	247	29	276	987	444	1431	1942	800	2742	47	51·4	10	32·2	2420	322
May	8	73	46	21	16	319	52	371	1147	482	1629	2475	873	3348	56	52	12	35·9	2917	431
June	5	39	30	11	9	158	25	183	961	370	1331	1615	547	2162	36	51	8	40·7	1836	326
July	8	64	44	14	14	298	39	337	1144	500	1644	2464	938	3402	56	52·4	12	38·9	2935	467
August	8	65	47	16	11	218	35	253	1096	501	1597	2250	852	3102	18	51·6	46	47·2	1060	2042
September .	10	75	49	20	17	254	49	303	1154	540	1694	2746	1045	3791	66	50·4	13	35·5	3329	462
October ...	8	65	47	13	10	214	44	258	1184	534	1718	2603	1009	3612	56	57	12	34·5	3197	415
November .	8	59	41	12	11	176	34	210	1086	512	1598	2352	950	3302	56	52·2	12	31·3	2926	376
December ..	8	61	45	7	7	155	27	182	1046	497	1543	2290	882	3172	56	50·5	12	28·4	2831	341
Total ..	95	667	252	168	98	2690	459	3149	3474	1361	4835	25943	10077	36020	623	47·7	178	35·1	29771	6249

MATERNITY AND CHILD WELFARE CENTRES.

Centre.	Ante-Natal.		Post-Natal.		New Babies.			Individuals.			Attendances.			Medical Sessions.		Non-Medical Sessions.		Attendances at Sessions.		Deaths.	Illegitimate Children.
	Attendances.	Individuals.	Attendances.	Individuals.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Under 12 months	Over 12 months	Total.	Number.	Average Attend'ce.	Number.	Average Attend'ce.	Medical.	Non-Medical.		
Barrack Road..	..	..	..	..	323	45	368	424	157	581	3098	1114	4212	86	45·1	8	42·0	3876	336	15	21
Benwell	..	..	..	..	364	77	441	504	190	694	3666	1099	4765	41	69·8	43	44·1	2865	1900	13	11
Byker.....	274	100	90	60	517	82	599	609	191	800	3878	1284	5162	81	59·0	9	42·5	4779	383	15	21
City Road	..	..	..	..	259	39	298	335	142	477	2724	1015	3739	49	49·5	49	26·7	2426	1313	16	17
Portland Street	..	..	..	..	301	72	373	395	191	586	3269	1303	4572	49	65·1	48	28·7	3192	1380	15	14
Shieldfield	..	..	..	..	224	42	266	308	134	442	2623	1207	3830	91	39·3	6	41·5	3581	249	6	16
Spital Tongues	..	..	..	..	80	16	96	107	67	174	867	612	1479	47	31·4	..	..	1479	..	2	3
St. Peters	..	..	..	..	346	51	397	437	154	591	3000	1427	4427	89	45·7	7	51·0	4070	357	18	18
Wharncliffe St.	393	152	78	38	276	35	311	355	135	490	2818	1016	3834	90	38·9	8	41·3	3503	331	10	24
Total ..	667	252	168	98	2690	459	3149	3474	1361	4835	25943	10077	36020	623	47·7	178	35·1	29771	6249	110	145

SUMMARY OF REPORT, 1922.

Total Sessions	801	Average attendance at each....	44·9
Total Medical Sessions	623	Average attendance at each.....	47·7
Total Non-Medical Sessions	178	Average attendance at each	35·1
Total Individuals	4,835	Average visit per individual	7·4
Total Ante-Natal Sessions	95	Average attendance at each	8·7
Total Ante-Natal and Post-Natal Individuals	350	Average visit per individual	2·4
Byker Ante-Natal Sessions	48	Average attendance, 7·5 ; average visit per individual	2·3
Wharncliffe St. Ante-Natal Sessions	47	Average attendance, 10 ; average visit per individual	2·5
Death Rate of Children attending the Centres	2·27%		

SEWING AND KNITTING CLASSES, 1922.

Centre.	Subject.	Teacher.	Day.	Attendance.	Sessions.	Average.
Barrack Road	Knitting	Miss Whipp	Thursday	455	48	9·4
Barrack Road	Sewing	Miss Stokoe	Wednesday	627	49	12·7
Benwell	Knitting and Sewing	Miss Crawford	Thursday	400	48	8·3
Byker	Knitting and Sewing	Miss Whipp	Tuesday, Friday, Monday (up to April)	986	110	8·9
City Road	Knitting	Miss Whipp	Wednesday	546	49	11·1
City Road	Sewing	Miss Stokoe	Thursday	277	48	5·7
Portland Street	Knitting and Sewing	Miss Robson	Tuesday	364	47	7·7
Spital Tongues	Knitting and Sewing	Miss Stokoe	Monday	187	30	6·2
St. Peter's	Knitting	Miss Crawford	Friday	486	48	10·1
St. Peter's	Sewing	Miss Robson	Wednesday	273	49	5·5
Wharncliffe Street	Knitting and Sewing	Miss Crawford	Tuesday	324	47	6·8
Wharncliffe Street	Knitting and Sewing	Miss Crawford	Wednesday	264	42	6·2

Notification of Births Acts.

7,432 births were registered in 1922, and of these only 4,543, or 61·1 per cent. were notified.

The following table shows by whom these births were notified :—

Notified by.	Living Births.	Still-Births.
Medical Practitioners	730	26
Midwives	1,966	39
Maternity Hospital	1,590	57
Wingrove Hospital	63	8
Gables Maternity Home	164	7
Parents	30	..
	4,543	137

Still-Births.—Of the total notifications of births received, still-births were in the following proportion :—1909, 4·1% ; 1910, 3·9% ; 1911, 4·1% ; 1912, 3·2% ; 1913, 3·4% ; 1914, 3·6% ; 1915, 3·4% ; 1916, 3·6% ; 1917, 3·1% ; 1918, 3·3% ; 1919, 3·5% ; 1920, 3% ; 1921, 2·86% ; 1922, 3%.

The total number of still-births reported from the Superintendents of Cemeteries was 144, and the number notified was 137, or 95 per cent. of the total.

The following particulars apply to 100 of the above still-births which were visited by members of the staff :—

Duration of Pregnancy.—At or under 7 months, 22% ; at or under 8 months, 22% ; at full time, 56%.

Presentation.—Vertex in 42 cases ; breech in 17 cases ; footling in 8 cases ; unknown in 33 cases.

Probable causes of the above still-births :—

(*a*) Ill-health of the mother in 24 cases.
(*b*) Fœtal deformities in 25 cases.
(*c*) Premature delivery in 24 cases.
(*d*) Other causes in 27 cases.

In 18 cases the still-born child was the 1st child.
In 14 ,, ,, ,, 2nd child.
In 16 ,, ,, ,, 3rd child.
In 17 ,, ,, ,, 4th child.
In 6 ,, ,, ,, 5th child.
In 29 ,, ,, ,, 6th child.

There were no history of previous still-born children in 83 cases.

In 7 cases it was the 2nd still-birth.

In 5 cases it was the 3rd still-birth.

In 5 cases there were more than three previous still-born children.

Syphilis was returned as a cause of death in 9 children below the age of 1 year in the City during the year, and the following table gives the ages at deaths and a comparison with previous years :—

Ages.	1922	1921	1920
Under one week	3	3	1
One week and under two weeks	1	1	1
Two weeks and under three weeks	..	1	..
Three weeks and under four weeks	2	..	1
One month and under three months	2	1	8
Three months and under six months	1	2	..
Six months and under nine months	..	2	1
Nine months and under 12 months	..	1	..
	9	11	12

Health Visitors.—During the year there were 12 Health Visitors, including the Chief Health Visitor, doing Maternity and Child Welfare work, and as it was necessary for each Health Visitor to spend 1½ days weekly at a Centre, the time possible to devote to the home visiting was not sufficient to allow of each child being visited as often as is considered necessary, but the

attendances at the Centres have increased so enormously that a fair proportion of the children are kept under constant supervision; but the visiting of the children who are not brought to the Centres is most important.

During the year 5,953 births were visited by the Health Visitors, and to these births 18,001 re-visits were paid; an average of nearly 3 visits per child. These numbers give a total of 23,954 visits to children under 1 year.

In addition to these visits 811 visits were paid to children over 1 year and under 5 years; 503 visits to expectant mothers; 334 visits to cases reported from the Royal Victoria Infirmary; and 1,451 special visits; in all, a total of 27,053 visits.

The Health Visitors also paid 399 primary and 357 subsequent visits to measles cases; 929 primary and 1,128 subsequent visits to pneumonia cases; 9 primary and 2 subsequent visits to diarrhœa cases, making in all a total of 2,824 visits to infectious cases, and a grand total of 29,877 visits.

The addresses of 137 children who left the City were sent to the Medical Officer of Health for the districts to which they had gone to reside.

Summary of Infants on Visiting List:—

Of 6,085 children born in the City in 1921, 4,929 completed their first year in 1922, and of the remainder:

558 died.
318 left the City.
201 disappeared and could not be traced.
79 were visited only once.

The following figures are therefore based on the 4,929 who completed the first year, *plus* the 558 who died, making in all a total of 5,487.

Influence of Housing Conditions.

1,223 Births occurred in 1 roomed dwellings and of these 159 died, a rate of 130 per 1,000
2,267 ,, ,, 2 ,, ,, ,, 241 ,, 106·3 ,,
1,342 ,, ,, 3 ,, ,, ,, 97 ,, 73·0 ,,
655 ,, over 3 ,, ,, ,, 61 ,, 94·65 ,,

During the 15 years, 1908—1922, 50,085 births have been under the supervision of the Health Visitors, and of these 6,034 died. The following is the analysis :—

Year.	Living in							
	1 Room.		2 Rooms.		3 Rooms.		4 Rooms.	
	Births	Deaths	Births	Deaths	Births	Deaths	Births	Deaths
1908.....	247	32	515	57	312	32	13	2
1909.....	339	53	694	86	168	32	29	3
1910.....	536	62	723	68	51	4	7	2
1911.....	462	68	794	79	77	6	20	1
1912.....	465	48	746	60	110	6	25	1
1913.....	241	40	348	28	91	3	17	3
1914.....	245	36	375	31	90	11	25	3
1915.....	631	104	2,140	306	1,416	144	692	74
191	611	121	2,333	343	1,584	180	756	85
1917.....	730	104	2,199	284	1,349	150	776	84
1918.....	607	90	2,018	270	1,285	144	766	83
1919.....	664	111	2,056	306	1,358	188	810	102
1920.....	843	167	2,155	291	1,529	171	1,052	121
1921.....	1,263	140	2,523	234	1,651	134	1,036	88
1922.....	1,223	159	2,267	241	1,342	97	655	61
15 years ..	9,107	1,335	21,886	2,684	12,413	1,302	6,679	713
Death rate per 1,000 births		146·59		122·63		104·89		106·75

Cleanliness of the 5,487 homes visited :—

Good in 4,564 cases, or 83·17%.
Fairly good in 808 cases, or 14·71%.
Bad in 115 cases, or 2·09%.

Employment of Mothers.

Before confinement only 142, or 2·58% of the mothers worked, as compared with 3·2% in 1921.

After confinement 109, or 1·80% of the mothers were working, as compared with 2·1% in 1921.

24, or 4·3% of the mothers who lost their babies during the first few weeks of their lives worked previous to confinement.

The Health of the Mothers whose children survived their 1st year

Was stated to be good in	4,433 cases,	or 89·9%
Was stated to be fairly good in	435 ,,	8·8%
Was stated to be bad in	61 ,,	1·2%
	7 mothers died.	

The Health of Mothers whose children died during their 1st year

Was good in	408 cases	or 73·1%
Was fairly good in	81 ,,	14·33%
Was bad in	69 ,,	12·36%
	9 mothers died.	

Deaths of Children.—558 children died during the first year of their life, and of these 277, or 49·6 per cent. died within the first month. The cause of death in 182, or 66 per cent. of these latter cases was given as "prematurity," or "debility from birth."

Of the total deaths under 1 year of age :—

224, or 40·1%, were due to bronchitis or pneumonia.
63, or 11·2%, were due to convulsions.
37, or 6·6%, were due to enteritis.

Previous deaths in families where a baby died during 1922.—In 75% of the cases this was the first death ; in 10·9% of the cases this was the second death ; in 7·3% of the cases this was the third death ; and in 6·6% of the cases more than three children had previously died.

Attendant at time of birth of the 558 children who died :—Doctors, 39% ; Midwives, 28·6% ; Maternity Hospital, 31·7%.

Feeding of the 5,487 children under supervision :—

	Breast.	Mixed.	Artificial.
Children who *survived* first year ; feeding during first month	90·9%	4·8%	4·3%
Children who *died* during first year ; feeding during first month.....	88·5%	5%	6·5%
Children who *survived* first year ; feeding at nine months	52·5%	23·5%	24%
Children who *died* during first year ; feeding at time of death	77·8%	8·6%	13·6%
Feeding of 37 children who died from enteritis	46%	19%	35%

Illegitimacy.—262 illegitimate children were born ; of these 31 died, a death-rate of 118 per 1,000, as compared with 92 for all births.

64·5 per cent. of the deaths occurred among children whose births had been notified to the Medical Officer of Health.

Sex.—3,618 male children were born, and 397 died, 3,369 female children were born, and 249 of these died, in the proportions 109 per 1,000 male, and 73·9 per 1,000 female.

MIDWIVES ACTS, 1902 and 1918.

Thirty-four midwives notified the Local Supervising Authority of their intention to practice, and of these 27 held the examination certificate of the Central Midwives Board, and seven were registered as having been in *bona fide* practice before the passing of the Midwives Act. There was a total increase of three midwives during 1922: two *bona fide* midwives, residing outside the Newcastle area, but taking cases occasionally within the area, and therefore notifying the Authority, gave up practice, and five new midwives holding the Central Midwives Board certificate started practice.

Inspections—228 visits were paid by the Superintendent of Midwives to certified midwives at their homes for the purpose of inspecting their midwifery bags and appliances, and to ascertain that the necessary records of their work were being satisfactorily kept; also to investigate cases of ophthalmia neonatorum, septicæmia, and other abnormalities occurring in their practices. The results of these inspections were generally satisfactory.

The clothing and appliances of five midwives were disinfected after being in contact with patients suffering from infectious diseases, four of the cases being puerperal septicæmia and one scarlet fever. In addition, 168 visits were paid to midwives' cases on account of some abnormal condition.

Two handy-women were interviewed as to conduct, and on investigation it was found that they had acted in emergencies.

Births attended by Midwives.—1,966 living births and 39 still-births were attended by midwives during the year; these figures show a decrease of 193 in the former and of 16 in the latter. Midwives attended only 26 per cent. of the total births in the City, as compared with 28 per cent in 1921, and 31 per cent. in 1920.

Lectures to Midwives.—A fortnightly meeting of midwives practising in the City was held in the Health Department, at which discussions took place and midwives were kept up to date with regard to new requirements and with general progress. There is close co-operation and loyalty between the practising midwives and the staff of the Health Department, and the midwives

are encouraged to send their abnormal cases to the Ante-Natal clinics. Much benefit was derived by those mothers who were sent, as well as by the midwife concerned.

Notices for Medical help sent to Local Authority by the Midwives :—

For the Mother.	
During Pregnancy—	
Ante Partum Hæmorrhage ...	5
Abortions	9
	14
During Labour—	
Uterine Inertia	29
Malpresentations	13
Contracted Pelvis	4
Retained Placenta	6
Placenta Prævia	1
Complicated Breech	6
Post Partum Hæmorrhage ...	6
Ruptured Perineum	20
	85
During Puerperium—	
Rise of Temperature.....	9
Mastitis.....	2
Fits	6
Undefined Illness of Mother ..	8
	25
Total calls for mother	124
For Child.	
Prematurity	34
Discharging Eyes	14
Cyanosis	3
Congenital Defects	8
Convulsions	6
	65
Totals calls for mother and child	189

A doctor was called in in 9 per cent. of the midwives' cases.

Claims for Fees from Doctors in respect to calls from Midwives, viz. :—

	Cases.	Amount. £ s. d.
For forceps delivery.....	31	65 0 0
For post partum hæmorrhage	4	2 5 0
For illness of mother	22	16 8 6
For illness of child	19	6 19 6
For premature birth	1	1 1 6
Total cases	77	£91 14 6

In 1921 the total number of cases was 53, and the total amount paid was £87 3s. 0d.

Four claims for *payment of midwives' fees* were received, amounting to £3 10s. 0d.

Ophthalmia Neonatorum.—The total number of cases notified was 69, and of these 60, or 86·9 per cent. were visited, the remainder being cases occurring in Hospital, or admitted to Hospital from outside areas. This number shows a decrease of 26 on last year's figures, and a decrease of 47 on those of 1920. The cases were attended by

Doctors	34
Midwives	11
Maternity Hospital	17
Wingrove Hospital	6
Uncertified Woman	1
	69

239 visits were paid to the 60 cases, and the ultimate results were :—

Recovered completely	55
Slightly defective in one eye	1
Died	1
Left City before complete recovery	3

Notifications.—The cases were notified by :—

Doctors only	37
Doctors and Midwives	7
Maternity Hospital	16
Midwives only	2
Wingrove Hospital	7
	69

The *ophthalmia incidence* per 1,000 births for the last eight years has been as follows :—

1915	4·1
1916	9·9
1917	7·9
1918	2·9
1919	15·0
1920	14·4
1921	13·0
1922	9·9

Puerperal Septicæmia.—19 cases of this disease were notified during the year. The cases were attended at the confinement by

Doctors	5
Midwives	4
Maternity Hospital	5
Uncertified Woman (emergency case)	1

Four of the cases occurred outside Newcastle area, and were brought into Hospital in Newcastle, where they died.

Fifteen of the cases were visited, and of these eight recovered and seven died.

Deaths during the Puerperal Period.—During the year 28 deaths occurred in the City during the puerperal period, and the following table gives the causes and a comparison with the two previous years :—

Causes.	1922	1921	1920
Abortions	4	..	..
Accidents of Pregnancy	1	..	4
Puerperal Hæmorrhage	7	6	2
Other Accidents of Child-birth	3	3	9
Puerperal Fever	7	5	5
Puerperal Albuminuria and Convulsions	4	5	7
Puerperal Insanity	1	1	..
Embolism and Sudden Death	1	..	..
	28	20	27

The Justification.—In view of statements that have been made to the effect that infant welfare work is a waste of effort and of public money, and that it is contrary to the principle of survival of the fittest, since in effect it results in prolongation of the lives of constitutionally unsound babies, whose deaths a year or two later increase the mortality rate among children aged

one to five, the following table is of interest and importance :—

Year.	Infantile Mortality Rate (Deaths per 1,000 births).		Death Rate among children aged 1 to 5, per 1,000 births during the preceding four years.	
	Per Annum.	Average for five years.	Per Annum.	Average for five years.
1898	190		25·4	
1899	193		22·8	
1900	169	174	21·5	22·4
1901	177		21·5	
1902	139		20·7	
1903	166		16·9	
1904	155		20·8	
1905	138	147	21·3	20·9
1906	153		23·6	
1907	125		21·7	
1908	139		19·7	
1909	122		17·8	
1910	123	124	16·4	17·2
1911	137		18·1	
1912	101		14·1	
1913	122		15·8	
1914	137		23·8	
1915	133	126	21·7	18·7
1916	123		15·9	
1917	113		16·0	
1918	107		19·7	
1919	120		20·2	
1920	101	103	12·4	16·2
1921	96		15·0	
1922	92		13·8	

The outstanding feature of this is a clear demonstration that in Newcastle, at any rate, reduction of infant mortality has been progressive and substantial, and that it has been accompanied by reduction of mortality in the subsequent four years of life, thus indicating that many of those who have died in the first twelve months of their existence in previous years have been "good lives."

A. F. G. Spinks, M.D.,
Maternity and Child Welfare Medical Officer.

Health Department,
Town Hall,
31*st May*, 1923.

INCLUDING REPORTS OF THE
RESIDENT MEDICAL OFFICER OF THE
INFECTIOUS DISEASES HOSPITAL
AND THE BACTERIOLOGIST.

III.—INFECTIOUS DISEASE.

FEVERS, FOOD POISONING,
CITY HOSPITAL FOR INFECTIOUS DISEASES,
DISINFECTION, BACTERIOLOGY.

INFECTIOUS DISEASES.

NUMBER OF CASES PER 1,000 POPULATION IN 1922.

DISTRICT.	ATTACK-RATE PER 1,000 POPULATION.						
	Small-pox.	Typhus	Scarlet Fever.	Diph-theria.	Enteric Fever and Con-tinued Fever.	Puer-peral Fever.	Ery-sipelas.
England and Wales	0·03	0·00	2·85	1·37	0·06	0·06	0·35
105 Great Towns (including London).			Not	availa	ble.		
NEWCASTLE-UPON-TYNE	..	..	**2·3**	**0·90**	**0·07**	**0·07**	**0·56**
Hull	..	..	0·00	0·08	0·00	0·02	0·02
Leeds	0·00	..	5·83	1·01	0·03	0·07	0·48
Bradford	..	..	4·14	1·12	0·07	0·12	0·72
Sheffield.....	0·21	..	2·47	1·23	0·90	0·12	0·49
Manchester	0·00	..	4·84	1·08	0·05	0·17	0·51
Salford	..	..	5·3	1·49	0·15	0·1	0·58
Liverpool.....	..	..	2·9	1·2	0·04	0·07	0·63
Nottingham	0·14	..	2·0	0·6	0·09	0·04	0·5
Leicester	..	..	0·03	0·09	0·01	0·02	0·00
Stoke-on-Trent	..	..	3·18	1·10	0·08	0·12	0·57
Birmingham	..	..	3·51	1·39	0·01	0·15	0·44
Cardiff	..	..	1·7	1·2	0·03	0·09	0·2
Bristol	..	..	4·82	2·04	0·08	0·05	0·38
Portsmouth.....	..	..	5·6	2·5	0·07	0·02	0·32
†London	0·02	0·00	3·81	3·38	0·06	0·07	0·43
Gateshead	..	..	2·20	0·57	..	0·03	0·30
South Shields	..	..	1·71	0·50	0·04	0·02	0·22
Tynemouth	..	..	2·38	0·55	0·45	0·45	0·43
Sunderland	..	..	2·64	0·28	0·018	0·09	0·33
Middlesbrough	1·84	..	2·26	0·61	0·03	0·04	0·29
†Northumberland	..	..	2·95	0·57	0·06	0·03	0·34
†Durham	0·004	..	1·91	0·69	0·06	0·03	0·32

† Administrative County.

DEATHS (CORRECTED) FROM NOTIFIABLE INFECTIOUS DISEASES AND NON-NOTIFIABLE ZYMOTIC DISEASES, EXCLUSIVE OF TUBERCULOSIS

WARD.	Diphtheria.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Cerebro-Spinal Fever.	Encephalitis Lethargica.	Poliomyelitis	Measles.	Puerperal Fever.	Smallpox.	Whooping Cough.	Zymotic Diarrhœa (under 2 years of age).
St. Nicholas'	..	..	..	..	..	..	..	..	..	..	..	..	..
*St. Thomas'	..	..	..	..	..	..	..	..	..	..	..	..	2
St. John's	1	..	..	..	..	..	..	..	..	..	..	5	4
Stephenson	2	..	2	..	..	..	..	..	..	..	..	1	7
Armstrong	..	..	..	..	..	..	..	..	..	1	..	5	8
Elswick	1	2	1	..	..	..	..	..	..	1	..	1	3
Westgate	..	1	..	..	..	..	..	..	..	..	..	2	1
†Arthur's Hill	..	..	1	..	..	..	..	..	..	..	..	2	2
Benwell	1	..	..	..	2	..	..	..	..	2	..	3	1
Fenham	..	..	..	..	..	..	..	..	..	..	..	..	1
All Saints'	..	..	..	..	..	1	1	..	..	..	..	1	9
St. Andrew's	..	..	..	..	2	1	..	..	..	..	..	1	..
Jesmond	..	..	..	..	1	..	..	..	..	..	..	1	..
Dene	..	..	1	..	..	..	..	..	..	..	..	..	..
Heaton	..	..	..	..	..	..	..	..	1	..	..	1	2
Byker	..	..	..	..	..	..	..	..	4	2	..	4	4
St. Lawrence	6	..	..	..	..	..	..	..	2	1	..	4	5
St. Anthony's	2	..	..	..	..	..	..	..	1	..	..	1	2
‡Walker	2	1	2	..	..	..	..	..	1	..	..	4	5
CITY	15	4	7	..	5	2	1	..	9	7	..	36	56

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children.
† Includes Poor Law Institution and Wingrove Hospital.
‡ Includes City Hospital for Infectious Diseases.

For particulars of deaths from **TUBERCULOSIS** see pages 56A and 137 to 147.

NOTIFIED CASES OF INFECTIOUS DISEASE,

EXCLUSIVE OF TUBERCULOSIS.

AGES OF CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1922.
(TABLE II. OF MINISTRY OF HEALTH.)

NOTIFIABLE DISEASE.	AT AGES—YEARS.								TOTAL (ALL AGES).	
	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and upwards.	Ages not known	1922.	1921.
Diphtheria (including Membranous Croup) ..	7	88	115	22	8	..	1	13	254	353
Erysipelas.....	3	8	14	19	49	50	16	..	159	160
Scarlet Fever	4	176	383	75	19	2	..	4	663	1413
Typhus Fever	..	..	..	..	..	..	..	..	..	..
Enteric Fever	..	..	7	8	4	..	..	..	19	7
Epidemic Cerebro-Spinal Meningitis	1	2	..	..	1	..	..	..	4	2
Acute Poliomyelitis .	..	1	..	..	..	..	..	..	1	3
Acute Polio-Encephalitis	..	1	..	..	..	..	..	..	1	1
Encephalitis Lethargica .	..	..	1	..	2	1	..	..	4	18
Measles and Rubella	53	218	254	12	4	..	..	1	542	3762
Puerperal Fever	..	..	..	7	9	2	..	1	19	12
Ophthalmia Neonatorum	69	..	..	..	..	..	..	..	69	95
Pneumonia	140	348	175	112	218	106	69	8	1176	586
Malaria	..	..	..	2	3	..	..	..	5	1
Dysentery.....	1	..	1	..	1	1	..	..	4	2
Trench Fever	..	..	..	..	..	..	..	..	..	..
Relapsing Fever	..	..	..	..	..	..	..	..	..	..
TOTALS	278	842	950	257	318	162	86	27	2920	6415

WARD DISTRIBUTION OF INFECTIOUS DISEASES.

