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Contributors

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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

1931.

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Members of Council who served on the

HEALTH COMMITTEE.

Councillor R. W. Simpson, M.B., Ch.B., Chairman (to November).

Alderman David Adams, J.P., Vice-Chairman (Elected Chairman in November).

Councillor Walter Thompson (Elected Vice-Chairman in November).

The Lord Mayor (Councillor J. G. Nixon, Junr., J.P.).

Alderman J. J. Forster, J.P.

„ Walter Lee, J.P.

„ J. Chapman, J.P.

Councillor Catherine A. Auld, J.P.

„ W. C. Percival, J.P.

„ H. Moat, Junr.

„ A. Louvre.

„ J. Pearson.

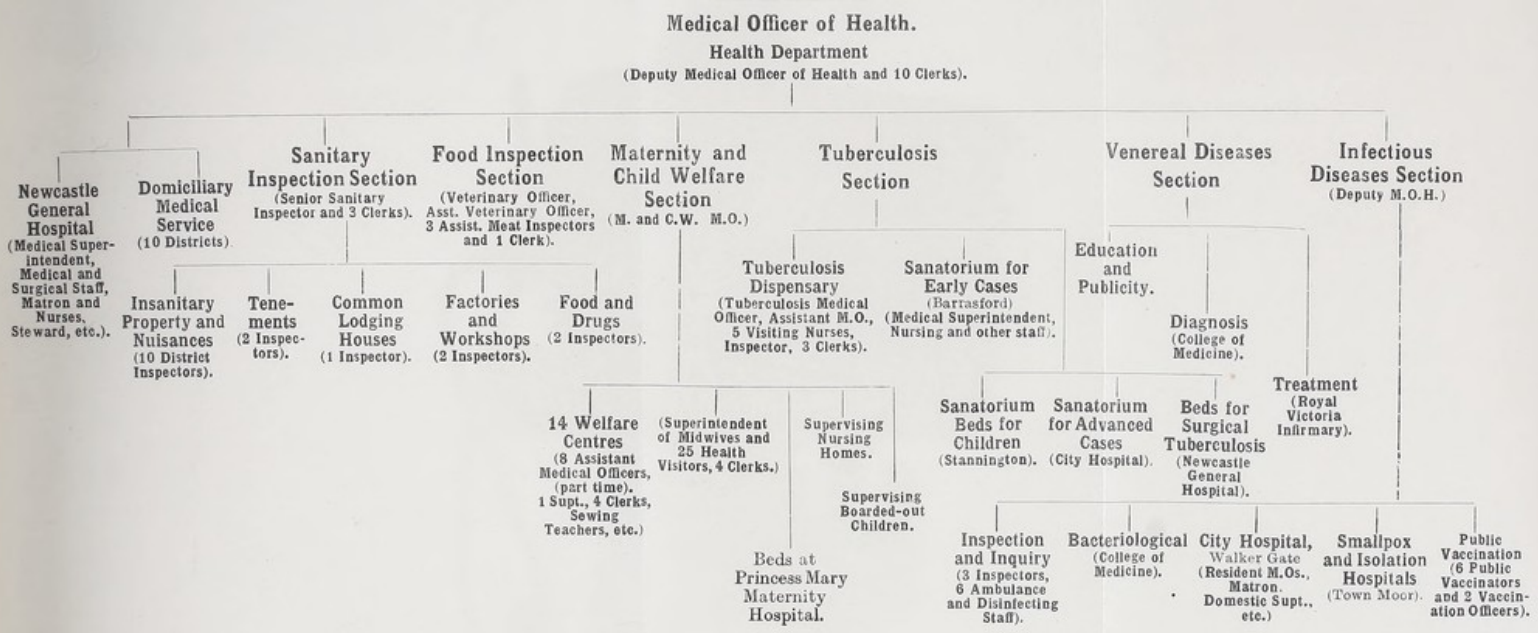
Councillor May Newton.

„ J. E. Scanlan, O.B.E., J.P.

„ J. Leadbitter, J.P.

„ D. Polson.

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



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MATERNITY AND CHILD WELFARE COMMITTEE.

---

*Alderman JOHN CHAPMAN, J.P., Chairman.

*Councillor CATHERINE A. AULD, J.P., Vice-Chairman.

*Alderman DAVID ADAMS, J.P.

*Councillor	R. W. SIMPSON, M.B., Ch.B.		†Dr. R. P. RANKEN LYLE.		
*	,,	WALTER THOMPSON.	†Miss G. ROWELL.		
*	,,	H. MOAT, Junr.	†Mrs. E. I. LEACH.		
*	,,	J. E. SCANLAN, O.B.E., J.P.	‡Councillor JEANIE L. GIBBIN, O.B.E., J.P.		
*	,,	MAY NEWTON.	‡	,,	CATH. A. LOCKE.
*	,,	D. POLSON.	‡	,,	FRANCES E. TAYLOR.

* Member of the Health Committee.

† Co-opted member.

‡ Appointed by City Council.

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.

J. A. CHARLES, M.D., B.S., M.R.C.P., D.P.H., Deputy Medical Officer of Health.

CHRISTOPHER RAIMES, Senior Sanitary Inspector.

JAS. MCNICHOL, Chief Assistant Inspector and Assistant Workshops Inspector.

ISAAC CLARK, Assistant Workshops Inspector.

JAS. HUNTER and A. KIRSOP, Assistant Inspectors under the Food and Drugs Acts.

W. F. BACON, JAS. MCKENDRY, L. W. JOHNSON, THOS. HESLOP (died December), WM. GRAY, WM. E. PERKINS, J. BROWN, W. STEWART, M. SWALES, E. G. WINGATE (resigned March), A. FRENCH, District Inspectors.

F. GALTON, L. WADE, Tenement Inspectors.

ADAM FLOCKHART, Assistant Inspector of Common Lodging Houses.

WM. BEAN, J. H. MACADAM (resigned August), W. A. PILSON, H. W. GREAVES (appointed August), Infectious Diseases Inspectors.

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

WM. MILNE, *GEO. CUTHBERTSON, *ALFRED HEDLEY, M.S.M., *ALEC. M. WALKER, JOS. GILHESPY, H. G. OLIVER, *ROBT. LAWSON, *D. MACPHERSON, *R. DOBBIN, H. G. COATES, F. PELLATT, L. SMALLEY (appointed June), IVY GOODHALL (Typist), Clerks in the Health Department.

Those marked * hold the Certificate of the Royal Sanitary Institute.

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

H. THORNTON, M.R.C.V.S., B.V.SC., D.V.H., Assistant Veterinary Inspector.

JAS. M. ANDERSON, W. COCKBURN, GEO. PHILLIPS, 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.

f CATHERINE M. THEXTON†, **b** MARION MOODY*, **c** LIZZIE ISA PRITCHARD, **c** LOUISE SHELL, **d** FLORENCE MARTHA HATFIELD*, **d** HILDA MORTON* (resigned June), **d** NORAH B. WILLSON*, **b** E. HISCO*, **b** E. JOHNSON*, **b** N. E. CARR*, **b** T. MASON*, **b** E. M. HASTIE*, **b** C. R. WORRALL*, **b** N. LEWIS*, **b** M. A. SIMPSON*, **b** M. L. NICHOLSON* (resigned April), **b** N. THOMPSON*, **g** C. N. PHILLIPS, **d** M. TAYLOR, **b** D. A. ATKINSON, **b** M. BATTY, **b** A. CRAGGS, **b** M. W. LAING, **b** P. E. PEARSE, **b** R. ROXBY, **b** M. SCORER, **b** E. G. SAYER, **b** L. YOUELL, Health Visitors. EDITH ROGERS, AMY RODGERS, MARION S. BATT, ALICE FENWICK, Clerks.

(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. **f** C.M.B., Fever Nursing and R.S.I. **g** C.M.B.).

* State Registered Nurse. † State Registered Fever Nurse.

ANNIE G. BAINBRIDGE, Superintendent of Welfare Centres.

GLADYS PATTISON, IRENE GAWMAN, CATH. BARNES, MARY E. MUSE, Clerks.

H. GLEN DAVISON, M.D.
L. MABEL R. CAMPBELL, M.B., Ch.B.
H. HARVEY EVERS, M.B., F.R.C.S.
OLGA ALCOCK, M.B., B.S.
ISABELLA LANE, M.B., Ch.B.
GERTRUDE H. G. HICKLING, M.D. Ch.B., B.SC., D.P.H.
C. N. ARMSTRONG, M.B., B.S., M.R.C.P., B.Hy., D.P.H.
A. G. OGILVIE, M.B. B.S., M.R.C.P.

} Assistant Medical Officers (part time) Welfare Centres.

G. HURRELL, M.D., B.S., B.Hy., D.P.H., Tuberculosis Medical Officer.

J. B. TILLEY, M.B., B.S., Assistant Tuberculosis Medical Officer.

WM. H. DICKINSON, O.B.E., M.D., Ch.B., M.R.C.P.(Ed.), D.P.H., Tuberculosis Medical Officer (part time).

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

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

* State Registered Nurse.

A. TAYLOR, Assistant Inspector.

GEO. MAGNAY, PAMELA E. THORATT, GERTRUDE GILLENDER, Clerks.

BARRASFORD SANATORIUM.

C. G. R. GOODWIN, M.R.C.S., L.R.C.P., Medical Superintendent.

FRANCES BAGULEY, A.R.R.C., Matron. Sister, Nurses, Servants.

CITY HOSPITAL FOR INFECTIOUS DISEASES.

E. PORTEUS, M.B., B.S., D.P.H., Resident Medical Assistant (died May).

E. F. DAWSON-WALKER, M.D., B.S., B.Hy., D.P.H., Resident Medical Assistant, (Appointed Assistant M.O.H. in June).

B. A. DORMER, M.B., B.S., B.Hy., D.P.H., Resident Medical Assistant.

W. FRANK WILSON, M.B., B.S., Consulting Oto-Rhinologist.

J. L. WATT, Matron.

A. M. STEEDE, Domestic Superintendent.

JESSIE LAING, Assistant Matron. Sisters, Nurses, Clerks, Domestic Staff.

M. BURRILL, Dispenser.

GEO. COCKBURN, Engineer.

J. SAUNDERSON, Assistant Engineer.

Lodge Keepers, Firemen, Porters, Gardeners, Joiner and Handyman.

SMALLPOX AND ISOLATION HOSPITALS.

JOS. W. and JANE STEPHENSON, MATTHEW and ISABELLA ROBSON, Caretakers.

NEWCASTLE GENERAL HOSPITAL.

G. P. HARLAN, M.D., Ch.B., B.Hy., D.P.H., Medical Superintendent.

G. F. DUGGAN, M.B., B.Ch., B.A.O., F.R.C.S., Deputy Medical Superintendent.

H. C. BECK, M.B., B.S., Resident Medical Officer (resigned February).

JAMES COOK, L.R.C.P., L.R.C.S. (Edin.), F.R.C.S. (Edin.), Resident House Physician (appointed March).

JUNIOR RESIDENT HOUSE PHYSICIANS AND SURGEONS (5).

A. BARON, Matron.

S. LAKE and M. C. TAYLOR, Assistant Matrons. Sisters, Nurses, Domestic Staff.

N. M. SHELSTON, Dispenser.

JAMES MATTHEWS, Steward. Ambulance Drivers, Porters, Male Nurses, Clerks.

CONSULTING STAFF.

THOMAS BEATTIE, M.D., B.S., F.R.C.P., Medical Director.

JOHN CLAY, M.B., B.S., F.R.C.S., Surgical Director.

S. W. DAVIDSON, M.D., B.S., M.R.C.P., Radiologist.

J. C. STEWART, M.S., F.R.C.S., Assistant Surgeon.

W. H. DICKINSON, O.B.E., M.D., Ch.B., M.R.C.P.(Ed.), D.P.H., Consultant Physician (resigned September).

W. E. WARDILL, M.B., B.S., F.R.C.S., Deputy Assistant Surgeon.

A. MACRAE, M.A., M.D., Ch.B., D.O.M.S., Consultant, Diseases of the Eye.

D. R. McGREGOR, B.SC., M.B., Ch.B., D.L.O., (R.C.P.S.), Consultant, Throat, Nose and Ear.

F. J. NATTRASS, M.B., B.S., F.R.C.P., Assistant Physician (appointed September).

DISTRICT MEDICAL OFFICERS

DR. R. L. BELL, DR. J. MACRAE, DR. G. D. NEWTON (resigned May), DR. FRANK HAWTHORN (died November), DR. E. P. TULLOH, DR. W. SIMPSON, DR. R. W. NEVIN, DR. W. T. HALL, DR. T. J. RYAN, DR. J. B. SINSON (appointed May).

PUBLIC VACCINATORS AND VACCINATION OFFICERS.

DR. J. MACRAE, DR. RICHARD DAGGER, DR. T. J. RYAN, DR. FRANK HAWTHORN (died November), DR. A. M. PATERSON, DR. G. D. NEWTON, DR. G. P. HARLAN (Newcastle General Hospital).

VACCINATION OFFICERS—EASTERN—W. H. F. GARRETT.
WESTERN—W. W. CUMMINGS.

To Alderman DAVID ADAMS, J.P., Chairman of the Health Committee of the Corporation of Newcastle upon Tyne.

SIR,

The year 1931 showed even greater depression in industry than in living memory. Shipbuilding was extraordinarily depressed, involving unemployment in what is normally the principal source of employment of the working classes. The coal trade also continued to show excessive decline, the Northern coalfields suffering severely from foreign opposition, assisted by the lower prices made possible abroad by their cheap labour, and also in the support rendered in some countries by State subsidies. Business generally has been very bad indeed, while imperial taxation has also acted as a further handicap to additional effort.

Meanwhile the "cost of living" figure fell five points during 1931, from 53 per cent. above the pre-war rate to 48 points over it.

According to the information kindly supplied by the Manager of the Labour Exchange, male unemployment increased from 21,333 in January to 27,499 in December. Female unemployment decreased slowly from 4,070 in January to 3,256 in December. In this City, however, employment among women is relatively small.

Relief paid out by the Public Assistance Committee amounted for the year ending 31st March, 1931, to £227,219, as against £310,331 in 1930 and £336,601 in 1929.

The hospitals and other charities in the City are very hard hit, and are in great need of increased support. An attempt was made to establish a Contributory

Fund for Northumberland and Durham entitling contributors of a small sum to hospital treatment for themselves and families. This scheme was decided against. Although contributory schemes of varying kinds at present exist for some of the principal hospitals in the counties, negotiations to arrange a contributory fund for this area have so far not come to fruition. The general tendency to consolidation of schemes for a natural hospital area as seen in Birmingham, and more particularly on Merseyside, is evident, and no doubt in course of time the necessity for reciprocal arrangements between municipal hospitals and voluntary hospitals will increase the number of such schemes.

Road accidents impose a considerable burden upon the hospitals, little or no contribution being received on account of them.

CLIMATE.—So far as the weather was concerned 1931 proved most unfortunate. The winter was relatively open, but the summer was exceedingly wet and cold. From September until the end of the year ensued a fine spell which made considerable amends for the appalling summer.

Sunshine Records were maintained by Professor G. W. Todd at Armstrong College, and by Professor J. A. Hanley at Cockle Park, just beyond Morpeth. At Armstrong College there were 1,142 hours of sunshine as compared with 1,076 hours in the previous year, while at Cockle Park there were 1,297 hours, as compared with 1,323 in 1930. The City therefore had about nine-tenths of the sunshine that penetrated into the surrounding country districts. During the greater part of the year, however, in Newcastle heavy clouds prevented the sunshine from getting through in the City as at Cockle Park.

Attention has been paid by the Health Department to **atmospheric pollution** by smoke. We are still praying for the advent of the " Grid " with the resultant abolition of the Corporation's Tramways Electric Power Station, which continues to be by no means the least of the nuisances from which we suffer. Its perpetual emission of smoke and grit ties our hands in dealing with other chimneys. In spite of the slow progress being made in regard to smoke prevention, a slight advance is visible and is certainly encouraging in the heart of one of the world's greatest coal producing centres.

The substitution of coke for coal in private houses is developing, with infinitely more efficient fires. Coke is far superior to coal, and besides being much cleaner, is more economical.

The Registrar General's estimate of the **POPULATION** for 1931 was 283,600. The population at the Census in April was 283,145, which is much in accord with past estimates.

The number of **MARRIAGES** during the year 1931 was 2,062, as compared with 2,270 in 1930.

The **BIRTH RATE** fell to 17·8 births per 1,000 population, as against 18·4 in 1930. That for the whole country was 15·8. Newcastle's birth rate was the lowest yet recorded for the City, and is now only half what it was at the beginning of the century.

The **GENERAL DEATH RATE** was 13·4 per 1,000, as compared with 12·6 in 1930. It was 12·3 for England and Wales, and 12·3 for the great towns.

The natural increase of population (births minus deaths) was 1,251.

A broad analysis of the causes of death shows that diseases of the **CIRCULATORY SYSTEM** constitute a constantly preponderating and growing class, which in 1931 accounted for over 26 per cent. of the total deaths, as against 24 per cent. in the previous year.

These originated from rheumatism and stress and strain, or were the late effects of such racial poisons as syphilis and alcoholism, among other causes.

RESPIRATORY DISEASES caused over 13 per cent. of all deaths in 1931, as against 13 per cent. in 1930.

Diseases of the **NERVOUS SYSTEM** claimed seven per cent. of the total deaths, the same proportion as in the preceding year, a comparatively low figure.

Diseases of the **DIGESTIVE SYSTEM** caused about five per cent. of the total deaths, also a low proportion.

CANCER deaths show a slight decrease, there having been 361 in 1931, as compared with 394 in 1930. They constituted 9 per cent. of the total deaths in the City. In 130 cases the disease affected the stomach or liver, and in 93 the intestines ; that is to say, in more than half the deaths the part affected was the digestive tract ; in 47 cases the female genital organs or breast were involved ; in 23 some part of the mouth ; and other organs in 68. 199 deaths occurred in males and 162 in females, whereas the females usually preponderate. The average age at death was 63 for males and 61 for females.

DIABETES accounted for 41 deaths, none of which were under 25 years of age. In 1930 there were 46 deaths. So far since the introduction of **Insulin** in 1923, for treatment of diabetes, there have been five

deaths under two years, three between 5 and 15, and six between 15 and 25 years; whereas in the eight preceding years there was one death between 2 and 5 years of age, ten between 5 and 15, and 22 between 15 and 25. Insulin is not a cure, but supplements the defective function of the pancreas and its administration therefore has to be continuous.

EPIDEMIC AND INFECTIOUS DISEASE showed some increase as compared with 1930.

SMALLPOX was entirely absent in 1931, and there were no cases during the year 1930. Infantile vaccination rose from 63 per cent. in 1930 to 64 per cent. in 1931. Supervision of this has been relegated to the Health Committee, but no change has been made in the means adopted for obtaining the highest proportion possible of infantile vaccinations.

MEASLES appeared in epidemic form between January and June, and also occurred in mild degree in December. 358 cases were admitted to the City Hospital for Infectious Diseases, of whom 60 died. Altogether there were 125 deaths resulting from measles, representing a mortality of 2·1 per cent. of the cases notified (5,952). Health Visitors called on 90 per cent. of the infected houses, their function being to ensure that doctor's orders were being carried out, and to trace other unnotified or suspected cases whom it was advisable that a doctor should see.

WHOOPING COUGH, probably the most deadly disease among children, has shown a somewhat more serious incidence in 1931. 55 deaths (0·19 per 1,000 of population) occurred from this cause, compared with 29 in 1930. Here again the Health Visitors by their attendance did much to ensure that the care

given to sufferers was the best possible. Whooping cough has not been made a notifiable disease. The disease is as a rule unrecognisable before it has fully developed, so that it is questionable whether notification would effect any valuable purpose.

INFLUENZA AND PNEUMONIA accounted for 327 deaths, as against 294 in 1930. 43 per cent. of the deaths occurred in children under the age of five years. 1,063 cases of pneumonia, including influenzal pneumonia, were notified, and 92 per cent. of these were visited by the Health Visitors. Influenza was most prevalent in January and February, as in 1930, but subsided in the early part of March.

DIPHTHERIA incidence fell to the lowest number of cases experienced in Newcastle since 1898 (115, as compared with 200 in 1930). The type of the disease was more severe, however, and the case mortality rose from 2·0 to 5·2 per cent. There were six deaths, as against four in the year 1930. Every child admitted to the City Hospital suffering from any other disease than that of diphtheria is immunised against diphtheria, with the consent of the parent, which is obtained when the child is removed from its home.

SCARLET FEVER showed a big increase in 1931, there being 1,074 cases, as against 634 in 1930. There were six deaths (0·02 per 1,000 population), as against four deaths in the previous year. Upwards of 95 per cent. of the cases were removed to Hospital.

ENTERIC FEVER (typhoid and para-typhoid) was found in twelve persons belonging to Newcastle, all with para-typhoid B. infection. There were besides 10 other cases in persons from outside the City, two of

typhoid (of which one was fatal), and 8 of paratyphoid (one of which was fatal). One Newcastle resident died of enteric fever in an institution outside of the City. There was no trace of any connection between the cases.

All the cases occurred in isolated outbreaks and there were only three deaths ascribable to the enteric group. This state of affairs involves the closest watchfulness upon such comestibles as milk, ice cream and such like.

In 1930 it will be remembered that the milk from a big dairy in which a form of "pasteurising" was practised was involved in an outbreak of para-typhoid fever. That dairy has had a clean bill of health during 1931.

DIARRHOEA caused 57 deaths, of which 52 were in children under two years of age. This was the lowest number ever recorded in Newcastle, and was probably due to the entire absence of warm weather and the abnormal rainfall. In 1930 there were also very few deaths from this cause, and this is a marked contrast to the number of deaths which occurred annually at the beginning of this century, when the figure used to vary from 130 to about 400.

BACILLARY DYSENTERY has been prevalent in Newcastle since 1928. In 1931 144 cases were notified, the diagnosis being confirmed bacteriologically however in only 88 of these. 13 of them were cases from outside Newcastle, or who contracted it in one or other of the Newcastle hospitals. There were six deaths due to the disease, four of which were of Newcastle persons. Of the

88 proved cases, 78 were admitted to the City Hospital, Walker Gate, of whom four died, the remaining two fatal cases dying at the Newcastle General Hospital. There were five Hospital outbreaks, two of which occurred in children's wards at the Newcastle General Hospital, where eight and five cases respectively were affected. The outbreaks were quite separate from one another, and were caused by two different types of the dysentery bacillus. The disease also occurred at the Fleming Memorial Hospital twice, both outbreaks being caused by the Bacillus Dysenteriæ Sonne. There were five cases in the first outbreak and 14 in the second. In addition two cases occurred in a small ward at the Babies' Hospital.

It is probable that the disease was introduced into the hospitals from outside the City, the infecting agents having been patients admitted recently with indefinite abdominal symptoms, proved on subsequent investigation to be suffering from dysentery. Such cases occurring in Hospital are rarely fatal unless suffering at the same time from some other serious disease. The circumstances and history of all cases were fully investigated with a view to discovering the source of infection if possible, but without result.

Bacteriological investigations were carried out systematically, and the freedom of the stools from the germ of dysentery ascertained in each. In all seven different dysentery organisms were implicated in the causation of the cases—five being recognised strains of the Flexner bacillus, one an atypical Flexner organism and one the Sonne bacillus. The Newcastle bacillus was not found at all.

The present outbreak, which has now been with us for four years, appears to represent one of the old recurrences of the disease, and the best hope of checking it would seem to be in the employment of patient research and inquiry.

One outbreak of food poisoning occurred among the employees of a large store in the City, upwards of 100 persons of a staff of 300 being affected. It was discovered that the trouble was caused by B. Aertrycke, but the precise article of food contaminated by the organism was not determined. Many of the patients were seriously ill, but there were no deaths from the outbreak.