(TABLE II. OF MINISTRY OF HEALTH.)

WARD.	Diphtheria.	Erysipelas.	Enteric Fever.	Scarlet Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio-Encephalitis.	Encephalitis Lethargica.	Measles.	Rubella.	Puerperal Fever.	Ophthalmia Neonatorum.	Acute Primary Pneumonia.	Acute Influenzal Pneumonia.	Malaria.	Dysentery.	TOTAL.
St. Nicholas'	1	3	..	7	..	..	..	..	17	..	..	1	5	3	1	..	38
St. Thomas'	21	9	1	50	1	..	..	..	17	1	4	..	42	3	..	..	149
St. John's	6	6	1	22	..	..	..	..	4	..	..	7	60	32	..	..	138
Stephenson	16	9	..	29	..	..	..	..	10	..	1	5	66	33	..	..	169
Armstrong	18	14	1	41	..	..	1	..	12	2	2	8	34	23	1	..	157
Elswick	6	3	..	29	..	..	..	..	3	..	1	2	16	14	..	..	74
Westgate	8	6	1	31	..	..	..	..	5	1	..	1	29	18	1	..	101
Arthur's Hill	11	23	..	35	..	..	..	..	6	2	3	8	105	3	..	1	197
Benwell	24	17	3	36	..	..	..	..	33	3	2	5	72	25	..	..	220
Fenham	13	5	..	40	..	..	..	..	3	1	1	2	21	7	..	..	93
All Saints'	8	8	3	18	..	..	..	1	17	..	..	4	145	36	..	..	240
St. Andrew's	6	13	5	18	1	..	..	1	16	..	..	7	42	13	..	..	122
Jesmond	7	2	2	26	..	..	..	1	45	..	..	..	9	..	..	..	92
Dene	7	5	1	40	..	..	..	..	29	..	..	2	12	..	..	..	96
Heaton	6	6	..	43	..	..	..	..	77	..	..	2	23	7	..	..	164
Byker	22	9	1	36	..	..	..	..	91	..	3	3	32	16	1	3	217
St. Lawrence	30	3	..	51	1	..	..	..	108	..	1	6	35	16	1	..	252
St. Anthony's ...	23	8	..	32	1	..	..	..	25	..	1	5	43	19	..	..	157
Walker	21	10	..	79	..	1	..	1	14	..	..	1	102	15	..	..	244
CITY	254	159	19	663	4	1	1	4	532	10	19	69	893	283	5	4	2920

For particulars of cases of **TUBERCULOSIS,** see special section, pages 134 to 136.

WARD INCIDENCE OF INFECTIOUS DISEASES,

EXCLUSIVE OF TUBERCULOSIS.

WARD.	NOTIFIABLE DISEASES—Cases per 1,000 Population.															DEATHS per 1,000 Pop.		
	Diphtheria	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio-Encephalitis.	Encephalitis Lethargica.	Measles (including Rubella).	Puerperal Fever.	Smallpox.	Ophthalmia Neonatorum.	Pneumonia.	Malaria.	Dysentery	Measles. (including Rubella).	Whooping Cough.	Zymotic Diarrhœa (under 2 years of age).
St. Nicholas' ..	0·28	0·85	1·96	..	..	..	..	..	..	4·8	..	..	0·28	2·27	0·28	..	..	..	..
*St. Thomas' ..	0·96	0·61	3·42	..	0·07	0·07	..	..	..	1·2	0·27	..	..	3·08	..	..	..	..	0·14
St. John's	0·38	0·38	1·40	..	0·06	..	..	..	..	0·3	..	..	0·45	5·87	..	..	..	0·32	0·25
Stephenson ...	0·81	0·46	1·48	..	..	..	..	..	..	0·5	0·05	..	0·25	5·04	..	..	..	0·05	0·36
Armstrong	1·11	0·86	2·52	..	0·06	..	..	0·06	..	0·9	0·12	..	0·49	3·51	0·06	..	..	0·31	0·49
Elswick	0·47	0·23	2·25	..	..	..	..	..	..	0·2	0·08	..	0·16	2·33	..	..	..	0·08	0·23
Westgate	0·50	0·38	1·95	..	0·06	..	..	..	..	0·4	..	..	0·06	2·96	0·06	..	..	0·13	0·06
†Arthur's Hill ..	1·11	2·32	3·53	..	..	..	..	..	..	0·8	0·30	..	0·81	10·68	..	0·10	..	0·20	0·20
Benwell	1·19	0·85	1·79	..	0·15	..	..	..	..	1·8	0·10	..	0·25	4·83	..	..	..	0·15	0·05
Fenham	1·07	0·41	3·31	..	..	..	..	..	..	0·3	0·08	..	0·16	2·32	..	..	..	..	0·08
All Saints'	0·45	0·45	1·01	..	0·17	..	..	..	0·06	0·9	..	..	0·22	10·26	..	..	..	0·06	0·50
St. Andrew's ..	0·46	1·01	1·39	..	0·39	0·08	..	..	0·08	1·2	..	..	0·54	4·18	..	..	..	0·08	..
Jesmond	0·65	0·19	2·43	..	0·19	..	..	..	0·09	4·2	..	..	..	0·84	..	..	..	0·09	..
Dene	0·55	0·39	3·13	..	0·08	..	..	..	..	2·3	..	..	0·16	0·94	..	..	..	..	..
Heaton	0·41	0·41	2·93	..	..	..	..	..	..	5·2	..	..	0·14	2·11	..	..	0·07	0·07	0·14
Byker	1·23	0·50	2·01	..	0·06	..	..	..	..	5·1	0·17	..	0·17	2·67	0·06	0·17	0·22	0·22	0·22
St. Lawrence ..	1·48	0·15	2·53	..	..	0·05	..	..	..	5·3	0·05	..	0·30	2·53	0·05	..	0·10	0·20	0·25
St. Anthony's .	1·33	0·46	1·86	..	..	0·06	..	..	..	1·4	0·06	..	0·29	3·54	..	..	0·06	0·06	0·12
‡Walker	1·25	0·59	4·69	..	..	..	0·06	..	0·06	0·8	..	..	0·06	7·00	..	..	0·06	0·24	0·30
CITY	0·90	0·56	2·35	..	0·07	0·01	0·004	0·004	0·01	1·9	0·07	..	0·24	4·18	0·02	0·01	0·03	0·13	0·20

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children. † Includes Poor Law Institution and Wingrove Hospital.
‡ Includes City Hospital for Infectious Diseases, Walker Gate.

For Particulars of **TUBERCULOSIS,** see table on page 147.

HOUSEHOLDS AFFECTED WITH INFECTIOUS DISEASES,
EXCLUSIVE OF TUBERCULOSIS AND MEASLES.

DISEASES.	HOUSEHOLDS WITH						Military or Naval Cases	Public Institutions *	TOTAL CASES.
	Single Cases	2 Cases each	3 Cases each	4 Cases each	5 Cases each	6 Cases & over			
Diphtheria (including Membranous Croup)	187	18	1	..	..	..	7	21	254
Erysipelas	129	1	..	..	..	..	..	28	159
Scarlet Fever	468	53	12	3	2	..	..	31	663
Enteric (or Typhoid Fever)	18	..	..	..	..	..	..	1	19
Epidemic Cerebro-Spinal Meningitis	3	..	..	..	..	..	..	1	4
Poliomyelitis	1	..	..	..	..	..	..	..	1
Encephalitis Lethargica	4	..	..	..	..	..	..	..	4
Puerperal Fever	15	..	..	..	..	..	..	4	19
Ophthalmia Neonatorum	63	..	..	..	..	..	..	6	69
Pneumonia	1040	18	..	..	..	..	7	93	1176
Malaria	5	..	..	..	..	..	..	..	5
Dysentery	..	..	1	..	..	..	..	1	4
Polio-Encephalitis	1	..	..	..	..	..	..	..	1
TOTAL	1,934	90	14	3	2	..	14	186	2,378

* See below.

Schools and Infectious Disease.—Owing to the outbreak of Influenza at the beginning of the year it was found necessary to close the schools from January 11th to 29th. Details of the outbreak are given later.

PUBLIC INSTITUTIONS AND INFECTIOUS DISEASE.

The following notifications were received during the year :—

INSTITUTIONS, &C.	Diphtheria.	Erysipelas.	Scarlet Fever.	Enteric Fever.	Cerebro Spinal Fever.	Measles and Rubella.	Puerperal Fever.	Pneumonia.	Dysentery.	Ophthalmia Neonatorum.	TOTAL. *
Royal Victoria Infirmary	14	6	11	1	1	..	4	2	..	..	39
Fleming Memorial Hospital	2	..	2	..	..	1	..	..	..	..	5
War Pensions Hospital	..	..	..	..	..	..	..	1	..	..	1
Poor Law Institution	2	20	7	..	..	..	8	89	1	7	134
St. Catherine's Convent	..	1	..	..	..	..	..	..	..	..	1
City Hospital for Infectious Diseases (Staff)	3	..	5	..	..	..	..	..	..	..	8
Deaf and Dumb Institution	..	..	1	..	..	..	..	..	..	..	1
St. Vincent's Home	..	1	..	..	..	..	..	1	..	..	2
St. Cuthbert's Grammar School	..	..	1	..	..	..	..	..	..	..	1
Orphanage, Elswick Road	..	..	1	..	..	..	..	..	..	..	1
Maternity Hospital	..	..	..	..	..	..	..	..	..	16	16
Mary Magdalene Hospital	..	..	3	..	..	..	..	..	..	..	3
TOTAL	21	28	31	1	1	1	12	93	1	23	212

* Does not include any cases belonging to the City which could properly be assigned to their homes.

MILK SUPPLY IN RELATION TO INFECTIOUS DISEASES.

The source of the milk supply was ascertained in every case of fever and diphtheria. In one outbreak there was reason to suspect that the milk was responsible for the conveyance of infection. (See under Enteric Fever, p. 100.)

There were in the City before the war 714 small general shops retailing milk, few of them being fit places for the purpose. In 1918 the number was 668, but in that year, in connection with the Food Control Orders, vigorous action was taken, and has been continued since, with a view to weeding out the more unsuitable places. As a result, the number now stands at 266.

---

15 cases of Scarlet Fever, 6 cases of Diphtheria and 3 cases of Enteric Fever occurred at business premises of various kinds, as shewn in the following tables :—

SCARLET FEVER.

Antique Dealer 1	General Dealer..... 2	Social Club 1
Boarding School 1	Dining Rooms 1	Dressmaker 1
Public House..... 2	Nursing Home 1	Music Teacher 1
Tailor 1	Dairy and General	Offices 1
Public Baths 1	Dealer 1	

DIPHTHERIA.

Boot Repairer 1	Dressmaker 1	Dairy..... 1
Dentist 1	House Agency 1	Hawker 1

ENTERIC FEVER.

Dairy 1	Boarding House 2

SCARLET FEVER.

Notifications of 663 cases were received during the year, and there were 7 deaths, which is equivalent to a mortality of 1·1 per cent. The type of the disease was mild on the whole.

DIPHTHERIA.

254 cases were notified during the year, and 15 died, a case mortality of 5·9 per cent.

Antitoxin was distributed free to medical practitioners in the City as follows :—

Number of medical practitioners who made application for Antitoxin	35
Number of phials of Antitoxin supplied	167
Number of cases of Diphtheria notified	254
Number of cases of Diphtheria removed to Hospital	240
Number of Hospital cases in which Antitoxin was injected prior to admission	35

The fatality of the disease in recent years is shown in the subjoined table :—

Year.	Diphtheria Cases. (All Forms.)	
	Number.	Case Mortality (per cent.).
1909	546	12·7
*1910	443	9·0
1911	507	7·5
1912	501	6·6
1913	368	7·6
1914	362	7·7
1915	275	9·5
1916	272	10·3
1917	226	14·6
1918	250	9·2
1919	320	6·9
1920	348	6·9
1921	353	6·2
1922	254	5·9

* Antitoxin first distributed gratis April, 1910.

Particulars of the type of the disease as noted in cases sent to hospital will be found later in the section dealing with the City Hospitals.

MEASLES AND RUBELLA.

542 cases (including 10 of Rubella) were notified, and there were 9 deaths (corrected) in 1922, representing a death rate of 0·03 per 1,000 population, as compared with 0·35 in 1921, and a case mortality of 1·66 per cent. of notified cases.

DEATHS, 1922 (CORRECTED).

MONTH.	YEARS OF AGE.							Total.
	0-1.	1-2.	2-3.	3-4.	4-5.	5-10.	Over 10.	
January	..	..	..	..	..	..	..	..
February ...	1	..	..	..	..	..	..	1
March	..	..	..	..	..	..	..	..
April	..	1	..	..	..	..	..	1
May	..	..	..	..	..	..	..	..
June	..	..	..	..	..	..	..	..
July	..	..	..	..	..	..	..	..
August	..	..	..	..	..	..	..	..
September ..	..	..	..	..	..	..	..	..
October	1	1	1	..	..	..	..	3
November...	..	3	..	..	..	..	..	3
December ..	..	..	1	..	..	..	..	1
TOTAL ...	2	5	2	..	..	..	..	9

The following table shows the deaths in the various wards, and at different age periods :—

WARD.	Under 3 months.	3 and under 6 months.	6 and under 9 months.	9 and under 12 months.	1 and under 2 years.	2 and under 3 years.	3 and under 4 years.	4 and under 5 years.	5 and under 10 years.	Over 10 years.	TOTALS.
St. Nicholas'	..	..	..	..	..	..	..	..	..	..	..
St. Thomas'	..	..	..	..	..	..	..	..	..	..	..
St. John's.....	..	..	..	..	..	..	..	..	..	..	..
Stephenson	..	..	..	..	..	..	..	..	..	..	..
Armstrong	..	..	..	..	..	..	..	..	..	..	..
Elswick.....	..	..	..	..	..	..	..	..	..	..	..
Westgate	..	..	..	..	..	..	..	..	..	..	..
Arthur's Hill	..	..	..	..	..	..	..	..	..	..	..
Benwell	..	..	..	..	..	..	..	..	..	..	..
Fenham	..	..	..	..	..	..	..	..	..	..	..
All Saints'	..	..	..	..	..	..	..	..	..	..	..
St Andrew's	..	..	..	..	..	..	..	..	..	..	..
Jesmond	..	..	..	..	..	..	..	..	..	..	..
Dene	..	..	..	..	..	1	..	..	..	..	1
Heaton	..	..	1	..	3	..	..	..	..	..	4
Byker	..	..	1	..	..	1	..	..	..	..	2
St. Lawrence	..	..	..	..	1	..	..	..	..	..	1
St. Anthony's	..	..	..	..	1	..	..	..	..	..	1
Walker	..	..	2	..	5	2	..	..	..	..	9
TOTAL	..	..									

Each Health Visitor visited and revisited selected cases occurring in her district. By this arrangement each case is seen immediately on receipt of the notification, and advice is given regarding the nursing and isolation

of the patient. The cases are kept under supervision until they recover, and should subsequent cases occur in the family they are recorded.

Measles Cases, including Rubella, notified during 1922.—

Cases notified by Medical Practitioners	475
Cases found by Health Visitors	66
Cases notified by Education Authorities	1
	542

For the Ward incidence of the disease and the ages of cases notified, see pages 93 and 94.

Of the total number of Measles cases notified, 399, in 337 households (or 73 per cent.) were visited by the Health Visitors, and 357 revisits were paid.

The families visited lived in the following dwellings :—

1 room	49
2 rooms	118
3 „	91
4 „	60
5 „	8
6 „	11
	337

Isolation.—The isolation of the 399 visited cases was found to be good in 130, or 32·6 per cent. ; fair in 137, or 34·3 per cent. ; bad in 132, or 33·1 per cent.

Medical Attendance.—In 92 per cent. of the cases visited a doctor was in attendance.

Condition of Patient.—In 89 per cent. of the cases visited the disease ran a normal course, but bronchitis, pneumonia or other complications developed in the remainder.

Attendance at Schools.—130, or 32·6 per cent. of the children affected had previously attended school, 127, or 31·8 per cent. had never attended school, and 142, or 35·6 per cent. were contacts.

The following were the ages of children (visited) suffering from measles :—

Under 1 year	48
1–2 years	55
2–3 years	70
3–4 years	32
4–5 years	38
5–6 years	73
Over 6 years	83
	399

WHOOPING COUGH.

36 deaths occurred from Whooping Cough. The particulars are as follows :—

Month.	Years of Age.						Total.
	0-1.	1-2.	2-3.	3-4.	4-5.	5-10.	
January	1	4	3	2	1	..	11
February	1	2	..	..	..	..	3
March	..	1	1	..	..	..	2
April	..	..	..	..	1	..	1
May	1	1	..	..	..	..	2
June	..	..	..	..	..	..	..
July	..	..	..	..	..	..	..
August	..	1	..	..	1	..	2
September	2	2	..	..	..	..	4
October	3	..	..	..	..	..	3
November	2	3	..	..	..	..	5
December	1	1	..	..	1	..	3
Total	11	15	4	2	4	..	36

The death rate in 1922 was equivalent to 0·13 per 1,000 population, as compared with 0·21 in 1921.

ENTERIC FEVER.

19 cases were notified during the year, 4 of which died, while one death was transferred from another district, giving a death rate of 0·02 per 1,000 population, and a case mortality of 21·1 per cent.

The incidence was again very small, but the good record was marred by a small outbreak due to infected milk, to which seven cases could be attributed.

Careful investigation showed that although the milk retailer himself was affected, the infection originally came from one of the farms supplying him with the milk.

It is regrettable that no proper records were kept of the origin and distribution of the milk supplied to this retailer, and therefore definite information as to the offending farm could not be obtained, although enquiry was made through the Local Authorities concerned.

DIARRHŒA.

There were in all 73 deaths from the disease, equal to a death rate of 0·26 per 1,000 population, and this number included 56 deaths of children under two years of age.

FOOD POISONING.

Two outbreaks of food poisoning were investigated during the year. One, in September, affected three persons out of a family of five in Oystershell Lane, and one of them, a boy of 11, died in the Royal Victoria Infirmary. The cause of this outbreak was quite definitely proved to be due to bacillus enteritidis of gaertner, the patients becoming infected through eating soup, made from ham bones, which had been left over-night standing in a warm place in the kitchen under conditions which were ideal for the development of the organism. The interesting point arose that although two of the five persons comprising the household suffered from no symptoms, and remained quite well throughout, yet they were found to be harbouring the infecting organism for a period of about one week.

The other outbreak was due apparently to canned beef, and 36 people in seven families came to the notice of the Department as having been affected. Possibly

there were others that were not heard of, as several of the actual cases were only discovered by telephoning doctors in the neighbourhood. Although the symptoms were very acute they passed off within two days, and there were no deaths. Chemical and bacteriological examinations were made, but the actual cause of the outbreak was not ascertained. Information was later received from the Ministry of Health that three other outbreaks had occurred in various parts of the country, all apparently due to similar consignments of canned beef packed by the same firm in South America. In none of the outbreaks, however, was the actual cause discovered.

TYPHUS.

No case of this disease occurred during the year.

SMALLPOX.

There were no cases of smallpox in the City.

The following are the particulars, courteously furnished by the Clerk to the Guardians, of infant **Vaccination** in Newcastle during recent years. (Walker, which belongs to the Tynemouth Rural area for registration purposes, is not included).

Year.	Births Registered.	Successful Vaccinations	Unsuccessful Vaccinations	Exemption Certificates.	
				Number.	Percentage to Total Births
1905	7,958	7,264	27	65	0·8
1906	7,721	6,733	28	92	1·2
1907	7,610	6,702	16	94	1·2
*1908	7,747	6,414	20	449	5·8
1909	7,180	5,667	30	517	7·2
1910	7,023	5,532	22	683	9·7
1911	6,604	5,002	24	767	11·6
1912	6,715	4,625	18	982	14·6
1913	6,874	4,441	7	1,173	17·0
1914	7,023	4,230	11	1,499	21·2
1915	7,116	4,487	1	1,485	20·9
1916	7,117	4,405	9	1,509	21·2
1917	6,166	3,688	5	1,478	24·0
1918	6,092	3,488	15	1,362	22·4
1919	6,131	3,405	8	1,582	25·8
1920	7,955	4,403	45	2,074	26·7
1921	7,258	4,159	11	2,128	29·3
1922	6,936	3,556	16	2,116	30·5

* Vaccination Act, 1907, came into force.

The *Public Vaccinators* and *Vaccination Officers* for the various districts of the City are :—

Dene, Heaton and Byker Municipal Wards :—

Dr. F. R. H. Laverick, Woodbine Villa, Heaton Road.
Deputy—Dr. J. Bower, 35, Heaton Road.

St. Anthony's and St. Lawrence Municipal Wards :—

Dr. Richard Dagger, 1, Rothbury Terrace.
Deputy—Dr. Eric C. Dagger, 1, Rothbury Terrace.

Walker District :—

Dr. T. J. Ryan, Welbeck Road.
Deputy—Dr. Wm. Hutchinson, Welbeck Road.

All Saints', St. Nicholas', St. Andrew's, Jesmond, and St. Thomas' Municipal Wards :—

Dr. Frank Hawthorn, 10, Ellison Place.
Deputy—Dr. O. W. Ogden, 4, St. Mary's Terrace.

Fenham, Arthur's Hill, Westgate and St. John's Municipal Wards :—

Dr. A. M. Paterson, 1, Grove Street.
Deputy—Dr. H. L. Taylor, 242, Westgate Road.

Stephenson, Elswick, Armstrong and Benwell Municipal Wards :—

Dr. G. D. Newton, 8, Regent Terrace ; also 190, Westgate Road.
Deputy—Dr. J. A. Brand, 186, Westmorland Road.

Wingrove Hospital :—

Dr. G. P. Harlan.

Vaccination Officers :—

Western—W. J. White, 63, Brighton Grove.
Eastern—Wm. Garrett, 34, Harbottle Street.

ERYSIPELAS.

159 cases of this disease were notified and there were 4 deaths.

PUERPERAL SEPTICÆMIA.

19 cases were notified, with 7 deaths. Inquiries were made concerning 15 of these. Five of the cases were attended by doctors.

INFLUENZA AND PNEUMONIA.

These diseases accounted for 768 deaths as against 476 last year.

Total deaths at age periods.

Under 5 years.	5-15.	15-25.	25-45.	45-65.	65 and over.	Total.
355	29	27	102	122	133	768

As will be seen from the above figures, 355, or 46·1 per cent. of the deaths occurred below the age of 5 years.

Influenza struck the City with great suddenness about the 4th of January, and as measured by deaths, reached its height about the end of the month, gradually subsiding from then until its disappearance about the end of February.

The following table shows the age distribution of deaths each week :—

INFLUENZA.

Week ending	Under 1 week.	1-2 weeks.	2-3 weeks.	3-4 weeks.	Total 1 month.	1-3 months.	3-6 months.	6-9 months.	9-12 months.	Total under 1 year.	1-2 years.	2-5 years.	5-15 years.	15-25 years.	25-45 years.	45-65 years.	Over 65 years.	Total.	Institutions.
January 7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	5	..
,, 14	..	..	..	..	..	..	..	..	1	1	..	3	..	3	8	3	5	23	..
,, 21	..	..	..	..	..	..	3	2	2	7	9	3	3	3	14	17	23	79	2
,, 28	1	..	..	1	2	..	3	1	1	7	12	7	3	1	12	15	18	75	4
February 4	..	..	..	..	..	..	2	1	3	6	5	2	1	1	6	7	11	39	..
,, 11	..	..	..	..	..	..	..	..	..	..	..	1	3	..	1	5	5	15	5
,, 18	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	3	5	1
,, 25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	3	..
March 4	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1
,, 11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
,, 18	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	2	1
,, 25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
April 1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
	1	..	..	1	2	..	8	5	7	22	26	16	12	8	44	52	70	250	14

The type of disease, which was very widespread, was stated by practitioners to be mainly of the mild three-day order, with catarrhal symptoms, severe headache, lumbar myalgia, and a tendency, in a small proportion of cases, to a trifling degree of bronchitis. No rashes were reported, although special enquiries were made as to these. There were some cases, though not many, of the gastro-intestinal type.

A special characteristic of the epidemic was the fact that children and adolescents were little or lightly affected as compared with the severity and high proportion with which babies and adults were attacked, and special attention was drawn to this in connection with the employés of the General Post Office.

Elementary schools, which opened on the 9th of January, were closed down on the 11th of January, immediately on receipt of information of school children being attacked. The average of the absentee list on the 9th January, the first day on which such lists were available, had increased from about ten per cent. to 16 or 17 per cent., the bulk of the absences being ascribed to influenza.

Secondary schools were also closed, private schools delayed their opening, Sunday Schools fell into line, and children under 14 were excluded from theatres and cinemas until after Sunday, the 29th of January.

The Manager of the Corporation Tramways, and the Railway Authorities did what they could to ensure special ventilation of their vehicles. The cancelling of children's parties and social gatherings generally was advised and followed, and there was no doubt of the anxiety of the population to act upon advice to obtain as much fresh air as possible. Theatres and cinemas were looked after, as also cafés and restaurants, and the managers, under threat of unpleasant regulations, really did their best to comply with recommendations as to ventilation, and in the case of the latter, as to the scalding of forks, spoons, cups, etc., after each time of use.

Vaccine, provided by the Ministry, was stocked and supplied gratis to such practitioners as desired to use it. There was little demand, however, as its use was not found to be particularly helpful.

The question of school closure is a vexed one. Previous experience in Newcastle has been to the effect that if closure is enforced promptly on the very first appearance of the disease it is effective in at least postponing the attack of influenza upon children of school age. Where children live in very congested districts the value is likely to be less, but it must be remembered that although children may be consorting in dozens in the back streets, they are associating in hundreds, or even thousands, in the schools.

In the epidemic under report the deaths among children of school age, *i.e.*, 5 to 15, only amounted to 4·8 per cent. of the whole, whereas children of school age practically represent 20 per cent. of the City's population.

There was not a great deal of pneumonia, the daily notifications during the height of the epidemic ranging from 10 to 14, which was out of all proportion to the prevalence of influenza.

The following table shows the weekly number of deaths, with the age distribution, of pneumonia during the influenza period :—

PNEUMONIA.

Week ending	Under 1 week.	1–2 weeks.	2–3 weeks.	3–4 weeks.	Total 1 month.	1–3 months	3–6 months.	6–9 months.	9–12 months.	Total under 1 year.	1–2 years.	2–5 years.	5–15 years.	15–25 years.	25–45 years.	45–65 years.	Over 65 years.	Total.	Institutions.
January 7	..	..	..	..	..	1	2	..	..	3	4	1	..	..	4	3	4	19	5
,, 14	..	1	..	..	1	..	..	..	..	4	6	3	3	..	4	2	2	24	3
,, 21	..	..	..	..	..	4	2	3	5	14	19	7	2	1	3	4	3	53	8
,, 28	..	..	..	..	..	2	3	6	3	14	15	10	..	1	3	4	9	56	6
February 4	..	..	..	..	..	1	3	3	..	7	11	4	1	2	2	5	2	34	10
,, 11	..	..	..	..	..	..	1	1	..	2	4	2	2	..	2	4	3	19	5
,, 18	..	..	..	..	..	..	1	1	1	3	8	8	..	..	..	1	..	20	2
,, 25	..	..	..	..	..	1	1	1	..	3	1	..	..	1	1	1	1	8	2
March 4	..	..	..	..	..	..	3	1	..	4	1	..	..	..	..	1	..	6	2
,, 11	..	..	..	..	..	2	3	..	..	5	4	1	..	..	..	4	..	14	2
,, 18	..	..	..	..	..	1	5	1	..	7	1	1	..	..	..	2	1	12	3
,, 25	..	..	..	..	..	3	1	..	..	4	2	1	..	3	..	1	..	11	3
April 1	..	..	..	..	..	1	2	1	..	4	2	..	1	..	2	1	1	11	1
	..	1	..	..	1	16	27	21	9	74	78	38	9	8	21	33	26	287	52

Appended is a statement of the total nett deaths at all ages in the City from influenza and pneumonia during 1922 and the previous 10 years :—

YEAR.	INFLUENZA.	PNEUMONIA.
1912	18	248
1913	19	339
1914	22	424
1915	22	433
1916	36	392
1917	27	418
1918	680	540
1919	604	561
1920	90	468
1921	65	411
1922	273	495

PNEUMONIA.

1,176 cases of pneumonia, including influenzal-pneumonia, were notified. For the ages and ward distribution, see pages 93 and 94.

Of that number 929, or 79 per cent., were visited by the Department.

It was found that of these 929 visited cases, 566, or 60 per cent., were primary pneumonia, 283, or 30·4 per cent., were cases of influenzal-pneumonia, and 80, or 8·6 per cent., were cases of pneumonia following other diseases.

Sex.—60 per cent. of the cases were males.

Ages.—The ages of the 929 cases visited were as follows :—

Under 1 year	135
1–5 years	311
5–15 years	143
15–25 years	73
25–45 years	140
45–65 years	79
and over 65 years	48
	929

Of these, 129 were school children.

Housing.—179 cases occurred in 1 roomed dwellings, 368 cases occurred in 2 roomed dwellings, 205 cases occurred in 3 roomed dwellings, and 177 cases occurred in more than 3 roomed dwellings.

Type of House.—419 cases occurred in flats, 379 cases in tenements, and 131 in self-contained houses.

Isolation.—The isolation was good in 41 per cent. of the cases, fair in 18·7 per cent. of the cases, and bad in 39·9 per cent. of the cases.

Ventilation was good in 64 per cent. of the cases.

Previous History—

There	was a	previous	history of	Measles in 234 cases.
,,	,,	,,		Whooping Cough in 152 cases.
,,	,,	,,		Influenza in 90 cases.
,,	,,	,,		frequent winter Coughs and Colds in 629 cases.
,,	,,	,,		Pneumonia in 100 cases.
,,	,,	,,		Tuberculosis in 14 cases.

Deaths.—249, or 27 per cent. of the visited cases of pneumonia died.

VENEREAL DISEASES.

Syphilis was certified as the cause of death in 16 cases.

The work of the treatment clinic has been continued successfully. 2,559 old and new cases attended 28,132 times as out-patients. 19 cases accounted for 405 in-patient days. Of the 1,012 new cases 390 were syphilis, 483 gonorrhœa, 36 soft chancre, and 103 conditions other than venereal. 66 per cent. were males.

2,273 doses of salvarsan substitutes were administered to out-patients, and 13 to in-patients.

2,898 Wasserman reactions were carried out at the College of Medicine, and 88 microscopical examinations of pathological material were made at the College and 883 at the treatment clinic. The irrigation stations for males and for females in connection with the clinic have been in full use during the year under report.

Newcastle Residents Notified as Attending other Centres.

Cases.—Syphilis, 5 ; Gonorrhœa, 7 ; Soft Chancre, 1 ; conditions other than venereal, 2.

Attendances.—138.

Doses of salvarsan substitute given, 20.

Information as to ophthalmia neonatorum will be found on page 86.

Acute Poliomyelitis, Epidemic Cerebro-Spinal Meningitis, etc.

NUMBER OF CASES.

	Total No. of Cases.	0–1 Year.						1–5 Years.						5–10 Years.						10–15 Years.						15 Years and Over.						
		Male.			Female.			Male.			Female.			Male.			Female.			Male.			Female.			Male.			Female.			
		Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	
	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Acute Poliomyelitis.
	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Polio-Encephalitis.
	4	..	..	..	1	..	..	1*	1*	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	Cerebro-Spinal Fever.
	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	2	1	..	Encephalitis Lethargica.
Cases Removed to Isolation Hospital.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Acute Poliomyelitis
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Polio-Encephalitis.
	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	Encephalitis Lethargica.
	4	..	..	..	1	..	..	1*	1*	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	Cerebro-Spinal Fever.

*Outside case. Death transferred to appropriate district.

Diseases Admitted—1922.

Sent in as	Number.	After Observation Proved to be:— Scarlet Fever.	Diphtheria.	Diphtheria Carriers.	Enteric Fever.	Measles.	Mumps.	Erysipelas.	Epidemic Cerebro-Spinal Meningitis.	Other Forms of Meningitis.	Encephalitis Lethargica.	Pneumonia.	Other Respiratory Diseases.	Tonsillitis.	Gastro-intestinal Disease.	Skin and Septic Diseases.	Varicella.	Ophthalmia Neonatorum.	Kidney Disease.	No appreciable Disease.	Unclassified.
Scarlet Fever	571	548	1	..	..	2	1	..	..	..	..	1	..	5	..	2	..	..	2	9	..
Diphtheria	224	8	172	..	..	..	..	..	..	..	..	3	6	30	1	2	..	..	..	1	1
Diphtheria Carriers	16	..	..	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	22	..	..	..	15	..	..	..	..	..	..	1	2	..	1	1	..	..	..	2	..
Measles	16	2	..	..	..	13	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Pneumonia	80	..	..	..	..	..	..	..	..	..	..	72	1	1	..	1	..	..	..	2	3
Epidemic Cerebro-Spinal Meningitis	7	1	..	..	..	..	..	..	5	1	..	..	..	..	..	..	..	..	..	..	..
Other forms of Meningitis	5	..	..	..	..	..	..	..	..	3	..	2	..	..	..	..	..	..	..	..	..
Respiratory Diseases	21	..	..	..	..	..	..	1	..	..	..	1	19	..	..	..	..	..	..	..	..
Varicella	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..
Erysipelas	24	..	..	..	..	..	..	20	..	..	..	1	..	..	..	3	..	..	..	..	..
Encephalitis Lethargica	4	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	1
Ophthalmia Neonatorum	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Tonsillitis	12	1	..	..	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..	..	..
Kidney Disease	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Gastro-intestinal Disease	4	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..
Skin and Septic Diseases	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..	..	1
Unclassified	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
Total	1032	560	173	16	15	15	1	21	5	4	2	81	29	47	6	18	2	2	3	15	17

CITY HOSPITAL FOR INFECTIOUS DISEASES.

Accommodation.

Names and Situation of Hospitals.	Total Available Beds.
City Hospital for Infectious Diseases, Walker Gate (including Phthisis Pavilions, 62 Beds)	294
Smallpox and Isolation Hospitals, Town Moor	172

Year.	Population of the City.	Number of Beds at Hospital for Fever Cases.	Total Admissions (exclusive of Phthisis).	Percentage of Notified Cases Admitted.
1890	182,866	104	219	21·3
1900	213,039	104	290	38·6
1909	263,064	172	1,090	78·0
1910	265,077	172	912	83·0
1911	267,261	172	1,110	83·1
1912	269,193	172	1,542	86·4
1913	271,295	172	1,286	88·3
1914	271,523	172	1,835	78·9
1915	278,107	232	1,886	90·5
1916	278,107	232	1,380	87·0
1917	278,107	232	1,303	87·5
1918	278,107	232	1,245	87·5
1919	275,099	232	1,370	84·3
1920	286,061	232	1,710	86·4
1921	278,400	232	1,683	81·9
1922	281,600	232	1,032	86·3

CITY HOSPITAL, WALKER GATE.

(Fever Pavilions).

Admissions during the year—1,032.

The *average daily number* of patients in the hospitals was 87, exclusive of 57 cases of phthisis.

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

	1890	1895	1900	1905	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Scarlet Fever	18·4	33·0	35·0	50·1	84·5	83·8	88·0	90·6	81·4	91·3	94·5	91·9	99·3	88·0	85·7	82·3
Diphtheria	8·3	28·7	40·0	36·8	80·1	80·5	81·8	81·5	84·8	89·1	84·6	82·0	91·6	74·4	89·1	82·7
Enteric Fever	38·9	48·0	54·5	52·0	90·5	92·0	91·2	91·1	94·1	87·0	96·6	96·0	93·1	80·0	90·0	71·4
All cases of the above, together with Continued and Typhus Fever and Cerebro-Spinal Fever, &c.	21·3	34·6	38·6	47·8	83·0	83·1	86·4	88·3	82·6	90·5	87·0	87·5	87·5	84·3	86·4	82·4

Diseases and Mortality Rates.

MORTALITY OF CASES TREATED IN HOSPITAL AS COMPARED WITH CASES NOT REMOVED DURING 1922.

DISEASE.	HOSPITAL.			NOT REMOVED.		
	Total Cases. (Verified)	Deaths.	Case Mortality per cent.	Total Cases.	Deaths.	Case Mortality per cent.
Scarlet Fever	560	2	0·35	101	4	3·9
Diphtheria ...	173	14	8·0	21	3	14·3
Enteric Fever	15	3	20·0	3	1	33·3

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

	CASES.
To the Newcastle Sanitary Authority	1,018
To private guarantors	2
To the War Office and Admiralty	7
Tyne Port Sanitary Authority	4
Other Local Authorities	1
TOTAL	1,032

Admissions and Deaths, 1922.

Disease.	Admissions.													Deaths.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Scarlet Fever	87	65	41	53	47	44	31	36	50	44	31	31	560	..	..	1	..	..	..	..	1	..	..	..	..	2
Diphtheria	18	16	17	19	10	11	9	7	15	18	10	23	173	2	1	2	2	1	1	..	..	..	2	..	3	14
Diphtheria Carriers	..	..	3	1	2	1	..	1	2	1	2	3	16	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	..	..	..	..	..	..	6	5	2	1	..	1	15	..	..	..	..	..	..	..	2	1	..	..	..	3
Measles	..	..	..	..	..	1	1	..	2	5	5	1	15	..	..	..	..	..	..	..	..	..	1	1	..	2
Mumps	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas	3	2	2	3	..	2	2	2	..	1	3	1	21	..	..	..	..	..	..	1	1	..	..	..	..	2
Epidemic Cerebro Spinal Meningitis	..	2	..	1	..	..	1	1	..	..	..	..	5	..	1	..	..	..	..	1	1	..	..	..	..	3
Other forms of Meningitis	1	..	..	1	..	1	..	..	..	..	1	..	4	1	..	..	1	..	1	..	..	..	..	1	..	4
Encephalitis Lethargica	..	..	..	..	1	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia	25	5	5	7	5	9	3	3	3	3	10	3	81	11	1	2	1	1	4	1	..	..	..	3	..	24
Other Respiratory Affections	18	2	1	..	..	1	1	4	1	..	1	..	29	..	..	..	..	..	..	..	1	..	..	..	..	1
Tonsillitis	4	6	3	8	4	5	2	1	4	3	3	4	47	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastro-Intestinal Disease	..	..	..	..	..	..	1	1	2	..	..	2	6	..	..	..	..	..	..	..	..	..	..	..	..	..
Skin and Septic Disease	..	3	..	3	3	1	1	2	..	1	..	4	18	..	..	..	..	..	..	..	..	..	..	..	2	2
Varicella	2	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
Ophthalmia Neonatorum	..	..	..	..	..	..	..	1	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..
Kidney Disease	..	..	..	..	1	..	1	..	1	..	..	..	3	..	..	..	..	..	..	..	..	1	..	..	..	1
No appreciable Disease	..	1	2	..	2	..	2	2	2	1	1	2	15	..	..	..	..	..	..	..	..	..	..	..	..	..
Unclassified	1	3	2	4	1	..	..	2	..	..	3	1	17	..	..	..	1	..	..	..	..	..	..	1	..	2
Totals	159	105	76	100	76	76	62	68	84	78	71	77	1032	14	3	5	5	2	6	3	6	2	3	6	5	60

Length of Stay in Hospital of Fatal Cases.—Of the foregoing, the following *died within* 24 *hours of admission*—Diphtheria, 3; Pneumonia, 2; while 3 cases of Diphtheria, 8 of Pneumonia, 1 of Tubercular Meningitis, 1 of Measles, 1 of Erysipelas and 1 of Cerebral Thrombosis died within 48 hours of admission to hospital.

Present Death Rates compared with those of Previous Years.

RETURN SHOWING THE NUMBER OF CASES OF SCARLET FEVER, DIPHTHERIA, AND ENTERIC FEVER ADMITTED TO HOSPITAL AND MORTALITY RATES PER CENT.

1891–1900.

YEAR.	NUMBER OF CASES ADMITTED TO HOSPITAL.			NUMBER OF DEATHS.			CASE MORTALITY PER CENT.		
	Scarlet Fever.	Diphtheria.	Enteric Fever.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Scarlet Fever.	Diphtheria.	Enteric Fever.
1891.....	110	10	67	5	6	6	4·5	60·0	8·9
1892.....	244	18	26	8	5	5	3·3	27·8	19·2
1893.....	202	15	49	5	2	6	2·5	13·3	12·2
1894.....	230	8	60	6	3	13	2·6	37·5	21·7
1895.....	319	41	75	10	10	21	3·1	24·4	28·0
1896.....	294	24	67	7	..	14	2·4	..	20·9
1897.....	210	10	64	7	2	17	3·3	20·0	26·6
1898.....	179	21	197	9	5	33	5·0	23·8	16·7
1899.....	193	19	77	9	6	14	4·7	31·6	18·2
1900.....	211	29	37	9	8	8	4·3	27·6	21·6
	2,192	195	719	75	47	137	3·4	24·1	19·1
1913–1922.									
1913.....	853	254	109	21	22	12	2·5	8·7	11·0
1914.....	1,404	251	86	43	21	13	3·1	8·4	15·1
1915.....	1,305	223	88	37	18	10	2·8	8·0	11·4
1916.....	677	210	57	19	23	8	2·8	10·9	14·0
1917.....	409	164	12	13	22	1	3·1	13·5	8·3
1918.....	381	205	26	9	13	2	2·6	6·3	7·8
1919.....	630	196	11	21	13	..	3·3	6·6	0·0
1920.....	1,105	244	11	17	19	1	1·5	7·7	9·0
1921.....	1,115	241	9	9	15	2	0·8	6·2	22·2
1922.....	560	173	15	2	14	3	0·3	8·0	20·0
	8,439	2,161	424	191	180	52	2·3	8·3	12·3

Diphtheria.—Of the 173 patients in hospital 117 were faucial or pharyngeal cases, of whom 4 died, a case mortality per cent. of 3·4; 41 were laryngeal or tracheal

cases, of whom 8, or 19·5 per cent. died; and 15 had involvement of the nasal passages, of whom 2, or 13·3 per cent. died. Tracheotomy was performed in 16 cases of diphtheria, and in 1 case of sub-thyroid abscess; of the 16 cases 8, or 50·0 per cent. died.

The diagnosis of each case was confirmed bacteriologically, either before or after admission to hospital.

Antitoxin is administered to all cases of diphtheria admitted to hospital which have not received the remedy at home.

Bacteriological diagnosis is made in the great majority of cases before admission.

Mixed Infections.—52 patients sent into hospital, or 5·0 per cent., were found on admission to be suffering from two or more distinct infectious diseases, as follows:—

Scarlet Fever with Diphtheria	11
Scarlet Fever with Varicella	4
Scarlet Fever with Pertussis	2
Scarlet Fever with Impetigo	5
Scarlet Fever with Scabies	3
Scarlet Fever with Gonorrhœa	1
Scarlet Fever with Ringworm	1
Diphtheria with Scarlet Fever	16
Diphtheria with Pertussis	2
Diphtheria with Impetigo	1
Measles with Scarlet Fever	2
Pneumonia with Scarlet Fever	1
Pneumonia with Impetigo	1
Mucous Colitis with Gonorrhœa	1
Influenza with Gonorrhœa	1
	52

Thus, 4·8 per cent. of the cases of scarlet fever were suffering from, or incubating, one or more additional infectious diseases on admission, and 11·0 per cent. of the cases of diphtheria.

Cross Infection.—During the year 3 patients developed a second infection in the wards, or 0·29 per cent. of the total admissions to hospital. These were all diphtheria cases which developed scarlet fever.

" Return " Cases.—The following are details of the " return " cases of Scarlet Fever during the year :—

Scarlet Fever.	" Infecting " Cases.		" Return " Cases.		" Infecting " Cases.
Total Admissions.	No.	Per-centage.	No.	Per-centage.	Average Day of Disease when Discharged.
560	*9	1·6	7	1·2	34·1

* Includes three ex-hospital patients in one family.

Seasonal Occurrence.

Quarter.	Total Scarlet Fever Admissions.	" Infecting " Cases.		" Return " Cases.	
		No.	Percentage	No.	Percentage.
January to March	193	5	2·5	4	2·0
April to June	144	2	1·4	1	0·7
July to September	117	1	0·8	1	0·8
October to December ..	106	1	0·9	1	0·9

Of the 9 " infecting " cases : (*a*) 6 had no complications or discharges whilst in hospital, and remained " clean " after reaching home ; (*b*) 2 had no complications whilst in hospital but developed discharges after reaching home ; and (*c*) 1 was a " dirty " case whilst in hospital but was " clean " on discharge.

Of the above classes, the average day of disease on discharge from hospital of the supposed infecting cases, and the period elapsing after that discharge and the onset of illness in the " return " case, were as follows :—

Class (*a*)—33·8 and 12·6 days.
Class (*b*)—34·5 ,, 14·5 ,,
Class (*c*)—35·0 ,, 2·0 ,,

"Return" Cases for Years 1906–1922.

Year.	Total Scarlet Fever Admitted.	"Infecting" Cases.		"Return" Cases.	
		No.	Percentage.	No.	Percentage.
1906.....	442	7	1·6	10	2·3
1907.....	390	11	2·8	17	4·4
1908.....	283	4	1·4	5	1·8
1909.....	623	23	3·7	30	4·8
1910.....	465	18	3·9	20	4·3
1911.....	605	26	4·3	30	4·9
1912.....	1,018	47	4·6	52	5·1
1913.....	853	23	2·7	24	2·8
1914.....	1,404	78	5·6	96	6·8
1915.....	1,305	43	3·3	49	3·7
1916.....	677	22	3·3	24	3·5
1917.....	409	9	2·2	13	3·2
1918.....	381	13	3·4	14	3·6
1919.....	630	23	3·6	22	3·5
1920.....	1,105	37	3·3	39	3·5
1921.....	1,115	24	2·1	30	2·7
1922.....	560	9	1·6	7	1·2

Hospital and Home "Isolation" Compared.

In order to determine the relative liability to further infection subsequent to the first, in hospital and home-isolating households respectively, a careful record has been kept for ten years of the number of presumably susceptible persons in each invalided house, all, other than the original patient, below 12 years of age being so classed, and the proportionate incidence of secondary cases calculated.

Cases occurring within seven days of the "isolation" of the original case were not counted, as these probably acquired their infection before the influence of the "isolation" could be felt.

Cases occurring subsequently to the seventh day of "isolation" of the original case, and prior to the release of the latter, were classed as "incidental" infections.

Cases occurring within 28 days after the release of the original case from "isolation" were classed as "return" infections.

The following table shows the results obtained :—

Year	1913		1914		1915		1916		1917		1918		1919		1920		1921		1922		10 Years.	
Patient "isolated" at.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.
"Susceptibles" in the homes of each class of patient	1131	53	1708	244	1462	86	800	8	509	17	450	20	726	47	1203	87	1401	147	647	50	10037	759
"Incidental" infections	69	3	78	28	85	7	33	2	25	..	18	..	59	1	69	5	88	16	37	5	561	67
Percentage of "incidentals" to "susceptibles"	6·1	5·7	4·6	11·5	5·8	8·1	4·1	25·0	5·0	..	4·0	..	8·1	2·1	5·7	5·7	6·3	10·9	5·7	10·0	5·5	8·8
"Return" Infections	29	..	84	..	55	?	21	1	20	..	14	..	22	..	49	3	30	7	7	1	331	14
Percentage of "returns" to "susceptibles"	2·6	..	4·9	..	3·8	2·3	2·6	12·5	3·9	..	3·1	..	3·0	..	4·1	3·4	2·1	4·8	1·0	2·0	3·3	1·8
Total of "incidental" and "return" infections	98	3	162	28	140	9	54	3	45	..	32	..	81	1	118	8	118	23	44	6	892	81
Percentage of this total to "susceptibles."	8·7	5·7	9·5	11·5	9·6	10·5	6·7	37·5	8·8	..	7·1	..	11·2	2·1	9·8	9·2	8·4	15·6	6·8	12·0	8·8	10·7

Thus it is seen, on ten years' working, that there are fewer secondary cases in the households which sent their first case to hospital. This difference is the more marked when one analyses the relative housing accommodation of the two classes. Thus for every "susceptible" remaining at home among the hospital-isolating class, there were on an average at least 2·1 rooms, whereas in the home-isolating class there was an average of at least 5·6 rooms for each "susceptible," the home class having therefore more than twice the accommodation of the others, and being in fact selected on that account. If, therefore, home isolation were as efficient, case for case, as hospital, one would have expected to find a great preponderance in favour of the home class in the above evidence, instead of which the result is entirely the other way.

OTORRHŒA AND RHINORRHŒA.

The special work commenced in 1921 was continued throughout 1922 with results which, although not so good as in 1921, were still satisfactory. The average number of days' stay in hospital of cases developing otorrhœa or rhinorrhœa was 44·7, as against 37·2 in 1921, an increase of seven days, which was due entirely to the persistent character of the nasal discharges. Whereas the average duration of treatment of discharges from the ear was 20 days, compared with 21 days in 1921, the duration of treatment of rhinorrhœa cases increased from 14 to 21 days, with a corresponding increase in the number of days in hospital. No definite reason can be given for this increase as the standard of treatment was the same as in the previous year, but it is suggested that defective nutrition may have been a not unimportant factor. There is no doubt that the standard of general fitness of the majority of the patients admitted

to hospital in 1922 was lower than previously, and enquiry in many cases proved that lack of money, consequent upon the industrial depression, had led to improper and insufficient feeding, not only of the children, but of the family as a whole. Tea and bread and margarine as a staple diet is unfortunately far too common, and there appears to be generally a great lack of knowledge as to the inexpensive essentials of a healthy diet.

Subsequent Progress.—Of 88 cases of otorrhœa or rhinorrhœa visited from six to twelve months after leaving hospital, 73, or 83 per cent. were found to have remained free from discharges. 15 still had some running from the ear or nose, of whom 6 had been noted as having " chronic " discharge whilst in hospital.

Operations.—30 operations for removal of tonsils and adenoids were performed ; in the rhinorrhœa cases the discharge was dry in an average of six days after the operation, and in the otorrhœa cases in an average of 13 days, indicating clearly the value of this operation in many cases of running ears and noses, in which enlarged and often septic tonsils and adenoids frequently initiate and certainly keep up the discharges.

Prophylaxis.—In November the use of a detoxicated vaccine kindly prepared by Dr. David Thomson, Director of the Genatosan Research Laboratory, London, was commenced. This vaccine is prepared from cultures from cases of scarlet fever developing otorrhœa and rhinorrhœa at the Newcastle-upon-Tyne City Hospital for Infectious Diseases, the organisms predominating in each culture being used to produce a mixed vaccine. Alternate cases of scarlet fever admitted to hospital received three gradually increasing immunising doses,

and up to the end of the year the incidence of complications of the ear or nose in the cases so treated was exactly half of that in uninoculated patients. Although the numbers were too small to permit a definite opinion being given, the results were sufficiently encouraging to justify more prolonged trial, and the method will be continued in 1923.

Average stay in Hospital during the last Fifteen Years.

Year.	All Cases.		Scarlet Fever.		Diphtheria (including carriers).		Enteric Fever.		Other Diseases.	
	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days
1908	614	48·4	283	56·3	220	40·0	88	48·5	25	31·8
1909	1,090	49·2	623	54·3	334	41·6	56	45·9	78	42·8
1910	912	44·4	465	51·3	317	37·2	47	46·4	83	32·5
1911	1,110	45·6	605	50·5	375	41·9	68	44·4	62	20·2
1912	1,542	45·8	1,018	46·1	383	45·7	82	46·2	59	20·9
1913	1,286	45·5	853	47·6	254	47·9	109	43·4	70	19·6
1914	1,835	41·6	1,404	44·4	251	34·4	86	41·2	94	20·2
1915	1,886	41·3	1,305	47·1	223	35·6	88	44·0	271	17·2
1916	1,380	35·7	677	42·5	210	38·2	57	48·8	436	22·3
1917	1,303	33·9	409	46·5	164	43·5	12	59·8	718	24·0
1918	1,245	32·1	381	45·2	205	46·6	27	52·3	632	18·7
1919	1,370	33·8	630	41·5	196	54·8	11	39·2	533	16·9
1920	1,710	32·4	1,105	35·0	244	44·8	11	57·5	350	16·7
1921	1,683	28·0	1,115	31·1	241	31·6	9	36·4	318	13·9
1922	1,032	29·9	560	32·5	189	38·0	15	47·5	268	17·9

Staff Sickness.