Strangely enough no information reached the Health Department until a chance paragraph appeared in a local evening newspaper, by which time, of course, all remnants of food which had been consumed on the days on which the illness had arisen had been disposed of.

ACUTE POLIOMYELITIS, or infantile paralysis, was notified in one case in 1931. There were 41 cases of **CEREBRO-SPINAL FEVER** of whom 28 died (68 per cent.). The cases were scattered and there appeared to be no special reason for their high mortality. Three cases of **ENCEPHALITIS LETHARGICA** (sleepy sickness) occurred, with ten deaths. A careful census is made every two years of all patients that have been notified since 1919 to find out their present condition. Since 1919 there have been 373 notifications, and 159 cases were admitted to Hospital. Of 304 whose history it has been possible to ascertain, 147 are known to be dead, 55 to be totally incapacitated ; 18 have after effects which interfere with their usual occupations, and 32 have more or

less serious sequelæ, but not preventing their continuance at their trades ; 52 are believed to have been cured. A number have been or are in mental hospitals, others form a serious problem for Mental Deficiency Committees, and many constitute a grave burden for their parents or friends. The disease is a terrible one—perhaps the most to be dreaded of all—and its cure has not yet been discovered.

Reference is made to **Tuberculosis** under a special heading subsequently.

HOSPITALS FOR INFECTIOUS DISEASES.—To the City Hospital, Walker Gate, with its approximate 338 beds, were admitted 2,347 cases of fever, etc., and 464 cases of pulmonary tuberculosis. The beds for tuberculosis were in constant occupation, as also was a temporary pavilion belonging to the fever side of the Hospital in use for advanced cases of pulmonary tuberculosis.

94 cases of diphtheria were admitted, and five died, a case mortality of 5·3 per cent., as compared with 2·5 per cent. in 1930 (the lowest on record). Antitoxin was distributed free to medical practitioners, and its prompt use was generally resorted to by all.

59 cases of cerebro-spinal fever were treated in the wards. 41 cases in all occurred in Newcastle, and of the 59 cases admitted to hospital there were 35 deaths, or a case mortality rate of 59 per cent.

The cases were all carefully investigated, but only in one instance, where two members of the same household contracted the disease, has it been possible to trace the probable source of infection.

There were 22 cases of the enteric group of fevers (including one with scarlet fever and coincident para-typhoid) admitted to the City Hospital, Walker Gate, during 1931. Of these 12 (Para-typhoid B.) were from Newcastle. Of the remaining ten, eight were para-typhoid, of whom one died, and two were typhoid, with one death. The extra-mural cases were admitted at the request of the Local Authority concerned, or as a result of their discovery in various city institutions.

11 of the 12 Newcastle para-typhoid cases occurred during the last few months of the year, but it was impossible to trace any connection between these cases, as no common causal factor or agents could be discovered, except in one instance where there were two cases in the same household.

During 1931, 989 cases of scarlet fever were treated in the City Hospital. The incidence of the disease was relatively heavier in the last four months. The type was mild and the mortality rate was lower than for the previous year, namely, 0·5 per cent., as against 0·69 per cent. The complication attack rate however, was high, namely, 40·4 per cent., as compared with 30·0 per cent. in 1930. The average stay in Hospital of all cases of scarlet fever was 36·5 days.

Mr. Frank Wilson, the visiting oto-rhinologist, operated 19 times, 13 for removal of tonsils and adenoids, four for mastoid infections, one for a cerebral abscess, and one for a retropharyngeal abscess. All of the patients concerned made uneventful recoveries except the case of cerebral abscess, which died three weeks after the operation.

As in previous years, supervision of all cases of rhinorrhœa and otorrhœa has been maintained after their discharge from Hospital, and each of the 186 cases of this type has been visited at varying intervals. The result of these visits showed that amongst 117 cases of rhinorrhœa, three, or 2·4 per cent., still had slight nasal discharge, whilst five, or 7·2 per cent. of the cases of otorrhœa had slight persisting deafness or discharge from the ear.

There were 39 " return " cases during the year. Of the 37 " infecting " cases, (*a*) 17 had no complications or discharges whilst in hospital, and remained " clean " after returning home; (*b*) four had no complications whilst in Hospital, but developed discharges after reaching home; while (*c*) 16 had complications whilst in hospital, but were " clean " on discharge.

Of these classes the average duration of the 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 " cases, were as follows :—

Class (*a*)—32 and 11 days.
Class (*b*)—31 and 14 days.
Class (*c*)—49 and 11 days.

77 nurses and 77 of the domestic staff were off duty through sickness for 1,616 days and 794 days respectively, none of them from scarlet fever, diphtheria, or enteric fever. The extension during the present year (1932) of the accommodation for nurses and domestic staff will greatly improve their living conditions. Hitherto they have been much overcrowded.

The **Tyne Port Sanitary Authority,** which sends its fever cases to the City Hospital, only sent eight in 1931.

The **Smallpox and Isolation Hospitals,** with 72 and 100 beds respectively, were not required for smallpox during 1931, there having been no case of that disease in the City. The wards of both hospitals, however, were utilised occasionally for the accommodation of convalescent scarlet fever and other cases from Walker Gate.

Bacteriological Examinations.—6,760 specimens for examination were submitted to the Department of Bacteriology of the College of Medicine, a considerable decrease from the number in 1930, when there were 8,153. 2,370 examinations were in respect of diphtheria, tuberculosis, and enteric fever, 2,676 were for venereal disease, 801 were of milk, 246 of water, and the remaining 667 were special investigations.

The **Venereal Disease** clinic at the Royal Victoria Infirmary, under Sir Robert A. Bolam, Chief Specialist Medical Officer, dealt with 771 new cases in 1931, including 255 syphilis, 361 gonorrhœa, one soft chancre, and 154 conditions not venereal. The average number of attendances per patient was 15·0, as against 15·2 in the previous year. 26 per cent. of patients ceased their attendance before the completion of treatment, as against 28 per cent. in 1930.

Ophthalmia Neonatorum (inflammation of the eyes in the newly-born, and usually due to gonorrhœal infection from the mother), was notified in 54 instances. One case occurred in a hospital. There were 82 cases in the previous year. 53 were visited by the Health Department, and 47 were known to have recovered completely ; one incurred slightly defective vision, and five died (one as the result of premature birth, one from disease of the heart, and three from convulsions).

There are 603 registered blind persons in Newcastle to-day, and of these 79 are notified to have been blind from birth, two only being under five years of age, which may be considered satisfactory proof of the efficiency with which ophthalmia neonatorum is looked after.

The three **Police Women** attached to the establishment at the Central Police Station are employed chiefly as matrons, but are available for patrol and other duties.

The **MATERNITY AND CHILD WELFARE SECTION,** under Dr. A. F. G. Spinks, had to face a severe epidemic of measles during the early months of the year. This caused a considerable loss of life in infant mortality—the highest since 1915, and this fact, combined with a new low record in births in the City, accounts almost entirely for the increase in the general infantile mortality rate (92 per 1,000 births, as compared with 74 in 1930). About 90 per cent. of the cases were visited by the Health Visitors.

Cod-liver oil emulsion, with added iron content, was distributed at cost price through the welfare centres, and facilities for treatment by ultra-violet rays were provided to supplement the exceptional sunlessness of the year.

It is particularly gratifying to be able to record a fall in the maternal mortality rate (4·5, as compared with 5·4 in 1930), there having been a considerable diminution in the number of septic cases. Investigation was carried out in connection with all the maternal deaths, and reports forwarded to the Ministry of Health.

Cooking demonstrations were given during the year at certain of the maternity and child welfare centres. The preparation of simple and inexpensive meals, suitable for the mothers and their children, must have proved most helpful, and encouraged the mothers in their culinary efforts at home. It is proposed to extend these demonstrations to all the centres as, and when, circumstances permit.

The attendances at the *ante- and post-natal clinics* (particularly the former) have continued to be satisfactory. A new centre was opened in March at Cowgate, and has been well attended. Very great importance is attached to the work of these centres, for they provide one of the surest means of decreasing loss of life from childbirth.

Confinements were pretty evenly divided between doctors, the Princess Mary Maternity Hospital, and midwives. There are 37 of the last-named practising in the City. There only remain three of the old *bona-fide* (that is, not certificated) class. The midwives are under regular supervision by the Superintendent of Midwives, Miss Georgina B. Cameron.

In 1931 doctors were sent for at the request of the midwife in cases of emergency 489 times.

A **Dental Clinic** for the young, carried on by arrangement with the School Medical Service, has continued to function satisfactorily.

The mortality among illegitimate children is still relatively high, having been 106 per 1,000 births, as compared with a rate of 92 for legitimate children.

The pre-school child is being increasingly brought to the centres by the mothers, 4,257 in 1931, as compared with 3,418 in 1930.

The three play centres (or nursery schools, as they are usually termed), held in Diana Street, Wharncliffe Street and St. Peter's, continue to be much appreciated, especially in winter. Much is due to the kindness and industry of the ladies who voluntarily look after them.

The second course for the training of Health Visitors was commenced during the year. 17 students were enrolled, the subsidy in the form of salary not being paid to any, however. These sat the examination conducted by the Royal Sanitary Institute under the Ministry of Health in April, 1932, and 12 passed. They at once became eligible for Health Visitors' posts anywhere. Since then two further students have passed the examination. In 1930 14 entered for the examination, of whom 11 passed.

By means of the training course, we would seem to have solved our previous difficulty of obtaining Health Visitors. There is no vacancy at the moment, and the staff is up to strength, there being 26 Health Visitors on the establishment.

There are now 14 Maternity and Child Welfare Centres, which serve all the districts in the City, including the newer housing areas.

Sewing and knitting classes have been maintained throughout the year, with a gratifying attendance. They also have proved very well appreciated by the mothers.

A valuable series of lectures was conducted at the centres on various subjects, including one series by Miss Theobald, of the National Milk Publicity Council, on the value of fresh milk in the diet of children.

At the end of the year there was 42 nursed out children in Newcastle. All these babies have been kept under regular observation.

Again it was found that the highest infantile mortality was in the smaller homes, it having been 137 per 1,000 births in one-room dwellings, 103 per 1,000 in two-room dwellings, 79 per 1,000 in three-room dwellings, and 64 per 1,000 births in homes containing more than three rooms.

We have been greatly indebted, as previously, to the voluntary workers at the centres, they having rendered great help at the sewing classes, organised jumble sales, and run thrift clubs, and generally taken great interest in the welfare of mothers attending the centres. Not the least appreciated of their efforts were their arrangements for Christmas parties and summer treats to the coast.

The resignation from this work of Mrs. Roy Williamson is greatly to be regretted. For a number of years she has been the President of the Society, and her enthusiasm and generous service on its behalf have been a great encouragement to all its members.

The distribution of dried milk amounted to 29 tons (equal to 41,014 gallons of fresh milk) given free to 2,859 babies and expectant mothers, while coupons for 19 tons (equal to 26,461 gallons of fresh milk) at cost price, were allowed also. Only mothers attending the centres with their infants were so assisted, 28·6 per cent. receiving free milk.

Supervision of boarded-out children, and the care of children under five years of age, both put in charge of the Maternity and Child Welfare organisation, continued smoothly.

The **Princess Mary Maternity Hospital** carried on its invaluable public service in close harmony with with the Health Department. Its future development is still under consideration.

The *Babies' Hospital and Mothercraft Centre*, the *Fleming Memorial Hospital*, and the *Newcastle Day Nursery* are also most valuable allies of the Health Committee in its fight for child life. Each receives a contribution from civic funds.

Under the **Nursing Homes Registration Act, 1927,** 18 homes are registered, four for maternity cases and 14 for maternity, medical and surgical purposes. One home was exempted from registration under Sections 6 and 7 of the Act. Inspections and re-inspections are carried out for the Medical Officer of Health by the Maternity and Child Welfare Medical Officer and the Chief Health Visitor, and the assistance of the Chief Constable is also afforded in regard to the facilities possessed by the homes for preventing, quelling, and escaping from, fire. All the homes are of satisfactory type, and are well conducted.

TUBERCULOSIS.—The death rate from tuberculosis (pulmonary and otherwise) was 1·40 deaths per 1,000 population, which is the highest figure reached in Newcastle during the last five years. That from pulmonary form was 1·07, and from other forms of the disease 0·33, per 1,000 population.

Dr. George Hurrell (Tuberculosis Medical Officer) emphasises the fact that in spite of the idea that tuberculosis is on the decline, it is well to bear in mind the fact that in Newcastle the number of cases alive and

known to the department is larger than it has ever been before and, in view of this, it is important that the efforts made to combat the disease should be increased.

The Sanatorium Pavilions at the City Hospital have been continuously occupied by 92 males and 44 females. The 52 beds for non-pulmonary tuberculosis in Newcastle General Hospital have also been fully occupied, there having been mutual transference of cases between the General Hospital and the City Hospital at the end of 1930, pulmonary cases being sent to the City Hospital and non-pulmonary or surgical cases to the Newcastle General Hospital. At the latter place thoracoscopy and thoracocautery have been used in a number of cases with success. Patients whose condition warrants this form of treatment have been admitted to the Newcastle General Hospital for operation.

The X-ray plant at the City Hospital has been in continuous use in connection with in-patients, and also with out-patients from the Tuberculosis Dispensary. No examination of a chest is complete without an X-ray picture. The facilities for X-ray work have largely been extended by the installation during the present year (1932) of an additional portable X-ray machine in the City Hospital.

The probationer nurses at the City Hospital have all had their chests examined by X-rays, and in addition have been subjected to the tuberculin test. The examination of " contacts " (defined by Memo 37/T. (revised) of the Ministry of Health) has not been done to any extent, only 71 persons in all. Contact examination, which is a most necessary branch of the work, cannot be carried out thoroughly in Newcastle without an

increase in staff and improvement of the facilities at the Tuberculosis Dispensary. 43 per cent. of the people who died from pulmonary tuberculosis resided in one or two-roomed houses.

32 cases admitted to the Advanced Case Hospital at Walker Gate improved sufficiently for transference to Barrasford Sanatorium.

Notification in 10·6 per cent. of the pulmonary cases had not been made prior to death, and 27·3 per cent. of them were notified only within three months of death. This is a slightly higher proportion than usual, and is due mainly to neglect of the sufferers to consult a doctor until the disease is well advanced, and to the notoriously rapid course of much of the disease in this north-east region of England. 93 per cent. of all the patients suffering from tuberculosis of the lungs who attended the dispensary and died in 1931 had received treatment in one or other of the hospitals at least once. The names of all notified cases are recorded at the Dispensary, and enquiry is made into the circumstances of the patients, who are relegated to the doctor or appropriate institution for treatment, and the Dispensary keeps in touch with them wherever they are.

At **Stannington Sanatorium,** where 30 beds are leased for children, half of whom may be suffering from surgical tuberculosis, the average stay was 196 days for boys and 331 for girls. This is a decrease of 21 days for boys and an increase of 42 days for girls upon the figures for 1930. Of the 44 patients 26 were improved, one was without improvement, one died, while quiescence of the disease was obtained in all the rest.

These beds have been fully occupied throughout the year, and there is usually about six months to wait before a child can obtain admission to a bed, while for surgical cases at the Newcastle General Hospital beds are equally in demand, so that it is a fact that the City's accommodation for tuberculosis in children is inadequate.

At **Barrasford Sanatorium,** the Medical Superintendent, Dr. C. G. R. Goodwin, reports continued activity in every branch of the establishment, handicrafts, X-rays dental clinics, etc. The erection of a new Nurses' Home, which is at present in progress, will be an immense boon to the staff, whose accommodation hitherto has been grossly inadequate and uncomfortable.

The water of the new well unfortunately proved to be bacterially contaminated. This gave much trouble, but has now been completely remedied by the adoption of chlorination.

The average stay of patients was just over 23 weeks, a slight decrease on the previous year.

As regards the results of treatment of the 174 cases dealt with, in 22 the disease became entirely quiescent. In 108 there was improvement, and in 43 there was little improvement or none at all, while one patient died.

Routine treatment remained unchanged, rest being the principal standby and regarded as absolutely essential.

Artificial pneumo-thorax was applied in many cases, and lipiodol or sanocrysin have also been used. Ultra-violet radiation was adopted in three cases, and in one of these there was definite improvement from its use.

Phrenic Evulsion.—This operation was performed in six of the discharged cases. In three of them it was employed to terminate artificial pneumothorax treatment. This method of treatment is becoming more and more widely used, but it makes necessary the possession by the institution concerned of an operating table.

Much credit is due to the personal influence of the Medical Superintendent, whose constant attention to each individual patient and his preservation of a cheerful and happy atmosphere have gone far towards the advance of the institution. Discipline must be maintained, but the method adopted in securing it without harshness makes all the difference to the contentment and satisfaction of the patients.

The **Open Air School** at Pendower continues to render excellent service in the hands of the Medical Officer of the Education Committee. Further extension of this type of institution would be more than welcome, in spite of the very much improved design and structure of the newer schools that are rapidly springing up about the town.

GENERAL DISEASES.—The **Newcastle General Hospital** during the past year has been settling down in its reorganised state. Every section has functioned well and usefully, so much so that the accommodation for the sick is already inadequate for requirements. As the Medical Superintendent, Dr. G. P. Harlan, says, " the general public is coming to understand and appreciate the advantage to be derived from hospital treatment." Very many cases now come to the Hospital for treatment, there having been 500 admissions more during 1931 than in 1930.

The future development of the institution has, of course, been much restricted owing to the financial situation, the original idea that was proposed having been the removal elsewhere of the " Workhouse," and the transfer to the Hospital of the whole of that institution as the facilities in the Hospital in regard to consultation and admission became known. The number of admissions of " private " patients was 63, as compared with 67 in 1930. The number of private or paying patients admitted has been restricted through lack of accommodation. Many more would have been admitted had the beds been available. There were 828 operations (*plus* 297 operations in the wards) in 1931, as compared with 596 in the previous year. All classes now apply readily for admission.

Lectures and demonstrations to practitioners have been given each Sunday morning by the Senior Medical and Surgical Staff, and are much appreciated by the doctors who attend them.

By a special Resolution of the Health Committee the Babies' Home in Highfield has been transferred during the present year (1932) from the administration of the Master of the Workhouse to the Medical Superintendent and the Matron of the Hospital. The Home is now staffed by a fully trained Sister and probationers, and the change has proved very satisfactory.

There is no change in the method under which mental patients are admitted and treated. Nothing hitherto has been done to carry out the provisions of the Mental Treatment Act, 1930, dealing with "voluntary" and " temporary " patients, and there is no available

accommodation at present. Male mental patients have been transferred to another ward, which has been a great improvement.

The X-ray apparatus has been in constant use for every class of patient, and its resources have been strained to the utmost.

Ninety-three cases were admitted to the maternity ward, as compared with 94 in 1930. Of these 81 per cent. were married mothers, a proportion that has been increasing steadily in latter years, as is also the number of paying patients seeking admission. No arrangement has yet been fixed for maternity cases to be taken to the Princess Mary Maternity Hospital, and it is unfortunate that the cases attended in the Hospital are not being utilised for the teaching of the nurses.

One of the wards has been relegated to the treatment of tuberculosis. A number of these cases are transferred for convalescence to Louisville, where their progress is very much better than under the poor conditions that exist at most of their homes.

In the latter part of the year one of the Resident House Physicians contracted a virulent septic throat, from which he died. One of the ward sisters contracted pneumococcal meningitis, from which she also died. Forty-one of the nursing staff were off duty on account of sickness of one form or another during the year under report.

The following are the results of the examinations held during the year :—

Hospital Certificate—28 nurses entered ; 28 passed.

Of these 12 have since taken midwifery training.

State Examinations :—

Preliminary—29 entered ; 26 passed.

Final.—28 entered ; 28 passed.

Of the above nurses who have completed their three years' training, three are holding Sisters' positions in other hospitals, four remain in the Hospital as Staff-nurses, and three are married.

The **Domiciliary Medical Service** is at present still continuing under the old arrangement. The Health and Public Assistance Committees meanwhile have agreed to the gradual conversion of the districts to an open panel scheme, this being conveniently possible because appointments to six out of the ten districts in the town have fallen vacant, and it is proposed to make the actual conversion of the six at once, while the other four districts will remain as they are. The conversion of the whole City is expected to be completed by the year 1935. In the other six the panel will be formed of doctors agreeing to serve, the Corporation undertaking the provision of all medicines and dispensing. The remuneration suggested is by payment according to attendances from a pool formed by the amounts previously paid in salaries in the six districts concerned. Under this plan all patients are to have their own choice of medical attendant from the panel. The scheme has now been before the Ministry of Health since December, 1931, but the decision of that authority has not yet been announced.

FOOD AND PROVISIONS.—376 samples of milk were examined for the presence of tuberculosis, which was found in 14 of them, equivalent to 3·7 per cent. The samples were from nine different farms, one in Newcastle, six in Northumberland, one in Durham, and one in Dumfriesshire. All cases were at once investigated, and any affected animals found removed from the herds.

In 1930 4·2 per cent. of the samples of milk examined were tuberculous. A large proportion of milk on sale comes through one big firm, all of whose milk is "pasteurised." It should be noted that not only are checks taken upon this "pasteurised" milk, but also upon the milk that is delivered to the dairy before it has been subjected to treatment by this process.

The amount of milk supplied by the trade in Newcastle is approximately 97,000 gallons a week. Of this over 4,000 gallons is "certified" or "tuberculin-tested" milk, while 31,500 is "pasteurised." Nineteen farms are delivering graded milk into the City. Approximately 5,000 gallons is so-called "sterilised" milk, but the process is not supervised, and consequently cannot be considered reliable. This milk is prepared by subjecting it to high steam heating with complete destruction of the vitamins, which renders the product totally unfit for infants and young children. Apart from this, the methods have been shown to be unreliable from the point of view of destroying disease germs. It is unfortunate that there is nothing like the demand for "Certified" and "Grade A (Tuberculin-Tested)" milks that could be made, the difference in retail price being against the demand. It will thus be seen that the Newcastle milk supply is of high standard, one twenty-fourth of it being from tuberculin-tested herds, while one-third of the remainder is "pasteurised."

The Veterinary Officer and Inspector of Provisions (Mr. Thomas Parker, f.r.c.v.s.), reports that there are now 16 cow-keepers using 27 cow sheds on 17 premises, with 243 milch cows, within the City. The number of cows shows a slow but steady diminution. The herds within the City's boundaries are all visited at

regular intervals by one or other of the veterinary staff of the Health Department, and 11 tuberculous animals were found during 1931.

The scheme for a Public Abattoir is still meeting strong organised opposition from the trade, although there are to-day 98 separate slaughterhouses in 15 different localities in the City, which render the duty of inspection of all meat exceptionally difficult and sometimes impossible.

721 animals were found on slaughter to be tuberculous, an increase of 25 per cent. on the previous year. Of the carcasses condemned as unfit for food, 32·7 per cent. were tuberculous.

304 food-carrying vessels came to the Quayside during 1931, which is 33 less than in 1930. All imported articles were kept under supervision by the staff.

Food and Drugs Adulteration Acts.—The Inspector under the Food and Drugs Act (Mr. C. Raimes), reports the taking of 1,174 samples for analysis, including 879 of milk. Of the latter, 559 were rough-tested in the Health Department, and appeared to be genuine. Of the remaining 320 the Public Analysts (Dr. J. T. Dunn and Mr. H. C. L. Bloxam), found 42 to be below the minimal limits fixed by the Sale of Milk Regulations, 1901. Of the 295 samples of food and drugs, other than milk, 12 were found to be " not genuine."