Nursing Staff.—31 of the Nursing Staff were off duty owing to sickness for a total of 508 days. Five contracted Scarlet Fever, 2 Diphtheria, 8 Tonsillitis, and 9 Influenza.

Domestic Staff.—19 were off duty through sickness for a total of 255 days. 4 contracted Tonsillitis, and 5 Influenza.

Bacteriological Laboratory, City Hospital.

The following examinations were made in connection with the patients in the fever wards :—

Swabs for Diphtheria Bacilli	1,258
Other Examinations	14
Total	1,272

SMALLPOX AND ISOLATION HOSPITALS, TOWN MOOR.

These Hospitals were in use from January 1st to 28th, 26 Scarlet Fever convalescents from the City Hospital being admitted.

DISINFECTION.

3,221 cases of notifiable infectious disease have been inquired into by the Infectious Disease Inspectors and Health Visitors, and, with the exception of measles, the houses or rooms connected therewith disinfected by spraying with formalin. In connection with cases of tuberculosis, 541 houses, including 596 rooms, were similarly disinfected. Disinfection was also carried out in 100 special cases.

154 otorrhœa cases were visited.

In all cases except measles the bedding and other infected articles were removed to the Disinfecting Station at the City Hospital, Walker Gate, and after sterilisation by steam returned to the owners.

Inquiries were also made in connection with 12 smallpox contacts. These persons were kept under observation until the possible incubation period was over.

645 extra visits of supervision to the cases left at home were made by the Infectious Disease Inspectors.

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

ARTICLES FROM CITY.		ARTICLES—HOSPITAL PROPERTY.	
1921	1922	1921	1922
33,326	19,857	23,408	17,472

754 articles of clothing, etc., were also disinfected at the Smallpox Hospital.

The staff have thus dealt with 38,083 articles at the two disinfectors during the year.

Fluid disinfectant, in half-pint tins, was given out free on the order of the special inspectors, for home use in connection with infectious disease. Every precaution was taken to ensure that the disinfectant was properly and economically used.

DISINFECTANTS DISTRIBUTED—1922.

FROM	FOR INFECTIOUS DISEASES.	FOR PHTHISIS.
	FLUID (½ pint tins.)	FLUID (½ pint tins.)
Health Department	383	....
Tuberculosis Dispensary	....	120
Corporation Yard, Benwell	90	....
TOTAL	473	120

BACTERIOLOGICAL INVESTIGATIONS, 1922.

The following is a summary of the bacteriological investigations carried out on behalf of the Health Department of the Newcastle Corporation by the Department of Bacteriology at the University of Durham College of Medicine.

5,146 specimens were submitted for examination. The nature of the investigations and the results obtained were as follows :—

	DIPHTHERIA.			PHTHISIS.			ENTERIC.		
	Total.	Positive.	Negative.	Total.	Positive.	Negative.	Total.	Positive.	Negative.
No. of Examinations	816	86	730	557	103	454	43	9	34

MILK EXAMINATIONS:—

	Total.	Found.	Not Found.
1. For the tubercle bacillus	171	12	159

2. Bacterial content of organisms other than the tubercle bacillus (the colon bacillus being taken as the indicator):—

Colon bacilli not found in 1 cc. or less	2
Colon bacilli found in 1 cc., but not in less	0
Colon bacilli found in 0·1 cc., but not in less	26
Colon bacilli found in 0·01 cc., but not in less	87
Colon bacilli found in 0·001 cc., but not in less	30
Colon bacilli found in 0·0001 cc., but not in less	14
Colon bacilli found in 0·00001 cc., but not in less	12
	171

It will be noticed that, speaking generally, the milk was cleaner than in the preceding year.

Eleven samples of "Certified" Milk were examined and the following is a summary of the results obtained:—

No. of Bacteria per 1·0 cc.	Presence of Bacillus coli in 0·1 cc.
1,100	Negative.
450	Negative.
6,500	Positive.
1,600	Positive.
590	Positive.
1,230	Positive.
12,000	Positive.
3,800	Positive.
4,100	Negative.
3,000	Negative.
1,833	Negative

WATER EXAMINATIONS :—

Class I. (Colon bacilli not found in 100 cc. or less).....	2
Class II. (Colon bacilli found in 100 cc. but not in less)	71
Class III. (Colon bacilli found in 10 cc. but not in less)	100
Class IV. (Colon bacilli found in 1 cc. but not in less)..	16
	189

During July and August 12 special samples of water from the Public Baths were submitted for examination and reports duly furnished.

The general result was to show that, as might be expected, the water from the outlet usually showed a considerable increase in the organismal content as compared with a control from the main and specimens from the inlet, but on the whole it would be difficult to say that, from a bacteriological point of view, the condition of the water was unsatisfactory.

VENEREAL DISEASES :—

	Total.	Serological reactions.	Microscopical examinations.
No. of Examinations ..	2986	2898	88

OTHER EXAMINATIONS :—

(*a*) **Diphtheria.**—Virulence tests of diphtheria bacilli were done in 14 cases.

2 cases proved virulent ;

7 cases proved non-virulent ; and in

5 cases no diphtheria organisms were isolated.

(*b*) **Enteric Fevers.**—54 specimens of material were received from the Infectious Diseases Hospital and examined for organisms of the Enteric group.

B. typhosus was isolated in 8 cases.

B. paratyphosus A, was isolated in 0 cases.

B. paratyphosus B, was isolated in 3 cases.

All the rest proved negative.

(*c*) **Bacillary Dysentery.**—Dysentery bacilli were recovered in four out of eight specimens examined.

(*d*) **Anthrax.**—A suspected case of anthrax in a young bullock proved negative.

Similarly three shaving brushes submitted for examination for B. anthracis proved not to be infected.

(*e*) **Food Poisoning.**—During September, 1922, an outbreak of food poisoning occurred in the West End of the City. Three persons were affected, and one case proved fatal.

The following is a summary of the specimens submitted and examined in connection with this outbreak :—

24 specimens of urine and fæces.

4 specimens of blood.

3 specimens of food materials.

7 post-mortem specimens.

1 vomit.

Detailed reports were furnished at the time.

During October, 1922, an outbreak of food poisoning, suspected to have been caused by the consumption of corned beef, occurred in the East End of the City. On this occasion seven separate families were reported to have been affected, but no fatal cases occurred.

Specimens of the incriminated food, and also specimens of urine and fæces from persons affected were examined: a total of 80 specimens.

Detailed reports were furnished at the time.

In a third suspected case serological tests only were carried out.

(*f*) A vaccine was prepared for a patient in the Infectious Diseases Hospital.

F. W. A. Clayton.
Bacteriologist.

University of Durham College of Medicine,
16*th May*, 1923.

REPORTS OF THE
TUBERCULOSIS MEDICAL OFFICER
AND THE
MEDICAL SUPERINTENDENT OF BARRASFORD SANATORIUM.

IV.—TUBERCULOSIS.

TUBERCULOSIS DISPENSARY,
INSTITUTIONAL TREATMENT.

TUBERCULOSIS.

Report of the Tuberculosis Medical Officer.

To the Medical Officer of Health.

Sir,

Herewith I beg to submit my report on the work of the Tuberculosis Section during the year 1922.

The more important tables have been brought up to date and are now presented; others have been omitted as there is such a large amount of information relating to tuberculosis available that much has necessarily been crowded out to make room for new material.

Compared with 1921 there was a slight decrease in the number of notifications, especially of lung cases, a considerable reduction in the number of new patients entered on the Dispensary Register, and a most gratifying decline in the death rate from tuberculosis.

Another record has been established, and I have hopes that in 1923 the death rate from pulmonary tuberculosis will fall below 1 per 1,000 (1·14 in 1922).

As the Dispensary has now been in operation for 10 years I have reviewed the mortality from tuberculosis during the past 30 years; during that period the death rate from tuberculosis in Newcastle-upon-Tyne has been reduced by over 50 per cent.

While, in my opinion, unemployment has on the balance not hitherto had an unfavourable influence, now that the "doles" are being reduced there is a

distinct danger of more new cases of tuberculosis arising as a result of under-nourishment; indeed, an excess of acute cases in children has already been seen in 1923.

The incidence of the disease is still very heavy in the poorer parts of the City as is shown in the ward distribution of cases and deaths.

The Street Register of Notifications has been brought up to date; great differences are found in the numbers of notifications reported in the various streets.

It is impracticable to give full details, but the 30 streets with the largest numbers of notifications are named in the report.

I have not been able to secure any accurate information with regard to the number of people living in the individual streets so I have had to content myself with utilising the number of registered voters in each street as a comparative figure.

Such gross variations in the same City as are revealed in the figures given relating to ward and street incidence show that there is much scope for the application of preventive measures to tuberculosis.

The valuable work done by the Voluntary Tuberculosis Care Council has been fully dealt with in the Annual Report recently issued, so it is unnecessary for me to refer to it further, except to express the hope that it will receive the financial support that it merits.

It will be noticed that there is a great decrease in the number of admissions to Barrasford Sanatorium; the difficulty of finding the so called "early cases" is as great as ever.

The results of Sanatorium Treatment of Newcastle cases have often been criticised, and it has been insinuated that the patients are sent for treatment too late. My reply is that the " early case " does not often appear at the Dispensary. Of course hundreds of patients have been sent with a view to Sanatorium Treatment, and many " turned down " as not requiring treatment for tuberculosis ; with ten years' work behind me I can honestly state that in no instance to my knowledge has such a rejected case developed active tuberculosis. This proves that Sanatorium Treatment in such cases was not necessary ; if a change of air was desired, treatment at a convalescent home would have sufficed.

In sharp contrast to the paucity of " early cases " there was no lack of advanced and moderately advanced cases, and the accommodation at Walker Gate is not sufficient for the needs of the City.

Reference must be made to the increased number of patients treated during the year by means of artificial pneumothorax. The results are gratifying, and the reduction of the cough and daily amount of sputum following on treatment are a distinct advantage from the preventive aspect.

My thanks are due to my assistant, Dr. N. R. Beattie, for his valuable help in carrying out the treatment of these cases.

He has entered on the work with enthusiasm, and in co-operation with Sister Wishart has reduced the time required for " refills " to the satisfactory average of 10 minutes per case.

An interesting point is that the patients are all eager to have this treatment, and rarely fail to return for it.

My investigations into the inter-relations of influenza, pneumonia and pulmonary tuberculosis have been continued. A survey of all the notifications of acute influenzal and lobar pneumonia received since 1919 shows that tuberculosis of the lungs followed these diseases comparatively rarely, but occurred relatively more frequently after a notification of acute influenzal pneumonia (so called).

I hope to publish a *résumé* of all the work done in this connection shortly.

In conclusion, I take great pleasure in expressing my appreciation of the enthusiastic support received from the various members of the Dispensary Staff. Mention has been made of Dr. Beattie's work at the Hospital ; his assistance at the Dispensary has been no less valuable.

The nursing and clerical staffs have performed their duties efficiently with due consideration of the interests and well-being of the patients, and the relations of the Dispensary with the general practitioners have remained as cordial as in past years.

Yours faithfully,

W. H. Dickinson,
Tuberculosis Medical Officer.

REPORT.

Notifications.—864 notifications were received during the year but some were duplicates, so that the total number of new cases was 775, of whom 495 were certified to be suffering from ' pulmonary ' and 280 from ' other forms ' of tuberculosis.

The details as regards sex and age are given in the accompanying table.

Summary of Notifications during the Period, 1st January to 31st December, 1922.

Age Periods.	Number of Notifications on Form "A."													Number of Notifications on Form "B."					Number of Notifications on Form "C."		Number of Notifications on Form "D."	
	Primary Notifications.												Total Notifications (including Cases previously notified by other doctors).	Primary Notifications.				Total Notifications (including Cases previously notified by other doctors).	Poor Law Institutions.	Sanatoria.	Poor Law Institutions.	Sanatoria.
	0 to 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and upwards.	Total.		Under 5.	5 to 10.	10 to 15.	Total.					
Pulmonary—																						
Males	1	12	12	14	28	38	44	82	35	16	6	288	308	During the year the School Medical Officer referred all suspicious cases to the Tuberculosis Medical Officer.					40	84	5	67
Females	1	3	22	9	20	29	59	32	19	7	6	207	232						25	29	10	30
Non-Pulmonary—																						
Males	11	37	35	18	21	9	12	5	2	3	..	153	178						9	13	3	12
Females	2	32	29	23	8	11	13	3	1	4	1	127	146						18	3	7	3
Total	15	84	98	64	77	87	128	122	57	30	13	775	864						92	129	25	112

Form "A."—Notification by any Medical Practitioner of a case of Tuberculosis (whether at an Institution or otherwise).

Form "B."—Notification by School Medical Officers of cases of Tuberculosis in children attending Public Elementary Schools of which he has become aware in the course of inspection.

Form "C."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons admitted who are suffering from Tuberculosis.

Form "D."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons discharged who are suffering from Tuberculosis.

As far as possible every notified case is visited by the nurses and urged to visit the Dispensary for examination and classification with a view to treatment.

Of the 775 cases notified 459 attended the Dispensary and 161 others were visited in their homes by the outdoor staff in the course of the year.

The names of the patients certified to have died from tuberculosis, but not previously notified, are entered in the notification register so if the 84 patients in this category be deducted it will be seen that the Dispensary gets into touch with most of the known cases of tuberculosis.

With reference to the 71 cases, neither examined at the Dispensary nor visited by the nurses, some were living in institutions or died before they could be visited, while others were notified at the end of the year, and were visited early in 1923.

A table has been prepared to illustrate these points, and also to show the nature of institutional treatment afforded to the newly notified cases during 1922. The number of patients dying in the year of notification is also given, and it will be seen that practically one-third of all the cases died in the same year as they were notified.

NOTIFICATIONS OF TUBERCULOSIS DURING 1922.

Part Affected.	Notifications.	Attended Dispensary.	Visited by Nurse but not attended Dispensary.	Received Institutional Treatment.				Died during the Year.
				Barrasford Sanatorium.	Sanat. Pav. Walker Gate.	Stannington Sanatorium.	Total.	
Lungs (Male)	288	188	43	55	80	8	143	95
„ (Female)	207	131	51	16	37	2	55	60
Other Forms (Male)	153	82	33	..	..	7	7	52
„ (Female)	127	58	34	..	..	4	4	34
TOTAL	775	459	161	71	117	21	209	241

Deaths.—458 deaths were registered as due to some form of tuberculosis, and of these 312 were certified as due to pulmonary tuberculosis (including cases of acute phthisis) and 146 to other forms of the disease.

On these figures the death rates per 1,000 population were :—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	312	1·10
Other Forms of Tuberculosis	146	0·52
Total Tuberculosis Death Rate (uncorrected)	458	1·62

It must be noted, however, that 21 residents of Newcastle died in other parts of the United Kingdom from tuberculosis (19 pulmonary ; 2 other forms), while 57 of the deaths (9 pulmonary ; 48 other forms) registered in Newcastle were those of temporary residents.

The corrected deaths and death rates per 1,000 of the population were :—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	322	1·14
Other Forms	100	0·35
All forms of Tuberculosis (corrected)	422	1·50

The details as regards sex and age, together with the form of the disease, are given in the accompanying table :—

DEATHS FROM TUBERCULOSIS.—Sex and Age Distribution.

	Under 1 year.		1 and 2		3 and 4		5 to 10		10 to 15		15		16 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 70		70 and upwards		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Pulmonary Tuberculosis ...	..	..	6	2	1	..	4	1	2	6	1	2	14	14	30	17	27	32	59	29	27	15	20	4	3	2	1	1	195	125
Acute Phthisis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	1	1
Acute Miliary Tuberculosis .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	..	..	..	3	1
Tuberculous Meningitis.....	5	..	6	5	1	3	4	5	5	3	..	1	2	1	..	..	2	1	..	..	..	..	..	1	..	..	..	..	25	20
Abdominal Tuberculosis ...	3	1	3	1	2	2	1	..	3	..	..	..	..	1	2	1	2	2	1	..	..	1	..	1	..	..	..	..	17	10
Spinal Column	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	2	3
Tuberculosis of Joints	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1	..	..	..	..	3	1
Tuberculosis of Skin	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis of Larynx.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Disseminated Tuberculosis..	..	..	2	..	1	..	1	1	..	1	..	..	3	1	1	1	..	..	1	..	..	..	..	..	..	..	..	..	9	4
Tuberculosis of other Organs	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Total	8	1	17	8	5	6	10	8	11	11	1	3	19	17	34	20	36	35	62	31	28	16	21	7	3	2	1	1	256	166

77·0 per cent. of the ' lung ' cases were known to the dispensary staff, 189 having visited the dispensary and an additional 58 having been attended in their homes by the visiting nurses.

Only 24·0 per cent. of the ' other forms ' were attended at or from the dispensary, but this is due to the fact that nearly 50 per cent. of the non-pulmonary cases were not notified before death (see later).

Of 322 deaths from pulmonary tuberculosis the diagnosis was verified bacteriologically in 205 instances, *i.e.*, 63·6 per cent.

If the 38 unnotified cases be excluded, the percentage is 72·2—a satisfactory figure.

Duration of Illness.—Wherever possible, in pulmonary cases, enquiry was made as to the length of time the deceased had been ill, and the average duration of illness was found to be 35·1 months. As in previous years, important differences were discovered when age and sex were considered, the figures being 38·8 months for adult males, 32·9 months for adult females, and 18·7 months for those below 16 years of age (both sexes).

The period between notification and death was, as one would expect, longer in the adult males than in the adult females and children, but averaged 16·0 months for all cases.

As the duration of illness for all cases was 35·1 months, each patient who died during the year must, on the average, have been ill for nearly 19 months before notification.

38·5 per cent. of the patients had either not been notified prior to death (11·8 per cent.), or died within 3 months of notification (26·7 per cent.) and in consequence little or nothing could be done for them.

Further details and comparative figures for previous years are submitted on next page :—

Return of Deaths from Tuberculosis of the Lungs Occurring in :—

	Deaths which occurred in these years.												
										1922.			
	1913	1914	1915	1916	1917	1918	1919	1920	1921	M.	F.	Children.	Total.
Persons not notified	39	57	38	27	55	67	43	52	56	19	11	8	38
„ notified under 1 month .	36	28	46	42	26	42	62	46	45	29	8	5	42
„ between 1 and 3 „	71	92	98	113	97	73	33	49	42	20	21	3	44
„ between 3 and 6 „	49	54	47	61	56	27	29	41	37	22	21	3	46
Total under 6 months	195	231	229	243	234	209	167	188	180	90	61	19	170
Persons notified between 6 and 12 months ..	57	49	37	43	47	50	38	51	46	22	22	2	46
„ 12 and 18 „ ..	29	25	32	25	30	19	19	26	21	19	5	..	24
„ 18 and 24 „ ..	14	12	21	14	17	20	12	15	13	8	6	1	15
„ 2 and 3 years	2	32	24	24	17	15	19	20	18	11	7	..	18
„ over 3 years	..	2	24	39	38	51	47	42	48	32	14	3	49
Total	297	351	367	388	383	364	302	342	326	182	115	25	322

The figures for non-pulmonary forms of tuberculosis were even worse, for in 46 instances out of the 100 deaths, the disease had not been notified prior to death.

While this is partly due to the fact that there is a great shortage of institutional accommodation for the treatment of non-pulmonary forms of the disease, the figures show that there is still great laxity in respect of the notification of all forms of tuberculosis.

Occupation.—The nature of the work done and the conditions under which it is carried on have an important bearing on the incidence of disease, and probably account for the large excess (approximately 50 per cent.) of adult male over adult female deaths from pulmonary tuberculosis.

164 ' insured persons ' (135 males and 29 females) are included in the 322 deaths.

52 of the males were ex-Service men.

Family History.—In 101 instances amongst the 297 cases investigated after death, *i.e.*, in 34·0 per cent.,

there was a history that some near relation was suffering from, or had died of pulmonary tuberculosis. Here again the influence of sex was shown, for the figures were 30·2 for men, 38·5 for women.

House Accommodation.—The home conditions of the working classes are intimately associated with occupation and family history as predisposing to tuberculosis.

The numbers of rooms in the dwellings occupied by 297 persons who died of phthisis were as follows :—

Rooms in Dwelling.	1	2	3	4	More than 4	Common Lodging Houses.	Total.
Deaths	26	89	82	58	37	5	297

As regards the type of house occupied 176 were flats, 66 tenements, 50 self-contained, and 5 common lodging houses.

Review of the Mortality from Tuberculosis in recent Years.

Newcastle-upon-Tyne shares with its neighbours, Gateshead, South Shields and Tynemouth the unenviable distinction of having, in recent years, the heaviest death-rates from tuberculosis of all the County Boroughs in England.

This is, no doubt, largely due to the nature of the local industries and also to the fact that an exceptionally great amount of overcrowding exists.

While bad housing conditions favour the mortality from pulmonary tuberculosis generally, the combination of bad housing with unfavourable industrial conditions results in a considerable excess of deaths of males.

During the five-yearly period 1891-95 the average death-rate from tuberculosis was 3·08 per 1,000, but there was a steady decline as in other parts of Britain until 1913, when the corresponding figure was 1·76 per 1,000.

During the War the tuberculosis death-rate rose, especially in the years 1916-17, but it is important to note that the increase was exclusively due to pulmonary tuberculosis; the decline in the death-rate from non-pulmonary tuberculosis continued practically without interruption.

After the Armistice the mortality from phthisis again showed a progressive reduction, and the return for 1922 is the lowest death-rate from tuberculosis ever recorded in the City, namely, 1·50 per 1,000.

Thus in 32 years the death-rate from tuberculosis has been reduced by more than 50 per cent.

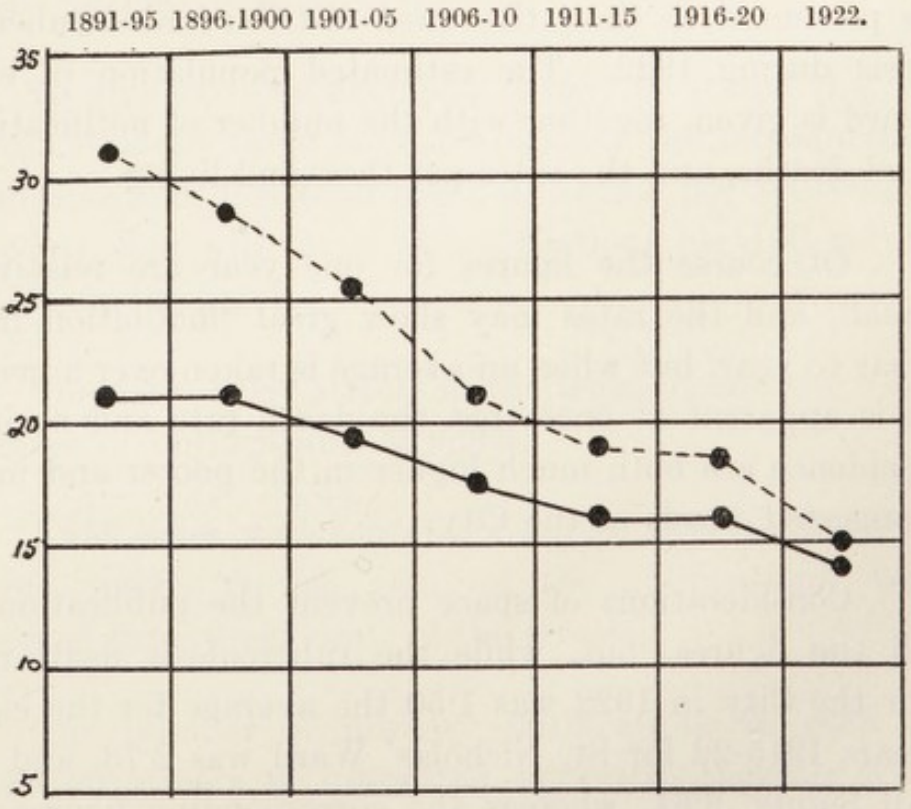
The decrease has been most striking in respect of the non-pulmonary forms of the disease; whereas the population has increased by roughly 50 per cent. since 1891 the actual number of deaths from non-pulmonary tuberculosis in 1922 showed a reduction of more than 50 per cent. as compared with the average of the years 1891-95.

The general death-rate declined also, of course, but not to the same extent, for while tuberculosis accounted for 14·77 per cent. of the deaths from all causes in the years 1891-95, the corresponding figure for the quinqennium 1916-20 was 11·70 per cent., and for the year 1922 was 10·49 per cent.

The detailed figures of population, number of deaths from all causes and from pulmonary and non-pulmonary tuberculosis, and the corresponding death-rates, etc., are shown in the table submitted; the progressive reduction in the death-rate is more striking when seen in graphic form.

DEATH RATE FROM TUBERCULOSIS COMPARED WITH THE GENERAL DEATH RATE.

Period.	Population.	General Death Rate per 1,000 Population.	Lungs.		Percentage of General Death Rate.	"Other Forms."		Percentage of General Death Rate.	Total of Tuberculosis.		Percentage of General Death Rate.
			Number of Deaths.	Death Rate per 1,000 Pop.		Number of Deaths.	Death Rate per 1,000 Pop.		Number of Deaths.	Death Rate per 1,000 Pop.	
1891-95	192,530	20·9	386	2·01	9·61	207	1·08	5·16	593	3·08	14·77
1896-1900	206,973	21·0	398	1·92	9·14	189	0·91	4·33	587	2·84	13·47
1901-05	224,491	19·5	386	1·72	8·82	185	0·82	4·20	571	2·55	13·02
1906-10	261,080	17·6	372	1·42	8·07	182	0·70	3·97	554	2·12	12·04
1911-15	271,476	16·1	358	1·32	8·20	152	0·56	3·47	510	1·88	11·68
1916-20	279,096	15·9	385	1·38	8·68	135	0·48	3·02	520	1·86	11·70
1921	278,400	14·1	348	1·25	8·86	103	0·37	2·63	451	1·62	11·49
1922	281,600	14·2	322	1·14	8·03	100	0·35	2·46	422	1·50	10·49



DOTTED LINE=Annual number of deaths from tuberculosis per 10.000.
CONTINUOUS LINE=Average number of deaths from all causes per 1,000·

The steady decline in the number of deaths, both relative and actual, is a very hopeful feature, and very encouraging to those engaged in anti-tuberculosis work.

With the prosecution of further efforts along preventive lines there seems every reason to believe that the rate of decline can be further accelerated.

Although no proved method of vaccination against tuberculosis is yet available, and indeed such may never be discovered, still it is of great interest to know that in 1754, barely 50 years before the introduction of vaccination, smallpox accounted for one in every ten deaths: a proportion almost identical with that exacted by tuberculosis to-day.

Ward Distribution.—As in previous years a table is presented to show the ward distribution of tuberculosis during 1922. The estimated population of each ward is given, together with the number of notifications and deaths, and the rates per thousand living.

Of course the figures for one year are relatively small, and the rates may show great fluctuation from year to year, but when an average is taken over a period it is apparent at once that the death rate and notified incidence are both much higher in the poorer and more congested wards of the City.

Considerations of space prevent the publication of all the figures, but, while the tuberculosis death-rate for the City in 1922 was 1·50 the average for the eight years 1915-22 for St. Nicholas' Ward was 2·73, and for All Saints' 2·61, whereas the corresponding figures for St. Thomas and Jesmond Wards were 0·86 and 0·72 respectively.

When one ward shows, over a period of years, a death-rate from tuberculosis nearly four times as great as that of another ward of the same city, it is obvious that there is great scope for preventive measures in tackling tuberculosis, and that further careful consideration of the problem is warranted.

The Street Register of Notifications tells much the same tale as the Death Register.

It suffers under a great disadvantage, however, as the number of persons living in each street is not known to the Dispensary Staff.

However, some kind of comparison is possible by ascertaining the number of persons on the voters' roll in the various streets.

To give extreme examples it may be stated that in Jesmond Road there have been, since the introduction of notification, less than one notification per 100 voters as contrasted with over 24 notifications per 100 voters in Alexander Street.

There are 1,089 streets in the register, and the total number of notifications is 9,968.

1,955 cases were reported from 30 streets : in other words, nearly 20 per cent. of the notifications were received from 3 per cent. of the streets.

The number of primary notifications in each of these 30 streets is submitted herewith, together with the number of persons entitled to vote (as a rough basis of comparison).

NOTIFICATIONS OCCURRING IN STREETS; FROM 1ST JANUARY, 1912, to 31ST DECEMBER, 1922.

STREETS WITH OVER 45 NOTIFICATIONS.

Name of Street or Road.	No. of Notifications.	No. of Voters.	Ward.
Walker Road	161	1543	St. Lawrence / St. Anthony's
Scotswood Road	119	742	Stephenson / Armstrong
Church Street	91	674	Walker
Pilgrim Street	87	651	All Saints' / St. Nicholas'
George Street	79	577	Stephenson / St. John's
Tower Street	78	214	All Saints'
Elswick East Terrace	67	586	Stephenson
Noble Street	66	245	Armstrong
Parker Street	65	485	Byker
Carliol Street	65	238	St. Andrew's / All Saints'
Shipley Street	64	528	Byker
Buddle Road	64	617	Benwell
Bolam Street	61	457	St. Lawrence
Munition Cottages	60	734	Benwell
Raby Street	57	581	St. Lawrence
Conyers Road	56	530	Byker
Janet Street	56	436	St. Lawrence
Shields Road	55	762	Byker
Kirk Street	54	545	St. Lawrence
Blenheim Street	53	500	St. John's
Buckingham Street	53	346	St. John's
Mill Lane	53	444	Elswick
Welbeck Road	51	532	Walker / St. Anthony's
Alexander Street	50	207	Armstrong
Diana Street	49	307	Westgate / St. John's
Blandford Street	49	412	St. John's
Benson Road	48	382	St. Anthony's
Cannon Street	48	258	Armstrong
Colston Street	48	489	Fenham
Sycamore Street	48	300	Stephenson

WARD DISTRIBUTION OF TUBERCULOSIS, 1922.

WARD.	Population 1922.	NOTIFICATIONS.						DEATHS.						New Patients Dispensary Register.
		Pulmonary	Attack rate per 1,000 of population.	Non-Pulmonary	Attack rate per 1,000 of population.	Total.	Attack rate per 1,000 of population.	Pulmonary	Death rate per 1,000 of population.	Non-Pulmonary	Death rate per 1,000 of population.	Total.	Death rate per 1,000 of population.	
St. Nicholas'	3,528	8	2·27	7	1·98	15	4·25	5	1·42	1	0·28	6	1·70	13
St. Thomas'	14,626	8	0·54	8	0·54	16	1·08	6	0·41	5	0·34	11	0·75	15
St. John's	15,686	41	2·61	12	0·76	53	3·37	31	1·97	..	..	31	1·97	41
Stephenson	19,635	31	1·58	12	0·61	43	2·19	21	1·07	4	0·20	25	1·27	4
Armstrong	16,235	45	2·77	41	2·52	86	5·29	12	0·74	8	0·49	20	1·23	3
Elswick	12,865	22	1·71	14	1·09	36	2·80	11	0·85	9	0·70	20	1·55	3
Westgate	15,861	26	1·64	12	0·76	38	2·40	22	1·38	6	0·38	28	1·76	39
Arthur's Hill	9,928	10	1·00	2	0·20	12	1·20	9	0·90	2	0·20	11	1·10	7
Benwell	20,068	35	1·75	14	0·69	49	2·44	18	0·89	3	0·15	21	1·04	72
Fenham	12,078	12	0·99	14	1·16	26	2·15	10	0·83	9	0·74	19	1·57	35
All Saints'	17,830	49	2·75	25	1·40	74	4·15	40	2·24	12	0·67	52	2·91	67
St. Andrew's	12,914	35	2·71	10	0·77	45	3·48	20	1·55	3	0·23	23	1·78	64
Jesmond	10,694	10	0·93	2	0·19	12	1·12	4	0·37	1	0·09	5	0·46	4
Dene	12,775	6	0·47	4	0·31	10	0·78	8	0·62	..	..	8	0·62	13
Heaton	14,689	18	1·22	9	0·61	27	1·83	11	0·75	6	0·41	17	1·16	37
Byker	17,941	30	1·67	20	1·11	50	2·78	29	1·61	7	0·39	36	2·00	48
St. Lawrence	20,172	40	1·98	19	0·94	59	2·92	26	1·29	5	0·24	31	1·53	89
St. Anthony's	17,222	42	2·44	19	1·10	61	3·54	23	1·33	10	0·58	33	1·91	57
Walker	16,853	27	1·60	36	2·13	63	3·73	16	0·95	9	0·53	25	1·48	74
City	281,600	495	1·76	280	0·99	775	2·75	322	1·14	100	0·35	422	1·50	843

NOTE.—Deaths occurring in Public Institutions have been allocated in every case to the Wards in which they resided.

The Tuberculosis Dispensary.

The number of new patients entered on the register was 843.

352 of them were sent direct by general practitioners, 218 were referred to the dispensary by the visiting nurses, 38 were sent by the Local War Pensions Committee or Medical Boards, 74 by the School Medical Officers and the remainder came from various sources, *e.g.*, Royal Infirmary 47, Citizen's Service Society, etc.

248 had been notified previously, and the balance (595) were contacts or suspects, and 175 of these were diagnosed and notified by the Tuberculosis Medical Officer.

316 were 'insured persons,' and 459 were dependents of 'insured persons,' leaving only 68 of the uninsured classes.

In respect of these new patients, after observation it was found that over 60 per cent. were not suffering from active tuberculosis.

2,363 patients visited the dispensary during the course of the year, and registered 9,137 attendances, an average of over 4 per patient.

The total number of complete physical examinations made was 2,491, including 1,147 males, out of 3,442 attendances; 530 females, out of 1,735 attendances; and 814 children out of 3,960 attendances; giving an average of 1 every 3 visits for adults, and every 5 for children.

23·9 per cent. of the cases had been verified bacteriologically—40·3 per cent. of the males, 30·8 per cent. of the females, and only 2·0 per cent. of those

under 16 years of age. The details are tabulated below :—

Sputum Examination.	Number of Patients who attended the Dispensary during the Year 1922.				Ex-Service Men included in) the Total).
	Total.	Males.	Females.	Under 16 years of age.	
Bacilli found	564	389	157	18	194
Bacilli *not* found	1799	576	353	870	300
TOTAL	2,363	965	510	888	494

Sputum Positive Cases.—The number of living sputum-positive cases on the Dispensary register at the end of the year was 578, consisting of 415 males (including 176 ex-Service men) 149 females and 14 children.

449 of these cases had attended the Dispensary during the year 1922, and 129 failed to do so, some because they were unable to come, while others refused on the grounds that they did not need any advice or assistance.

Many of these cases have been attending for several years, and the year of booking is given in the subjoined table :—

YEAR PATIENTS FIRST ATTENDED DISPENSARY.
(CASES WITH TUBERCLE BACILLI IN SPUTUM.)

1913.		1914.		1915.		1916.		1917.		1918.		1919.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
19	8	23	13	16	6	23	11	33	11	36	7	39	14

1920.		1921.		1922.		Total.	
M.	F.	M.	F.	M.	F.	M.	F.
78	21	62	23	90	45	419	159

"Negative" Cases.—The records of the patients in respect of whom no tubercle bacilli have been found in the sputum are filed separately from those of the sputum positive cases, and 1,799 patients in this category attended during the year. This number included 1,052 males (300 ex-Service men) and 747 females. The preponderance of male cases was nothing like so pronounced as in the sputum positive group, and it is noteworthy that children were much more numerous, constituting 48·3 per cent. of the total as opposed to 3·2 per cent. of the bacteriologically verified cases. While the majority of these "negative" cases were "suspects" or "contacts," 739 had been notified as suffering from some form of tuberculosis. The details are set out below:—

"Negative" Cases who attended the Dispensary during 1922.

Notified.	Males.	Females.	Total.
Lungs	264	193	457
Glands	65	59	124
Abdominal	29	15	44
Joints	24	17	41
Bones	13	16	29
Spine	13	5	18
Skin	2	2	4
Disseminated	5	4	9
Genito-Urinary	7	1	8
Meninges	2	3	5
Not Notified	628	432	1060
Total	1,052	747	1,799

The year in which the various patients first attended the Dispensary is given in the subjoined table:—

Year Patients first attended Dispensary.

1913		1914		1915		1916		1917		1918		1919	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
22	20	24	18	30	24	36	28	64	37	75	47	90	52

1920		1921		1922		Total.	
M.	F.	M.	F.	M.	F.	M.	F.
157	96	188	127	366	298	1052	747

Every effort is made to verify each notified case by bacteriological means, and during the year 1,861 specimens of sputum were examined at the Dispensary.

Of this number 364 were found to contain tubercle bacilli, while 1,497 gave negative results.

In addition 557 samples of sputum were sent, for examination, to the College of Medicine by the medical practitioners of the City.

Of these 105 proved positive, and 452 negative.

Work of the Nurses.—797 new patients were seen as against 793 in 1921, and 10,546 subsequent visits were made, giving a grand total of 11,343 for the year.

2,374 of these visits were paid to ex-Service men.

The number of patients on the Nurses' lists on December 31st, 1922, was 2,238, comprising 954 males (including 404 ex-Service men), 529 females, and 755 children.

In 553 cases tubercle bacilli had been found in the sputum, and special attention has always been paid to these infective cases.

They are visited at least once monthly, and their contacts are kept under the closest possible supervision.

The Work of the Sanitary Inspector.—This officer disinfects houses after deaths or changes of address of consumptives, arranges for the removal and disinfection of phthisical patients' clothing and bedding, and reports on any insanitary conditions existing in the homes of dispensary patients, such as overcrowding, insufficient ventilation, or defective sanitary arrangements.

The details of his work were as follows :—

Houses visited		551
Houses disinfected (total)		542
For patients going to Sanatoria	89	
For patients changing their address	22	
For patients going to Hospital	227	
After death	204	
Rooms disinfected in above houses		596
Total number of visits		1022
Houses found to have sanitary defects (including overcrowding) and referred to the Senior Sanitary Inspector		91

INSTITUTIONAL TREATMENT.

36 beds were provided at Barrasford Sanatorium for early or moderately advanced cases of pulmonary tuberculosis, 62 beds were available for more advanced or emergency cases at the Sanatorium Pavilions at the City Hospital, Walker Gate, while at Stannington Sanatorium 30 beds were maintained for the treatment of tuberculous children.

Barrasford Sanatorium.—77 persons completed treatment at this institution during the year.

The details as to "insured" and "uninsured" persons, males and females, together with the average length of stay in the institution, are submitted herewith :—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM DURING YEAR 1922.

	In Barrasford Sanatorium on 1st January, 1922.	Admitted during Year.	Persons who completed Treatment during year.			In Barrasford on 31st Dec. 1922.
			Number	Total Number of Days.	Average Length of Stay in days.	
Uninsured Males ..	2	6	7	1144	163	1
Uninsured Females	6	14	16	2309	144	4
Insured Males	22	57	51	6425	126	28
Insured Females ..	1	6	3	637	213	4
TOTAL	31	83	77	10,515	136	37

The results of treatment were satisfactory, and the condition of the patients on discharge was as follows :—

RESULTS.	Males.	Females.	TOTAL.
(*a*) Fit to Work	34	14	48
(*b*) Improved	16	..	16
(*c*) Without Improvement	7	5	*12
(*d*) Died in Sanatorium	1	..	1
TOTAL	58	19	77

* Including 2 patients who were in the Sanatorium less than 12 days.

* 1 patient was re-admitted and is counted as 2 admissions.

Each discharged patient is visited at frequent intervals by one of the Dispensary Staff and is encouraged to report periodically so that he can be examined and records kept of his condition.

In the next table a summary is given of the condition on December 31st, 1922, of all the patients treated at the Corporation expense since 1908. It will be noticed that most of the earlier cases are returned as dead or untraceable :—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM, AND THE RESULTS.

YEAR.	Number of Patients discharged from Barrasford Sanatorium.	MALES.	FEMALES.	Condition at end of Year 1922.					Total Number of days in the Sanatorium.	Average number of days in the Sanatorium.
				Well, working or fit to work.	Improved or moderately well.	Relapsed.	Dead.	Lost sight of, or left the district.		
1909	55	34	21	2	6	..	36	11	6,260	114
1910	63	40	23	4	5	..	39	15	6,471	101
1911	72	46	26	13	3	..	47	9	6,868	97
1912	67	47	20	8	4	..	38	17	5,396	81
1913	85	58	27	14	3	1	44	23	9,567	112
1914	78	59	19	26	2	1	39	10	9,723	124
1915	74	54	20	15	4	..	35	20	10,803	146
1916	64	45	19	12	2	1	35	14	10,005	156
1917	68	45	23	20	6	..	30	12	10,603	156
1918	89	81	8	36	7	..	34	12	11,926	134
1919	107	85	22	36	11	3	44	13	14,207	133
1920	131	105	26	55	25	3	36	12	17,127	129
1921	112	88	24	49	12	10	34	7	13,544	122
1922	77	58	19	48	11	10	7	1	10,515	136
TOTAL ..	1,142	845	297	338	101	29	498	176	143,015	125
Received treatment in previous years ..	56	39	17	17	10	2	22	5	..	..
Nett Cases	1,086	806	280	321	91	27	476	171	143,015	125

While the appearance of tubercle bacilli in the sputum indicates that there is active destruction of lung tissue, still it must be recognised that there is always a doubt about any case in which the diagnosis has not been verified bacteriologically.

Accordingly the bacterial history of each patient admitted to Barrasford Sanatorium has been investigated as thoroughly as possible, and the results are tabulated below :—

BACTERIAL HISTORY OF
PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM.

YEAR.	Persons discharged from Barrasford Sanatorium.			Number who had Tubercle Bacilli found in the Sputum after discharge.	Persons deceased at the end of the year.				Cases who had Tubercle Bacilli in the Sputum and could not be traced at end of Year.
	TOTAL Nett Cases.	Number who had Tubercle Bacilli found in the Sputum.	Number who had *not* Tubercle Bacilli found in the Sputum.		TOTAL.	Tubercle Bacilli found in the Sputum before or during treatment.	Tubercle Bacilli *not* found in the Sputum before or during treatment.	Tubercle Bacilli found in the Sputum after discharge.	
1909	55	35	20	2	36	30	5	1	1
1910	63	45	18	3	39	32	4	3	8
1911	67	45	22	6	43	35	4	4	5
1912	63	36	27	10	35	26	4	5	9
1913	81	54	27	3	43	34	6	3	11
1914	74	52	22	2	37	34	1	2	3
1915	73	51	22	3	34	29	2	3	7
1916	63	49	14	3	35	30	2	3	6
1917	64	41	23	5	27	23	2	2	6
1918	83	54	29	4	32	28	2	2	9
1919	102	82	20	4	42	41	..	1	9
1920	127	89	38	2	35	34	1	..	7
1921	106	84	22	4	31	27	2	2	5
1922	65	49	16	2	7	5	1	1	1
TOTAL	1,086	766	320	53	476	408	36	32	87

From the above it is obvious that the finding of tubercle bacilli before or during treatment renders the prognosis much more grave.

STANNINGTON SANATORIUM.

The 30 beds were kept fully occupied throughout the year, and 38 patients completed treatment.

The details appear below :—

CHILDREN WHO RECEIVED TREATMENT IN STANNINGTON SANATORIUM DURING YEAR 1922.

	In Sanatorium on 1st Jan., 1922.	Admitted during the Year.	Persons who completed Treatment during the year.			In Sanatorium on 31st Dec. 1922.
			Number	Total Number of Days	Average length of stay in Days.	
Males	15	25	24	7,775	324	16
Females	15	13	14	2,619	187	14
TOTAL	30	38	38	10,394	274	30

In nearly every case great benefit accrued to the patient, as is shown in the following return :—

	Males.	Females.	Total.
(*a*) Much Improved	10	8	18
(*b*) Improved	13	4	17
(*c*) Without Improvement	1	2	3
(*d*) Worse	..	..	..
TOTAL	24	14	38

SANATORIUM PAVILIONS, WALKER GATE.

As in previous years, the 62 beds provided were fully occupied during 1922. 204 patients were admitted, and of these 77 were ex-Service men, 13 of whom were pensioners residing in other districts, whose maintenance fees were defrayed by the authorities responsbl e for their admission.

Details of the number of patients admitted and the average length of stay in days are given in the accompanying table :—

PATIENTS WHO RECEIVED TREATMENT IN SANATORIUM PAVILIONS AT THE CITY HOSPITAL, WALKER GATE, DURING YEAR 1922.

	Patients in Hospital on 1st Jan., 1922.	Patients Admitted	Patients who have completed Treatment			In Hospital 31st Dec., 1922.
			Number	Total Number of days.	Average length of stay in days.	
Uninsured, Males	3	13	10	793	79	6
Uninsured, Females..	14	41	44	8,013	182	11
Insured, Males	37	138	140	15,090	107	35
Insured, Females	4	12	14	1,956	140	2
TOTAL.....	58	204	208	25,852	124	54

N.B.—8 patients were re-admitted and are counted as 16 admissions.

Treatment has been on sanatorium lines, modified to some extent in view of the type of patient ; the essentials are the same, however, namely, rest and good food under satisfactory hygienic conditions, with exercise graduated to the patients' tolerance.

During the year artificial pneumothorax therapy was instituted on a much larger scale than previously attempted in this institution.

In two instances the treatment had been started elsewhere and the patients attended for refills.

An attempt to induce an artificial pneumothorax was made in 32 cases, and of these 11 were unsuccessful, owing to adhesions or extreme nervousness on the part of the patient (one case).

The proportion of unsuccessful attempts seems high, but it must be remembered that the cases were

advanced, and many of them very chronic; 12 of the 32 had relapsed after Sanatorium Treatment.

The immediate results in the successful cases were favourable in nearly every instance, as evidenced by reduction of cough, sputum, and temperature.

Many of the patients have been discharged and return to the hospital for refills.

The work takes up a good deal of time, but with a trained team a series of refills can be performed in an average of 10 minutes each, so that 18 to 20 such cases can be dealt with at one session.

Repeated X-ray examination at intervals is essential to enable the operator to visualise the results of the operation.

It is, of course, too early to talk of permanent results, and indeed, considering the class of patient and the usual home environment, cures are not to be expected in the vast majority of the cases. The method is a valuable one, however, and should not be allowed to fall into desuetude through lack of facilities.

The results of treatment by artificial pneumothorax and otherwise of all cases where completed are as follows :—

	Males.	Females.	Total.
(*a*) Fit to Work	3	1	4
(*b*) Improved	78	24	102
(*c*) Without Improvement	34	17	51
(*d*) Died in Hospital	35	16	51
TOTAL	150	58	208

In case the results appear disappointing it must be pointed out that many of the cases coming under the heading "improved" were fit to undertake light work and several secured work after leaving hospital.

One patient was transferred to Barrasford Sanatorium.

Of the 51 patients who died in the institution 49 were Newcastle residents; and 2 were seamen who were not residents of Newcastle upon Tyne.

The various activities of the Tuberculosis Section have been summarised, and are set out on the following page, together with the corresponding figures for previous years.

TUBERCULOSIS SECTION.

Annual Summary of Work Done.

	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913
Notifications ..... Total	775	777	837	724	819	909	987	964	958	1246
Lungs.....	495	532	593	519	552	590	642	612	665	796
Other Forms	280	245	244	205	267	319	345	352	293	450
Notified by T.M.O.	175	167	213	145	221	244	162	146	180	140
Deaths (Corrected) ....Total	422	451	489	455	531	571	557	542	529	479
Lungs.....	322	348	368	339	393	411	417	380	375	326
Other Forms	100	103	121	116	138	160	140	162	154	153
Attendances at Dispensary ..	9137	9783	12170	10332	11517	9286	7758	6473	6712	3656
New Patients	843	956	1074	819	904	969	850	899	1046	729
Barrasford Sanatorium										
Admitted.....	83	101	130	114	95	69	67	70	78	86
Discharged	77	112	131	107	89	68	64	74	78	86
Stannington Sanatorium.										
Admitted.....	38	42	46	45	48	55	74	65	78	17
Discharged	38	39	50	43	49	55	73	65	55	11
Sanatorium Pavilions, Walker Gate.										
Admitted.....	204	174	167	185	207	181	146	54	40	38
Discharged	157	124	113	125	151	138	89	38	27	16
Died	51	50	62	48	30	48	26	17	14	8
Bacteriological Exams.										
College of Medicine..Total	557	638	652	642	529	604	624	600	714	910
Sputum—Positive	105	148	171	134	129	159	172	147	202	207
Negative	452	490	481	508	400	445	452	453	512	703
Dispensary..... Total	1861	1697	1827	1266	1080	957	708	608	764	354
Sputum—Positive	364	379	434	306	233	204	146	140	182	85
Negative	1497	1318	1393	960	847	753	562	468	582	269
Urine Examinations	866	988	1107	832	812	806	681	272	..	..
Evening Consultations.										
Attendances	1005	1171	1759	1499	1455	1264	1180	1124	1000	546
New Patients	57	57	89	53	57	84	96	128	130	59
Work of Nurses.										
New Patients	797	793	712	393	463	336	505	1055	1306	799
Subsequent Visits	10546	12077	13211	10976	9668	6188	7515	5429	6444	1235
Total Visits	11343	12870	13923	11369	10131	6524	8020	6484	7750	2014
East District.....	2800	3757	5752	4360	2993	2530	4050	3323	3729	..
West District	5263	3978	5393	3244	4499	3777	3970	3161	3921	..
Central District	3280	5135	2778	3765	2639	217	..	..	..	..
Special Inspector's Visits....	1022	1084	1077	962	933	1110	1070	1400	2385	1835
Houses Disinfected	542	539	519	461	504	554	537	512	549	514
Rooms Disinfected	596	588	625	526	557	701	619	779	1077	1089
Sanitary Defects—Houses	91	76	123	29	22	34	17	23	48	71

W. H. Dickinson, M.D., M.R.C.P., Ed.,
Tuberculosis Medical Officer.

BARRASFORD SANATORIUM.

Report of the Medical Superintendent.

To the Medical Officer of Health.

Sir,

I beg to submit a report of the work at Barrasford Sanatorium during the year 1922—the second year under the control of the Newcastle-upon-Tyne Corporation.

The work of the Institution has proceeded smoothly. The improvements introduced in 1921, and set out in the report for that year, have had a far-reaching effect in the facility of administration.

The condition and the appearance of the buildings have been greatly improved by the thorough painting, both outside and inside, which has been effected, and a large amount of defective timber has been replaced in the balconies of the patients' rooms and in the fabric elsewhere. The replacement by composition flooring of the old wooden flooring in the sanitary blocks has resulted in an improved sanitary condition therein. The conversion of the doors from the patients' rooms to the terrace from the full length type into those of the "stable door" variety, adds materially to the comfort of the patients in wet and stormy weather, and in no way has prejudiced treatment.

The extreme isolation of the sanatorium, from which the Institution undoubtedly suffers considerably, has been lessened by the installation of the telephone.

As in previous years, the general tone of the sanatorium has been excellent, and no summary discharge of any patient for any reason has been necessary during the year.

The social side of the patients' life has not been neglected. An increased number of concert parties from Newcastle have visited during the winter months, but the distance and the obtaining of transport are serious bars to the provision of more frequent entertainment. It is understood that numerous parties are willing to give their services if only means could be found for the round journey. The Newcastle Voluntary Tuberculosis Care Council was very helpful in the provision of entertainment. The cinema has been used weekly through the winter months, films being obtained gratuitously from Newcastle firms through the influence of the Chairman of the Health Committee, and the Chairman of the Tuberculosis Sub-Committee, to whom, and to the firms, sincere thanks are due. Whist Drives were held frequently. The library has been added to by gifts from the Libraries Committee of the Corporation and the British Red Cross Society as previously, and also by private individuals.