42 milk cases were dealt with. 12 were taken to Court ; five convictions were obtained, with total fines of eight pounds. Seven cases were dismissed. Cautions were issued by the Health Committee in respect of 26, and no proceedings were taken in four cases.

Six samples of condensed milk were taken under the Public Health (Condensed Milk) Regulations, 1923, and all of these complied with the requirements.

200 samples of milk were examined for evidence of excremental pollution, which was found present to an undesirable degree in 43 (or 21·5 per cent.), as compared with 31·7 per cent. in 1930, and 30·0 in 1929.

Over 22,000 empty milk churns were examined at the railway stations in course of return to the farmers, and 35 of them were found not to have been rinsed out. There were examined, in addition to the foregoing, 3,147 empty churns passing through Newcastle in course of transit to the farms from retailers outside the City. Four of these were found unrinsed. In every instance of defect the responsible retailer within the City was communicated with, and the warning resulted in improvement in each instance. The Agricultural Department of Armstrong College continues its efforts to spread information among farmers and dairymen, holding classes for the purpose.

Twelve applications were received for permission to retail milk, eight being granted and four refused. At the close of the year there were 616 retail milk shops in the City, including 64 belonging to 10 large dairymen. Of the total, 65 were shops in which only dairy products and like commodities were retailed, 513 were shops selling other articles, and 38 were hawkers.

The ice-cream trade has been maintained under supervision, and permits to manufacturers and to sellers are given by the Health Department. Fourteen applitions were received during the year, and six were refused, owing to the sanitary condition of the premises being bad. Restaurant kitchens (which include hotels, cafés,

and dining rooms, and number 114), together with margarine warehouses and fried fish shops, have been regularly inspected. The restaurant kitchens are inspected as " work places," and as they come within the scope of the Public Health (Meat) Regulations, 1924, as well, the Veterinary Officer, working in conjunction with the Inspector of Workshops, has also been able to effect certain improvements.

Bread baking is still carried on in 98 domestic bakeries, where small quantities are made and sold to people round about. This state of affairs, although not illegal, is not desirable.

188 samples of water were examined for the presence of *bacillus coli* as indicative of excremental pollution, animal or human. 132 were characterised by the Bacteriologist at the College of Medicine as satisfactory, 34 as fair, 20 as unsatisfactory, and two as bad. The water is treated by sand filtration in filter beds, and by rapid filtration through batteries of high pressure filters, in addition to which it is chlorinated.

There are eight **Swimming Baths** in the City, all of them being equipped with a continuous system of filtration and æration (Royle's or Turnover). The complete conversion of all our public baths to a satisfactory purification system is something to be proud of.

THE HOUSE AND THE WORKPLACE.—Nuisance Abatement.—The Senior Sanitary Inspector (Mr. C. Raimes), dealt with 13,777 nuisances, which is 541 less than in 1930. In connection with these, 5,943 notices were served, and in all but 43 instances were effective without legal proceedings.

205 privies were converted to the water carriage system, and of these 201 were pail-closets, and four were "cell" privies. 43 dry ashpits were also removed, and replaced by portable dustbins. The continuance of these old-fashioned conveniences in the City has been the subject of representation on several occasions by the Cleansing and Horse Committee. It is not perhaps realised that all the conversions have been obtained at the owners' cost, and without charge to the rates. It therefore follows that each conversion may have to be carried to Court and as time goes on it becomes increasingly difficult to maintain that any of those left are "insanitary," except on general principles. Every effort is being made by the Senior Sanitary Inspector to press on with this work, and a strenuous effort is being made to obtain the conversion of those remaining by the end of 1932. At the end of 1931 there were only 466 such conservancy closets left in the City.

Atmospheric Pollution.—520 observations were made of 96 industrial chimneys, nine of which showed excessive output of smoke on ten occasions. Only one statutory notice was issued, but each of the other offenders was communicated with. Close attention has been paid to steam road wagons, and in seven instances the drivers were cautioned.

A course of lectures for the instruction of stokers and firemen was arranged in connection with Rutherford Technical College during the winter of 1930-31. Dr. Edgar reports that there were 72 entrants, of whom 36 sat the examination conducted by the Rutherford College. 35 students passed the examination. Three obtained the 1st class certificate with distinction (over 90 per cent. marks), 19 obtained 1st class (70 per cent. to 90 per cent. marks), and 13 passed (40 per cent. to 70 per cent. marks).

A second course was held during the present year. There were 17 students, of whom 16 sat the examination, and all passed, four obtaining 1st class certificates with distinction (over 90 per cent. marks), nine 1st class (70 per cent. to 90 per cent. marks), and three 2nd class (40 per cent. to 70 per cent. marks). A sound practical training is given to the students in firing with every modern type of fuel, with demonstrations at a number of different furnaces, and the possession of a certificate from this class should prove a valuable reference to all applicants for employment.

It is proposed to repeat this class during the coming winter, as it is felt that it will ultimately result in practical effect upon the puri cation of our atmosphere on Tyneside.

HOUSING.—Ever since the passing of the Housing Act, 1930, the Insanitary Property Sub-Committee has been engaged in putting forward its scheme for dealing with the various insanitary areas in the City. Ministry of Health enquiries have been held in connection with Elswick East Terrace, Dunn's Cottages, Cut Bank and St. Peter's, and confirmation of the Orders asked for has been received in respect of the last three areas. Strangely enough Elswick East Terrace, one of the oldest and worst areas in the City, has seemed to hang fire. Originally it was intended to deal with this area under a compulsory purchase scheme, and to re-house upon the site, and an enquiry was held with this in view. As a result of the inquiry the Ministry of Health suggested that the scheme might prove so costly as to negative entirely the object of the Housing Act of 1930, which is to provide houses at reasonable cost for the inhabitants of insanitary areas. The Health

Committee therefore recommended, and the City Council agreed, that a demolition order in respect of the area be asked for. A further enquiry was held by the Ministry, and with certain exceptions the order has been confirmed. The Housing Committee had prepared compensatory houses for the displaced tenants, but owing to delay, in certain instances, in obtaining the ratification of the Orders from the Ministry of Health, many of the houses provided have had to be allocated under the 1924 Housing Act. Preparations are being made to deal with the Byker Bank area at an early date, but apart from this, no steps have been taken as yet in regard to further areas in which proceedings are intended. 595 dwellings in all have been dealt with during 1931.

The Housing Committee has completed 6,392 new houses since the War, while 3,845 have been built by private enterprise. 1,391 new houses were erected by during the year, 843 in Corporation schemes, and 548 by private enterprise, and at the end of the year there were 693 in course of erection by the Corporation.

In 1931 the death rates were 18·2 in Elswick, 17·3 in St. Andrew's, 16·8 in All Saints', and 16·7 in St. John's Wards, where congestion is great, as compared with 8·4 in Fenham, 9·6 in Dene, and 10·9 in Jesmond Wards. As indicating the influence of overcrowding upon the liability to tuberculosis, the attack rate per 1,000 population of pulmonary tuberculosis was 2·54 in Stephenson and All Saints' Wards, as against 0·91 in Jesmond.

By the end of 1931 the caravans in occupation in different parts of the town had been reduced to three, which practically completes the measures for dealing

with what a year or two ago constituted a veritable infestation of the City by these nomadic dwellers, which, until the passing of the Newcastle-upon-Tyne Corporation Act, 1926, it had been impossible to prevent; and which even so, has proved by no means easy to put an end to.

There were 34 **common lodging houses** in 1931, and these were well conducted and regularly supervised.

Factories and Workshops, Offices, Places of Amusement and Schools.—9,167 inspections of factories and workplaces were made, and 281 notices to remedy defects were served. The homes of outworkers were also kept under observation.

Constant attention has been given to the examination of cinemas and theatres by the Senior Sanitary Inspector. He has again made use of the Kata thermometer in estimating the atmospheric humidity, temperature and movement, the results being compared with those obtained in an ordinary sufficiently ventilated terrace house. Forty halls were so tested. Of these 29 proved to be of first class, the readings on the dry kata being from 6·02 to 6·97, and on the wet kata from 17·86 to 19·5, and seven proved to be of second class, the readings on the dry kata being from 4·65 to 5·26, and on the wet kata 16·29 to 17·5. This showed a very great improvement on recent years. In addition to the cinemas, etc., four tests were made in four class rooms at the Rutherford College, the results of these again being satisfactory.

The **Temperance Festival** was held in June, and attracted an enormous concourse of people. In its public health aspects this great fair was well managed. Sanitary accommodation was adequate, and the ice cream, milk, and foodstuff retailers were kept under close control.

POPULAR EDUCATION.—Numerous lectures and addresses on public health subjects were delivered by the medical staff to societies of various kinds in the City thoughout the year. 4,000 copies of the monthly journal, *Better Health*, edited and published by the Central Council for Health Education of the Society of Medical Officers of Health, were distributed each month, two pages of local matter being contributed to each number by the Health Department staff, and incorporated with the rest of the magazine. This little periodical appears to be much appreciated.

In November the Health Committee lost the valuable support of its Chairman, Councillor Dr. R. W. Simpson, who unfortunately was defeated in the municipal election. For ten years he had presided over the Health Committee, and his keenness and ability were of the greatest value in transacting business. Fortunately he has been replaced by the ex-Lord Mayor, Alderman David Adams, J.P., whose intimate experience as Vice-Chairman for 17 years, and his particular interest in the matters concerning housing and town planning, make him of the greatest value in the Committee's undertakings.

Councillor Walter Thompson, another housing enthusiast, has succeeded Alderman Adams in the Vice-Chair.

The Health Committee has been aided enormously by the ability, enthusiasm, and interest in the work of these gentlemen. Perhaps the next hardest workers have been the Chairman of the Sub-Committee as to the Newcastle General Hospital, Councillor J. E. Scanlan, J.P., on whom His Majesty has graciously conferred the distinction of O.B.E., and the Vice-Chairman, Councillor James Pearson, who have put endless energy into their responsibilities.

It is with the deepest regret that the death of Dr. Edward Porteus, Resident Medical Officer at the City Hospital, Walker Gate, and Assistant Medical Officer of Health, is to be recorded. He passed away at the early age of 25, after an illness of five weeks. He had been promoted to the position of Assistant Medical Officer of Health only in December, 1930, and was the youngest man who had ever attained administrative rank in the Department. His energy and ability had marked him out for a highly successful career, and his personal qualities had endeared him to all of his colleagues, by whom his death was keenly felt.

On 27th December, the Department suffered a loss through the death, after a short illness, of Inspector Thomas Heslop, who had been a member of the staff since 1913. The late Inspector Heslop was one of the most reliable men in the Department, and his services will be greatly missed.

To the various members of my staff I owe a debt of gratitude for the way in which they have assisted me at all times.

To yourself, Sir, and to the Vice-Chairman and Members of the Health Committee, I would gladly express my extreme satisfaction in working for so able and so keen a Committee, without whose sympathy, help, and support it would have been very much more difficult to carry on.

I have the honour to be, Sir,

Your obedient servant,

H. Ferr.

M.D.,
Medical Officer of Health.

Health Department,
Town Hall,
Newcastle-upon-Tyne,
26th June, 1932.

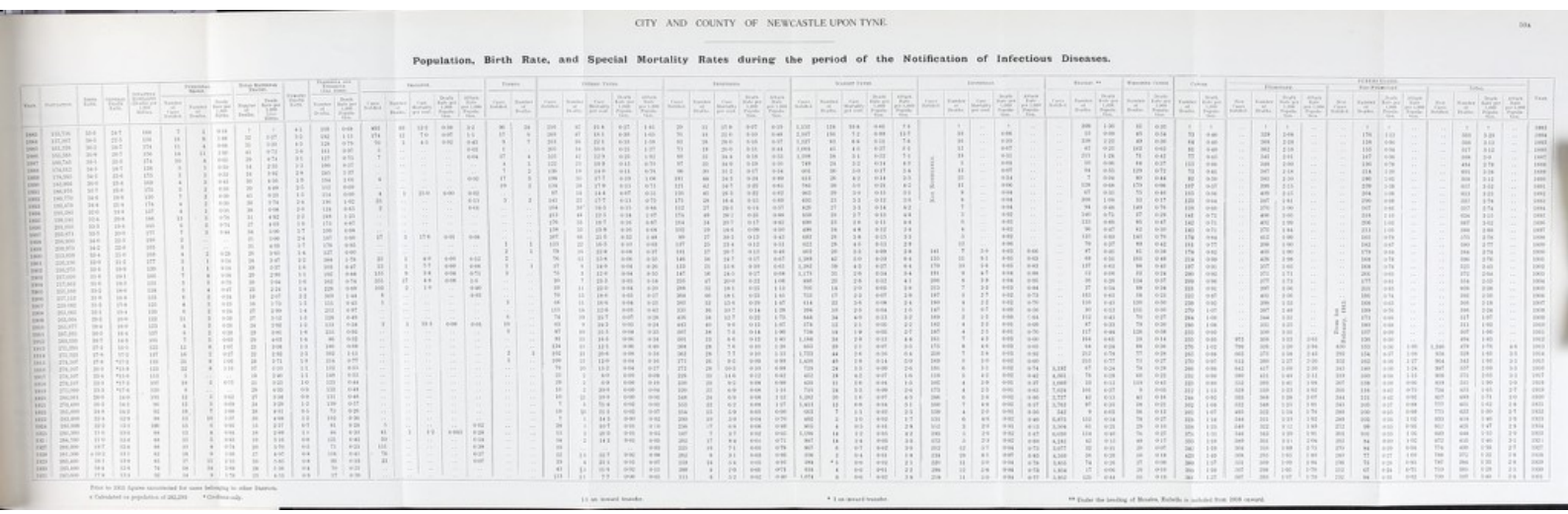
CITY AND COUNTY OF NEWCASTLE UPON TYNE.

Health Report, 1931.

I.—GENERAL.

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

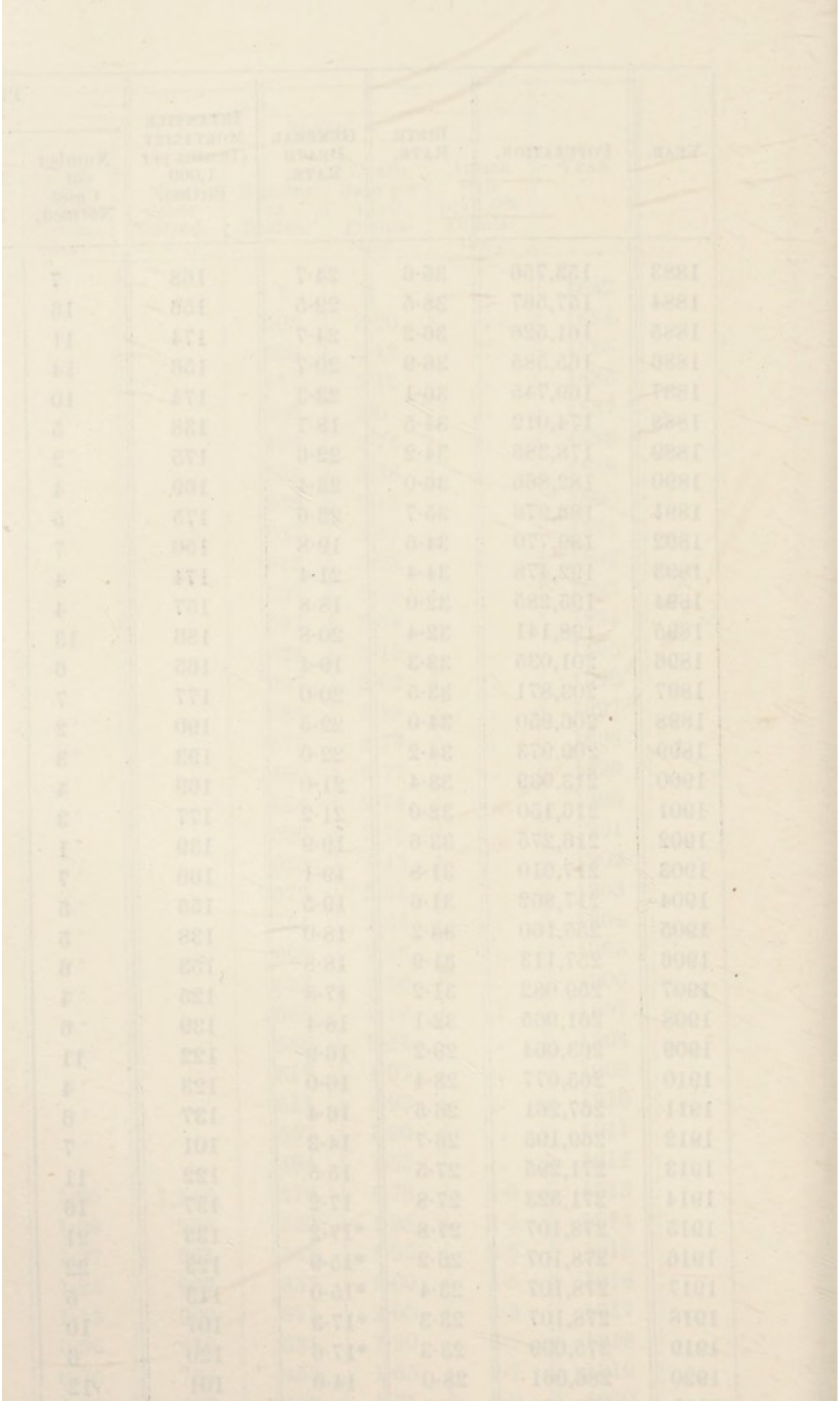
Population, Birth Rate, and Special Mortality Rates during the period of the Notification of Infectious Diseases.



Prior to 1931 figures necessitated for cases belonging to other Districts.

a Calculated on population of 282,291 * Civilians only.

† 11 on inward transfer. ‡ 1 on inward transfer. ** Under the heading of Measles, Rubella is included from 1918 onward.



GENERAL STATISTICS.

POPULATION.—As estimated by the Registrar General at the middle of the year 1931—**283,600.**

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

Ward.	Population (estimated)	Gross Area in acres.	Less for Public Open Spaces in acres.	Net Area in acres.	Population per acre.	
					Gross.	Net.
St. Nicholas'	2,148	127	1	126	17	17
St. Thomas'	13,714	1,638	1,101	537	8	26
St. John's	13,482	169	3	166	80	81
Stephenson	18,084	215	..	215	84	84
Armstrong	14,311	178	31	147	80	97
Elswick	13,048	253	17	236	52	55
Westgate	13,478	90	1	89	150	151
Arthur's Hill	9,199	142	6	136	65	68
Benwell	19,284	550	31	519	35	37
Fenham	24,714	1,190	14	1,176	21	21
All Saints'	14,549	176	2	174	83	84
St. Andrew's	10,412	173	3	170	60	61
Jesmond..	10,960	441	33	408	25	27
Dene	17,424	819	88	731	21	24
Heaton	13,109	225	27	198	58	66
Byker	15,609	140	..	140	111	111
St. Lawrence	17,556	181	7	174	97	101
St. Anthony's	15,375	601	12	589	26	26
Walker	27,144	1,150	35	1,115	24	24
CITY	283,600	8,458	1,412	7,046	34	40

INHABITED HOUSES.—**67,254** inhabited houses, which, on the estimated population, shows an average of 4·21 persons per dwelling.

RATEABLE VALUE. – **£2,260,572.** A penny rate produced £8,927.

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 **Public Assistance** granted during the year ended 31st March, 1931, was £195,589 for outdoor relief, and £31,630 for indoor maintenance, making a total of **£227,219,** as compared with **£310,331** in the previous year.

The number of registered male unemployed was 21,333 at the beginning of the year, and 27,499 at its close, whilst the figures for females were 4,070 and 3,256 respectively.

The City contains many **Hospitals** and other medical charities, but since wide surrounding districts are also served by them, figures as to patients treated are not of local value. A list of municipal and voluntary hospitals in the city is given on page 61.

MARRIAGES.—2,062 marriages took place during the year, as compared with 2,270 in 1930, and 2,271 in 1929.

BIRTHS.—5,056, equivalent to a rate of 17·8 per 1,000 population.

DEATHS.—(All causes)—4,911, equivalent to an uncorrected rate of 17·3 per 1,000 population, and, after deduction of the deaths of 1,251 non-citizens, and addition of 145 Newcastle residents who died elsewhere, to a corrected rate of 13·4 per 1,000 population. In 1930 the death rate was 12·6.

15 *Orders for Burial* (Newcastle-upon-Tyne Improvement Act, 1882, Sec. 47) were made, 1 being in respect of a body lying in an inhabited room, and 14 being cases from hospital.

TOTAL DEATHS DURING RECENT YEARS FROM CERTAIN CLASSES OF DISEASE.

Classification in Table III. of Ministry of Health.

	Nervous System.	Circulatory.	Respiratory.	Digestive.	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
1923	363	623	623	219	112
1924	376	667	749	206	110
1925	359	696	681	248	131
1926	335	742	596	220	158
1927	328	751	615	204	123
1928	331	796	480	247	153
1929	311	893	577	226	148
1930	256	874	469	227	137
1931	250	991	509	195	158

INFANTILE MORTALITY.—467 infants died before completing the first year of life, representing a rate of **92** deaths per 1,000 births.

ZYMOTIC DEATH RATE.—There were 252 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 0·89 deaths per 1,000 population.

TUBERCULOSIS.—397 persons died from various forms of tuberculosis, 303 being from pulmonary, and 94 from non-pulmonary. The equivalent death rates are: *all forms* 1·40, *pulmonary* 1·07, and *non-pulmonary* 0·33 per 1,000 population.

For comparison of death rates with previous years see large table page 50A.

For particulars of deaths as to site of disease, age, etc., see table page 58A.

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

CLIMATOLOGY.—The following is a brief summary of the main features of the weather in 1931, as recorded on the " Newcastle Chronicle's " instruments :—

The mean barometer reading was 28·6 inches. The mean maximum and minimum temperatures were 54·5 F., and 42·2 F. respectively.

The rainfall for the year was 29·77 inches, which exceeded that of 1930, 26·76, which was about the average for this district.

During the six months April to September the rainfall was 20·31 inches, as against 9·46 inches during the winter months.

The following table shows the frequency of the directions of the wind :—

W.	on	52 days.
N.W.	on	128 ,,
N.E.	on	41 ,,
E.	on	6 ,,
S.E.	on	57 ,,
S.W.	on	62 ,,
S.	on	15 ,,
N.	on	4 ,,

Sunshine.

Sunshine records have been available by the courtesy of Professors G. W. Todd and J. A. Hanley, of Armstrong College. The observations are taken at Cockle Park Farm (fifteen miles north of the City, and in a rural area), and at the College itself. During the year 1,142 hours of sunshine were registered in the City, as compared with 1,297 at Cockle Park.

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 filters at Whittle Dene and Throckley. It was found, however, that filtration did not secure the degree of freedom from bacteria which was desirable, and during the last few years it has been supplemented by chlorination, with marked improvement.

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 144.

SEWERAGE.—There are 331 miles of sewers discharging directly into the Tyne, which is tidal, at various points along the 8¼ miles of river frontage.

CLEANSING AND SCAVENGING.—The most interesting features of the year were the introduction of dustless loading vehicles for refuse collection and an increase in the number of mechanical sweepers and gully emptiers.

A weekly collection of refuse is made from 75 per cent. of premises and twice weekly from the remainder.

There are 69,712 dry ashtubs and galvanised iron bins, 131 dry ashpits, and 466 conservancy system closets in the City. Conversion of the latter is proceeding steadily and during 1931, 201 pail-closets and 4 cell privies

were removed and water closets substituted. 43 dry ashpits were also removed and dustbins 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.

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.

Public Health Act, 1925.—Part II., Sections 15, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 33 and 35.

Part III.—Whole of.

Part IV.—Whole of.

Part V.—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.

Newcastle-upon-Tyne Corporation Act .. 1926.