The provision of a billiard table would go far towards relieving the monotony of the winter months. In this respect Barrasford compares unfavourably with other institutions of similar size, all of which seem to furnish a full-sized table for the patients.

ADMISSIONS TO THE SANATORIUM DURING 1922.

Authority.	Male.	Female.	Total.
Newcastle Corporation	63	20	83
Northumberland County Council	57	16	73
Gateshead Corporation	58	..	58
Tynemouth Corporation	3	6	9
West Hartlepool Corporation	22	9	31
South Shields Corporation	1	..	1
Durham County Council	..	1	1
Tynemouth Union	1	1	2
Elswick Works Medical Charities Fund.	4	..	4
Private Cases	2	2	4
Post Office Sanatorium Society	1	..	1
	212	55	267
During 1921	220	60	280

The number of admissions to the sanatorium will be seen from the figures to be below those of 1921, but this is accounted for by the vacating of the beds occupied by the patients maintained by the Northumberland County Council on this Authority opening its own sanatorium. The number of discharged cases is increased for the same reason.

DISCHARGES FROM THE SANATORIUM DURING 1922.

Authority.	Males.	Females.	Total.
Newcastle Corporation	58	19	77
Northumberland County Council	78	25	103
Gateshead Corporation	57	..	57
Tynemouth Corporation	4	5	9
West Hartlepool Corporation	24	14	38
South Shields Corporation	1	..	1
Durham County Council	..	..	..
Tynemouth Union	..	..	..
Elswick Works Medical Charities Fund	5	..	5
Private	1	2	3
Post Office Sanatorium Society	1	..	1
	229	65	294
During 1921	212	62	274

SUMMARY OF MOVEMENTS OF PATIENTS DURING 1922.

Authority.	In residence night of Dec 31st, 1921.	Admitted during 1922.	Discharged during 1922.	In residence night of Dec. 31st, 1922.
Newcastle Corporation	31	83	77	37
Northumberland County Council	30	73	103	..
Gateshead Corporation	13	58	57	14
Tynemouth Corporation	2	9	9	2
West Hartlepool Corporation	15	31	38	8
South Shields Corporation	..	1	1	..
Durham County Council	..	1	..	1
Tynemouth Union	..	2	..	2
Elswick Works Medical Charities Fund	2	4	5	1
Private	..	4	3	1
Post Office Sanatorium Society	..	1	1	..
	93	267	294	66

A large number of cases were sent into the institution for observation purposes, and of these 58 (15 females; 43 males) were judged to be not suffering from active pulmonary tuberculosis.

Amongst the non-tuberculous conditions were a number of cases of chronic bronchitis, several cases of malignant disease of lung, one of sub-acute infective endocarditis, one of the results of gunshot wound of lung, and one the results of old empyema. In several of these cases the diagnosis was confirmed pathologically subsequently. One of the non-tuberculous cases died in the institution. As there was no necessity for prolonged sanatorium treatment in these 58 cases they were discharged as soon as the diagnosis was established, and this has a definite bearing on the average duration of treatment.

Other factors affecting this in the year in question were the discharging of the Northumberland County Council's cases, many of whom had only completed six or eight weeks' treatment when they were transferred to Wooley Sanatorium, and the re-admission of a large number of patients who had previously been in residence and were sent in again for a short period.

Fifty-two (44 males, 8 females) of the completed cases were re-admissions, of which :—

13	had been	in	residence previously in	1921.
18	,,	,,	,,	1920.
7	,,	,,	,,	1919.
3	,,	,,	,,	1918.
4	,,	,,	,,	1917.
1	,,	,,	,,	1916.
2	,,	,,	,,	1915.
2	,,	,,	,,	1914.
1	,,	,,	,,	1911.
1	,,	,,	,,	1910.

The average duration of treatment of all cases who completed treatment during 1922 was 101·4 days, but

excluding 25, who for various reasons remained only 28 days or less, and therefore did not attempt treatment seriously, the period is raised to 109·4 days.

The average length of stay of the 77 discharged Newcastle Corporation cases was 134·75 days; the 58 males staying an average period of 128·1 days, and the 19 females 155·05 days.

The longest stay made by any completed case was 545 days, and the shortest was 9 days—both were Newcastle Corporation cases.

The average number of beds occupied daily during the year was 78·6, and the total number of patient-days was 28,690, as compared with 87·9 and 32,088 respectively in 1921.

The diagnosis of pulmonary tuberculosis was confirmed bacteriologically either during treatment or before admission in 146 cases; 119 males, 27 females. 116 cases (98 males, 18 females) were apparently without tubercle bacilli in the sputum, and 32 patients (13 males, 19 females) said they had no expectoration. 713 sputum examinations were made at the sanatorium during the year, and of these 179 were positive, and 534 were negative.

1,118 complete physical examinations of the chest were made during the year, together with routine examinations of the larynx and the urine on the admission of patients, and subsequently when necessary.

Treatment has been on the lines previously in vogue at the Institution, the four basic principles being rest, good food, graduated exercise and fresh air. Each

patient is treated individually, and his activities regulated according to his need. Febrile cases are kept at rest in bed, recently febrile patients commence activities cautiously, afebrile cases are soon graduated up to long walks, all cases are urged to avoid exertion of any sort and over fatigue. A definite move has been made to modify the popular opinion that it is solely fresh air that is needed in the treatment of pulmonary tuberculosis. Were this the case, it would be necessary only to turn sufferers loose in the country and all should be well. As has been previously pointed out in the report for 1921, it is rest that is valuable in treatment. It has been shown conclusively that fever is easily induced in active pulmonary tuberculosis, and that the most common cause is exertion and fatigue. In those sanatoria where graduated hard work is the feature of treatment, rises of temperature are consistently met with, necessitating rest in bed until the fever subsides, and then the recommencement of activities from the lowest grade. This is precisely the state of affairs that the patient has been sent to the sanatorium to avoid, and it cannot be too strongly impressed or too frequently reiterated that rest and the avoidance of exertion compose the bed rock of successful treatment.

The secret of success in sanatorium treatment is, having assured that the patient is afebrile, or having reduced fever by rest, the graduation of the sufferer's activities, controlled by accurate temperature recording, so that he becomes capable of more and more exercise without the resumption of fever, which, if it occurs, indicates relapse whether of slight or marked degree. It must not be assumed from this that fresh air is not an essential point in treatment. It has been demonstrated that the open-air life stimulates all the

functions of the body in cases that are not so debilitated that they cannot respond ; but the extreme measures of open-air routine often employed in sanatoria, even in winter, seem to be unnecessary and productive of considerable discomfort, further, even of suffering and harm.

There is at present no specific cure for pulmonary tuberculosis, and the sanatorium when it succeeds in restoring health does so by placing the patients under the best conditions for the natural process of healing to operate—the conditions being the four mentioned previously (named in the order of importance), together with very necessary adjuvants : (*a*) supervision of activities, (*b*) contentment of mind, and freedom from financial and family trouble, (*c*) mental occupation during period of treatment. It is for the last reason that it is essential that sanatoria should be provided with recreation rooms, cinema plant, a library, gramophones, entertainments, billiards, bowling green, etc. It should be noted that Barrasford Sanatorium has neither of the last two items.

During the winter months the wards and public rooms have been kept warm to ensure as much comfort as possible for the patients—care being taken to keep the air moving, this being the principle of modern ventilation.

The use of tuberculin has been practically abandoned, though this subject is being re-considered on the basis of the present condition of the large number of patients treated with the preparation in 1917 and 1918.

A number of cases were treated by artificial pneumothorax, but it was not until the last quarter of the year that suitable cases were forthcoming, and in the majority treatment was not completed during 1922.

These will be included in the report on the patients who completed treatment in 1923. As in previous years, the results of this form of treatment were good. 10 cases were treated successfully up to the time of their discharge. In the cases of the Newcastle patients the pneumothorax is maintained by the Tuberculosis Medical Officer on the patient's discharge from the sanatorium. In two cases the procedure was ineffective and failed to control symptoms, and in a number of cases attempts to induce a pneumothorax were ineffectual on account of changes within the chest, or the lung collapse was of so limited a degree as to be useless. It is pleasing to be able to report that a case in which the outlook was extremely grave, treated by artificial pneumothorax by the writer in 1917 at this sanatorium, has been working since shortly after discharge in July of that year. The pneumothorax was maintained for about 18 months in all.

Cases suitable for artificial pneumothorax treatment can be divided broadly into two classes :—

(*a*) Those in which the disease is mainly one-sided, and are showing marked symptoms of the disease, such as raised temperature, profuse sputum, troublesome cough, etc.

(*b*) Those in which the symptoms during treatment are very slight, but which have the disease so widely spread mainly throughout one lung or so grossly present if limited, that natural healing without collapse is most unlikely.

The majority of the cases treated at the sanatorium are of the latter class.

Results of Treatment.—As is usual, the immediate results of treatment were excellent, but it is undoubted that the end results will not bear comparison with the immediate. Nevertheless a small proportion of cases will probably recover completely ; a considerably larger number will have their lives and working capacities appreciably prolonged, and in the cases who failed to improve or became worse, a large amount of suffering was relieved by nursing and general attention. Healing takes place by the conversion of tuberculous tissue into fibrous tissue in the first place, and this is a process of long duration : probably of several years even in cases of limited degree. Further, living tubercle bacilli may be imprisoned in the scar tissue and be capable of causing further trouble under certain conditions, such as injury, acute illnesses, etc. Therefore sanatorium treatment for comparatively limited periods cannot by itself do more than place the patient on the right path. In suitable cases fever is reduced, the general condition is vastly improved, hope is restored, and instruction as to future life is obtained ; but the diseased portion of the lungs is but slightly affected in the short period in the majority of cases, apart from those of successful artificial pneumothorax.

It seems impossible for patients to introduce sanatorium régime into their homes, especially in the case of the manual worker, who must usually return to his employment, or, possibly worse, lead an aimless life on inadequate means. But even the end results of sanatorium treatment are not so wasteful as those who decry sanatoria would have one believe.

The immediate results of treatment of the 236 definite cases, that is excluding the 58 non-tuberculous cases, were as follows :—

State on Discharge.	Males.	Females.	Total.
Fit for work	68	22	90
Improved	81	18	99
Without improvement	32	8	40
Worse	5	2	7

The weight histories of all discharged patients are set out below :—

		Gained 1 to 7 lbs.	Gained 7 to 14 lbs.	Gained over 14 lbs.	Remained station-ary.	Lost 1 to 7 lbs.	Not weighed on discharge.	Total.
236 definite cases.	Gained weight..	82	89	35	..	..	..	206
	Lost weight....	..	..	..	..	22	..	22
	Stationary	..	..	..	6	..	..	6
	Not weighed on discharge....	..	..	..	..	..	2	2
	Total.....	..	..	..	..	..	..	236
58 non tuber-culous cases.	Gained weight..	31	16	3	..	..	..	50
	Not weighed on discharge ...	..	..	..	..	..	1	1
	Lost weight ..	..	..	..	..	7	..	7
	Total.....	..	..	..	..	..	..	58

The continued interest and consideration of the members of the Sanatorium Sub-Committee must be freely acknowledged, and thanks returned for the numerous improvements that they have sanctioned, and also for the opportunities they have afforded to the Medical Superintendent of obtaining information and experience of other institutions devoted to the treatment of pulmonary tuberculosis.

I feel that reference should be made to the efficient manner in which the Matron has dealt with the administration of the Sanatorium, and entered into the lives of the patients and her staff, and my thanks are also due to you for your ready advice and assistance.

Yours faithfully,

CECIL G. R. GOODWIN,
Medical Superintendent.

Barrasford Sanatorium,
April 17th, 1923.

REPORTS OF THE VETERINARY OFFICER
AND INSPECTOR OF PROVISIONS,
AND OF THE INSPECTOR UNDER THE FOOD AND
DRUGS ACTS (SENIOR SANITARY INSPECTOR).

V.—FOOD.

BOVINE TUBERCULOSIS.
INSPECTION OF MEAT AND PROVISIONS.
INSPECTION OF FOOD AND DRUGS.

BOVINE TUBERCULOSIS, AND THE INSPECTION OF MEAT AND PROVISIONS AND FOOD AND DRUGS.

TUBERCULOUS MILK, 1922.

12 samples were reported to be tuberculous during the year. The supplies were from farms in Newcastle (1), Northumberland (6), Cumberland (3), Durham (1), and Dumfriesshire (1).

In one case the sample was taken as a check on a supply which was found tuberculous in 1921. 4 cows were excluded in the first instance, but on a second examination 2 more were found diseased and also removed. Subsequent checks were reported negative.

In one instance the tuberculin test was applied to the herd, consisting of 9 cows. 3 of the animals reacted and were removed from the herd. In seven cases clinical examination of the herds revealed one or more diseased cows. In five of these cases check samples collected after the removal of the affected animals proved negative. In one case the check was positive, and a second examination revealed two more affected cows. In the remaining instance no check was obtained, as the farmer had ceased to send milk into the City.

In one instance the County Medical Officer of Health concerned reported that no evidence of tuberculosis could be found in the herd. Subsequent to the collection of the sample several animals had gone dry, and two of these had induration of the udder. It was possible to obtain a sample of milk from one of these only, but the presence of bacilli was not demonstrated.

In the two remaining cases no further information was obtained, as in one of them the herd had been dispersed, and the animals could not be traced, while in the other the milk was no longer coming into the City.

INSPECTION OF MEAT AND PROVISIONS.

Report of the

Veterinary Officer, Inspector of Meat, etc.

To the Medical Officer of Health.

Sir,

I beg to submit herewith my Report upon that portion of my duties which fall within the scope of the public health administration.

Diseases of Animals Acts, 1894-1914.

During the year under report, 25 outbreaks of contagious disease (as defined by the Acts) occurred amongst the animals within the City, as compared with 7 the previous year.

The Dairies, Cowsheds, and Milk Shops Orders, 1885-1899.

Within the City there are 25 cow-keepers, who occupy 39 cowsheds on 26 premises, and possess a total of 489 milch cows. During the year 97 visits were made to the cowsheds and dairies for the purpose of inspecting the buildings, and the conditions as to cleanliness, etc.

Bovine Tuberculosis.

During the past five years, owing to overcrowding of duties, it has not been possible to regularly examine the dairy herds within the City. Towards the close of 1922, however, a few of these herds were brought under review, and in those examined no animal was found suffering from any disease likely to affect the milk supply.

TABLE No. 1.

DISEASED COWS FOUND IN REGISTERED PREMISES WITHIN THE CITY.

Year.	No. of Cow-keepers.	No. of Registered Cowsheds.	No. of Dairy Premises.	No. of Milch Cows in City.	No. of Diseased Cows.				
					Tuberculosis		Other Diseases		Destroyed.
					Of Udder.	Other than Udder.	Udder.	Other than Udder.	
1909	41	..	..	527	5	2	4	1	5
1910	38	41	..	503	1	1	8	..	1
1911	37	44	38	497	1	..	4	..	1
1912	37	44	37	465	2	..	1	..	..
1913	31	43	33	489	2	2	..	..	..
1914	31	43	32	510	1	1	1	..	..
1915	31	43	33	554	3	..	6	..	..
1916	30	41	32	536	2	2	12	..	1
1917	30	44	32	512	1	..	..	..	..
1918	29	43	31	622	..	..	..	..	..
1919	27	41	29	594	..	..	..	..	..
1920	26	40	28	565	..	..	..	..	..
1921	25	38	26	575	..	..	..	..	..
1922	25	39	26	489	..	..	..	..	..

The Eradication of the Disease.

That tuberculosis can be eliminated from certain herds within this country is not open to doubt. To eradicate the disease by slaughtering those animals found by the Tuberculin Test affected would necessitate in some instances completely wiping out the herd. Even in some of the better class dairy herds more than fifty per cent of the animals are diseased. To eliminate the disease from dairy herds by the short route would have the immediate effect of dangerously depleting the public milk supply. Nevertheless, the eradication of tuberculosis from herds producing milk for human consumption is a subject that should be constantly kept

in prominence and the work concerning it encouraged whenever and wherever it is possible to do so. The chief obstacle barring the way to progress in this direction appears to be one of expense, and an indifference to the ordinary principles of hygiene. Individual agriculturalists within this country have from time to time done much to secure tuberculosis free cattle, and the Canadian Government are now attacking this problem in a very active manner, for during 1922 they spent over half a million dollars in control work. This has been chiefly along the line of testing pure bred herds at the request of owners under the system known as the " Accredited Herd Plan." Quite recently a new campaign was planned for the eradication of the disease from limited areas, and during the early months of 1923, some 15,000 cattle within the Province of Manitoba are to be subjected to the Tuberculin Test. All reactors are to be slaughtered and the owners compensated on the scale provided.

Tuberculin Tested Milch Cows.

With a view to eliminating tuberculous animals from a herd producing milk for an institution in which the Health Committee is interested, arrangements have been made by the Veterinary Inspector for the application of the Tuberculin Test to the whole of the herd annually as a commencement, besides, he will examine clinically the herd four times a year. Further, it is intended to improve the conditions under which the animals are housed by the early erection of modern buildings and equipment which will provide for the necessary segregation and facilitate strict observance to certain details of hygiene, particularly cleanliness.

During the early part of the year 1922, all the animals were subjected to the test, with the result that

more than 50 per cent. of them gave a positive reaction and were therefore considered as being diseased. It should be noted that the herd in question is made up of first class Shorthorns and a few Aberdeen Angus cattle, which at the time of the test were all in a robust and apparently sound physical condition. Five months after the test a number were slaughtered, and after a period of nine months a total of twenty-four of these animals had been slaughtered. Of the 24 slaughtered 16 had each given a positive reaction, 7 a negative reaction, whilst one was returned as doubtful. Each animal within the herd bears a tag number fixed to the ear for purposes of identification and history. The carcasses, together with the whole of the internal organs, are kept intact for the purpose of a complete examination in each case. Upon examination the Veterinary Inspector found tuberculous lesions in the carcass or in one or more of the internal organs of every one of the 24 cows slaughtered. To avoid misunderstanding, it should be added that in those cases where the disease is limited in extent, and localized, and the mammary glands are in a normal condition, the animal is not likely to be producing tuberculous milk. The Tuberculin Test will indicate, as a rule, the number of animals that are diseased, but it does not inform us to what extent or when the disease is likely to extend internally, become acute or affect the milk supply. The lesions found on examination after slaughter furnish further particulars in this direction and may, when slaughter occurs after a period of some months, indicate at what rate the disease has spread within the herd. It is the latter point that demands persistent attention in the way of prevention by counteracting the methods of spread, and upon this depends in no small measure the soundness or otherwise of our meat and milk supplies.

TABLE No. 2.

NUMBER OF ANIMALS EXHIBITED WITHIN THE NEWCASTLE CATTLE MARKET.

Year.	Cattle.	Calves.	Sheep.	Swine.	Cows.
1887	110,074	8,780	325,473	28,964	—
1897	99,084	7,304	340,382	31,798	—
1908	87,447	8,145	302,608	38,466	—
1909	85,110	6,950	323,780	31,189	—
1910	77,347	6,469	306,703	27,089	—
1911	70,337	5,841	305,418	37,754	—
1912	48,222	4,646	227,046	32,562	—
1913	63,683	4,455	271,887	27,468	—
1914	55,617	4,376	258,976	26,507	—
1915	53,689	3,677	248,291	25,062	—
1916	52,251	980	248,356	23,796	—
1917	47,906	1,192	216,920	15,474	—
1918	32,948	42	201,071	148	—
1919	33,664	329	145,613	89	—
1920	32,577	2,064	129,606	5,923	—
1921	35,000	1,765	210,000	1,154	
1922	21,921	1,432	140,389	16,521	278

Animals Slaughtered for Food.

During the year 1922, 139,202 animals were slaughtered within the City, as compared with 129,862 slaughtered the year previous. The following table illustrates the number of animals slaughtered within the City during the past five years :—

TABLE No. 3.

ANIMALS SLAUGHTERED ON LICENSED PREMISES WITHIN THE CITY.

Year 1922.			1921.	1920.	1919.	1918.
Horses		888	1,131	456	674	714
Cows	728					
Heifers	9,083	16,284	15,740	19,977	25,151	18,379
Bulls	537					
Bullocks ...	5,936					
Calves		2,847	3,221	2,347	3,561	2,412
Tups	2,350					
Ewes	17,013	88,902	91,951	61,024	75,483	100,488
Other Sheep	33,520					
Lambs	36,019					
Boars	1,236					
Sows	737	30,281	17,819	17,540	14,595	9,735
Other Pigs..	28,308					
Total Animals		139,202	129,862	101,344	119,464	131,728

Live Stock and Meat Supplies.

It will be observed that according to Tables Nos. 2 and 3 whilst the total number of animals exposed within the market during the year was fewer by 67,378, as compared with the year previous, the number of animals slaughtered within the City exceeded the previous year's total by 9,340. Of the animals slaughtered, cattle exceeded the previous year's total by 544, pigs by 12,462, whilst the number of sheep slaughtered was smaller than that of the previous year by 3,049. During the year the number of animals exhibited within the Market was adversely affected not only owing to the Market being closed for a time on account of foot and mouth disease restrictions, but also on account of the general scarcity of sheep.

TABLE No. 4.

Cattle, Calves and Pigs Slaughtered within the City. (See also Table No. 9.)	Number of Animals found Diseased, Unsound or otherwise unfit for Human Consumption.		*Number of Animals found Tuberculous.	
	Whole Carcasses Condemned.	Parts or Organs Condemned.	Whole Carcasses Condemned.	Parts or Organs Condemned.
Year 1922.	Year 1922.			
Cows 728	38	43	39	43
Heifers 9,083	24	29	21	19
Bulls 537	3	1	3	1
Bullocks 5,936	20	27	16	14
Totals 16.284	85	100	79	77
Calves 2,847	31	..	4	..
Pigs 30,281	32	..	8	..

* The figures representing the number of animals found tuberculous on slaughter do not nece-sarily indicate the total number of animals affected with disease, because under the present slaughter-house system it is impossible to guarantee that all those slaughtered are subjected to inspection.

The Inspection of Meat and Other Foods.

During the year 1922, a total of 237¼ animal carcasses, together with 1 ton 14 cwts. 1 st. 10 lbs. of meat (excluding offal, etc.) were condemned within the

City and destroyed as being unfit for human consumption, as compared with 199¼ animal carcasses and 4 tons 14 cwts. 1 st. 10 lbs. of meat condemned and destroyed the previous year.

Of the 237¼ carcasses, 82½ (79 carcasses and 14 quarters) were condemned on account of tuberculosis, as compared with 78 (71 carcasses and 28 quarters) the year previous.

Of the total number (excluding mutton) of carcasses, parts of carcasses and organs condemned as unfit during the year under report, tuberculosis was found to be the cause in 168 or 67·74 per cent. of the cases as compared with 132 or 64·70 per cent. the previous year. Of the bovine animals slaughtered, as indicated in Table No. 3, the cow-class will be seen to exhibit by far the greatest percentage of cases of tuberculosis, 11·26 per cent. of those slaughtered being wholly or partly condemned on account of that disease. Although the above particulars clearly indicate the percentage of bovines found tuberculous under the present system of slaughtering and inspection, they cannot be accepted as any indication of the number, or percentage of animals actually affected. Were these animals slaughtered at one central establishment and subjected to complete inspection, a large number of diseased parts and organs would be excluded from the market which under the present system it is impossible to detect.

TABLE No. 5.

CARCASSES OF BEEF CONDEMNED WITHIN THE CITY DURING THE PAST THIRTEEN YEARS.

Total Condemned.		Numbers condemned on account of Tuberculosis.	Percentage Tuberculous.
Year.	Carcasses.	Carcasses.	Per Cent.
1910	116	110	94·82
1911	88	79	89·77
1912	79	73	92·40
1913	92	89	96·73
1914	83	70	84·43
1915	96	88	91·66
1916	109	103	94·49
1917	98	92	93·87
1918	230	182	79·13
1919	306	267	73·0
1920	198	171	86·36
1921	90	78	86·66
1922	85	79	92·94

NOTE.—The above refers to whole carcasses and quarters, but does not indicate the total animals found tuberculous, and therefore does not include those carcasses in which only the organs or parts were found diseased and condemned. See Table 4.

TABLE No. 6.

NUMBER OF VISITS AND INSPECTIONS OF PREMISES DURING THE YEAR 1922.

	Central Markets.			Meat Shops.		Fish Shops.		Provision Shops.		Fruit Shops.		Quay-side.			
Slaughter Houses.	Meat and Provisions.	Fruit and Vegetables.	Fish Shops.	Wholesale.	Retail.	Wholesale.	Retail.	Wholesale.	Retail.	Wholesale.	Retail.	Wharves and Vessels.	Cold Stores.	Goods Stations.	Sausage Factories.
11,318	756	493	513	3,918	1,026	83	21	59	24	144	12	489	20	2	14

Imported Foodstuffs.

During the year 1922, some 200 vessels carrying foodstuffs from Denmark, Holland, Sweden, America, Canada and Australia arrived at the Quayside, as compared with 189 vessels during the year 1921. 489 visits were made to the wharves and vessels alongside, 2,407

packages containing meat, etc., being opened and examined. Regarding these visits, 9 were in response to official notices received from the Customs House concerning foodstuffs detained for inspection and certification.

Imported meat arriving within the City by rail is subjected to inspection and supervision within the wholesale shops and cold storage depôts.

Foreign Meat, etc., arriving by Vessel.

Fresh Meat (carcasses, etc.).

2,035	Pork.	953	Veal.
30	Mutton.	241	Beef.

Offal (casks).

34	Casks.	93	Pigs' Tongues.
4	Udders.	1,901	Pigs' Heads.
6,173	Pigs' Feet.	2	Pigs' Kidneys.
1,731	Pigs' Maws.		

Packages.

3	Pigs' Plucks.	35	Veal Plucks.
1	Sheep Pluck.		

Frozen Meat (carcasses, etc.).

70,725	Mutton.	80,857	forequarters Beef.
2,612	quarters Mutton.	66,712	hindquarters Beef.
1,518	packages cut Mutton	2,323	packages Shin Beef.
1,277	Pork	535	packages cuts of Beef.
10	casks Salted Pork.	16	casks Salted Beef.