VITAL STATISTICS, YEAR 1931.

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 forms) Death Rate.
England and Wales	15·8	12·3	66	0·23	†
107 Great Towns (includ. London)	16·0	12·3	71	0·26	†
NEWCASTLE-UPON-TYNE	**17·8**	**13·4**	**92**	**0·68**	**1·40**
Hull	19·2	13·2	80	0·60	1·30
Leeds	14·8	13·4	76	0·41	1·08
Bradford	13·5	14·2	71	0·16	0·91
Sheffield	15·0	11·3	69	0·10	0·82
Manchester	16·0	13·9	84	0·29	1·29
Salford	15·4	14·2	101	0·29	1·39
Liverpool	21·7	14·3	93	0·90	1·35
Nottingham	17·1	13·5	82	0·21	1·11
Leicester	15·3	12·4	64	0·12	1·23
Stoke-on-Trent	18·8	13·1	100	0·40	1·16
Birmingham	16·9	11·7	71	0·34	1·05
Cardiff	16·8	12·8	77	0·38	1·29
Bristol	15·1	11·8	51	0·26	1·02
Portsmouth	17·4	12·8	55	0·21	0·99
London (County)	15·0	12·4	65	0·19	1·03
Gateshead	20·0	13·8	100	0·50	1·45
South Shields	20·7	15·6	115	0·64	1·71
Tynemouth	19·7	12·6	80	0·39	1·54
Sunderland	21·8	14·4	99	0·81	1·42
Middlesbrough	21·4	14·1	100	0·31	1·64
*County of Northumberland	16·7	12·2	77	0·34	1·00
*County of Durham	19·6	12·1	85	0·38	0·94

* Administrative County. † Not available.

Vital Statistics of Whole District during 1931 and previous Years.

Year.	Population estimated to Middle of each Year.	Births.			Total Deaths Registered in the District.		Transferable Deaths		Net Deaths belonging to the District.			
		Uncorrected Number	Net.		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
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	14·5
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
1923	283,800	6,961	6,367	22·4	4,298	15·1	789	150	623	98	3,659	12·9
1924	28[illegible],900	7,029	6,335	22·2	4,607	16·1	929	172	632	100	3,850	13·5
1925	286,300	7,031	6,215	21·6	4,732	16·5	989	165	550	88	3,908	13·6
1926	284,700	6,728	6,007	21·0	4,460	15·7	979	161	530	88	3,642	12·8
1927	288,500	6,215	5,395	18·7	4,468	15·5	1,058	178	474	88	3,588	12·4
1928	281,500	6,360	5,429	19·2‖	4,683	16·6	1,178	179	447	82	3,684	13·1
1929	283,400	6,120	5,126	18·1	5,040	17·8	1,313	172	438	85	3,899	13·8
1930	283,400	6,190	5,223	18·4	4,665	16·5	1,232	133	384	74	3,566	12·6
1931	283,600	6,058	5,056	17·8	4,911	17·3	1,251	145	467	92	3,805	13·4

‖ Calculated on a population of 282,200.

Corrected Death Rates in different Wards, 1931.

St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Done.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	City.
15·4	9·9	16·7	15·9	13·8	18·2	12·8	14·7	11·2	8·4	16·8	17·3	10·9	9·6	16·1	14·8	13·8	14·7	12·4	13·4

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

RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED 2ND JANUARY, 1932.

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 upwards.	Total (Gross).	Age Periods. Net. 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 (Net).	Wards—Net 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 the Institutions in the City of "Residents" or "Non-Residents"
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES.																																							
Enteric Fever							1		1						1			1													1					1	3	3
Measles	30	40	33	18	1		1	1	3	29	48	30	18					125	1	2	12	17	9	4	5		11	3	5	1		2	1	14	6	8	24	1	3	68
Scarlet Fever			4	1					5			4	1					5							1										1		1	6	5
Whooping Cough	13	20	21	2	1				56	13	20	20	2					55	1			7		3	2		2	2	3	3			1	8	7	2	9		1	26
Diphtheria	2	1	1	2	1				6	2	1	2	1					6															1	1	2	1	1			5
Influenza	6	1			4	2	23	22	85	5	1		4	2	10	22	28	81			1	5	4	4	5		7	6	3	9	4	4	6	8	2	6	3	4	3	18
Dysentery	2	4							6									4				1																	2	6
Erysipelas	4						2		6							1		1																					2	2
Encephalitis Lethargica					1	1	5	4	11							1		1				1					2											1	3
Cerebro-Spinal Fever	4						6	2	12							6	1	7																				1	7
Tetanus							1		1							1		2									1											1	1
Actinomycosis									9									9																				19	47
Other Mycoses	8	6	7	9	11	4	2	1	47	5	3	5	4	2	3	1		28	1	2	1	1	3	2	2		2	1	2		2	2	2	3				1	1
	1						1		2	1								1																				1	2
																							1																
Tuberculosis of the Respiratory System	6	2	7	10	83	120	76	10	314	4	2	5	10	81	118	73	10	303	1	15	22	29	12	15	12	7	13	22	24	15	9	9	11	23	17	22	25	10	21	151
Tuberculosis of the Central Nervous System	5	2	11	27	21	5	1	..	77	5	6	7	18	7	3	1	..	47	..	4	7	3	..	..	..	..	1	2	3	3	..	..	1	5	4	6	6	1	31	62
Tuberculosis of the Peritoneum and Intestines	1	2	1	2	13	10	3	1	33	..	2	1	2	8	5	3	1	22	..	..	..	2	1	1	..	..	2	..	1	..	..	1	2	2	3	1	4	1	12	18
Tuberculosis of the Vertebral Column	..	..	1	1	..	1	1	..	3	..	..	1	..	..	1	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2
Tuberculosis of the Joints	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Tuberculous of other Organs	..	..	1	..	4	2	2	..	9	..	..	1	..	2	1	2	2	7	..	..	..	..	1	..	1	1	1	1	..	..	..	..	..	1	..	..	..	..	2	6
Disseminated Tuberculosis	1	3	1	6	5	5	2	..	23	1	2	1	5	3	1	2	1	14	..	..	..	..	..	1	..	..	1	1	..	2	..	1	1	1	1	2	1	2	1	10	16
Total Tuberculosis	13	14	22	45	123	145	85	13	460	10	12	16	35	100	130	81	13	397	1	19	29	34	14	18	13	8	19	25	31	20	10	12	15	32	27	32	38	13	76	256
Syphilis	3	..	..	1	..	4	13	2	23	2	..	..	..	..	3	13	2	20	..	..	3	2	..	..	1	2	..	..	..	..	1	2	4	3	1	4	16	16	16
Pyæmia, Septicæmia	7	..	..	..	2	2	5	3	19	..	..	..	..	..	1	1	2	4	1	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	15	16
II.—GENERAL DISEASES NOT INCLUDED ABOVE.																																							
Cancer of the Buccal Cavity	..	..	..	..	1	..	19	6	26	..	..	..	..	..	18	5	..	23	..	2	..	5	..	2	1	..	2	..	2	3	..	..	..	3	1	2	..	1	4	11
Cancer of the Stomach, Liver, etc.	..	..	..	..	10	85	84	179	..	..	..	..	..	6	54	70	..	130	1	8	8	9	6	8	4	9	3	12	5	9	5	6	8	8	6	6	9	2	51	83
Cancer of the Peritoneum, Intestines and Rectum	..	..	..	..	8	56	69	133	..	..	..	..	..	7	36	50	..	93	..	4	4	6	5	2	3	10	8	5	7	3	6	4	7	5	4	5	5	..	40	66
Cancer of the Female Genital Organs	..	..	..	..	8	20	9	37	..	..	..	..	..	7	16	8	..	31	..	2	5	..	1	2	1	2	2	1	3	..	5	..	2	1	1	2	3	..	6	17
Cancer of the Breast	..	..	..	..	3	7	9	19	..	..	..	..	..	2	6	8	..	16	..	..	..	1	3	2	..	..	2	1	1	1	1	..	..	..	..	1	2	..	3	6
Cancer of the Skin	..	..	..	..	..	4	7	11	..	..	..	..	..	..	3	7	..	10	..	..	..	1	2	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	1	4
Cancer of or unspecified Organs	..	1	..	..	3	9	41	39	93	..	..	..	..	3	3	28	24	58	..	1	2	3	2	2	3	1	4	3	5	6	2	6	3	3	3	2	7	1	36	53
Tumours (not malignant)	1	..	..	..	..	8	15	2	26	..	..	..	..	..	..	9	..	9	..	..	..	..	..	..	..	..	2	2	..	..	..	1	1	..	..	1	..	..	..	17	24
Rheumatic Fever	..	..	..	6	7	8	7	1	29	..	..	2	7	..	7	6	1	23	..	1	1	1	2	1	..	..	..	..	3	1	1	..	4	..	1	1	2	5	1	7	15
Chronic Rheumatism, Osteo-Arthritis	..	..	..	..	..	1	3	10	14	..	..	..	..	..	1	3	10	14	..	2	..	..	..	..	1	3	..	..	1	1	1	1	..	..	..	..	..	..	..	..	4
Rickets	1	3	1	..	..	..	..	2	5	1	3	1	..	..	..	..	..	5	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Diabetes	..	..	..	..	3	11	28	24	66	..	..	..	..	..	5	15	21	41	..	..	..	3	1	2	2	5	3	..	..	3	1	2	8	4	2	2	2	1	1	26
Exophthalmic Goitre	..	..	..	..	..	5	5	1	11	..	..	..	..	..	2	4	1	7	..	..	..	..	..	1	..	..	..	..	1	..	1	1	..	..	1	..	..	2	1	1	5
Diseases of the Thyroid Gland	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Diseases of the Thymus	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Addison's Disease	..	..	..	..	..	..	1	1	2	..	..	..	..	..	1	1	..	2	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Diseases of the Spleen	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Leucocythæmia, Lymphadenoma	..	..	2	2	1	4	3	1	13	..	..	..	1	..	2	..	1	4	1	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	9
Anæmia, Chlorosis	..	..	..	1	..	3	18	5	27	..	..	..	1	..	2	7	5	15	..	1	..	1	..	2	2	3	..	..	1	1	..	..	3	..	..	1	..	..	12	15
Other General Diseases	5	..	..	..	1	..	1	..	7	1	..	..	..	1	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	5	6
III.—DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS.																																							
Encephalitis	..	..	..	2	1	6	2	1	12	..	..	..	..	1	2	1	..	3	..	..	..	1	..	..	..	1	1	..	..	2	..	1	..	..	1	..	..	3	..	9	11
Meningitis	6	2	2	3	3	3	2	..	21	4	2	2	..	1	1	1	..	11	..	..	..	1	1	..	..	1	1	..	..	1	..	..	..	1	..	..	..	..	10	18
Locomotor Ataxy	..	..	..	..	..	1	4	3	8	..	..	..	..	..	1	2	3	6	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	2	..	..	..	2	4
Other Diseases of the Spinal Cord	..	..	..	..	..	1	6	4	11	..	..	..	..	..	1	5	4	10	..	..	..	1	7	..	..	2	2	1	1	..	1	..	1	..	..	..	..	..	1	2	6
Cerebral Hæmorrhage, Apoplexy	..	..	..	..	1	4	35	59	99	..	..	..	..	1	4	33	59	97	1	3	6	7	2	1	1	1	3	5	6	4	1	1	4	13	9	6	4	4	4	6
Cerebral Embolism and Thrombosis	..	..	..	1	1	3	8	13	26	..	..	..	..	1	..	7	13	21	1	1	1	2	1	1	..	1	1	3	4	1	1	1	1	2	1	1	1	1	5	11
Hemiplegia	..	..	..	..	..	2	2	7	9	..	..	..	..	..	1	1	7	8	..	..	1	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3
General Paralysis of the Insane	..	..	..	..	..	1	..	..	1	..	..	..	..	4	7	..	..	11	..	..	..	4	..	..	..	1	1	..	..	..	..	..	..	1	1	3	..	10	..	1
Other forms of Mental Alienation	..	..	..	2	2	2	..	..	6	..	..	..	1	2	2	..	..	5	..	..	..	..	1	1	..	..	1	..	..	2	..	..	..	..	..	..	..	..	1	4
Epilepsy	1	1	2	..	5	..	2	10	21	1	1	2	..	..	7	..	2	13	..	..	1	1	1	1	..	2	..	1	1	2	..	..	..	2	1	1	..	2	..	2
Infantile Convulsions (under 5 years)	18	..	..	..	..	..	..	..	18	18	..	..	..	..	..	..	..	18	..	1	3	2	..	..	..	1	..	..	..	1	..	..	4	1	4	1	..	..	..	..
Chorea	..	..	..	2	..	..	..	..	2	..	..	2	..	..	1	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Hysteria, Neuralgia and Neuritis	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Cerebral Softening	..	..	..	..	..	3	1	1	5	..	..	..	..	1	5	2	..	8	..	..	..	..	..	..	1	1	..	1	1	..	1	..	1	..	..	1	..	..	1	4	7
Other Diseases of the Nervous System	1	..	2	2	4	8	11	5	33	1	..	1	1	1	5	11	3	22	..	..	1	2	2	1	..	1	2	1	1	4	2	1	1	2	1	1	2	4	7	18
Mastoid Disease	2	1	3	8	13	12	2	2	43	..	..	1	1	7	4	1	1	15	..	..	1	2	2	..	..	1	..	2	2	..	..	1	1	1	2	1	..	1	..	28
IV.—DISEASES OF CIRCULATORY SYSTEM.																																							
Pericarditis	..	1	..	..	1	12	2	2	18	..	..	1	..	..	7	1	2	11	..	1	..	1	..	..	1	..	..	..	1	1	..	..	2	..	1	1	..	..	1	1
Acute Endocarditis	..	..	..	..	..	2	26	22	50	..	..	..	..	2	23	22	..	47	..	1	1	3	2	2	3	2	2	3	1	2	1	2	5	1	1	2	..	1	4	13
Angina Pectoris	..	..	..	2	7	30	61	76	176	..	..	..	2	6	18	62	76	164	3	6	8	10	7	6	11	5	5	16	5	7	7	9	10	2	13	8	19	9	21	48
Valvular Disease of the Heart	..	..	..	..	..	1	12	7	20	..	..	..	..	..	1	12	9	21	..	3	2	2	..	..	2	1	1	..	3	2	1	..	..	2	..	..	..	..	3	2	7
Fatty Degeneration of the Heart	5	6	1	..	1	24	124	282	443	5	6	1	..	1	20	115	287	435	4	18	29	33	19	35	19	18	21	22	29	18	14	21	31	25	31	17	31	15	23	207
Other Organic Diseases of the Heart	..	..	..	1	..	4	7	1	13	..	..	..	..	..	4	6	1	11	..	2	1	..	1	1	..	1	..	2	..	..	..	1	1	..	..	1	1	2	2	3
Aneurysm	..	..	..	..	..	1	57	227	285	..	..	..	..	..	1	56	227	284	4	9	15	25	16	30	16	10	23	13	15	18	9	10	16	13	9	9	24	12	13	130
Arterial Sclerosis	..	..	..	..	..	..	4	5	9	..	..	..	..	..	..	3	5	8	..	..	..	..	..	..	1	1	1	1	..	..	..	1	2	..	1	..	..	..	1	2	3
Embolism and Thrombosis	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diseases of the Veins (Varices, Hæmorrhoids, Phlebitis, etc.)	..	..	..	..	..	1	1	..	2	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1
Diseases of the Lymphatic System	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Other diseases of the Circulatory System	..	..	..	..	..	5	3	..	8	..	..	..	..	..	4	4	..	8	..	..	..	..	1	..	1	1	..	2	1	..	..	..	..	1	..	1	..	..	1	1	3
V.—DISEASES OF RESPIRATORY SYSTEM.																																							
Diseases of the Nasal Fossæ and Annexa	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Laryngismus Stridulus	1	..	1	..	..	..	..	..	2	1	..	1	..	..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Laryngitis	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1
Bronchitis	49	9	2	2	3	10	38	113	226	48	9	2	2	3	9	36	111	220	1	6	8	11	13	17	9	5	6	9	16	9	1	11	11	25	22	24	16	1	7	27
Broncho-Pneumonia	63	34	28	2	2	4	13	25	171	56	31	24	4	3	4	5	23	150	2	2	10	17	11	11	9	4	10	4	8	6	4	2	8	10	14	19	5	26	65
Lobar Pneumonia	4	1	2	2	4	20	24	17	74	3	1	1	2	4	16	19	16	62	..	3	5	4	2	..	2	1	1	4	6	4	3	5	1	2	7	5	1	13	35
Pneumonia (type not stated)	15	3	1	2	3	5	9	1	39	15	3	..	2	1	2	10	1	34	1	6	2	3	1	..	1	1	6	2	3	4	..	..	1	3	..	..	1	1	6	13
Pleurisy	2	4	5	..	..	3	5	1	20	1	1	1	..	..	2	3	1	9	..	..	..	1	1	1	2	..	..	..	2	..	..	..	..	1	1	..	..	1	12	17
Congestion and Hæmorrhagic Infarct of Lung	..	1	..	..	..	1	..	6	8	..	1	..	..	..	1	..	6	8	..	..	..	..	..	3	..	..	1	1	..	..	..	1	..	..	1	1	..	..	..	3	3
Asthma	..	1	1	..	..	1	5	11	18	..	..	1	..	..	1	5	11	18	..	2	2	1	..	..	1	1	..	..	2	1	..	1	1	4	1	1	1	..	2	1	1
Pulmonary Emphysema	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..
Other Diseases of the Respiratory System	1	..	..	..	..	..	3	1	5	1	..	..	..	..	..	3	1	5	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	4
Carried forward	267	163	143	120	203	426	928	1215	3465	226	148	115	85	152	324	776	1157	2983	25	110	180	229	152	185	140	111	168	160	193	141	91	122	156	201	189	171	259	109	591	1587

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. Net. 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 (Net).	Wards—Net 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.	Transferable Deaths. Outward.	Deaths in the Institutions in the City (Inclusive of "Non-Residents").
Brought forward	267	163	143	120	203	426	928	1215	3465	226	148	115	85	152	324	776	1157	2983	25	110	180	229	152	185	140	111	168	160	193	141	91	122	156	201	189	171	259	109	591	1587
VI.—DISEASES OF DIGESTIVE SYSTEM.																																							
Diseases of the Buccal Cavity and Annexa	..	1	..	..	1	..	1	..	3	..	1	..	..	..	..	1	..	2	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3
Diseases of the Pharynx, Tonsilitis	..	..	3	1	2	2	1	..	9	..	..	2	1	1	..	..	..	4	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	3
Diseases of the Œsophagus	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	5	8
Ulcer of Stomach	..	..	..	..	1	11	20	8	40	..	..	..	..	..	4	12	2	18	..	..	3	..	1	3	1	2	1	..	2	..	..	..	..	..	..	..	..	1	1	1
Ulcer of the Duodenum	..	..	..	..	..	17	15	9	41	..	..	..	..	..	6	6	3	15	..	2	3	..	1	3	1	..	1	..	..	2	1	..	..	..	..	..	..	1	23	34
Other Diseases of the Stomach	5	..	..	..	..	1	2	4	12	5	..	..	..	..	1	..	3	11	..	..	1	..	1	1	..	..	1	..	..	1	..	..	1	..	..	..	1	27	38
Diarrhœa and Enteritis (under 2 years)	72	2	..	..	..	..	..	..	74	50	2	..	..	..	..	..	..	52	1	..	3	8	1	1	..	..	..	4	1	5	2	..	1	1	3	1	6	1	1	2
Diarrhœa and Enteritis (2 years and over)	..	..	..	5	..	..	1	..	6	..	..	..	4	..	..	..	1	5	..	..	1	..	..	..	..	..	..	1	..	1	2	..	..	1	1	1	3	12	22	37
Ulceration of the Intestines	..	..	..	..	1	1	2	..	4	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Colitis	..	..	..	..	..	1	..	1	2	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	2	2
Appendicitis	..	..	..	16	12	7	22	3	60	..	..	..	3	6	3	4	2	18	..	1	..	..	..	..	1	..	..	1	2	2	2	4	3	4	..	1	..	42	54
Hernia, Intestinal Obstruction	16	5	1	4	1	7	26	20	80	6	1	..	2	..	4	9	10	32	..	..	1	..	2	5	4	..	1	1	2	2	..	2	2	4	3	3	1	48	68
Other Diseases of the Intestines	2	..	..	..	..	1	3	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	4
Acute Yellow Atrophy of Liver	..	..	..	..	..	1	1	1	3	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Cirrhosis of the Liver (Alcoholic)	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	1	1	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cirrhosis of the Liver (Non-Alcoholic)	..	..	..	..	..	2	8	2	12	..	..	..	..	..	2	3	2	7	..	1	..	..	..	2	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Biliary Calculi	..	..	..	..	..	3	15	12	30	..	..	..	..	..	2	3	2	7	..	1	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..
Other Diseases of the Liver	2	..	..	1	..	2	12	8	25	..	..	..	..	..	1	4	1	6	..	1	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Diseases of the Pancreas	..	..	..	..	..	1	7	2	10	..	..	..	..	..	1	9	4	14	2	..	2	..	1	1	..	..	1	2	..	1	2	..	1	1	..	..	1	24	27
Peritonitis	1	..	..	1	..	4	3	1	10	1	..	..	..	..	1	2	..	4	..	..	1	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	9	10
VII.—NON-VENEREAL DISEASES OF GENITO-URINARY SYSTEM AND ANNEXA.																																							
Acute Nephritis	1	..	..	3	8	3	4	1	20	1	..	..	1	3	1	4	1	11	..	1	..	1	..	1	..	..	2	1	2	..	..	1	..	..	2	..	..	9	14
Bright's Disease	..	1	2	4	2	12	57	51	129	..	..	2	1	..	4	41	42	90	1	5	4	3	1	4	4	6	4	3	6	3	7	10	5	4	..	2	6	39	59
Other Diseases of the Kidney and Annexa	1	1	..	..	1	4	7	12	26	..	..	..	..	..	2	4	12	18	..	1	..	..	1	3	4	..	1	1	1	1	1	1	1	1	1	1	..	8	13
Calculi of the Urinary Passages	1	..	..	..	..	1	3	2	6	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	1	..	..	..	4	4
Cystitis	..	..	..	..	..	1	6	4	11	1	..	..	..	..	..	4	1	6	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Diseases of the Urethra, Urinary Abscess, &c.	..	..	..	..	..	1	5	..	6	..	..	..	..	..	..	2	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	6	6
Diseases of the Prostate	..	..	..	..	..	..	8	40	48	..	..	..	..	..	..	3	18	21	1	1	..	1	..	8	..	1	1	..	..	2	2	..	..	1	2	..	..	4	5
Uterine Tumour (non-cancerous)	..	..	..	..	3	4	..	..	7	..	..	..	..	..	..	2	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	29	38
Diseases of the Male Genital Organs	1	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	5	6
Cysts and other Tumours of the Ovary (non-cancerous)	..	..	..	..	..	1	1	2	4	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	1
Salpingitis	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3
Other Diseases of the Female Genital Organs	..	..	..	..	..	4	1	..	5	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	2	2
VIII.—THE PUERPERAL STATE.																																					3	3
Abortion	..	..	..	..	1	5	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6
Ectopic Gestation	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Accidents of Pregnancy	..	..	..	3	6	..	..	..	9	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	9
Puerperal Hæmorrhage	..	..	..	2	9	..	..	..	11	..	..	..	..	1	4	..	..	5	..	..	1	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	6	8
Other Accidents of Childbirth	..	..	..	2	7	..	..	..	9	..	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	7	8
Puerperal Fever	..	..	..	5	27	..	..	..	32	..	..	..	..	1	8	..	..	9	..	..	..	..	1	..	..	..	2	3	..	..	..	..	..	..	..	1	..	22	21
Puerperal Albuminuria and Convulsions	..	..	..	6	9	..	..	..	15	..	..	..	..	2	2	..	..	4	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	11	14
Puerperal Phlegmasia	..	..	..	..	3	..	..	..	3	..	..	..	..	..	2	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	2
IX.—DISEASES OF SKIN AND CELLULAR TISSUE.																																							
Senile Gangrene	..	..	..	..	..	2	7	..	9	..	..	..	..	..	1	2	5	7	..	..	..	..	..	3	..	..	1	..	..	..	1	..	..	1	..	..	1	2	8
Carbuncle—Boil	..	..	..	..	3	3	..	..	6	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	5	6
Phlegmon, Acute Abscess	1	..	..	..	1	5	2	5	14	..	..	..	..	1	3	3	2	9	..	1	..	1	..	1	..	1	1	1	..	1	..	1	1	..	1	2	2	7	13
Diseases of the Integumentary System	2	..	..	..	..	..	4	2	8	1	..	..	..	..	..	1	2	4	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	1	1	..	4	5
X.—DISEASES OF BONES, etc.																																							
Diseases of the Bones	..	1	7	1	2	..	1	..	12	..	..	..	1	1	1	..	1	4	..	1	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	8	11
Diseases of the Joints	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
XI.—MALFORMATIONS.																																							
Congenital Malformations	62	..	4	1	1	..	..	..	68	31	..	3	..	..	..	..	..	34	..	1	1	1	2	1	2	2	2	4	..	2	1	..	3	2	2	5	3	..	34	41
XII.—DISEASES OF EARLY INFANCY.																																							
Premature Birth	134	..	..	..	..	..	..	..	134	102	..	..	..	..	..	..	..	102	..	..	9	12	5	4	7	..	9	5	4	7	..	2	4	6	9	6	13	2	34	50
Congenital Debility and Sclerema	13	..	..	..	..	..	..	..	13	11	..	..	..	..	..	..	..	11	..	..	1	3	1	1	1	..	1	..	..	..	..	..	..	1	..	1	..	2	5
Icterus Neonatorum	4	..	..	..	..	..	..	..	4	4	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	1	1	..	..	..
Atelectasis	10	..	..	..	..	..	..	..	10	8	..	..	..	..	..	..	..	8	..	..	..	3	1	1	1	..	1	1	..	..	..	..	..	..	..	..	..	2	2
Injuries at Birth	27	..	..	..	..	..	..	..	27	10	..	..	..	..	..	..	..	10	..	..	2	1	..	1	1	1	..	..	..	..	..	..	..	..	3	1	1	17	22
Disease of Umbilicus	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Lack of Care	2	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Diseases of Early Infancy	3	..	..	..	..	..	..	..	3	2	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
XIII.—OLD AGE.																																							
Senile Dementia	..	..	..	..	..	..	1	2	3	..	..	..	..	..	..	1	2	3	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2
Old Age	..	..	..	..	..	..	..	74	74	..	..	..	..	..	..	..	81	81	1	2	1	3	4	1	3	2	1	4	8	2	3	10	11	3	8	9	5	8	1	..
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																																							
Suicide by Poison	..	..	..	..	..	1	..	..	3	..	..	..	..	..	1	1	..	2	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	3
,, Asphyxia	..	..	..	..	1	6	2	2	11	..	..	..	..	..	6	1	2	9	..	..	..	1	1	1	..	1	1	1	..	1	..	..	2	..	..	..	..	2	3
,, Hanging and Strangulation	..	..	..	..	..	1	3	1	5	..	..	..	..	1	3	1	..	5	..	..	..	..	..	1	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..
,, Drowning	..	..	..	..	1	1	..	..	2	..	..	..	..	..	2	2	..	4	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	1	..
,, Firearms	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	1	..	2	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
,, Cutting and Piercing Instruments	..	..	..	..	1	1	4	1	7	..	..	..	..	1	1	2	1	5	..	2	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	1	..	2	5
,, Jumping from High Place	..	..	..	..	..	2	..	..	2	..	..	..	..	..	2	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
,, Crushing	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	2
Acute Accidental Poisoning	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2
Burns (conflagration excepted)	2	8	7	6	3	1	1	5	33	2	6	3	2	..	1	..	5	19	..	3	..	..	1	1	..	1	1	4	1	1	2	..	2	1	..	1	1	14	29
Accidental Mechanical Suffocation	2	..	..	1	..	..	..	..	3	2	..	..	1	..	..	..	..	3	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..
Accidental Absorption of Poisonous Gas	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	1	1	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Accidental Drowning	..	..	..	..	2	4	4	3	13	..	..	..	..	2	3	5	3	13	..	..	1	1	..	..	..	..	1	2	2	1	1	1	1	2	2	1	..	2	2	2
Injury by Fall	..	..	1	3	..	5	19	29	57	..	..	..	1	..	9	9	25	35	..	..	1	2	..	..	..	..	2	1	2	4	1	1	1	5	..	2	2	1	22	46
Injury in Mines and Quarries	..	..	..	..	5	5	7	3	20	..	..	..	..	2	1	1	..	4	..	..	..	..	..	..	..	..	2	1	..	..	..	..	1	..	..	..	..	1	17	18
Injury by Machines	..	..	..	..	2	..	..	..	2	..	..	..	2	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1	2
Injury by other Crushing (vehicles, railways, landslides, &c.)	..	1	5	15	18	25	23	11	98	..	1	2	7	6	10	11	3	40	1	1	1	2	1	2	1	2	1	4	2	4	1	1	3	6	..	2	5	5	63	88
War Wounds	..	..	..	..	..	1	..	..	1	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1
Lightning	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Electricity (Lightning excepted)	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Manslaughter (motor vehicle)	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1
Self Induced Abortion	..	..	..	..	..	2	..	..	2	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Unstated Forms of Accidental Violence	..	..	1	..	..	1	1	..	3	..	1	..	..	..	1	1	..	3	..	..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2
XV.—ILL-DEFINED CAUSES.																																							
Sudden Death	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..
Cause not specified	..	..	..	1	..	..	3	4	8	..	..	..	1	..	..	2	3	6	..	..	..	1	1	1	..	..	..	1	..	..	..	1	..	..	..	..	3	1	..
Total	633	183	174	184	289	647	1249	1552	4911	467	159	128	111	183	411	940	1406	3805	33	136	225	288	198	237	173	135	216	208	244	180	119	167	211	231	242	226	336	145	1251	2513

CAUSES OF DEATH AT DIFFERENT PERIODS OF LIFE FOR 1931.

(Registrar General's Return.)

Causes of Death.	Sex	All Ages	0–	1–	2–	5–	15–	25–	35–	45–	55–	65–	75–
All Causes	M.	2062	256	99	72	62	92	90	116	254	317	414	290
	F.	1751	211	61	56	51	87	98	109	133	237	355	353
1—Typhoid and Paratyphoid Fevers	M.	1	..	..	..	..	..	..	..	..	1	..	..
	F.	2	..	..	..	..	..	..	2	..	..	..	..
2—Measles	M.	74	14	33	19	8	..	..	..	..	..	..	..
	F.	55	15	17	14	9	..	..	..	..	..	..	..
3—Scarlet Fever	M.	4	..	..	2	2	..	..	..	..	..	..	..
	F.	2	..	..	2	..	..	..	..	..	..	..	..
4—Whooping Cough.	M.	32	6	15	10	1	..	..	..	..	..	..	..
	F.	24	6	6	11	1	..	..	..	..	..	..	..
5—Diphtheria	M.	3	1	2	..	..	..	..	..	..	..	..	..
	F.	3	1	..	2	..	..	..	..	..	..	..	..
6—Influenza	M.	34	1	1	..	2	2	1	5	7	3	6	6
	F.	48	4	..	..	2	2	7	5	4	9	6	9
7—Encephalitis Lethargica	M.	9	..	..	..	..	2	..	2	2	3	..	..
	F.	4	..	..	..	..	..	..	1	1	1	1	..
8—Cerebro-spinal fever	M.	15	4	2	2	2	3	1	1	..	..	..	..
	F.	11	1	..	3	2	3	..	1	1	..	..	..
9—Tuberculosis of respiratory system	M.	182	3	1	3	4	37	35	33	40	18	7	1
	F.	122	1	1	..	7	44	26	23	11	6	3	..
10—Other Tuberculous diseases	M.	48	5	8	6	13	5	2	3	2	3	..	1
	F.	40	2	1	2	13	12	6	1	..	1	2	..
11—Syphilis	M.	17	1	..	..	..	..	..	2	7	5	2	..
	F.	4	1	..	..	..	..	..	1	2	..	..	..
12—General paralysis of the insane, tabes dorsalis	M.	12	..	..	..	..	..	..	3	7	..	2	..
	F.	6	..	..	..	..	..	1	1	2	1	..	1
13—Cancer, malignant disease	M.	203	..	..	..	..	3	3	2	33	68	67	27
	F.	167	..	..	..	..	..	6	14	25	40	53	29
14—Diabetes	M.	7	..	..	..	..	..	..	1	2	3	1	..
	F.	34	..	..	..	..	..	2	2	1	8	14	7
15—Cerebral hæmorrhage, etc.	M.	65	..	..	..	..	..	1	..	7	21	23	13
	F.	62	..	..	..	..	..	2	1	6	13	27	13
16—Heart Disease	M.	342	..	..	1	1	6	8	16	40	68	129	73
	F.	297	..	..	..	2	3	12	15	22	61	105	77
17—Aneurysm	M.	12	..	..	..	..	..	..	3	5	3	1	..
	F.	1	..	..	..	..	1	..	..	..	..	..	..
18—Other circulatory diseases	M.	155	1	..	..	..	..	..	..	9	27	50	68
	F.	120	..	..	..	..	..	1	..	4	11	42	62

Causes of Death at different periods of life for 1931—*continued.*

Causes of Death.	Sex	All Ages	0–	1–	2–	5–	15–	25–	35–	45–	55–	65–	75–
19—Bronchitis	M.	123	31	5	1	1	3	4	5	10	13	26	24
	F.	115	15	6	1	2	1	..	2	6	12	23	47
20—Pneumonia (all forms)	M.	147	46	15	14	5	6	5	6	13	12	18	7
	F.	126	36	23	14	4	3	6	6	6	8	11	9
21—Other respiratory diseases	M.	20	1	1	1	..	..	2	..	2	4	5	4
	F.	25	2	1	..	..	1	2	2	..	4	8	5
22—Peptic Ulcer	M.	29	..	..	..	..	..	6	4	9	6	3	1
	F.	4	..	..	..	..	..	..	..	1	2	..	1
23—Diarrhœa, etc.	M.	24	21	..	..	1	..	..	1	1	..	..	..
	F.	28	25	1	..	1	..	..	..	..	..	1	..
24—Appendicitis	M.	12	..	..	..	2	2	1	..	3	2	1	1
	F.	6	..	..	..	1	2	..	2	1	..	..	..
25—Cirrhosis of Liver	M.	5	..	..	..	..	..	..	1	1	1	1	1
	F.	9	..	..	..	..	..	..	2	2	3	1	1
26—Other Diseases of Liver, etc.	M.	6	..	..	..	..	..	..	..	1	2	2	1
	F.	13	..	..	..	..	..	1	..	2	6	2	2
27—Other Digestive Diseases	M.	33	11	2	1	2	2	..	2	3	3	4	3
	F.	24	2	..	1	1	3	1	..	1	6	5	4
28—Acute and Chronic Nephritis	M.	71	1	..	2	2	2	..	3	6	24	22	9
	F.	71	..	..	..	..	..	2	2	15	22	15	15
29—Puerperal Sepsis	F.	9	..	..	..	..	1	4	4	..	..	..	..
30—Other Puerperal causes	F.	11	..	..	..	..	3	6	2	..	..	..	..
31—Congenital Debility, Premature Birth, Malformations, etc.	M.	85	84	..	1	..	..	..	..	..	..	..	..
	F.	80	79	..	1	..	..	..	..	..	..	..	..
32—Senility	M.	31	..	..	..	..	..	..	..	..	..	7	24
	F.	54	..	..	..	..	..	..	..	..	1	8	45
33—Suicide	M.	28	..	..	..	..	2	3	4	9	7	3	..
	F.	8	..	..	..	..	1	3	2	1	..	1	..
34—Other Violence	M.	94	4	6	5	9	10	8	11	14	6	12	9
	F.	36	3	..	2	4	..	1	1	2	5	8	10
35—Other Defined Diseases	M.	136	21	8	4	7	7	10	8	20	13	21	17
	F.	130	18	5	3	2	7	9	17	17	17	19	16
36—Causes Ill-defined, or Unknown	M.	3	..	..	..	..	..	..	..	1	1	1	..
	F.	..	..	..	..	..	..	..	..	..	..	..	..

Under 1 Year.

	Legitimate.	*Illegitimate.*
(M.)	247	9
(F.)	197	14

HOSPITALS.

Name.	Purpose.	No. of Beds.	For Newcastle Cases.	For Cases from outside City.
MUNICIPAL.				
City Hospital for Infectious Diseases	Infectious Diseases, Tuberculosis .	338	338	..
Smallpox and Isolation Hospitals	Smallpox and Isolation	172	172	..
Newcastle General Hospital	General, Medical, and Surgical	Men 239 Women 247 Children 155	641	..
Barrasford Sanatorium, Barrasford	Tuberculosis ...	90	70	20
Newcastle Mental Hospital, Gosforth	Mental.....	1060	1060	..
Shotley Bridge Colony, Shotley Bridge	Mental Defectives	400	400	..
St. Mary Magdalene Hospital, Newcastle	Chronic Sick ...	96	96	..
VOLUNTARY.				
Royal Victoria Infirmary, Newcastle	General, Medical and Surgical, Venereal Diseases, &c.	586	150	436
Fleming Memorial Hospital, Newcastle	Children	100	36	64
Princess Mary Maternity Hospital, Newcastle	Maternity	90	40	50
Eye Infirmary, Newcastle	Eyes	30	7	23
Throat, Nose and Ear Hospital, Newcastle	Throat, Nose and Ear	33	..	..
Hospital for Diseases of the Chest, Newcastle	Diseases of the Chest	Out patients only.		
Catherine House, Newcastle	Maternity	21	..	..
Children's Hospital and Mothercraft Centre, Newcastle	Children	22	9	13
Stannington Sanatorium, Stannington	Tuberculosis (Children)	310	30	280
Dental Hospital, Newcastle	Dental	Out patients only.		
Walker Accident Hospital	Shipyard Accidents	24	24	..

REPORT OF THE
MATERNITY AND CHILD WELFARE
MEDICAL OFFICER.

II.—THE CHILD.

INFANTILE MORTALITY, MATERNITY AND
CHILD WELFARE, NURSING HOMES.

INFANTILE MORTALITY.

SUMMARY OF BIRTHS AND DEATHS, 1931.

	LEGITIMATE.			ILLEGITIMATE.			Grand Total.
	M.	F.	Total.	M.	F.	Total.	
Total Births in the Year ..	2,895	2,847	5,742	169	147	316	6,058
Net „ „ „ ...	2,443	2,406	4,849	100	107	207	5,056
Net Deaths under 1 year ..	245	200	445	10	12	22	467
Death Rate per 1,000 births	100	83	92	100	112	106	92

BIRTHS (CORRECTED) IN WARDS IN THE DIFFERENT QUARTERS OF THE YEAR 1931.

WARD.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	TOTALS.
St. Nicholas'	5	12	3	3	23
St. Thomas'.....	34	33	39	47	153
St. John's	84	75	88	85	332
Stephenson	107	102	86	105	400
Armstrong	76	62	51	77	266
Elswick	48	40	51	45	184
Westgate	68	76	64	70	278
Arthur's Hill	22	22	25	21	90
Benwell	84	111	92	93	380
Fenham	90	90	102	89	371
All Saints'	92	65	101	83	341
St Andrew's	56	61	42	51	210
Jesmond	18	30	20	33	101
Dene	55	52	40	39	186
Heaton	41	47	43	45	176
Byker	87	77	63	80	307
St. Lawrence	113	98	93	81	385
St. Anthony's	67	100	81	90	338
Walker	144	139	125	127	535
CITY	1,291	1,292	1,209	1,264	5,056

DISTRIBUTION OF DEATHS.

Wards.	Net Deaths of Children under 1 year of age in 1931.					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	130	10·7
St. Thomas' ..	..	2	2	2	6	39	11·1
St. John's	11	11	7	6	35	105	24·6
Stephenson ...	15	18	7	12	52	130	22·1
Armstrong ...	13	9	2	6	30	113	18·6
Elswick	7	3	7	3	20	109	14·1
Westgate	3	3	4	3	13	47	20·7
Arthur's Hill .	2	1	1	1	5	56	9·8
Benwell	13	6	7	8	34	89	19·7
Fenham	1	5	7	4	17	46	15·0
All Saints'	6	11	10	9	36	105	23·4
St. Andrew's .	2	8	7	8	25	119	20·1
Jesmond.....	..	..	..	1	1	10	9·2
Dene	..	1	2	5	8	43	10·7
Heaton	5	3	1	2	11	62	13·5
Byker	11	9	7	6	33	107	19·7
St. Lawrence .	21	10	3	10	44	114	21·9
St. Anthony's .	16	10	7	7	40	118	22·0
Walker	24	10	9	11	54	101	19·7
City.....	150	122	91	104	467	92	17·8

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

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 2ND JANUARY, 1932.

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.	
EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES.																					
Measles	..	..	..	..	..	..	3	8	19	30	..	..	..	..	..	..	3	8	18	29	9
Whooping Cough	..	..	..	..	..	2	1	4	6	13	..	..	..	..	..	2	1	4	6	13	3
Diphtheria	..	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	1	1	2	2
Influenza	..	..	..	..	..	..	3	1	2	6	..	..	..	..	..	..	3	1	1	5	2
Erysipelas	1	..	..	..	1	1	..	2	..	4	..	..	..	..	..	1	..	1	..	2	3
Cerebro-Spinal Fever	..	..	..	..	..	..	..	4	4	8	..	..	..	..	..	..	..	3	2	5	7
Dysentery	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2
Stomatitis	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	1
Tuberculosis of the Respiratory System	..	..	..	..	..	..	2	3	1	6	..	..	..	..	..	..	1	2	1	4	5
Tuberculosis of the Central Nervous System	..	..	..	..	..	..	..	3	2	5	..	..	..	..	..	..	..	3	2	5	1
Tuberculosis of the Peritoneum and Intestines	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
Disseminated Tuberculosis	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	1	..
TOTAL TUBERCULOSIS	..	..	..	..	..	..	3	7	3	13	..	..	..	..	..	..	1	6	3	10	6
Pyæmia, Septicæmia	..	..	..	..	..	3	1	1	2	7	..	..	..	..	..	..	..	..	..	..	6
Syphilis	1	..	..	..	1	1	..	1	..	3	1	..	..	..	1	1	..	..	..	2	1
GENERAL DISEASES NOT INCLUDED ABOVE.																					
Rickets, Softening of Bones	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	1
Diseases of the Thymus	1	..	..	..	1	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	2
Other General Diseases	..	..	..	..	..	1	1	..	3	5	..	..	..	..	..	..	1	..	..	1	4
Tumours (not Malignant)	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1
DISEASES OF NERVOUS SYSTEM AND SENSE ORGANS.																					
Meningitis	..	1	..	..	1	..	2	3	..	6	..	1	..	..	1	..	1	2	..	4	3
Epilepsy	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	..
Infantile Convulsions	4	4	2	..	10	4	2	1	1	18	4	4	2	..	10	4	2	1	1	18	..
Mastoid Disease	..	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	..	1
Other Diseases of the Nervous System	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	1	..
Other Organic Disease of the Heart	..	..	..	..	..	1	1	2	1	5	..	..	..	..	..	1	1	2	1	5	4
Diseases of the Lymphatic System	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	1
DISEASES OF RESPIRATORY SYSTEM.																					
Bronchitis	3	5	3	3	14	12	13	9	1	49	3	5	3	3	14	12	13	8	1	48	5
Broncho-pneumonia	..	..	2	1	3	9	14	22	15	63	..	..	2	1	3	6	12	20	15	56	20
Lobar Pneumonia	..	..	1	..	1	..	1	..	2	4	..	..	..	..	..	..	1	..	2	3	3
Pneumonia (type not stated)	..	..	..	..	..	4	2	2	7	15	..	..	..	..	..	4	2	2	7	15	..
Pleurisy	..	..	..	..	..	..	1	..	1	2	..	..	..	..	..	..	1	..	..	1	1
Laryngismus Stridulus	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..
Other Diseases of the Respiratory System	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	1
Carried forward	10	10	8	4	32	41	54	70	70	267	8	10	7	4	29	32	45	60	60	226	89

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 2ND JANUARY, 1932.

CAUSE OF DEATH.	AGE PERIODS.																				Deaths in Institutions in the City of "Residents" or "Non-Residents."
	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.	
Brought forward	10	10	8	4	32	41	54	70	70	267	8	10	7	4	29	32	45	60	60	226	89
DISEASES OF DIGESTIVE SYSTEM.																					
Other Diseases of the Stomach	1	..	..	..	1	2	2	..	..	5	1	..	..	..	1	2	2	..	..	5	..
Diarrhœa and Enteritis.....	..	3	3	4	10	16	18	18	10	72	..	2	2	2	6	7	13	15	9	50	34
Hernia, Intestinal Obstruction	..	..	1	..	1	3	7	3	2	16	..	..	..	..	..	..	4	2	..	6	14
Peritonitis	..	..	..	1	1	..	..	..	..	1	..	..	..	1	1	..	..	..	..	1	..
Other Diseases of the Intestines.....	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1
Other Diseases of the Liver.....	..	..	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	2
NON-VENEREAL DISEASES OF GENITO-URINARY SYSTEM AND ANNEXA.																					
Acute Nephritis	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	..
Diseases of the Kidney and Annexa	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Cystitis.....	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..
Non-Venereal Disease of the Male Genital Organs	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1
DISEASES OF SKIN AND CELLULAR TISSUE.																					
Phlegmon—Acute Abscess	..	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Diseases of the Integumentary System.....	..	..	1	..	1	1	..	..	..	2	..	..	..	..	..	1	..	..	..	1	2
DISEASES OF BONES, &c.																					
Diseases of the Joints	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	1
MALFORMATIONS.																					
Congenital Malformations	22	5	1	2	30	18	10	1	3	62	13	2	1	2	18	8	3	..	2	31	41
DISEASES OF EARLY INFANCY.																					
Premature Birth	104	12	8	2	126	7	1	..	..	134	80	8	5	2	95	6	1	..	..	102	50
Congenital Debility and Sclerema	3	1	1	2	7	4	2	..	..	13	3	1	..	2	6	4	1	..	..	11	5
Icterus Neonatorum.....	..	2	1	..	3	1	..	..	..	4	..	2	1	..	3	1	..	..	..	4	..
Atelectasis	8	..	..	1	9	1	..	..	..	10	6	..	..	1	7	1	..	..	..	8	2
Diseases of Umbilicus	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	1
Injuries at Birth	16	6	2	..	24	1	2	..	..	27	5	2	1	..	8	..	2	..	..	10	22
Lack of Care	2	..	..	..	2	..	..	..	..	2	2	..	..	..	2	..	..	..	..	2	..
Other Diseases of Early Infancy.....	2	..	..	..	2	..	1	..	..	3	2	..	..	..	2	..	..	..	..	2	..
AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																					
Burns (Conflagration excepted)	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	2	2	1
Accidental Mechanical Suffocation.....	..	..	1	1	2	..	..	..	..	2	..	..	1	1	2	..	..	..	..	2	..
TOTAL	168	39	27	18	252	99	101	92	89	633	120	27	18	15	180	63	72	77	75	467	267

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	1923	1924	1925	1926	1927	1928	1929	1930	1931
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	98	100	88	88	88	82	85	74	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	58·6	64·1	62·1	61·0	57·2	54·4	59·0	53·4	52·9	55·6	50·8	52·5	46·7	48·1
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	21·2	26·7	19·0	20·6	22·6	20·6	24·5	17·8	20·2
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	41·5	45·5	38·6	38·6	38·6	35·4	38·8	33·7	34·2
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	11·5	9·6	11·6	13·1	9·3	13·4	15·0	11·3	12·5
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	11·5	9·5	10·3	7·7	6·5	4·4	3·7	4·6	2·2
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	4·87	1·10	1·9	1·7	0·6	2·2	3·7	0·5	5·7
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	5·3	1·9	4·2	3·8	1·3	3·9	1·4	2·5	2·6
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	23·6	27·9	22·7	18·1	27·1	16·6	16·4	16·8	24·7
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	2·2	1·6	0·6	2·0	2·4	1·3	1·0	1·1	2·0

For particulars of deaths, as to causes, etc., see Tables on pages 66A and 66B.