Frozen Offal (packages).

3,272	Ox Hearts.	3,011	Ox Cheeks.
2,711	,, Tails.	2,169	,, Tongues.
2,009	,, Skirts.	498	,, Suet.
3,813	,, Livers.	691	Sheeps' Hearts.
2,452	,, Kidneys.	80	,, Kidneys.
3,634	,, Tripe.	273	,, Sweetbread.

Other Goods (cases).

14,451	Tinned Meat.	47,930	American Bacon and Hams.
75	Lobster.		
30	Sausage.	245,359	sides Danish Bacon.

TABLE No. 7.

NUMBER OF VESSELS AND ORIGIN, ARRIVING WITH FOOD.

Denmark.	Holland.	Sweden.	America.	Canada.	Australia.
124	29	1	17	27	2

The following foodstuffs, condemned as unfit for human consumption, were permitted to be used for animal feeding, namely :—

1,032	tins Corned Beef.	56	lbs. Butter.
55	,, Mutton.	2	barrels Biscuits.
1,424	,, Milk.	10	bags Flour.
24	,, Fruit.	10	tons Potatoes.

Total Weight of Meat and other Foodstuffs Condemned.

The total weight of meat and other foodstuffs condemned during the year was 41 tons 11 cwts. 6 stones 8 lbs., comprising :—

Beef, Mutton, Veal, Pork.—33 tons 15 cwts. 1 st. 0 lbs.
Offal, Provisions, etc.— 7 tons 16 cwts. 5 st. 8 lbs.

Table No. 8.

Carcasses, etc., Destroyed as being Unfit for Human Consumption during the Year 1922.

	Carcasses.				Lungs.			Hearts.	Kidneys.			Livers.			Tails.	Heads.		Plucks.		Tongues		Feet	Cows' Udders.	Ox Tripe.	Sheep Sweetbread.
	Beef.	Veal.	Mutton.	Pork.	Sets Ox.	Sets Sheep.	Sets Pig.	Ox.	Ox.	Sheep.	Pig.	Ox.	Sheep.	Pig.	Ox.	Ox.	Sheep.	Pig.	Sheep.	Ox.	Pig.	Pig.			
Tuberculosis ..	79+14 qrs. + 10lbs.	4	..	8	73	..	..	12	..	..	..	33	..	..	..	14	..	..	..	1	..	..	..	..	..
Actinomycosis..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Jaundice	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Septicæmia	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pleurisy	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pericarditis	..	1	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Peritonitis	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteritis	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cirrhosis	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..
Cysts	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..
Congestion and Imperfectly bled	..	..	4	10	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Dropsy	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Emaciation	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dropsy and Emaciation ..	1	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Abscesses	98 lbs.	..	2 qrs. + 25 lbs.	..	7	..	..	..	2	..	..	11	..	..		1	..	..	2	..	..	..	..	..	..
Traumatism ..	1 qr. + 42 lbs.	..	..	..	..	..	..	..	..	..	..	..	..	..			..	..	..	..	..	..	..	..	..
Decomposition..	2 + 12 qrs. + 3,520 lbs.	26	58	19+ 162 lbs.	88	..	177 + 234 lbs.	..	250 + 5 lbs.	1320	196 lbs.	95 + 1007 lbs.	187	..	29 + 38 lb	19	10	24	71	..	208	336 lbs.	84	868 lbs.	126 lbs.

TABLE No. 9.

POULTRY, GAME, FISH, FRUIT AND PROVISIONS, ETC., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION DURING THE YEAR 1922.

Cause of Unfitness.	Poultry and Game.	Fish.	Fruit and Vegetables.	Provisions.	
Unsound or Unwholesome.	35 Ducks. 5 Hens. 44 Turkeys. 24 Pheasants. 20 Chickens. 457 Rabbits.	3 Salmon. 84 lbs. Haddocks. 168 lbs. Findon Haddocks. 230 lbs. Cod. 337 lbs. Halibut. SHELL: 60 lbs. Prawns.	16 tons 4 cwts. Potatoes. 40 boxes Tomatoes. 78 boxes Pears. 10 barrels Apples.	125 boxes Cheese. 168 lbs. Yeast. 28 lbs. Sausage. 3,092 Eggs. 9 Pork Pies. 12 Veal and Ham Pies. 142 lbs. Ham. 93 lbs. Bacon.	TINNED. Tins. Milk 1,712 Fruit 24 Tomatoes 20 Lbs. Corned Beef 8,227½ Tongue 60

Slaughter Houses.

During the year under report there were 102 separate premises licensed for slaughtering purposes within the City. Within two of these no other animals than horses are slaughtered, the carcasses being exported for human consumption on the Continent. The total number of slaughter-houses are made up of five groups, together with ten separate establishments situated in various parts of the City. Owing to the Scotswood Road Group having a drainage system difficult to control and being situated immediately over a group of licensed pig and cattle lairs, the cleansing and disinfection of the latter have been rendered from time to time almost impossible of achievement. It is scarcely necessary to add that the whole of the slaughter-house arrangements within the City from the points of view of meat inspection and sanitation cannot be considered satisfactory.

I have the honour to be, Sir,

Your obedient Servant,

THOMAS PARKER, F.R.C.V.S.,
Veterinary Inspector and
Inspector of Meat, Provisions, etc.

Town Hall,
Newcastle upon Tyne,
29*th May*, 1923.

FOOD AND DRUGS ADULTERATION, Etc.

Total Samples.—The number of **samples** (of all kinds) obtained by the **Senior Sanitary Inspector** for analysis during the year was 1,306,* against 1,261 in 1921. For details see table on page 191A.

Of this total, only 615 were submitted for analysis to the Public Analyst, the remainder being milk samples which, on being tested in the offices of the Health Department, appeared to be genuine.

Informal Samples—240 samples (included in the foregoing total) were collected "informally," chiefly through the agency of hired persons.

Milk Samples.—The number of milk samples taken was 1,049; 51 of these were certified to be below the minimal limits fixed by the "Sale of Milk Regulations, 1901."

Samples not Genuine, etc.—The percentage of samples not genuine to the total number taken is 4·75 (compared with 7·45 for the previous year), and the percentage of non-genuine milk samples to the total number of milk samples obtained is 4·86 (as against 7·40 in 1921).

The total number of samples taken is at the rate of 4·6 per 1,000 of the population (estimated) of the City for the year 1922.

Milk Adulteration.—Of the 51 milk samples not genuine, 16 were deficient in non-fatty solids, 35 in milk-fat.

*Includes 10 taken by Veterinary Officer.

The percentage of deficiency in fat varied from 1·6 to 36·7 (the average being 8·58), and in solids not fat from 1·6 to 17·4 (average 5·73).

Margarine Act, 1887.—27 samples of margarine (included in the foregoing total of 1,306) were purchased and analysed. These were found to be genuine, except that all but two contained boric acid (as below).

Margarine Warehouses.—80 visits have been made to the margarine warehouses. No contravention of the law as to marking of packages was found.

Preservatives in Food.—Of the total number of samples taken for analysis (1,306), the following were certified to contain preservative in the form of boric acid :—Margarine (25), Butter (1), Slab Cake (Rice and Fruit) and Sponge Cake (3), Sausages, etc. (4). A sample of " Preservative Fluid " taken in connection with the latter proved to be an aqueous solution of sulphurous acid, containing 4·8 per cent. of SO_2. Two samples of non-alcoholic wines (raisin and port wine flavour), contained salicylic acid to the extent of 3·50 and 1·75 grains per pint, respectively. Two samples of caviare contained 0·016 per cent. of formaldehyde and 0·53 per cent. of boric acid respectively ; the former was obtained at a large hotel in the City, the manager of which immediately withdrew the caviare on being communicated with by the Medical Officer of Health.

In the case of the margarine and butter, the quantity of boric acid was within the limit allowed. With regard to the preservatised samples other than these, the Medical Officer of Health was in most instances in touch with the Ministry of Health, who were dealing with the matter generally.

Samples taken for Analysis during the Year 1922.

Article	No. of Samples obtained.			Result of Analysis.		Action taken.				Remarks.
	Formal.	Informal.	Total.	Genuine.	Not Genuine.	Prosecutions.	Convictions.	Cases Dismissed.	Cases Withdrawn.	
New Milk	1,045	4	1,049	998	51	13	8	4	1	In 3 cases no proceedings were taken, these consisting of informal and "appeal to cow" samples, and in the remaining 35 (of the 51 not genuine) the vendors were cautioned by order of the Sanitary Committee.
Margarine	1	26	27	26	1	..	..	..	..	The sample "not genuine" (taken informally) contained 1·0% excess water. Efforts to obtain a formal sample so far unsuccessful. All but 2 of the samples contained boric acid, within the limit allowed.
Butter	..	20	20	20	..	..	..	..	..	One of the samples contained "a trace" of boric acid.
Coffee	..	2	2	2	..	..	..	..	..	
Cocoa	..	2	2	2	..	..	..	..	..	
Tea	..	2	2	2	..	..	..	..	..	
Sugar	..	4	4	4	..	..	..	..	..	
Flour	..	2	2	2	..	..	..	..	..	
Egg Powder	..	1	1	1	..	..	..	..	..	
Baking Powder	..	12	12	12	..	..	..	..	..	
Custard Powder	..	12	12	12	..	..	..	..	..	
Corn Flour	..	2	2	2	..	..	..	..	..	
Semolina	..	5	5	5	..	..	..	..	..	
Rice	..	1	1	1	..	..	..	..	..	
Ground Rice	..	14	14	14	..	..	..	..	..	
Ground Ginger	..	8	8	8	..	..	..	..	..	
Arrowroot	..	1	1	1	..	..	..	..	..	
Pepper	..	16	16	16	..	..	..	..	..	
Mustard	..	10	10	10	..	..	..	..	..	2 of the samples contained about 20% and 15% respectively of wheaten flour, but were declared to be mixtures.
Vinegar	..	2	2	2	..	..	..	..	..	
Self-raising Flour	..	3	3	3	..	..	..	..	..	
Blanc-mange Powder	..	1	1	1	..	..	..	..	..	
Yorkshire Pudding Powder	..	1	1	1	..	..	..	..	..	
Mincemeat	2	..	2	2	..	..	..	..	..	Taken at request of Ministry of Health for special examination as to the presence of arsenic. The samples of "Toasties" and of Barley Kernels were free from arsenic. All the others contained arsenic compounds, but less than 1 part per 10,000,000.—Results duly reported to the Ministry by the Medical Officer of Health
Grape Nuts	..	2	2	2	..	..	..	..	..	
Force	..	2	2	2	..	..	..	..	..	
Post Toasties	..	1	1	1	..	..	..	..	..	
Shredded Wheat	..	1	1	1	..	..	..	..	..	
Barley Kernels	..	1	1	1	..	..	..	..	..	
Bun Flour	..	5	5	5	..	..	..	..	..	
Condensed Milk	..	7	7	7	..	..	..	..	..	
Oatmeal	..	1	1	1	..	..	..	..	..	
Caviare	..	2	2	1	1	..	..	..	..	The sample "not genuine" contained 0·016% of formaldehyde. This was obtained informally at a large hotel in the city, the manager of which was communicated with by the Medical Officer of Health, and removed caviare from his list of delicacies. The other sample contained 0·53% of boric acid, which was not considered excessive.
Golden Syrup	..	1	1	1	..	..	..	..	..	These samples (informal) all contained traces of tin or copper, but not sufficient to be injurious. The matter was taken up with the manufacturers by the Medical Officer of Health, who was also in communication with the Ministry of Health on the subject.
Jams and Jellies	..	9	9	9	..	..	..	..	..	
Marmalade	..	2	2	2	..	..	..	..	..	
Slab Cake (Rice and Fruit) Sponge Cake and Sponge Fingers	..	15	15	12	3	..	..	..	..	The 3 samples "not genuine" contained boric acid to the extent of 0·24%, 0·17% and 0·16% respectively. The matter was taken up with the bakery firms concerned by the Medical Officer of Health, who was also in Communication with the Ministry of Health on the subject.
Toffees	6	..	6	3	3	..	..	..	..	The 3 samples "not genuine" contained maize starch to the extent of 16·5%, 21·2% and 24·6% respectively. The manufacturers were communicated with by the Medical Officer of Health.
Non-Alcoholic Wines	4	..	4	4	..	..	..	..	..	2 samples (Raisin and Port Wine flavour) contained salicylic acid to the extent of 3·50 and 1·75 grains per pint respectively.
Whisky	2	..	2	1	1	..	..	..	..	The sample "not genuine" was 41·9 degrees under proof. No action taken, having regard to a notice posted in the Bar that the spirits were sold as "Diluted Spirits."
Gin	3	..	3	2	1	1	1	..	..	The sample "not genuine" was 51·3 degrees under proof. Vender summoned and fined £10.
Rum	2	..	2	1	1	..	..	..	..	The sample "not genuine" was 42·3 degrees under proof. No action taken, having regard to a notice posted on the keg from which the sample was supplied to the effect that the contents were "Diluted Spirits."
Cream of Tartar	..	8	8	8	..	..	..	..	..	
Tartaric Acid	..	8	8	8	..	..	..	..	..	
Camphorated Oil	1	..	1	1	..	..	..	..	..	
Paregoric	..	5	5	5	..	..	..	..	..	
White Precipitate Ointment	..	1	1	1	..	..	..	..	..	
Red Precipitate Ointment	..	1	1	1	..	..	..	..	..	
Glycerine	..	2	2	2	..	..	..	..	..	
Sweet Spirits of Nitre	..	5	5	5	..	..	..	..	..	
*Sausages, etc.	..	9	9	9	..	..	..	..	..	Taken for special examination as to the presence of preservatives. 4 of the samples of Sausage, etc., contained boric acid to the extent of 0·65%, 0·75%, 0·40% and 0·11% respectively. The "Preservative Fluid" proved to be an aqueous solution of sulphurous acid, containing 4·8% of SO_2. The results of the analyses were communicated to the Ministry of Health by the Medical Officer of Health.
*Preservative Fluid (said to be Bi-Sulphate of Lime)	..	1	1	1	..	..	..	..	..	
Totals	1,066	240	1,306	1,244	62	14	9	4	1	Amount of penalties obtained—£21 10s. 0d.†

* Taken by the Veterinary Officer †Total penalties, including those in respect of "Offences other than Adulteration," etc. (10s., see separate table p. 191) £22.

Included in the above are :—

9 "Appeal to Cow" Samples taken at farm or byre, after seeing the cows milked ; 7 of these proved to be genuine and 2 deficient.

32 samples taken "in course of delivery" (at railway stations, etc.).

ACTION TAKEN WITH RESPECT TO OFFENCES OTHER THAN ADULTERATION.

Offence.	No of Cases.	Proceedings taken, etc.
Sale of Food and Drugs Act, 1899, *Sec.* 9 :— Selling milk from cans upon which the name and address of the vendor were not inscribed.	7	In 2 cases (against one person) the vendor was summoned and fined 5s. in each. In the 5 remaining instances, the vendors were cautioned.
Margarine Act, 1887, Section 6— Margarine delivered to purchaser in paper not marked "Margarine."	1	Vendor cautioned.
Total	8	Amount of Penalties, 10s.*

*See also † on page 191A.

THE PUBLIC HEALTH (MILK AND CREAM) REGULATIONS, 1912 AND 1917.

Ministry of Health Table.

1.—Milk and Cream not sold as Preserved Cream.

	(*a*) Number of samples examined for the presence of a preservative.	(*b*) Number in which a preservative was reported to be present.
Milk	352	None.
Cream	— (No Samples.)	—

2.—Cream sold as Preserved Cream. No samples.

BACTERIAL IMPURITY OF MILK AND WATER.

Milk.—171 samples were examined by the Bacteriologist for the presence of tubercle bacilli, which were found in 12, or 7·0 per cent.

Action taken is described on page 175.

171 samples were examined for evidence of excremental pollution, which was found to an undesirable degree in 56, or 32 per cent. The vendors and producers were communicated with and warned, further samples being taken in each case.

Cleanliness of Milk Churns.—With regard to the steps taken to secure a clean milk supply at the various stages of distribution, it may be stated that a systematic examination has been carried out of the empty milk churns standing at the several railway stations in the City, awaiting return to the farmer-consignors. Of a total of 8,985 such churns examined, 230 (from 60 separate dealers) were found in an uncleansed condition, the offenders being communicated with by the Medical Officer of Health.

Water.—189 samples were collected from all parts of the City and at the water works, and examined for the presence of *bacillus coli.*

The results are described on page 125.

CONDITION OF PREMISES ON WHICH FOOD IS PREPARED.

Bakehouses.—The number of bakehouses in the City is 245, comprising 30 factories and 215 workshops.

These are systematically inspected, and are usually found to be maintained in good order in regard to lime-washing and other sanitary requirements.

As stated in previous reports, the "domestic" bakehouse, where the baking has to be carried out more or less in conjunction with the dwelling, is considered undesirable and is discouraged as far as possible. The

power, under a local Act, to prohibit the preparation or storage for sale of articles of food in any room used as a sleeping apartment is found to be most useful in this connection.

Restaurant Kitchens.—The number of kitchens of restaurants, cafés, and dining rooms in the City is 113. These continue to be regularly inspected, and any insanitary conditions noted and dealt with, particularly as to general cleanliness, limewashing, etc.

Fried Fish Shops.—The number of these has been increased from 127 to 137 during the year. The improvement in the methods of carrying on this business during recent years, and to which previous reference has been made, has been maintained, and little if any nuisance has been found to arise in connection with these shops.

Ice Creameries (including Retail Shops).—There are 200 of these on the Register (an increase of 53 during the year). All have been frequently visited, and, speaking generally, are found to be well kept and clean, although some of the lower class require close supervision.

Milk Shops.—At the close of the year there were 540 retail milk-shops in the City, including 32 belonging to 9 larger dairy companies. Of the total, 98 were shops in which only dairy products and like commodities were retailed, and 266 were shops selling other articles, whilst the remaining 176 were shops selling (usually in conjunction with other articles) a "purified" (sterilised) milk in stoppered bottles, put on the market during the year by a local firm. The total number of "general" milk-shops prior to the war was over 700. The fullest

possible use was made of powers under the Food Control Orders, however, to eliminate from the milk trade shops unsuitable for sanitary reasons, and this action is being continued under the Milk and Dairies (Amendment) Act, 1922.

W. HUDSPETH,
Inspector under the Sale of Food and Drug Acts, etc.

Health Department,
Town Hall,
14*th April*, 1923.

REPORT OF THE
SENIOR SANITARY INSPECTOR.

VI.—THE HOME AND THE WORKSHOP.

NUISANCES, HOUSING, FACTORIES AND
WORKSHOPS, Etc.

NUISANCES, HOUSING, FACTORIES AND WORKSHOPS, ETC.

The following is the

Report of the Senior Sanitary Inspector.

To the Medical Officer of Health.

Sir,

I beg to present to you my fifteenth report upon the work done in my section of the Health Department, viz., that for the year ended 31st December, 1922, which, together with the section on Food and Drugs Adulteration, etc., is as follows :—

NUISANCE ABATEMENT.

The anticipation of a return to more normal conditions and its influence upon the carrying out of sanitary alterations has been partially realised, resulting in further reductions in the cost of labour and materials, and the position in this respect is accordingly becoming somewhat easier.

Speaking generally, however, it is found that house property is not being maintained at a pre-war standard of repair. Owing to building costs, which are still high, and other economic considerations, there is a tendency on the part of many owners not to voluntarily carry out repairs as formerly, but to defer the work until official pressure is brought to bear. This is reflected in a greater call upon the time of the Inspectors.

Overcrowding and house shortage are still amongst the most pressing of sanitary problems, and the houses built have had no appreciable effect so far as the working class dwellings are concerned. Overcrowding throughout the City remains most acute, and until sufficient houses suitable for this class of tenant are available it is practically useless to attempt to deal with it.

Under the Increase of Rent and Mortgage Interest (Restrictions) Act, 1920, 13 applications were received from tenants for certificates that premises were not reasonably fit for habitation. In 10 instances certificates were granted, and in the remainder either requisite repairs were carried out or the conditions were not such as to warrant the issue of a certificate.

The following are the numbers of notices and letters issued during the year :—

Total number of notices served :—

Informal	7,138	
Statutory	190	
		7,328
Number of letters sent		2,290
Number of circular letters sent		1,358
Total		10,976

Magisterial Proceedings.—Notices served requiring the abatement of nuisances, etc., have again met with fairly ready compliance, legal proceedings having been rendered necessary in only 24 cases (involving four separate owners). This result is considered very satisfactory, having regard to increased costs and other exigencies of the times. For details see page 205.

THEATRES, MUSIC HALLS, AND OTHER PLACES OF PUBLIC ENTERTAINMENT.

Continued attention has been given to these places, in accordance with the Ministry of Health's circular letter on the subject. Up to the close of the year, there had been issued 82 certificates of sanitary fitness, these being now required by the Licensing Justices before granting or renewing licences. The action taken and consequent alterations carried out in many instances have resulted in considerably improved sanitary conditions both for artistes and public, which are being well maintained.

CONVERSION OF DRY CLOSETS.

136 privies have been removed and replaced by water-closets. Of this total, 72 were pail closets, 4 midden privies, and 60 " cell " privies (in the districts of Walker and Benwell). In addition, 42 " dry " ash-pits have been removed and replaced by portable galvanised iron dustbins. In this connection 188 free dustbins have been supplied during the year. With this exception, the entire cost of the alteration has been borne by the owners. Though the number dealt with is still greatly below the pre-war figure, this is due not to any lessening of the need for the work, but chiefly to the cost of labour and the high price of building materials.

RETURN OF "DRY" CLOSETS IN THE VARIOUS WARDS OF THE CITY.

WARDS.	Total No. Privies.	Pail Closets.	Cell Privies.	Privies and Ashpits.	
				Privies.	Ashpits.
St. Nicholas'	7	7	..	..	..
St. Thomas'	24	24	..	..	..
St. John's	52	52	..	..	..
Stephenson	14	14	..	..	..
Armstrong	7	7	..	..	..
Elswick	66	66	..	..	..
Westgate	11	11	..	..	..
Arthur's Hill	..	..	..	..	..
Benwell	89	..	86	3	2
Fenham	55	11	13	31	22
All Saints'	152	152	..	..	..
St. Andrew's	51	51	..	..	..
Jesmond	5	..	..	5	5
Dene	1	..	..	1	1
Heaton	32	25	..	7	7
Byker	874	874	..	..	..
St. Lawrence	1575	1572	..	3	3
St. Anthony's	590	572	..	18	17
Walker	939	..	890	49	33
Total in City	4,544	3,438	989	117	90

ATMOSPHERIC POLLUTION.

Smoke Inspections.—The following are particulars as to smoke observations made :—

No. of chimneys watched.	No. of observations 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 during one hour.	No. of times when smoke issued so as to be a nuisance.	No. of notices served for the abatement of smoke nuisances.		No. of Prosecutions.
				Informal.	Statutory	
93	631	15	17	17	2	..

Atmospheric Pollution Records.—An observation station, under the immediate control of the City Analyst, is placed on an open site in Davison's Yard, City Road, in connection with similar stations in other towns, the monthly results from all of which are compared and published by the National Committee for the Investigation of Atmospheric Pollution.

The monthly readings from the Newcastle station are appended :—

ATMOSPHERIC POLLUTION.—NEWCASTLE RECORDS, 1922.

Month.	Rainfall. (Millimetres.)	Metric Tons of Deposit per Square Kilometre per Month.								
		Insoluble Matter.			Soluble Matter.		Total Solids.	Included in Soluble Matter.		
		Tar.	Other Carbonaceous.	Ash.	Loss on Ignition.	Ash.		Sulphate as SO_3	Chlorine as Cl.	Ammonia as NH_3
January	68·8	0·41	9·92	7·70	2·20	4·82	25·05	1·98	1·35	0·27
February	46·7	0·39	3·62	4·73	1·21	2·24	12·19	1·20	0·50	0·12
March	38·4	0·37	2·42	3·97	1·23	2·54	10·53	1·02	0·46	0·11
April	41·5	0·45	5·67	8·08	1·74	2·41	18·35	1·28	0·34	0·04
May	23·9	0·24	3·63	5·89	0·76	1·63	12·15	0·78	0·22	0·07
June	33·7	0·46	3·76	8·08	1·42	2·36	16·08	1·03	0·33	0·13
July	109·0	0·15	3·72	5·83	1·53	3·05	14·28	1·72	0·43	0·16
August	58·4	0·82	2·86	5·23	1·40	3·27	13·58	1·52	0·33	0·13
September	85·4	0·30	3·89	7·47	1·71	3·58	16·95	1·90	0·43	0·17
October	46·2	0·37	4·29	5·41	1·66	3·61	15·34	1·52	0·62	0·08
November.....	16·2	0·30	3·57	4·31	0·58	1·75	10·51	0·88	0·11	0·04
December	74·6	0·10	3·34	3·82	1·64	2·54	11·44	1·48	0·87	0·16
Total, 12 months	642·8	4·36	50·69	70·52	17·08	33·80	176·45	16·31	5·99	1·48
Average per month	53·6	0·36	4·22	5·88	1·42	2·82	14·7	1·36	0·49	0·12

An average of 14·7 metric tons of total solids per square kilometre per month is equivalent to 14·11 *cwts. per acre per annum, or* 452 *tons per square mile.* This

is the lowest deposit since the observations were commenced in 1914. The fall in 1916 was equivalent to 694 *tons per square mile* (*the heaviest*).

OFFENSIVE TRADES.

The following offensive trades are carried on within the City :—

Specified in Section 112, Public Health Act, 1875 — Bone Boilers (4), Soap Boilers (2), Tripe Boilers (6).

Declared by Local Authority, confirmed by Local Government Board (in accordance with Section 51 Public Health Acts Amendment Act, 1907). — Rag and Bone Dealers (20), Dealers in Hides and Skins (4), Dealer in blood or other putrescible animal products (1), Fat Melters or Fat Extractors (3), Glue and Size Makers (2), Gut Scraper (2), Fish Friers (137).

As compared with the previous year, this is a decrease of 2 rag and bone dealers, whilst the number of fish friers has been increased by 10, and the gut scrapers by 1.

The premises in question continue to be kept under careful supervision in order to secure their maintenance in good sanitary order, and it is usually found that any nuisance incidental to the nature of the trade is reduced to a minimum.

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES WERE SERVED DURING 1922.

Foul privies and ashpits (to replace with water-closets)	3
Defective "cell" privies in Walker and Benwell (to replace with water-closets)	34
Foul pail-closets (to replace with water-closets)	200
Foul or defective ashpits not connected with privies (to remove and provide dust bins)	45
Insufficient water-closet or privy accommodation (additional water-closets ordered)	17
Defective or insufficient dust bins	1392
Defective water-closets	809
Defective pail-closets (to repair, provide new pails, etc.)	172
Defective waste-water closets (to replace with fresh-water closets)	9
Water-closets without water supply	170
Choked water-closets (mostly served on tenants)	121
Dirty water-closets (all served on tenants)	100
Dirty privies (all served on tenants)	12
Defective drains (to repair, or construct new drains)	162
Insufficient means of drainage	5
Choked drains, etc.	715
Defective or choked sinks, waste pipes, etc.	285
Defective or choked soil-pipes, vent shafts, etc.	35
Sink waste-pipes not trapped	6
Want of or defective pavement in yards and passages	174
Dirty rooms	91
Dirty bedding	3
Damp rooms	65
Overcrowding	58
Dirty yards, passages, stairs, etc.	202
Animals, pigeons, and fowls improperly kept	138
Offensive accumulations	94
Accumulations of manure	18
Want of or defective manure pits	5
Broken roofs and want of or defective or choked spouting	1208
Want of water	384
Smoke nuisances	2
Want of proper ventilation to rooms (including to floor space), broken window cords in tenements, etc.	265
Insufficient means of natural light to rooms	5
Structural defects in houses (broken plaster, floors, stairs, etc.)	839
Dirty cisterns supplying water to sinks, etc.	5
Slop water or excreta thrown into privy pails, ash-tubs or dustbins	2
Filth thrown on yards, streets, etc.	6
Stable (defective and unsuitable)	3
Piggery (defective and unsuitable)	2
Food manufactured or stored for sale under improper conditions	36
Bakehouses—Dirty, etc.	67
Council Schools—Latrines open to public resulting in nuisance being committed	1
,, ,, Insufficient dust bins	1
Cellar dwellings illegally occupied	7
Unclassified minor nuisances	62
TOTAL	8,035

DETAILS RELATING TO CERTAIN WORKS CARRIED OUT IN THE ABATEMENT OF NUISANCES AND TO INSPECTIONS MADE DURING 1922.

Length (in yards) of old drains removed	960
Length (in yards) of new drains constructed	1,356
New trapped gullies provided to drains	192
Combined privies and ash-pits removed — privies	4
Combined privies and ash-pits removed — ash-pits	3
"Cell" privies removed (in Walker and Benwell)	60
Pail-closets removed	72
Defective water-closets removed	35
Water-closets provided (in place of the foregoing privies and defective water-closets removed, also in 14 cases where the accommodation was previously insufficient)	176
Dry ash-pits removed and replaced by galvanised iron dust bins	42
Dust bins substituted for dry ash-pits where water-closets existed, and provided in cases where privies have been replaced by water-closets	‡188
No. of drains tested	534
No. of tests of above drains made by smoke and water	754
No. of inspections from complaints made at office (verbally or by letter)	2,008
No. of tenement inspections made	17,845
No. of contraventions of Tenement Bye-laws for which notices have been served to obtain remedy	§1,817
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	4,518
Inspections to learn if works ordered were in progress	12,715
Supervisions of work in progress	1,675
Common yards and courts in the worst localities specially visited on Friday afternoons and Saturday mornings to obtain weekly cleansing of same	29,961
Inspections after infectious disease	979
Inspections of milk shops and ice creameries (including retail shops)	1,260
,, bakehouses	† 1010
,, offensive trades	741
,, wholesale margarine warehouses	80
,, as to limewashing of tenements	4,640
,, of schools	150
,, under Housing, Town Planning, etc., Acts	390
Miscellaneous Visits	2,039

‡ Free dust bins given by Corporation in each case.

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

† Including 585 inspections made under the Factory and Workshop Acts by the Assistant Inspectors of Workshops.

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC., DURING THE YEAR 1922.

NATURE OF COMPLAINT.	No of Cases.	RESULT.	
		Work done and Nuisances abated without the Summonses being applied for.	OTHERWISE DISPOSED OF.
Public Health Acts :— Defective drains.	2	1	In 1 case a summons was issued, and afterwards withdrawn on the work being carried out.
Defective roofs and spouting, causing dampness.	9	7	In 2 cases summonses were issued and afterwards withdrawn on the work being carried out.
Soil pipe ventilator defective and not continued above eaves	1	..	Summons issued, and Magistrates' Order obtained for the carrying out of the work in 14 days. This being uncomplied with, a daily penalty of 5s. was imposed. Work subsequently carried out by Corporation and cost recovered from owner.
Scullery sink waste pipe defective	1	1	
Woodwork of scullery sink defective, saturated, and foul	1	1	
Yard pavement defective	4	1	In 2 instances summonses were issued and afterwards withdrawn on the work being carried out. In the remaining case a summons was issued and a Magistrates' Order obtained for the execution of the work within 14 days. This being uncomplied with, a daily penalty of 5s. was imposed. Work subsequently carried out by Corporation, and cost recovered from owner.
Factory chimney sending forth black smoke in such quantity as to be a nuisance	1	1	
Defects in Workshops :— Chimney flue obstructed or defective (not efficiently conveying products of combustion from gas-stove).	1	1	
Carried forward	20	13	7

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC., DURING THE YEAR 1922.—*continued.*

NATURE OF COMPLAINT.	No. of Cases.	RESULT.	
		Work done and Nuisances abated without the Summonses being applied for.	OTHERWISE DISPOSED OF.
Brought forward	20	13	7
Defects in Workshops :—continued—			
Workroom overcrowded	1	1	
Workrooms dirty	2	2	
Sink waste pipe choked	1	1	
Roof defective	1	1	
Public Health Act, 1875, *Sec.* 36, *and Newcastle-upon-Tyne Improvement Act*, 1892, *Sec.* 53 :—			
Houses without sufficient water closets ; (defective W.C.'s to be repaired, furnished with adequate water supply, etc.)	2	2	
Foul privies (pail-closets, " cell " privies, etc., to be replaced by water-closets)	23	6	In 17 instances (3 different owners) summones were issued and afterwards withdrawn on the work being carried out.
Newcastle-upon-Tyne Corporation Act, 1911, *Sec.* 55 :—			
Want of proper dust bins for storage of house refuse	5	5	
TOTAL	55	31	24

HOUSING.

That the problem of finding houses is by no means less acute than in previous years is shown by the following return :—

CITY ENGINEER'S CENSUS OF UNOCCUPIED HOUSES.

Class of House.	Nov., 1912	Aug., 1914	Nov., 1917	Nov., 1918	Nov., 1919	Nov., 1920	Nov., 1921	Nov., 1922
Self-contained	306	137	40	29	43	39	57	93
Flats (each Flat counted as a separate dwelling).....	903	75	..	..	1	4	11	35
House and Shop combined..	68	29	1	2	..	..	4	9
Tenemented Houses	28	3	..	..	..	..	1	..
Total	1,305	244	41	31	44	43	73	137

Effect of Bad Housing.—Reference has already been made to the effect of bad housing and overcrowding upon the public health. It is of interest to summarise some of the points. Speaking generally, the Wards with the highest populations per acre have also the highest death rates. The converse does not always hold, as some Wards, such as Walker, may have small densely-packed areas scattered about among wide stretches of open space or farm land. The rates in these will be relatively high. But where the dwellings are evenly distributed and in good sanitary condition, and the population on area is low, the death rate is also low.

Thus the highest death rates from all causes are in All Saints' Ward (20·3), and St. John's Ward (18·0), and the lowest in Dene and Fenham Wards (9·1 and 11·1 respectively), which occupy respectively also the opposite ends of the scale in regard to quality of housing, and density of population (see table on page 56).

Similarly infantile mortality generally follows the same rule, and the Wards with the highest wastage of child life are again the most crowded ones. Thus All Saints' Ward had an infantile mortality rate of 131 deaths per 1,000 births, Elswick 128, and St. John's 117, as compared with rates of 45 and 50 in Dene and Arthur's Hill Wards respectively.

Over a period of fifteen years, the deaths per 1,000 births in one room, two room, and three room houses have been respectively 147, 123 and 105, and in the year under report were 130, 106 and 72.

In the case of tuberculosis one sees again the influence of congestion and bad houses in the fact that the highest mortality for the year was in All Saints' (2·91), Byker (2·00), St. John's (1·97), St. Anthony's (1·91), while the lowest incidence occurred in Jesmond (0·46) and Dene (0·62).

Again, about 28 per cent. of the population live in one and two room-houses, yet nearly 39 per cent. of the deaths from consumption were among these.

The Housing, Town Planning, etc., Acts.

Under these Acts 390 visits have been made by the Inspectors during the year.

Housing.

MINISTRY OF HEALTH TABLE.

YEARS ENDED 31ST DECEMBER, 1921 & 1922.

	1922	1921
Number of new houses erected during the year.....		
(*a*) Total	523	305
(*b*) As part of a municipal housing scheme.....	464	276
I.—UNFIT DWELLING-HOUSES.		
Inspection :—		
(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts).....	2892	3467
(2) Number of dwelling-houses which were inspected and recorded under the Housing (Inspection of District) Regulations, 1910	471	625
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation.....	*61	27
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-heading) found not to be in all respects reasonably fit for human habitation.....	1765	1982
II.—Remedy of Defects without service of Formal Notices :—		
Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers	102	66
III.—Action under Statutory Powers :—		
(*a*) *Proceedings under section* 28 *of the Housing, Town Planning, etc., Act,* 1919 :—		
(1) Number of dwelling-houses in respect of which notices were served requiring repairs.....	197	243
(2) Number of dwelling-houses which were rendered fit :—		
(*a*) By owners	194	236
(*b*) By Local Authority in default of Owners.	..	..
(3) Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close.	..	..
(*b*) *Proceedings under Public Health Acts :—*		
(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied.....	1466	1673
(2) Number of dwelling-houses in which defects were remedied :—		
(*a*) By owners	1422	1673
(*b*) By Local Authority in default of owners.....	..	..

* No houses were dealt with under the Newcastle Improvement Act, 1882, Section 32.

MINISTRY OF HEALTH TABLE—*continued.*

YEARS ENDED 31ST DECEMBER, 1921 & 1922.

	1922	1921
(c) *Proceedings under Sections* 17 *and* 18 *of the Housing, Town Planning, etc., Act,* 1909 :—		
(1) Number of representations made with a view to the making of Closing Orders	..	..
(2) Number of dwelling-houses in respect of which Closing Orders were made	..	..
(3) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-house having been rendered fit	..	..
(4) Number of dwelling-houses in respect of which Demolition Orders were made	..	..
(5) Number of dwelling-houses demolished in pursuance of Demolition Orders	..	..
3.—UNHEALTHY AREAS.		
A comprehensive report on housing areas has been prepared, but is held over until circumstances render it possible to deal with insanitary areas.		

The Newcastle-upon-Tyne Improvement Act, 1882, Section 32.

No houses were dealt with under this Section during 1922.

Houses Demolished, etc.—Two tenemented houses and parts of three others comprising nine holdings (13 rooms), also two houses (four flats) have now ceased to be used as dwellings, having been converted to business premises, etc.

Houses built during the Year 1922.—The City Engineer reports that there were 59 self-contained houses built privately during the year under report. In addition, 464 dwellings were provided under housing schemes.

Tenemented Houses.—The number of tenemented houses in the City is 3,499, containing 9,900 holdings, as follows :—

1 Room.	2 Rooms.	3 Rooms.	4 Rooms.	5 Rooms.	Total.
3,305	5,415	1,066	111	3	9,900

Customs and Inland Revenue Act, 1890, Sec, 26 (2).—No applications for certificates under this Act were received.

New Buildings and Sanitary Alterations.—339 plans were examined by the Medical Officer of Health before their submission to the Town Improvement and Streets Committee and, where necessary, suggestions forwarded to the City Engineer for his consideration, as compared with 224 during the previous year.

COMMON LODGING HOUSES.

The number of registered common lodging houses in the City at the end of the year was 47, as against 48 at the close of 1921.

At the beginning of 1922, applications were received for the re-registration of 48 houses, in accordance with the requirements of the Newcastle-upon-Tyne Corporation Act, 1911, registration being renewed in all but one instance up to the end of the year. This concerned one of the older houses, the re-registration of which was declined by the Sanitary Committee owing to the dilapidated and insanitary state of the premises, which were accordingly removed from the Register.

The houses generally have been well conducted, and the requirements of the Bye-laws duly observed.

In one instance the house got into a somewhat neglected condition owing to the illness of the keeper.

The case was brought before the Sanitary Committee, and, after a final caution, considerable improvement was effected, which has since been maintained.

The remarks previously made as to the bad structural condition of some of the older houses, particularly in the Quayside area, still apply.

The number of common lodging houses accommodating women (including those for "married couples"), at the close of the year was 10, all of which are situate in the neighbourhood referred to.

The Sanitary Committee, in June last, decided that no girl under the age of 19 years, unaccompanied by parent or guardian, should be admitted into any common lodging house run for profit, and that this should be made a condition upon which future registration would be granted.

This restriction has since been found to be strictly observed.

Throughout the year the accommodation afforded by the common lodging houses has always been well in excess of the demand.

The following summary shows in detail the accommodation as at the end of the year :—

Description of Lodgers.	No. of			Accommodation.			
	Houses.	Single Beds	Double Beds	Married Couples	Single Women	Single Men	Total.
Married couples and single women ...	2	23	12	12	23	..	47
Single women and single men	1	43	..	..	15	28	43
Single men, single women and married couples .	4	159	29	29	69	90	217
Women only	3	64	..	..	64	..	64
Men only	37	1198	12	..	..	1222	1222
	47	1487	53	41 (82 persons)	171	1340	1593

The total number of lodgers for which the houses were registered was thus 1,593, as against 1,626 at the close of 1921 (a decrease of 33 in the total accommodation), due to the removal of the house already referred to, and the addition of 7 beds in one of the others. The average number of lodgers per night was 1,318, the highest and lowest numbers on any one night being 1,424 and 1,230 respectively.

REGISTERED COMMON LODGING HOUSES.

SUMMARY OF WORK DONE AND VISITS MADE DURING THE YEAR 1922.

Number of Houses on the register at the end of the year	47
Applications for re-registration (Newcastle Corporation Act, 1911, Sec. 63); 47 granted; 1 refused	48
Inspections made in the day-time	6,113
Inspections made in the night-time	526
Notices served { *re* washing of bed clothes, 190 / *re* limewashing of houses 95 }	285
Contravention of Bye-laws, etc. :—	
Cleaning and ventilation of houses	3
Dirty yards and conveniences	3
Beds not properly "aired" during prescribed hours	6
Slop water not emptied as required	2
Bedding defective	10
Structural defects in houses	13
Defective water-closets	13
Defective roofs and spouting	15
Insufficient ventilation to rooms (broken window cords,.etc.)	3
Sink wastepipe defective	1
Choked W.C.'s and drains	2
Want of water supply (to W.C., 1; for domestic use, 1)	2
Accumulation of refuse	4
Insufficient accommodation for personal ablution	1
Unclassified minor nuisances or defects	2
Number of prosecutions	None
Deaths reported (non-infectious disease)	2
Cases of infectious disease reported (tuberculosis 10, scarlet fever 1)	11

FACTORIES AND WORKSHOPS.

Factory and Workshop Acts.—There are on the Register 1,281 workshops, besides a large number of domestic workshops, workplaces, laundries, and bake-houses.

Particulars as to the number and nature of the various trades carried on, the number of inspections made, defects found, outworkers, etc., are given in the following Tables.

During the year, 83 lists of outworkers have been received, 32 employers having sent in lists twice, and 19 employers once.

Included in the lists so received were 30 names and addresses of outworkers employed outside the City, (which were duly forwarded to the respective districts, as required by law), while 2 of the lists were received from firms in other districts employing as outworkers persons resident in Newcastle.

134 notices as to insanitary conditions in factories and workshops have been received from His Majesty's Inspectors of Factories; 34 of these related to factories, and 100 to workshops. The matters referred to were duly investigated and dealt with by service of notice, etc., the results being reported to the Inspectors of Factories as required by the Act.

ADMINISTRATION OF THE FACTORY AND WORKSHOP ACT, 1901, IN CONNECTION WITH FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK, DURING THE YEAR 1922.

Home Office Tables.

1.—INSPECTION.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS.

PREMISES. (1)	NUMBER OF		
	Inspections. (2)	Written Notices. (3)	Prosecutions. (4)
Factories (Including Factory Laundries.)	198	646	..
Workshops (Including Workshop Laundries.)	7,850		
Workplaces (Other than Outworkers' premises included in Part 3 of this Report.)	678		
Total	8,726	646	..

2.—DEFECTS FOUND.

Particulars.	Number of Defects.			Number of Prosecutions.
	Found.	Remedied.	Referred to H.M. Inspector.	
(1)	(2)	(3)	(4)	(5)
*Nuisances under the Public Health Acts :—				
Want of cleanliness	304	304	..	..
Want of ventilation	31	31	..	..
Overcrowding	5	5	..	..
Want of drainage of floors	..	..	..	..
Other nuisances	98	95	..	..
†Sanitary accommodation (insufficient	51	50	..	..
†Sanitary accommodation (unsuitable or defective	93	93	..	..
†Sanitary accommodation (not separate for sexes	21	21	..	..
*Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (s. 101)	..	..	..	..
Breach of special sanitary requirements for bakehouses (ss. 97 to 100)	93	93	..	..
Other offences (Excluding offences relating to outwork which are included in Part 3 of this Report.)	..	..	1	..
Total	696	692	1	..

* Including those specified in sections 2, 3, 7 and 8 of the Factory and Workshop Act as remediable under the Public Health Acts.

† Sec. 22 of the Public Health Acts Amendment Act, 1890, is in force. The standard fixed by the Sanitary accommodation Order (No. 89) of 4th February, 1903, is followed as a model.

FACTORY AND WORKSHOP ACTS—*continued.*

3.—HOME WORK.

Nature of Work.	Outworkers' Lists, Section 107.									Outwork in Unwholesome Premises, Section 108.			Outwork in Infected Premises, Sections 109, 110.		
	Lists received from Employers.						Notices served on Occupiers as to keeping or sending Lists.	Prosecutions.							
	Twice in the Year.			Once in the Year.				Failing to keep, or permit inspection of Lists.	Failing to send Lists.	Instances.	Notices served.	Prosecutions.	Instances.	Orders made (Section 110).	Prosecutions (Sections 109, 110.)
	Lists.†	Outworkers.†		Lists.	Outworkers.										
		Contractors	Workmen.		Contractors	Workmen.									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Wearing Apparel Making, etc. ..	64	24	163	19	13	29	§ 54	§ Nil.	§ Nil.	3	* 3	Nil.	‡ 2	Nil.	Nil.
Cabinetmaking, Upholstery, &c..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Total	64	24	164	19	13	29	54	..	..	3	3	..	2	..	..

Notes.—† The figures in columns (2), (3), and (4) are the total number of lists (received from employers who sent them both in February and August as required by the Act) and of the entries of names of outworkers in those lists. They are, therefore, double of the number of such employers and (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name is often repeated.

Columns (3), (4), (6), and (7)—Employers seldom state whether their Outworkers are "Contractors" or "Workmen," hence the numbers given above may not be properly divided.

§ In 42 of these cases the lists of outworkers were not received in the month of February or August as required by the Act, but in every case they were subsequently received on the employers being reminded of their default. In the remaining 12 cases (of failing to keep or permit inspections of lists of outworkers) notice was also given and complied with.

* In each case the Notice was served upon the Outworker, and was duly complied with.

‡ Patients removed to Hospital and disinfection carried out, no formal order made.

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year. (1)	Number. (2)
Workshops	1,281
Domestic Workshops	233
Workplaces	274
Laundries	28
Bakehouses	215*
Total	2,031

* Also 30 "Factory" Bakehouses.

5.—OTHER MATTERS.

Class. (1)		Number. (2)
Matters notified to H.M. Inspector of Factories :—		
Failure to affix Abstract of the Factory and Workshop Act (sec. 133)		15
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5).	Notified by H.M. Inspectors	134
	Reports (of action taken) sent to H.M. Inspectors	134
Other :—		
Underground Bakehouses (s. 101) :—		
Certificates granted during the year		..
In use at the end of the year		8

6.—TRADES.

Particulars as to the number and nature of the various trades carried on in the workshops of the City.

Trades.	Workshops.	Domestic Workshops.	Workplaces.
Ærated Water Manufacturers, Beer bottling, etc.	7	..	9
Artificial Stone, Asphalt, Bitumen Solution, Enamel and Cement making	4	..	..
Athletic Outfitters	4	..	..
Bacon Washing	10	..	..
Bags, Baskets, Trunks, Brushes (making and repairing)	14	3	..
Bakehouses	215	..	..
Bouquet and Wreath making	15	..	..
Bedstead, Bedding and Mattress making	1	1	6
Boat and Bicycle making and repairing	31	6	..
Blacksmiths and Locksmiths	44	..	..
Carried forward	345	10	15

6.—TRADES.—*continued.*

TRADES.	Work-shops.	Domestic Work-shops.	Work-places.
Brought forward	345	10	15
Boots, Shoes, Slippers (making and repairing)	163	29	..
Carts, Carriages, Coaches, Barrows (making and repairing)	12	..	7
Carpet, Canvas, Water Proof Cover making ..	6	..	..
Chemical Works	2	..	..
Confectionery making	4	1	..
Coopers	6	..	..
Cork Cutters	2	..	..
Currants and other Fruit, packing and cleaning	4	..	..
Cigarette making and Pipe making and repairing	3	..	..
Dressmaking, Milliners, and Mantle Makers...	222	104	..
Drysalters	4	..	..
Engravers	5	..	..
Engineers, Electric Heating and Cooking, etc.	24	..	..
Firewood Cutting and Firelighter Makers....	4	..	1
Fish Curers	3	..	..
Furniture, Automatic Seats, French Polishing and Upholstery	55	4	..
Grain, Ice, Meat, Onions, Oil, packing and storage	..	..	24
Harness making and repairing	12	..	..
Hide and Skin Dealers	..	..	4
Instruments—Mathematical, Musical, etc. (making and repairing)	6	..	..
Jewellery, Watches, Clocks (making and repairing)	52	7	..
Joiners, Handrailers, Ladder Makers, and Wood Carvers and Turners.....	72	6	..
Lamp making and repairing	1	..	..
Laundries.....	28	..	..
Marble Masons and Monumental Sculptors ..	9	..	..
Marine Stores	15	..	28
Miscellaneous Warehouses and Workshops, (which include repairing umbrellas and guns, preparing cattle food and medicine, dressing leather, packing eggs, lard rendering and gut scraping)	29	3	36
Painters' Workshops, and making and bottling Paint and Varnish	22	..	..
Photographers.....	23	3	..
Pickle and Sauce making	10	1	..
Picture Framers and Gilders	11	..	..
Plasterers, Lath rending	3	..	..
Plumbers, Gas Fitters and making and repairing Sanitary Pipes and Fittings	65	3	1
Restaurant kitchens.....	..	..	113
Rubber Stamps and Tyres (making and repairing	2	..	..
Carried forward	1,224	171	229

6.—TRADES—*continued.*

TRADES.	Work-shops.	Domestic Work-shops.	Work-places.
Brought forward	1,224	171	229
Scales, Weighing Machines and Sewing Machines (making and repairing)	8	..	..
Sign Boards, Sun and Venetian Blind (making and repairing).....	4	..	..
Stained Glass making	5	..	..
Stables (Livery, etc.)	..	..	34
Tailors	213	41	..
Taxidermists, Fur pulling and cleaning.....	6	..	..
Tea Blending and Packing	5	..	..
Ticket Writers	7	1	..
Timber Yards	..	..	11
Tin, Iron Plate and Wire Workers.....	14	1	..
Tripe Dressers	6	..	..
Typewriting Machines (repairing)	4	..	..
Underclothing (making)	28	19	..
Totals	1,524	233	274

COUNCIL AND OTHER SCHOOLS.

Sanitary Inspections.—150 inspections of these schools have been made during the year. At 2 certain insanitary conditions were found. (For particulars see page 203). The matters in question were duly reported to the school authorities, and, have since been remedied.

THE RAG FLOCK ACT, 1911.

In pursuance of this Act, 6 samples of rag flock have been obtained and submitted for analysis to the Public Analyst. These were certified to contain respectively 18, 30, 18, 23, 32, and 342 parts of chlorine per 100,000 of flock. Three therefore conformed to the standard of cleanliness laid down by the Regulations (which permit 30 parts of chlorine), 1 reached precisely to the maximal limit, and 1 was just over, whilst the

remaining sample greatly exceeded the prescribed limit. In the latter instance, the firm concerned was summoned and fined £2.

For particulars of work done under the *Food and Drugs Acts*, see pages 189-191A.

Having completed 42 years in the Health Department, I am retiring from the service of the Corporation as from the 21st April, 1923, and desire to take this opportunity of expressing to the Chairman and members of the Health Committee my grateful thanks for their invariable kindness and consideration and for their ready support of any proposal put before them which had for its object improved sanitary conditions in one particular or another. To you, Sir, I am deeply indebted for your invaluable assistance, counsel and collaboration in all matters incidental to the carrying out of the duties appertaining to my office, and to every member of the Health Department staff for their loyal co-operation by the efficient discharge of the various duties entrusted to them.

After so long a period, it is with no little regret that I am about to sever my official connection with the City Council, the Health Committee, yourself, and my colleagues both in the Health Department and generally throughout the service of the Corporation, to all of whom I would convey my sincere wishes for a continuance of that harmony which has characterised my association with them.

I am, Sir,

Your obedient servant,

W. HUDSPETH,

Senior Sanitary Inspector,

Inspector of Common Lodging Houses, etc.

Health Department,
Town Hall,
14*th April*, 1923.