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

*"*All Congenital Causes*" includes Syphilis, Congenital Defects, and Diseases of Early Infancy.

†"*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.

DEATHS OF CHILDREN UNDER SCHOOL AGE.

The mortality rate in 1931 among children, aged 1 to 5 years, was 13·1 per 1,000 of the total births occurring in the years 1927 to 1930 (inclusive). The corresponding figure for each of the previous five years was as follows:—1930, 7·4; 1929, 11·1; 1928, 9·9; 1927, 9·5; 1926, 11·1.

Report of the Maternity and Child Welfare Medical Officer.

To the Medical Officer of Health.

Sir,

I have the honour to submit to you my twelfth annual report.

General.

The year 1931 was remarkable for the unseasonable weather prevailing during the summer months. Normally children derive a considerable amount of benefit in health from summer sunshine and warmth—the latter so necessary and acceptable in our northern area to counteract the cold of winter. Both sunshine and warmth were lacking in the summer of 1931, so it is not surprising to find a considerable increase in the number of deaths of young children in the City from respiratory diseases.

A severe epidemic of measles raged during the early months of the year, and took a heavy toll in infant lives. The infant mortality from measles in 1931 was the highest since 1915, and this fact, combined with a new low record in births in the City, accounts almost entirely for the increased total infantile mortality. These untoward conditions are carefully noted as they arise, and every effort is made to counteract them.

Wide use of a cod-liver oil emulsion, with an added iron content, recommended and distributed at cost price through the Centres, together with artificial sunlight will, it is hoped, have done something to minimise the harmful effects of the poor summer on the City's

children; but at the best, these are only indifferent substitutes for the real thing. The Health Visitors were assiduous in their efforts to end the ravages of the measles epidemic, and they visited over eighty-nine per cent. of the notified cases.

It is gratifying to be able once more to report a slight fall in the City's maternal mortality (4·6, as compared with 5·36 in 1930), and there was a substantial decrease in the number of septic cases. The investigation of each of these maternal deaths in accordance with the custom in existence for the last four years continues, and the official reports are forwarded to the Ministry of Health for expert supervision.

In an effort to help the poor mothers in the City in their household difficulties, cookery demonstrations were arranged during the year, and have been given every week at certain Centres. As is well known, a great many women are limited in their cooking arrangements to food which can be prepared on an open fire, and it is little wonder that the art of cooking is gradually but surely disappearing among such mothers. It was felt, therefore, that demonstrations on the preparation of simple and inexpensive meals suitable for themselves and their children would not only help, but would also revive flagging interest in the culinary art.

The Gas Company was approached in the matter, and through its responsible officials gave ready and willing response. Weekly demonstrations were commenced at Wharncliffe Street Centre in May, and subsequently at Diana Street, and it is proposed to extend the demonstrations to all the Centres as, and when, circumstances permit.

MATERNITY.

5,056 live, and 204 stillborn births occurred in the City during the year. 23 women died as a result of childbirth, a death rate of 4·5 per thousand live births.

The following table gives the causes of these deaths, with a five year comparison :—

Causes.	1931	1930	1929	1928	1927	1926
Abortions	..	1	1	2	..	4
Accidents of Pregnancy	1	2	2	2	3	1
Puerperal Hæmorrhage	5	3	4	3	2	3
Other Accidents of Child-birth	2	4	5	4	5	1
Puerperal Fever	9	14	11	9	4	5
Puerperal Albuminuria and Convulsions	4	2	6	4	4	4
Puerperal Phlegmasia	2	2	1	1	2	1
Puerperal Insanity	..	..	..	1	..	..
Puerperal Disease of Breast	..	..	..	1	..	..
	23	28	30	27	20	19

As will be seen from the above table, there is a slightly lower maternal mortality rate, and a decrease in the number of deaths from sepsis.

Ante-Natal Supervision.

1,579 expectant mothers attended the City Centres 4,670 times.

The following table shows the attendances at the ante- and post-natal clinics :—

Centre.	Ante-Natal.		Post-Natal.	
	Attendance.	Individuals.	Attendance.	Individuals.
Benwell	748	246	99	10
Byker	1032	354	29	9
Diana Street	788	308	10	1
Elswick	572	199	25	2
St. Peter's (2 months)	44	27	1	1
Walker	513	199	1	1
Wharncliffe Street	765	178	26	14
Cowgate (10 months).	208	68	9	..
	4,670	1,579	200	38

Women Attending Ante-Natal Centres.

The following details refer to the confinements of 1,190 expectant mothers who attended the municipal ante-natal centres during 1931, and whose children were born during that year.

These mothers were sent to the ante-natal centres by :—

	Cases.	*Percentage.*
Doctors	124	10·5
Midwives	266	22·3
Health Visitors on Districts	98	8·2
Welfare Centres and Voluntarily	702	59·0
	1,190	

The result of the subsequent confinements were:—

Type of Confinement.	Number of Cases.	Resulting in		
		Living Children.	Still-born Children.	Sets of Twins.
Normal	899	857	27	15
Instrumental	158	135	19	4
Cæsarian Section	9	8	1	..
Induction	12	11	1	..
Abortion	22	..	..	..
Not Pregnant	75	..	..	..
Left City	15	..	..	..
Total	1,190	1,011	48	19

Abnormalities were found in 84, or 7 per cent. of the cases, and the ultimate results were as follows :—

Abnormality.	No.	Normal Confinements.			Instrumental Confinements.			Caesarian Sections.			Labour Induced.		
		No.	Living Children.	Still-born Children.	No.	Living Children.	Still-born Children.	No.	Living Children.	Still-born Children.	No.	Living Children.	Still-born Children.
Breach Presentation	28	12	12	..	12	9	3	4	3	1	..	..	..
Twin Pregnancies ..	18	15	30	..	3	6	..	..	..	..	..	..	..
Deformed Pelvis ...	7	1	1	..	1	1	..	5	5	..	..	..	..
Albuminuria.....	17	17	17	..	..	..	..	..	..	..	..	..	..
Placenta Prævia. ..	14	9	5	4	5	1	4	..	..	..	..	..	..

5 mothers subsequently died : Septicæmia 3 ; Eclampsia 1 ; Heart Disease 1.

MIDWIVES ACTS.

During the year 37 midwives notified the Local Supervising Authority of their intention to practise in the City, and of these 34 held the examination certificate of the Central Midwives Board, and three were registered as having been in *bona fide* practice before the passing of the 1902 Act.

Inspections—203 visits were paid by the Superintendent of Midwives to the homes of certified midwives for the purpose of inspecting midwifery bags and appliances, and to see that the necessary records of their work were being satisfactorily kept, also to investigate cases of ophthalmia neonatorum, septicæmia, or other abnormalities occurring in their practices. In addition, 146 visits were paid to midwives' cases on account of some abnormal condition. The results of these inspections were generally satisfactory.

The disinfection of the clothing and appliances of midwives was carried out in 21 cases after their having been in contact with puerperal septicæmia or pyrexia, or other infectious disease.

Births attended by Midwives.—1,691 (net) living births (a decrease of 152 on the previous year) and 50 (net) stillbirths (two more than in 1930) were attended by midwives during the year. Midwives attended 33 per cent. of the net births in the City, a lower percentage than in 1930. In addition midwives attended in the capacity of maternity nurses with doctors in 455 cases, as compared with 294 in 1930. This higher figure more than balances the decrease in the number of births attended by midwives only.

The closest co-operation and loyalty exists between the midwives practising in the City and the staff of the Health Department, and midwives are encouraged to send their cases to the ante-natal clinics. Much benefit was derived by those mothers who were sent, as well as by the midwives concerned. The midwives carry out, according to the C.M.B. rules, ante-natal care of their patients, and keep the records of their visits very accurately.

The post graduate course of six lectures with practical demonstrations was again given this year by different doctors on subjects of special interest to the midwives and health visitors. These lectures were given at Diana Street Centre, and were highly appreciated and of the greatest value to those who attended.

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

For the Mother.

During Pregnancy—

Ante Partum Hæmorrhage ...	27
Abortions	8
Illness	24
	59

During Labour—

Uterine Inertia	114
Malpresentations	46
Retained Placenta	6
Post Partum Hæmorrhage ...	7
Ruptured Perineum	91
Placenta Prævia	3
	267

During Puerperium—

Rise of Temperature.....	22
Eclampsia.....	2
Undefined Illness of Mother ..	40
	64
Total calls for mother	390

For Child.

Prematurity	36
Discharging Eyes	31
Cyanosis	2
Congenital Defects	6
Convulsions	2
Illness of Baby	15
Still-births	4
Rashes	3
	99
Total calls for mother and child	489

In 25 per cent. of the midwives' cases the services of a doctor were requisitioned.

Claims from Doctors for Fees in respect of calls from Midwives :—

	Cases.
For forceps delivery.....	138
For post partum hæmorrhage	23
For illness of mother	64
For illness of child	33
For premature birth	12
For discharging eyes	20
Other	77
Specialists called in.....	9
Total cases	376

As there was a total number of 489 calls for medical aid from the midwives, 77 per cent. of these calls were paid by the Local Supervising Authority.

Five claims for *payment of midwife's fee* were received.

Ophthalmia Neonatorum.

The number of cases notified was 64, of which 54 were City cases. 53 of these were visited, the remainder being cases occurring in hospital, or admitted to hospital from outside areas. This number is a decrease of 39 on that for 1930. The confinements were attended by :—

Doctors	17
Midwives	16
Maternity Hospital	28
Gables	1
Cases resident outside the City sent into R.V.I. for treatment	2
	64

277 calls were made on the 53 visited cases in the City, and the ultimate results were :—

Recovered completely	47
Died	5
Slightly defective	1
	53

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

1922	9·9
1923	11·0
1924	8·0
1925	8·0
1926	9·5
1927	10·7
1928	12·9
1929	14·0
1930	16·6
1931	10·4

Puerperal Septicæmia and Puerperal Pyrexia.

172 cases were notified during the year—45 puerperal fever, and 127 pyrexia. 97 were from outside the City area and were admitted to hospitals in the City. Of the remaining 75, 70 were visited. The following table shows the attendance at birth :—

	Puerperal Septicæmia.	*Puerperal. Pyrexia.*
Doctors	4	6
Doctors and Midwives	2	6
Midwives	3	9
Princess Mary Maternity Hospital Staff	5	27
Newcastle General Hospital	3	4
Royal Victoria Infirmary	1	..
	18	52

Visited City Cases Treated in Hospitals.

	No.	*Deaths.*
Puerperal Septicæmia	15	8
Puerperal Pyrexia	37	..

Nursing Homes Registration Act, 1927.

All the maternity and nursing homes in the City (18) were inspected during the year. The standard of conduct generally was good, and the essential requirements, such as sufficient air space and efficient sanitation, a trained

staff numerous enough to meet all reasonable needs, scrupulous cleanliness, good book-keeping, and suitable appliances for dealing with fire, were found, without exception.

CHILDREN.

Births.—There were 5,056 children born alive in the City in 1931, and of these 2,543 were boys and 2,513 girls—that is, there were 30 more boy babies than girls. As usual, death claimed more boys than girls—100 per 1,000 of the former, compared with 84 per 1,000 of the latter, dying during their first year.

18·4 per cent. of the City's births occurred in institutions, as shown in the following table :—

Nursing Homes	54
Maternity Hospital (inside)	696
Gables Maternity Home	120
Newcastle General Hospital	96
	966

Illegitimate Births.—207 illegitimate children were born—18 more than in the previous year. These died at the rate of 106 per 1,000 (compared with 92 per 1,000 legitimate births).

Birth Rate.—The birth rate for the year 1931 was 17·8 per 1,000 of the population. This is a decrease on the previous year, and the lowest on record.

Deaths.—There were more infant deaths in 1931 (467) than there were in the previous year (384).

As usual, the premature, multiple, and illegitimate births resulted in an excessive number of deaths, as will be seen from the following table :—

	1927	1928	1929	1930	1931
Deaths of children during first week of life	154	157	145	117	120
Deaths of children during first month	222	205	207	177	180
Deaths from prematurity	122	112	126	93	102
Deaths of twins and triplets	41	36	49	29	42
Death-rate of illegitimate children (per 1,000 illegitimate births)	129	157	133	101	106

The Pre-School Child.—The children of pre-school age are still receiving the closest and most careful consideration, and, as will be seen from the following table, parents are responding to our interest and are bringing the children in larger numbers to the Centres yearly.

TODDLERS ATTENDING THE CENTRES.

YEAR.	NUMBER OF CHILDREN.
1926	2,268
1927	2,542
1928	2,591
1929	2,779
1930	3,418
1931	4,257

At most of the centres these children are now seen every week at a special session devoted entirely to them, and a big step forward in dealing with them has been the dental treatment provided.

Play Centres

The three play centres (or nursery schools, as they are usually termed) at Diana Street, Wharncliffe Street and St. Peter's, continue to flourish, and are especially valued in wintry weather. The numbers attending are satisfactory, and once again public recognition is made of the kindness and self-sacrifice of the ladies who voluntarily conduct these centres.

Municipal Training Course for Health Visitors.

The second Training Course for Health Visitors began in October, seventeen students being enrolled.

Unlike its predecessors, this Course was an independent one, none of the students receiving any salary during their training. Thus those students who qualify in April, 1932, will be free to take appointments in any part of the country at once.

Staff Changes.

Two Health Visitors resigned : Miss H. Morton and Mrs. M. Nicholson, and the following ex-student Health Visitors were appointed : Miss D. A. Atkinson, Miss M. Batty, Miss A. Craggs, Miss M. W. Laing, Miss P. E. Pearse, Miss R. Roxby, Miss E. G. Sayer, Miss M. Scorer, Miss L. Youell.

Welfare Centres.

The following table shows the geographical position of the Centres in the City, together with details of Centre days :—

Centre.	Address.	Women and Children.	Medical Officer.	Health Visitor.	Ante-Natal Sessions.
Benwell	Y.W.C.A. Club, Buddle Road	Monday..... Thursday	Dr. Olga Alcock	Miss Willson....	Friday, 2 p.m. Mr. Harvey Evers.
Byker	Corner of Dalton Street and Shipley Street	Monday..... Tuesday	Dr. Gertrude Hickling Dr. Isabella Lane ...	Miss Johnson ..	Friday, 2 p.m. Dr. Mabel Campbell.
City	Princess Mary Maternity Hospital, Jubilee Road	Friday	Dr. A. F. G. Spinks..	Miss Pritchard .	Thursday, 2 p.m. Mr. Harvey Evers.
Diana Street, Westgate ...	25, Diana Street	Tuesday ..... Friday	Dr. Olga Alcock	Miss Hastie	Wednesday, 10 a.m. Mr. Harvey Evers.
Elswick	Elswick Wesleyan Church Hall, Malvern Street.....	Monday..... Thursday	Dr. Glen Davison ...	Miss Hatfield ..	Tuesday, 2 p.m. Mr. Harvey Evers.
Scotswood	Denton Road	Tuesday	Dr. Isabella Lane....	Miss Carr	Benwell (see above).
Shieldfield.....	St. Jude's Parish Hall, Dinsdale Road	Monday..... Thursday	Dr. A. F. G. Spinks..	Miss Mason.....	Byker (see above).
Spital Tongues.....	Dunn's Cottages	Tuesday (Afternoon only)	Dr. Mabel Campbell	Miss Simpson ..	Diana St. (see above) or Wharncliffe Street (see below).
St. Peter's	Corner of Glasshouse Street ...	Wednesday... Friday	Dr. C. N. Armstrong. Dr. Glen Davison ...	Miss Hisco	Byker (see above).
Walker	Presbyterian Church Hall, Church Street	Monday..... Thursday	Dr. A. G. Ogilvie.... Dr. C. N. Armstrong.	Miss Thompson .	Tuesday, 10 a.m. Mr. Harvey Evers.
Wharncliffe Street, Scotswood Road	18, Wharncliffe Street	Wednesday...	Dr. Mabel Campbell	Miss Shell	Tuesday, 10 a.m. Dr. Mabel Campbell.
Fenham and Cowgate.....	Church Hall, Grange Road ...	Friday	Dr. Gertrude Hickling	Miss Worrall ...	Monday, 10 a.m. Mr. Harvey Evers.
Walkergate.....	St. Oswald's Mission Room, Walpole Street Walkergate	Thursday	Dr. Gertrude Hickling	Miss Phillips....	Tuesday, 10 a.m. (see Walker above).
Heaton	St. Gabriel's Parish Hall, Chillingham Road	Wednesday...	Dr. A. F. G. Spinks..	Miss Lewis	(See Byker above).

MATERNITY AND CHILD WELFARE CENTRES, 1931.

Month.	Ante-Natal Sessions.	Ante-Natal.		Post-Natal.		New Children.			Individuals.			Attendances.			Medical Sessions.	
		Attend-ances.	Individ-uals.	Attend-ances.	Individ-uals.	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.
January	21	315	255	15	13	222	36	258	1412	1477	2889	2502	2175	4677	123	38·0
February	28	323	245	18	16	198	48	246	1480	1418	2898	3145	2647	5792	164	35·3
March	35	440	301	26	26	301	61	362	1621	1749	3370	4233	3679	7912	205	38·6
April	22	311	258	13	12	247	65	312	1570	1638	3208	3180	2704	5884	134	43·9
May	28	395	272	17	16	314	109	423	1652	1871	3523	3851	3508	7359	164	44·9
June	24	339	258	15	14	302	77	379	1674	1853	3527	3740	3327	7067	147	48·1
July	21	314	246	10	10	312	69	381	1657	1791	3448	3146	2729	5875	123	47·8
August	27	370	278	13	12	248	46	294	1628	1704	3332	3653	2911	6564	154	42·6
September	35	507	338	19	16	322	99	421	1827	2072	3899	5046	4181	9227	205	45·0
October	28	430	318	24	24	246	81	327	1756	1952	3708	4082	3460	7542	164	46·0
November	28	421	312	15	15	222	56	278	1679	1894	3573	3797	3345	7142	164	43·5
December	33	505	343	15	12	274	59	333	1690	1958	3648	4435	4085	8520	190	44·8
Total	330	4670	*1579	200	*38	3208	806	4014	*4670	*4257	*8927	44810	38751	83561	1937	43·1

* Number of actual individuals during year. The same persons attend during different months, so that these figures do not represent total of column.

Centre.	Ante-Natal Sessions.	Ante-Natal.		Post-Natal.		New Children.			Individuals.			Attendances.			Medical Sessions.		Illegitimate Children.	Individuals.	
		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.		Boys.	Girls.
Benwell	47	748	246	99	10	286	68	354	417	419	836	4306	4273	8579	188	45·6	21	407	429
Byker	47	1032	354	29	9	361	85	446	487	413	900	4344	3503	7847	186	42·2	17	453	447
City Road	..	..	..	..	..	181	43	224	261	248	509	1925	2299	4224	94	44·9	6	243	266
Cowgate	36	208	68	9	..	207	63	270	293	237	530	3124	2533	5657	94	60·2	7	282	248
Diana Street	49	788	308	10	1	366	90	456	546	572	1118	5236	5224	10460	188	55·6	21	548	570
Elswick	47	572	199	25	2	348	86	434	520	453	973	5140	3159	8299	188	44·1	19	502	471
Heaton	..	..	..	..	..	166	59	225	237	163	400	2586	1644	4230	96	44·1	1	211	189
Scotswood	..	..	..	..	..	119	26	145	168	169	337	1585	1668	3253	94	34·6	12	169	168
Shieldfield	..	..	..	..	..	246	53	299	345	346	691	3541	3774	7315	188	38·9	15	343	348
Spital Tongues	..	..	..	..	..	67	16	83	103	76	179	952	578	1530	47	32·6	2	82	97
St. Peter's	10	44	27	1	1	245	59	304	370	421	791	3380	3062	6442	192	33 6	16	409	382
Walker	47	513	199	1	1	274	51	325	419	324	743	3718	3201	6919	188	36·8	18	369	374
Walkergate	..	..	..	..	..	126	61	187	192	159	351	1869	1443	3312	96	34·5	1	183	168
Wharncliffe St.	47	765	178	26	14	216	46	262	312	257	569	3104	2390	5494	98	56·1	11	298	271
Total	330	4670	1579	200	38	3208	806	4014	4670	4257	8927	44810	38751	83561	1937	43·1	167	4499	4428

SUMMARY OF CENTRE REPORT, 1931.

Total Sessions, all Medical	1,937	Average attendance at each	43·1
Total Individuals	8,927	Average visits per individual....	9·4
Total Ante-Natal Sessions	330	Average attendance at each	14·8
Total Ante-Natal and Post-Natal Individuals	1,617	Average visits per individual....	3·01
Benwell Ante-Natal Sessions	47	Average attendance, 18·0; average visits per individual	3·3
Byker Ante-Natal Sessions	47	Average attendance, 22·6; average visits per individual	2·9
Cowgate (10 months)	36	Average attendance, 6·0; average visits per individual	3·2
Diana St. Ante-Natal Sessions ..	49	Average attendance, 16·3; average visits per individual.....	2·6
Elswick Ante-Natal Sessions.....	47	Average attendance, 12·7; average visits per individual.....	3·0
St. Peter's Ante-Natal Sessions ... (2 months)	10	Average attendance, 4·5; average visits per individual.....	1·6
Walker Ante-Natal Sessions	47	Average attendance, 10·9; average visits per individual	2·6
Wharncliffe St. Ante-Natal Sessions	47	Average attendance, 16·8; average visits per individual	4·1
Illegitimate Children Attending ..	167		

Total Deaths (children attending centres)	226 (all ages).
Death Rate ,, ,, ,,	25·3 per 1,000 (all ages).
Death Rate among all the Infants in the City under 1 year.....	92 per 1,000 births.

Attendances at Maternity and Child Welfare Centres.

It will be noted from the following table that the number of individuals attending the Centres continues to increase yearly.

(CHILDREN ONLY.)

YEAR.	No. of Attendances.	No. of Individuals.	Average Attendance per Individual.	Average Attendance at each Session.
1920 ...	22,596	3,751	6·0	44·2
1921 ...	32,538	4,734	6·8	40·7
1922 ...	36,020	4,835	7·4	44·9
1923 ...	42,515	5,153	8·2	46·5
1924 ...	45,766	5,587	8·2	45·5
1925 ...	45,476	5,744	7·9	43·6
1926 ...	50,697	6,467	7·8	46·2
1927 ...	46,672	6,522	7·1	42·4
1928 ...	53,960	6,532	8·3	49·3
1929 ...	52,460	6,574	7·9	48·2
1930 ...	67,626	7,776	8·7	44·2
1931 ...	83,561	8,927	9·4	43·1

Sewing and Knitting Classes.

The attendances at these are well maintained, and the facilities offered and instruction given are much appreciated.

SEWING AND KNITTING CLASSES, 1931.

Centre.	Subject.	Teacher.	Day.	Attendance.	Sessions.	Average.
Benwell	Sewing and Knitting	Miss Crawford	Tuesday	421	47	9·0
Byker	Sewing and Knitting	Mrs. Churnside	Friday	418	47	8·9
City	Sewing and Knitting	Mrs. Churnside	Thursday	782	53	15·0
Diana Street	Sewing and Knitting	Mrs. Churnside	Wednesday	868	64	13·6
Elswick	Sewing and Knitting	Mrs. Churnside	Tuesday	589	47	12·5
Scotswood	Sewing and Knitting	Mrs. Dalton	Tuesday	385	41	9·4
Shieldfield	Sewing	*Mrs. A. Holmes	Tuesday	305	47	6·5
Spital Tongues	Sewing and Knitting	Mrs. Churnside	Monday	636	46	13·8
St. Peter's	Sewing and Knitting	Miss Crawford	Wednesday	294	48	6·1
Walker	Sewing and Knitting	Miss Crawford	Thursday	519	45	11·5
Wharncliffe Street	Sewing and Knitting	Miss Crawford	Friday	416	47	8·8

* Voluntary Worker.

Lectures.

Various lectures or papers relating to Maternity and Child Welfare were given during the year, and the Centres were used for this purpose. Among the most important were those given to medical students and students from the Kenton Lodge Training College. Subsequent to the latter lecture, the students were brought to the Centres in relays to see the practical work done. As all these students in both classes will at some future period come into close contact with young children, it is hoped that this experience will be of help to them.

A valuable series was that given—also at the Centres—by Miss Theobald, of the National Milk Publicity Council, on the value of fresh milk in the diet of children.

Miss Theobald's lectures were given in an original and interesting way—each lecture taking the form of a simple and easily understood story.

Dried Milk.

The following table shews the quantity of dried milk distributed each month during the year 1931:—

Month.	Free.	At Cost Price.
	lbs.	lbs.
January	5,025	2,895
February	5,152	3,200
March	6,579	4,193
April	4,984	3,242
May	5,368	3,355
June	6,114	3,887
July	4,836	3,170
August	4,689	3,390
September	5,543	4,296
October	4,735	3,217
November	5,065	4,219
December	7,532	3,273
	65,622	42,337

Children attending Centres	8,927
Children given free milk	2,557
Percentage	28·6
Expectant mothers given milk	302
Free milk given to children (lbs.)	63,233
Free milk given to expectant mothers (lbs.)	2,389

Boarded-out Children.

The seven boarded-out children in the City—now the concern of the Maternity and Child Welfare Committee—were all carefully and regularly supervised during the year, and were reported on as being satisfactorily cared for.

CHILDREN ACT, 1908 (PART 1).

At the beginning of the year there were 38 nursed-out children in Newcastle, and 42 at the close. All these children have been regularly supervised and kept under observation, and without exception the reports by our Supervisor concerning them were good. In one instance where the dwelling was over a garage and the risk of fire had to be considered, the foster parents were advised of this, and have since acted on the advice and moved to a safer home.

NOTIFICATION OF BIRTHS ACTS.

Of the 6,058 live, and 323 still-births (gross) which were registered in the City in 1931, 5,251, or 82·3 per cent. were notified as follows :—

Notified by.	Gross Living Births.	Gross Still-Births.
Medical Practitioners	349	15
Medical Practitioners and Midwives	448	13
Midwives	1695	51
Maternity Hospital	2136	207
Wingrove Hospital	85	13
Gables Maternity Home	227	8
Parents	2	..
City Hospital for Infectious Diseases	2	..
	4,944	307

Of the 4,944 living births notified, 948 were outside cases born in Newcastle, giving a net figure of 3,996.

Of the 307 still-births, 139 were outside cases. Net 168.

Still-Births.—Of the total net notifications of births received, still-births were in the following proportion :—

Year.	Percentage.	Year.	Percentage.
1922	2·9	1927	3·7
1923	2·9	1928	3·8
1924	2·6	1929	3·7
1925	2·8	1930	4·2
1926	3·1	1931	4·2

Still-births Registered Net	204
Still-births Notified Net	168
Percentage Notified Net	82·4
Still-births Visited Net	200

Duration of Pregnancy.	*No.*	*Percentage. to Total.*
At or under 7 months	48	24
At 7–8 months	29	14·5
At full time	123	61·5

Suggested causes of the still-births :—

	Cases.
(*a*) Ill-health of the mother	33
(*b*) Fœtal deformities and malpresentations and uterine inertia	75
(*c*) Premature delivery, ante-partum hæmorrhage, etc.	33
(*d*) Other causes, including albuminuria	59

The following table shows the position in the family of the still-born child :—

	Cases.		*Cases.*
1st child	51	4th child	15
2nd child	31	5th child	18
3rd child	33	6th child	52

In 157 cases it was the first still-birth, in 27 the second, in 11 the third, and in 5 cases there were more than three previously still-born. 34 per cent. of the still births occurred in hospital. Eight of the mothers subsequently died.

Syphilis was returned as the cause of death in two children below the age of 1 year.

WORK OF HEALTH VISITORS.

26 Health Visitors, including the Chief Health Visitor, were engaged solely in Maternity and Child Welfare work during 1931.

4,755 births were visited, and 23,847 re-visits were paid, an average of 6 visits per child. These give a total of 28,602 visits to children under 1 year.

Summary of Visits.

	Primary.	Subsequent.	Total.
Births	4,755	23,847	28,602
Measles	5,353	7,457	12,810
Pneumonia	980	1,458	2,438
Diarrhœa	22	26	48
Children over One Year	....	....	46,050
Hospital Cases	....	....	593
Expectant Mothers	....	....	2,007
Special Visits	....	....	385
Visits to Boarded out or Nursed out Children	....	....	643
Unsuccessful Visits (Outs and Removals)	....	....	9,169
	....	....	102,745

The addresses of 173 children who left the City were sent to the Medical Officers of Health for the districts to which they had gone.

Infants on Visiting List.

Of 4,790 children born in the City in 1930, 3,956 completed their first year in 1931, and of the remainder:

432 died,
184 left the City,
171 could not be traced,
47 were visited only once.

The following figures are therefore based on the 3,956 who completed the first year, *plus* the 432 who died, making in all a total of 4,388, and of that total 2,582 or 58·8 per cent., attended the Welfare Centres.

Of the number (2,582) attending the Centres 171 died, a rate of 66·2 per 1,000, as compared with 92 per 1,000 for the City.

Influence of Housing Conditions.—During the 24 years, 1908—1931, 92,510 births have been under the supervision of the Health Visitors, and of these 10,089 died. The following table shows the numbers of births and deaths in the various classes of house :—

Year.	Houses of							
	1 Room.		2 Rooms.		3 Rooms.		4 Rooms or more.	
	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
1916.....	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
1923.....	1,357	149	2,187	243	1,155	86	637	54
1924.....	1,440	188	1,946	200	1,096	100	666	62
1925.....	1,395	151	1,803	192	1,001	89	654	50
1926.....	1,472	153	1,774	162	1,108	94	720	63
1927.....	1,334	132	1,772	168	988	62	721	68
1928.....	1,114	109	1,553	159	936	72	692	69
1929.....	1,064	101	1,526	138	1,002	87	737	61
1930.....	918	86	1,542	152	937	69	790	54
1931.....	952	131	1,629	169	1,058	84	749	48
24 years ..	20,153	2,535	37,618	4,267	21,694	2,045	13,045	1,242
Death rate per 1,000 births		125·7		113·4		94·2		95·2

Walking and Talking.—Of the 3,956 children who completed their first year, 83 per cent. were walking at the end of the year, and 88 per cent. were talking at the end of the year.

Illnesses.—Among the children visited 413, or 9·4 per cent., contracted measles; 169, or 3·9 per cent., contracted whooping cough; 151, or 3·4 per cent., contracted diarrhœa; 671, or 15·3 per cent., contracted bronchitis or pneumonia.

The mortality per 1,000 births in 1931 was as follows :—

1 roomed dwellings	137·6
2 roomed dwellings	103·7
3 roomed dwellings	79·4
Dwellings over 3 rooms	64·0

Details as to the stated **Feeding** of the 4,388 children under supervision during the year are given in the following table :—

	Feeding.					
	Breast.		Mixed.		Artificial.	
	No.	Per-centage.	No.	Per-centage.	No.	Per-centage.
At First Visit	4,043	92·1	76	1·8	269	6·1
Deaths in First Year of above Children	354	8·8	27	35·5	51	19·0
At time of Death	257	6·4	52	68·4	123	45·7
Surviving Children (3,956) at 9 months	2,394	60·6	124	3·1	1,438	36·3

Details as to children who should have attained the age of 5 years during 1930 :—

Well and attending school	3,020
Well and not attending school	34
Ill and not attending school	67
Left City or failed to trace	1,420
Died in 2nd year	136
Died in 3rd year	73
Died in 4th year	31
Died in 5th year	26
Total surviving	3,121
Total deaths	266
Total reported on	4,807

Voluntary Workers.

One or more voluntary workers are now attached to each Centre, and all have given most freely of their services throughout the year. Mrs. Leach—the President of the Voluntary Association—has kindly provided the following report :—

Report of the Voluntary Workers at the Child Welfare Centres for 1931.

The work of the Voluntary Society has been continued during 1931 on the same lines as in former years.

The voluntary workers have helped at the sewing classes, organised jumble sales, and run thrift clubs, and have, in general, interested themselves in the welfare of the mothers attending the Centres, giving friendly help and advice to mothers in matters which do not come within the scope of the professional workers as such.

The Society has devoted some of its funds to helping needy cases with payments for artificial teeth, spectacles, surgical belts, etc., on the recommendation of those voluntary workers helping with the weighing and secretarial work at the medical sessions. Mothers and children have also been sent for convalescence to the Rose Joicey Home at the Society's expense.

The attendance at the three Play Centres shows the continued popularity of this branch of the work. Christmas parties and summer treats to the coast were arranged for the mothers and children, and were much appreciated.

Grateful thanks are due to all those friends who have so kindly given toys and clothes for distribution at the Centres.

The Society, with great regret, has to record during the year the resignation of Mrs. Roy Williamson. Her energy and efficiency will be greatly missed by all who worked with her during the years of her Presidency of the Society, when her enthusiasm and generous service on its behalf were a great encouragement to all its members.

E. I. Leach,

President of the Newcastle upon Tyne Mothers' and Children's Welfare Society.

I am, Sir,

Your obedient servant,

A. F. G. Spinks, M.D.,

Maternity and Child Welfare Medical Officer.

Health Department,
Town Hall,
Newcastle upon Tyne,
8th June, 1932.

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

III.—INFECTIOUS DISEASE.

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

INFECTIOUS DISEASES.

NUMBER OF CASES PER 1,000 POPULATION IN 1931.

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	0·14	..	2·05	1·27	0·06	0·06	0·38
NEWCASTLE UPON TYNE	..	..	3·80	0·40	0·05	0·06	0·77
Hull	..	..	1·73	3·63	0·04	0·07	0·36
Leeds	0·01	..	3·02	2·05	0·02	0·13	0·65
Bradford	0·09	..	3·06	0·82	0·02	0·14	0·47
Sheffield.....	0·10	..	1·88	0·81	0·03	0·13	0·45
Manchester	..	..	3·80	0·75	..	0·18	0·52
Salford	..	..	2·11	2·58	0·03	0·08	0·50
Liverpool.....	0·00	0·00	1·64	3·80	0·04	0·62	0·59
Nottingham	0·00	..	2·14	0·99	0·05	0·07	0·48
Leicester	5·61	..	1·69	0·47	..	..	..
Stoke-on-Trent	0·01	..	0·57	0·76	0·01	0·09	0·41
Birmingham	..	..	2·73	1·16	0·06	0·08	0·45
Cardiff	..	..	2·82	2·63	0·00	0·20	0·36
Bristol	0·00	0·00	1·13	2·07	0·07	0·06	0·36
Portsmouth.....	..	..	2·45	1·38	0·04	0·03	0·28
†London	0·33	..	2·76	1·93	0·04	4·44 *	0·53
Gateshead	..	..	3·89	0·59	0·44	0·05	0·65
South Shields	..	..	1·09	0·17	..	0·01	0·36
Tynemouth	0·01	0·00	0·83	0·68	0·05	0·06	0·59
Sunderland	0·00	0·00	2·38	0·89	0·12	0·04	0·64
Middlesbrough	..	..	1·54	0·39	0·01	0·10	0·43
†Northumberland	..	..	2·16	0·47	0·07	0·03	0·40
†Durham	0·00	..	1·90	0·79	0·12	0·04	0·62

† Administrative County. * Per 1,000 births.

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

WARD.	Diphtheria.	Erysipelas.	Scarlet Fever.	Enteric Fever.	Pneumonia.	Cerebro-Spinal Fever.	Encephalitis Lethargica.	Measles and Rubella.	Puerperal Fever.	Smallpox.	Whooping Cough.	Diarrhœa (under 2 years of age).	Dysentery.
St. Nicholas'	..	..	..	..	3	1	..	1	..	..	1	1	..
St. Thomas'	..	..	..	..	11	2	..	2	..	..	..	..	..
St. John's	..	..	..	..	17	1	1	12	..	..	2	3	1
Stephenson	..	1	..	..	24	1	1	17	..	..	7	8	..
Armstrong	..	1	..	..	13	3	1	9	..	..	2	1	2
Elswick	..	..	..	..	11	2	..	4	1	..	3	1	..
Westgate	1	..	1	..	12	..	2	5	..	..	2	..	..
Arthur's Hill	..	1	..	..	9	..	..	..	..	..	1	..	..
Benwell	1	2	..	..	17	2	1	11	2	..	2	4	..
Fenham	..	..	1	..	10	1	1	3	3	..	2	1	..
All Saints'	..	..	1	..	17	2	..	5	..	..	3	5	..
St. Andrew's	..	..	1	..	14	2	1	1	..	..	3	2	..
Jesmond	..	..	..	..	6	..	..	..	..	..	..	..	..
Dene	1	1	..	1	4	2	1	2	..	..	..	1	..
Heaton	1	..	..	..	7	..	1	1	..	..	1	1	..
Byker	1	1	..	..	10	2	..	14	..	..	8	3	..
St. Lawrence	..	2	1	..	15	2	..	6	..	..	7	6	..
St. Anthony's	..	1	..	..	21	2	..	8	2	..	2	3	..
Walker	1	1	1	..	25	3	..	24	1	..	9	12	1
CITY	6	11	6	1	246	28	10	125	9	..	55	52	4

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

For particulars of deaths from **TUBERCULOSIS** see Section IV.

NOTIFIED CASES OF INFECTIOUS DISEASE AND DEATHS (GROSS).

EXCLUSIVE OF TUBERCULOSIS.

AGES OF CASES OF INFECTIOUS DISEASE NOTIFIED AND DEATHS REGISTERED DURING THE YEAR 1931.

NOTIFIABLE DISEASE.	AT AGES—YEARS.																GROSS TOTAL				NET TOTAL.		Cases admitted to Hospital.
	Under 1.		1 to 5		5 to 15.		15 to 25.		25 to 45.		45 to 65.		65 and upwards.		Ages not known.		1931.		1930.		1931.		
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases. *	Deaths.	
Diphtheria (including Membranous Croup)	5	2	23	3	55	1	21	..	11	..	2	..	..	..	..	..	117	6	224	6	115	6	114
Erysipelas	13	4	4	..	11	..	27	..	64	2	97	5	21	2	5	..	242	13	247	17	218	11	102
Scarlet Fever	8	..	342	4	643	1	68	..	42	..	3	..	..	..	..	..	1106	5	645	4	1074	6	1023
Enteric Fever	..	..	3	..	6	..	6	1	2	1	1	1	1	1	..	..	19	4	58	6	13	1	12
Cerebro-Spinal Fever	10	8	15	13	10	9	20	11	4	4	1	2	..	..	..	..	60	47	34	25	41	28	41
Acute Poliomyelitis	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	10	..	1	..	1
Acute Polio-Encephalitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..
Encephalitis Lethargica	..	..	1	..	..	..	1	1	..	1	1	6	..	1	..	..	3	9	3	7	3	10	2
Puerperal Fever	..	..	..	..	..	..	6	5	39	27	..	..	..	..	..	..	45	32	100	44	18	9	15
Puerperal Pyrexia	..	..	..	..	..	..	42	..	85	..	..	..	..	..	..	..	127	..	91	..	57	..	37
Ophthalmia Neonatorum	64	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64	..	103	..	54	..	1
Pneumonia	127	82	420	69	223	6	83	9	124	29	91	46	46	43	1	..	1115	284	1057	316	1063	246	162
Malaria	..	..	..	..	..	..	..	..	2	..	4	..	..	..	..	..	6	..	4	..	5	..	..
Dysentery	16	2	42	4	17	..	1	..	9	..	..	..	1	..	..	..	86	6	87	5	74	4	67
‡Measles and Rubella	420	30	3252	82	2269	18	25	..	10	..	2	..	1	..	12	..	5991	130	1967	20	5952	125	357
°Chickenpox	53	..	323	..	687	..	18	..	7	..	..	..	..	..	..	..	1088	..	1556	..	1084	..	..
	716	128	4426	175	3921	35	318	27	399	64	202	60	70	47	18	..	10070	536	6188	451	9772	446	1934

* Cases from outside the City excluded for the purpose of calculating NET Death Rates.
‡ Ministry of Health Regulations, 1920. ° Temporarily notifiable.

WARD DISTRIBUTION OF INFECTIOUS DISEASES (NET).

WARD.	Diphtheria.	Erysipelas.	Enteric Fever.	Scarlet Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio-Encephalitis.	Encephalitis Lethargica.	Measles.	Rubella.	Puerperal Fever.	**Puerperal Pyrexia.**	Ophthalmia Neonatorum.	Acute Primary Pneumonia.	Acute Influenzal Pneumonia.	Smallpox.	Chickenpox.	Malaria.	Dysentery.	TOTAL.
St. Nicholas'	..	1	..	13	1	..	..	..	34	1	..	..	..	5	..	..	2	..	1	58
*St. Thomas'	7	11	..	56	5	..	..	..	165	..	2	4	4	31	4	..	46	..	..	335
St. John's	7	9	..	76	1	..	..	..	300	3	..	5	6	59	2	..	86	..	5	559
Stephenson	6	21	..	56	3	..	..	..	503	6	..	4	6	117	11	..	61	1	5	800
Armstrong	16	18	..	64	2	..	..	..	394	5	..	8	5	56	14	..	47	1	14	644
Elswick	6	6	1	56	4	..	..	..	194	3	1	2	1	30	4	..	69	..	3	380
Westgate	11	9	3	28	..	..	..	..	211	2	..	2	4	53	3	..	81	..	2	409
†Arthur's Hill	3	14	..	40	2	..	..	..	78	3	..	..	..	9	5	..	40	..	4	198
Benwell	8	19	1	80	4	..	..	..	503	2	4	2	6	71	11	..	37	..	5	753
Fenham	10	9	2	130	2	..	..	..	293	6	5	3	2	44	8	..	75	1	1	591
All Saints'	8	11	..	36	2	1	..	..	179	1	2	4	3	61	..	..	110	1	3	422
St. Andrew's	4	7	..	23	2	..	..	..	115	..	1	4	5	29	2	..	66	1	..	259
Jesmond	1	3	..	69	..	..	..	..	92	1	..	1	..	7	4	..	15	..	2	195
Dene	1	4	2	52	2	..	..	1	363	2	..	3	..	15	5	..	53	..	..	503
Heaton	6	6	2	36	..	..	..	..	222	..	..	..	1	20	2	..	63	..	..	358
Byker	5	18	..	55	2	..	..	2	472	3	..	2	1	69	2	..	50	..	3	684
St. Lawrence	9	13	1	68	4	..	..	..	426	4	..	3	4	66	1	..	31	..	3	633
St. Anthony's	1	13	1	37	2	..	..	..	440	4	2	2	4	89	3	..	41	..	8	647
‡Walker	6	26	..	99	3	..	..	..	919	3	1	8	2	143	8	..	111	..	15	1344
CITY	115	218	13	1074	41	1	..	3	5903	49	18	57	54	974	89	..	1084	5	74	9772

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children.
† ,, Elswick Grange and Newcastle General Hospital.
‡ ,, City Hospital for Infectious Diseases, Walker Gate.

For particulars of cases of **TUBERCULOSIS**, see Section IV

WARD INCIDENCE OF INFECTIOUS DISEASES (NET).

EXCLUSIVE OF TUBERCULOSIS.

WARD.	NOTIFIABLE DISEASES—Cases per 1,000 Population.																DEATHS per 1,000 Pop.		
	Diphtheria	Erysipelas.	Scarlet Fever.	Enteric Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio-Encephalitis.	Encephalitis Lethargica.	Measles (including Rubella).	Puerperal Fever.	**Puerperal Pyrexia.**	Smallpox.	Chickenpox.	Ophthalmia Neonatorum.	Pneumonia.	Malaria.	Dysentery.	Measles. (including Rubella).	Whooping Cough.	Zymotic Diarrhœa (under 2 years of age).
St. Nicholas' ..	..	0·47	6·05	..	0·47	..	..	..	16·3	..	..	..	0·93	..	2·33	..	0·47	0·47	0·47	0·47
*St. Thomas' ..	0·51	0·80	4·08	..	0·36	..	..	..	12·0	0·15	0·29	..	3·35	0·29	2·55	..	..	0·15	..	..
St. John's	0·52	0·67	5·64	..	0·07	..	..	..	22·5	..	0·37	..	6·38	0·44	4·52	..	0·37	0·89	0·15	0·22
Stephenson ...	0·33	1·16	3·10	..	0·17	..	..	..	28·1	..	0·22	..	3·37	0·33	7·08	0·05	0·28	0·94	0·39	0·44
Armstrong	1·12	1·26	4·47	..	0·14	..	..	..	27·8	..	0·56	..	3·28	0·35	4·89	0·07	0·98	0·63	0·14	0·07
Elswick	0·46	0·46	4·29	0·08	0·31	..	..	..	15·1	0·08	0·15	..	5·29	0·08	2·60	..	0·23	0·31	0·23	0·08
Westgate	0·82	0·67	2·08	0·22	..	..	..	..	15·8	..	0·15	..	6·01	0·30	4·15	..	0·15	0·37	0·15	..
†Arthur's Hill ..	0·33	1·52	4·35	..	0·22	..	..	..	8·8	..	..	..	4·35	..	1·52	..	0·43	..	0·11	..
Benwell	0·42	0·99	4·15	0·05	0·21	..	..	..	26·2	0·21	0·10	..	1·92	0·31	4·25	..	0·26	0·57	0·10	0·21
Fenham	0·41	0·36	5·26	0·08	0·08	..	..	..	12·1	0·20	0·12	..	3·03	0·08	2·10	0·04	0·04	0·12	0·08	0·04
All Saints'	0·55	0·76	2·47	..	0·14	0·07	..	..	12·4	0·14	0·27	..	7·56	0·21	4·20	0·07	0·21	0·34	0·21	0·34
St. Andrew's ..	0·38	0·67	2·21	..	0·19	..	..	..	11·0	0·09	0·38	..	6·34	0·48	2·98	0·09	..	0·09	0·29	0·19
Jesmond	0·09	0·27	6·30	..	..	..	..	..	8·5	..	..	..	1·37	..	1·00	..	0·18	..	..	..
Dene	0·06	0·23	2·98	0·11	0·11	..	..	0·06	20·9	..	0·17	..	3·04	..	1·15	..	..	0·11	..	0·06
Heaton	0·46	0·46	2·75	0·15	..	..	..	..	16·9	..	..	..	4·80	0·08	1·68	..	..	0·08	0·08	0·08
Byker	0·32	1·15	3·52	..	0·13	..	..	0·13	30·4	..	0·13	..	3·20	0·06	4·55	..	0·19	0·90	0·51	0·19
St. Lawrence ..	0·51	0·74	3·87	0·06	0·23	..	..	..	24·5	..	0·17	..	1·76	0·23	3·81	..	0·17	0·34	0·40	0·34
St. Anthony's .	0·06	0·85	2·41	0·06	0·13	..	..	..	28·9	0·13	0·13	..	2·67	0·26	5·98	..	0·52	0·52	0·13	0·19
‡Walker	0·22	0·96	3·65	..	0·11	..	..	..	33·9	0·04	0·29	..	4·10	0·07	5·59	..	0·55	0·88	0·33	0·44
CITY	0·40	0·77	3·79	0·05	0·14	0·00	..	0·01	21·0	0·06	0·20	..	3·83	0·19	3·75	0·02	0·26	0·44	0·19	0·18

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children. † Includes Elswick Grange and Newcastle General Hospital.

‡ Includes City Hospital for Infectious Diseases, Walker Gate.

For Particulars of TUBERCULOSIS, see Section IV.

HOUSEHOLDS AFFECTED WITH INFECTIOUS DISEASES,

Exclusive of Tuberculosis, Measles and Chickenpox.

DISEASES.	Households with						Military or Naval Cases	Institutions *	Total Cases. (Gross).	Cases from outside of City.	Net Cases.
	Single Cases	2 Cases each	3 Cases each	4 Cases each	5 Cases each	6 Cases and over					
Diphtheria (including Membranous Croup)	91	4	2	..	..	..	1	11	117	2	115
Erysipelas	176	9	..	..	..	..	..	48	242	24	218
Scarlet Fever	728	100	24	5	..	1	..	80	1106	32	1074
Enteric (or Typhoid Fever)	12	1	..	..	..	..	..	5	19	6	13
Cerebro-Spinal Fever	37	..	..	..	..	..	1	22	60	19	41
Poliomyelitis	1	..	..	..	..	..	..	..	1	..	1
Encephalitis Lethargica	3	..	..	..	..	..	..	..	3	..	3
Puerperal Fever	18	..	..	..	..	..	..	27	45	27	18
Puerperal Pyrexia	56	..	..	..	..	..	..	71	127	70	57
Ophthalmia Neonatorum	54	..	..	..	..	..	..	10	64	10	54
Pneumonia	958	37	5	..	..	..	2	66	1115	52	1063
Malaria	5	..	..	..	..	..	..	1	6	1	5
Dysentery	31	3	2	..	..	..	..	43	86	12	74
Total	2170	154	33	5	..	1	4	384	2991	255	2736

* See next page.

Schools and Infectious Disease.—It was not found necessary to close any school on account of infectious disease during the year.

PUBLIC INSTITUTIONS AND INFECTIOUS DISEASE.

The following notifications were received during the year :—

Institutions, &c.	Diphtheria.	Erysipelas.	Scarlet Fever.	Encephalitis Lethargica.	Measles and Rubella.	Puerperal Fever.	Puerperal Pyrexia.	Pneumonia.	Chickenpox.	Ophthalmia Neonatorum.	Enteric Fever.	Poliomyelitis.	Polio-Encephalitis.	Cerebro-Spinal Fever.	Smallpox.	Malaria.	Dysentery.	Total.
Royal Victoria Infirmary ...	1	21	5	..	11	4	..	43	1	1	2	..	..	13	..	..	..	102
Fleming Memorial Hospital..	2	3	39	..	28	..	..	3	3	1	2	..	..	7	..	..	18	106
Newcastle General Hospital..	..	13	17	..	16	..	..	1	4	..	..	..	..	1	..	..	23	75
City Hospital for Infectious Diseases	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	3
Deaf and Dumb Institution ..	..	..	3	..	1	..	..	5	11	..	..	..	..	..	..	..	..	20
Maternity Hospital	..	5	1	..	..	23	70	5	..	7	..	..	..	1	..	..	..	111
Military Barracks	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	5
Northern Counties Orphanage	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Diocesan Maternity Home....	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Gables Maternity Home.....	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
Eye Infirmary	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Nursing Homes	..	2	2	..	..	..	..	..	..	..	1	..	..	1	..	1	..	7
Poor Children's Holiday Association Shelter	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Throat Nose and Ear Hospital	..	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Common Lodging Houses	..	1	..	..	4	..	..	1	..	..	..	..	..	..	..	..	..	6
St. Catherine's Convent	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
Royal Victoria School for the Blind	..	..	..	..	..	..	..	3	2	..	..	..	..	..	..	..	..	5
Babies' Hospital, West Parade	1	..	5	..	..	..	..	1	..	..	..	..	..	..	..	..	2	9
Home for Incurables	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Toc H. Hostel	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Elswick Grange	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	3
Total	12	48	80	..	60	27	71	68	23	10	5	..	..	23	..	1	43	471

* 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 enteric fever, scarlet fever, and diphtheria, but in no instance was the infection attributable to milk.

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10 cases of scarlet fever and 1 case of diphtheria occurred at premises of various kinds, in connection with which business was carried on.

SCARLET FEVER.

Notifications of 1,074 cases were received during the year, and there were 6 deaths, equivalent to a mortality of 0·6 per cent.

DIPHTHERIA.

115 cases were notified during the year, and 6 died, a case mortality of 5·2 per cent., as compared with 2·0 in 1930 (the lowest on record).

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

Number of medical practitioners who made application for antitoxin	24
Number of phials of antitoxin supplied	92
Number of cases of diphtheria notified	115
Number of notified cases removed to Hospital	114
Number of Hospital cases in which antitoxin was injected prior to admission	17

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	456	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
1923	200	5·0
1924	256	6·6
1925	187	3·7
1926	202	8·4
1927	225	7·1
1928	262	3·1
1929	259	5·4
1930	200	2·0
1931	115	5·2

* 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.

5,952 cases (including 49 of rubella) were notified, and there were 125 deaths (corrected) in 1931, representing a death rate of 0·44 per 1,000 population, as compared with 0·06 in 1930, and a case mortality of 2·1 per cent. of notified cases (net).

DEATHS, 1931 (CORRECTED).

MONTH.	YEARS OF AGE.							Total.
	0-1.	1-2.	2-3.	3-4.	4-5.	5-10.	Over 10.	
January	3	8	6	..	..	3	..	20
February ...	10	20	7	4	1	9	1	52
March	10	12	6	1	..	4	..	33
April	2	4	2	..	..	..	..	8
May	3	1	1	2	..	..	..	7
June	1	3	..	..	..	..	1	5
July	..	..	..	..	..	..	..	..
August	..	..	..	..	..	..	..	..
September ..	..	..	..	..	..	..	..	..
October	..	..	..	..	..	..	..	..
November...	..	..	..	..	..	..	..	..
December ..	..	..	..	..	..	..	..	..
TOTAL ...	29	48	22	7	1	17	1	125

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'	..	..	..	..	1	..	..	..	..	..	1
St. Thomas'	..	1	..	..	..	1	..	..	..	..	2
St. John's.....	..	..	..	3	5	3	1	..	..	..	12
Stephenson	..	1	1	1	9	..	2	..	3	..	17
Armstrong	..	..	1	2	3	2	..	..	1	..	9
Elswick.....	..	..	1	..	2	..	..	..	1	..	4
Westgate	..	..	..	..	2	2	..	..	1	..	5
Arthur's Hill	..	..	..	..	..	..	..	..	..	..	..
Benwell	..	..	3	2	5	1	..	..	..	..	11
Fenham	..	..	..	..	2	1	..	..	..	..	3
All Saints'	..	..	..	..	2	2	..	1	..	..	5
St. Andrew's	..	..	..	..	..	1	..	..	..	..	1
Jesmond	..	..	..	..	..	..	..	..	..	..	..
Dene	..	..	..	..	..	1	..	..	1	..	2
Heaton	..	..	..	..	..	..	..	..	1	..	1
Byker	..	..	..	2	4	3	1	..	4	..	14
St. Lawrence	..	..	..	3	2	1	..	..	..	..	6
St. Anthony's	..	..	1	2	2	2	..	..	1	..	8
Walker	..	1	1	3	9	2	3	..	4	1	24
TOTAL	..	3	8	18	48	22	7	1	17	1	125

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 1931.

Cases notified by Medical Practitioners	4,721
Cases found by Health Visitors	1,204
Cases notified by Parents	49
Cases found from Returns of Deaths	17
	5,991 gross.
	5,952 net.

Of the total number of measles cases notified, 5,353, in 4,130 households (or 89·9 per cent.) were visited by the Health Visitors, and 7,457 revisits were paid, a total of 12,810 visits.

The following particulars refer to the cases visited :—

	Dwellings of					Total houses visited.
	1 room.	2 rooms.	3 rooms.	4 rooms.	More than 4 rooms.	
Families	524	1,418	1,122	850	216	4,130
Children	1,261	4,050	2,967	2,172	547	10,997
Cases	687	1,894	1,442	1,078	252	5,353
Percentage of Cases to Children	54·5	46·8	48·6	49·6	46·1	48·7
Cases developing Pneumonia	43	113	64	33	9	262
Percentage of cases developing Pneumonia	6·3	6·0	4·4	3·1	3·6	4·9
Deaths from Measles	23	49	32	9	2	115
Cases notified as Measles, Death certified as due to Pneumonia, Bronchitis or Diarrhœa	2	10	5	1	..	18
Case Mortality per cent.	3·6	3·1	2·6	0·9	0·8	2·5

Total unvisited cases 638, including 568 in better-class houses, in which 3 deaths occurred, and 70 in institutions, with 12 deaths.

Medical Attendance.—In 96·5 per cent. of the cases visited a doctor was in attendance.

Condition of Patient.—In 81·9 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.—1,754, or 32·8 per cent. of the affected children visited had previously attended school, and 3,599, or 67·2 per cent. had never attended school. In connection with 2,028 of the latter cases, however, other children in the infected houses were scholars, equivalent to 37·9 per cent. of the total cases.

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

Under 1 year	402
1–2 years	693
2–3 years	853
3–4 years	750
4–5 years	803
5–6 years	1,030
Over 6 years	822
	5,353

WHOOPING COUGH.

55 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	..	..	..	..	1
February	1	2	1	1	..	..	5
March	..	2	5	2	..	..	9
April	1	2	..	1	..	..	4
May.....	2	2	..	1	..	1	6
June	..	..	..	..	..	..	..
July	1	..	..	..	..	..	1
August	2	1	1	..	..	..	4
September	..	2	2	..	..	..	4
October	1	1	2	..	..	1	5
November	3	5	..	..	1	..	9
December	2	2	1	2	..	..	7
Total	13	20	12	7	1	2	55

The death rate in 1931 was equivalent to 0·19 per 1,000 population, as compared with 0·10 in 1930.

FOOD POISONING.

One outbreak of food poisoning occurred during the year, and this affected the personnel of Messrs. Fenwick, Limited, Northumberland Street, Newcastle upon Tyne. The details are as follows :—

During working hours on Friday, July 17th, 1931, a number of the staff of shop assistants working in the store were taken ill with symptoms suggestive of food poisoning. The outbreak was limited to the shop assistants, while the patrons of the store restaurant and the hands in the workshop escaped. Each of these three groups, shop assistants, workshop hands, and restaurant patrons, were supplied from separate kitchens. The staff physician was called in, and after investigation, he came to the conclusion that the outbreak was due to some raspberries which had been stewed in enamel tins, the suggestion being that the acid from the fruit had dissolved out antimony, or some other irritant material from the enamel. The services of the Health Department were not enlisted, and it was only a chance paragraph in the local evening newspaper which brought the occurrence to notice.

On Saturday, 18th July, the store was visited by an officer of the Health Department, but by that time all remnants of food which had been consumed on the Thursday and Friday had been disposed of. The number of staff affected increased over the week-end, until by Tuesday morning 100 persons out of the total personnel of 300 were absent from duty on account of illness. Bacteriological investigation of 18 members of the staff resulted in the discovery of one of the well-known food poisoning organisms—Bacillus Aertrycke. Further detailed examination of all the circumstances attending the outbreak indicated that the infecting

material had been present in one of the two meals (dinner and tea) consumed on the Thursday; but in the absence of any specimens, it was impossible to determine the precise vehicle of infection. It was proved conclusively that metallic poisoning from the stewed raspberries was out of the question.

All the affected personnel were kept under observation until proved free from infection.

Outbreaks of this description are very difficult to investigate and to explain, unless the inquiry is instituted immediately the first cases are brought to notice.

A report on the outbreak was forwarded to the Ministry of Health.

ENTERIC GROUP OF FEVERS.

During the year 1931, 22 cases of the enteric group of infections were brought to notice. The distribution of these cases, according to the months in which they were notified, the type of infection (typhoid or para-typhoid), and their place of origin, is recorded in the following table :—

Distribution of Enteric group infections for 1931.

	Extra-Mural.		Newcastle.	
	Typhoid.	Para-typhoid B.	Typhoid.	Para-typhoid B.
January	1	..	..	..
February	..	..	..	..
March	..	..	..	1
April	..	..	..	..
May	..	3*	..	..
June	1 (1)	1	..	..
July	..	1	..	..
August	..	1	..	..
September	..	1	..	..
October	..	1 (1)	..	4
November	..	..	..	5†
December	..	..	..	2
Totals	2 (1)	8 (1)	..	12

* *Includes one Para-Typhoid A. infection.*

† *Includes one patient admitted as Scarlet Fever, with coincident Para-Typhoid B. Fever.*

The figures in parentheses, which are included in the numbers alongside which they stand, indicate fatal cases.

It will be seen that 10 of the 22 patients came from without the City's boundaries, the remaining 12 being Newcastle cases proper. The 10 extra-mural cases (two typhoid—one of which was not bacteriologically proved—one para-typhoid A., seven para-typhoid B.) were all admitted to the City Hospital, either at the request of the Port or Local Authorities concerned, or as a result of their discovery in various institutions in the City. The 12 City cases were all para-typhoid B. infections.

In all there were 22 admissions to the City Hospital, including one coincident with scarlet fever. Of the two patients who were regarded as suffering from typhoid fever, one died—equivalent to a case mortality rate of 50 per cent. Amongst the 20 para-typhoid cases, there was one death—equivalent to a mortality rate of 5·0 per cent. This patient developed the exceedingly fatal complication of perforation of the bowel. An immediate operation was performed, but unfortunately was not successful.

It will be noted that 11 of the 12 Newcastle para-typhoid cases occurred during the last few months of the year. Despite strenuous efforts to trace any connection between these cases, no common causal factor or agents could be discovered, except in one instance, where two cases occurred in the same household.

There has been no recrudescence of the milk-borne para-typhoid epidemic which was so notable a feature of the year 1930. The supply of milk from the dairy incriminated at that time has always yielded satisfactory results on bacteriological examination.

DIARRHŒA.

There were in all 57 deaths from the disease, equal to a death rate of 0·20 per 1,000 population, and this number included 52 deaths of children under two years of age.

TYPHUS.

No case of this disease occurred during the year.

SMALLPOX.

No case of this disease occurred in the City during the year.

The following are the particulars of **Vaccination** during the last twenty-seven years :—

Year.	Births Registered.	Successful Vaccinations	Unsuccessful Vaccinations	Exemption Certificates.		Deaths, Removals and Post-ponements.
				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	..
*1908-12	35,265	27,240	114	3,398	9·6	..
1913–17	34,296	21,251	33	7,144	20·8	..
1918–22	34,372	19,011	95	9,262	26·9	..
1923–27	31,290	19,658	30	5,542	17·7	..
1928	5,780	4,320	19	912	15·8	..
1929	5,638	3,555	33	1,092	19·4	..
‡1930	†6,195	3,897	31	1,264	20·4	1,003
°1931	6,060	3,856	37	1,343	22·1	..

* Vaccination Act, 1907, came into force.

† Walker District included.

‡ Supervision of Vaccination transferred from Guardians to Health Committee on 1st April, 1930.

° Provisional figures only.

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

Dene, Heaton and Byker Municipal Wards :—

Dr. J. MacRae, 4, Benton Terrace.

Deputy—Dr. A. Sutcliffe, 1, Lesbury 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.

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

DR. H. R. SMITH, 126, Sandyford Road.

Deputy—DR. T. H. BLENCH, 12, Simonside Terrace.

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

DR. A. M. PATERSON, 116, Elswick Road.

Deputy—DR. H. L. TAYLOR, 242, Westgate Road.

Stephenson, Elswick, Armstrong and Benwell Municipal Wards :—

DR. G. D. NEWTON, 24, Windsor Terrace.

Deputy—DR. J. B. SINSON, 105, New Bridge Street.

Newcastle General Hospital :—

DR. G. P. HARLAN.

Vaccination Officers :—

Western—W. W. CUMMINGS, 80, Northbourne Street,

Eastern—WM. GARRETT, 27, Melton Avenue, Walker Estate.

CHICKENPOX

1,084 cases were notified. There were no deaths.

ERYSIPELAS.

218 cases of this disease were notified and there were 11 deaths.

PUERPERAL SEPTICÆMIA AND PUERPERAL PYREXIA.

75 cases were notified, with 9 deaths. Inquiries were made concerning 70 of these.

INFLUENZA AND PNEUMONIA.

These diseases accounted for 327 deaths as against 294 last year.

Total deaths at age periods.

Under 5 years.	5-15.	15-25.	25-45.	45-65.	65 and over.	Total.
140	12	10	41	56	68	327

As will be seen from the above figures, 140, or 43 per cent., of the deaths occurred below the age of 5 years.

Appended is a statement of the total net deaths at all ages in the City from influenza and pneumonia during 1931 and the previous 19 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
1923	15	342
1924	105	415
1925	41	366
1926	49	291
1927	103	339
1928	45	285
1929	127	330
1930	36	258
1931	81	246

1,063 cases of pneumonia, including influenzal-pneumonia, were notified. For the ages and ward distribution, see pages 97 and 98.

Of that number 980, or 92·2 per cent., were visited by Health Visitors. It was found that of these 980 visited cases, 519, or 53 per cent., were primary pneumonia, 130, or 13·3 per cent., were cases of influenzal-pneumonia, and 331, or 33·8 per cent., were cases of pneumonia following other diseases.

Sex.—56·6 per cent. of the cases were males.

Ages.—The ages of the 980 cases visited were as follows :—

Under 1 year	121
1–5 years	409
5–15 years	196
15–25 years	65
25–45 years	93
45–65 years	62
and over 65 years	34
	980

Of these, 168 were school children.

Housing.—132 cases occurred in 1 roomed dwellings, 396 cases occurred in 2 roomed dwellings, 247 cases occurred in 3 roomed dwellings, and 205 cases occurred in more than 3 roomed dwellings.

Type of House.—474 cases occurred in flats, 334 cases in tenements, and 171 in self-contained houses, and 5 in lodging houses.

Previous History—

There was a	previous	history of	Measles	in 429 cases.
"	"	"	Whooping Cough	in 256 cases.
"	"	"	Influenza	in 196 cases.
"	"	"	Frequent winter Coughs and Colds	in 715 cases.
"	"	"	Pneumonia	in 226 cases.
"	"	"	Tuberculosis	in 30 cases.

Hospital Treatment.—162 cases of pneumonia were treated in the Infectious Diseases Hospital. The majority of these were from houses where there was overcrowding or other unsuitable home conditions. 31 of these patients died, giving a case mortality of 19·1 per cent.

Deaths.—133, or 13·6 per cent. of the visited cases of pneumonia died.

VENEREAL DISEASES.

Syphilis was certified as the cause of death in 20 cases.

The work of the treatment clinic has been continued successfully. 1,434 old and new cases attended 21,502 times as out-patients. 13 cases accounted for 242 in-patient days. Of the 771 new cases 255 were syphilis, 361 gonorrhœa, 1 soft chancre, and 154 were conditions other than venereal. 72 per cent. were males.

2,405 doses of salvarsan substitutes were administered to out-patients and in-patients.

2,462 Wasserman reactions were carried out by the College of Medicine, and 214 microscopical examinations of pathological material were made by the College and 1,130 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.

49 medical practitioners in the City are qualified to receive free supplies of arseno-benzol compounds. 20 made application for these supplies during the year and 1,023 doses were given.

Newcastle Residents Notified as Attending other Centres.

Cases.—Syphilis, 5; gonorrhœa, 7; soft chancre, 4; conditions other than venereal, 3.

Attendances.—164.

Doses of salvarsan substitute given, 23.

In-Patients.—In-patient days, 109. Doses of salvarsan substitutes administered, 11.

Information as to ophthalmia neonatorum will be found in Section II. (The Child).

ENCEPHALITIS LETHARGICA.

During the year 1931, 17 notifications of encephalitis lethargica were received.

Fourteen of these referred to patients in the post-encephalitic state of the disease, whose symptoms for the most part were those of the so-called Parkinsonian syndrome, with mask-like face, tremors of the limbs, and mental deterioration. All these cases were investigated, and in every one a history of slight influenza or transitory diplopia occurring at a date some years previous was obtained. These apparently trivial illnesses had undoubtedly been atypical attacks of encephalitis lethargica, and upon them, after a greater or less

interval, had followed a progressive retrogression in health, both bodily and mental. The approximate dates of the original attacks in this series were as follows :—two in 1921 ; four in 1924 ; three in 1925 ; two in 1926 ; one in 1928 ; and two in 1931. The long interval between the primary attack and the development of sequelæ, the apparent cures and remissions, and the association of mild and fugitive influenza-like illnesses and diplopias, with the very gravest forms of paralysis and mental disorder, are well recognised characters of this treacherous and horrible disease.

During 1931, two proved cases of encephalitis lethargica were admitted to the City Hospital, the remaining case being treated at the Newcastle General Hospital. Of these cases one has been able to resume her former employment, and of the others, one died in Hospital, and the other has not been traced.

Re-Survey of all Cases of Encephalitis Lethargica.—It is now 13 years since encephalitis lethargica first appeared in Newcastle, and every other year an opportunity has been found to make a re-survey of all cases of the disease known to have occurred in the City, or to have been reported therefrom since the commencement of the epidemic in 1919. Post encephalitic cases, when met with, have been placed, as far as possible, under the years in which their primary attack occurred.

The last biennial survey was made in 1930, but the cases brought to notice during 1931 have been incorporated in the table then prepared. There is now a series of 373 cases of which records are available. These have been grouped in accordance with the classification employed by Dr. Allan C. Parsons in his report to the Ministry of Health, published in 1928. Patients who recovered are shown as (*a*) totally incapacitated, (*b*)

suffering from sequels which interfere with their old occupation, (*c*) suffering from sequels which do not interfere with their old occupation, and (*d*) completely cured.

The cases have been divided into two categories: (*a*) those admitted to the City Hospital, and (*b*) those treated elsewhere—a few in other institutions, the majority at home. This has been done because the signs and symptoms of encephalitis lethargica are frequently produced by other conditions, some mild, such as constipation and neuritis, others, *e.g.*, cerebral hæmorrhage, cerebral tumours, tuberculous and septic meningitis, even more fatal than the disease they counterfeit. It is only by calculating death, disability and recovery rates on cases definitely proved to have been encephalitis lethargica, that a true idea of the severity of that disease can be obtained. Accordingly it will be seen that although these various rates have been calculated for both groups of cases, those for the City Hospital will prove more reliable, as all non-encephalitic cases have been excluded from their totals, as the result of clinical, laboratory, and post-mortem investigations. The figures based on 115 traced and proved cases of encephalitis lethargica treated in the City Hospital from 1919 to 1931 speak for themselves—roughly 42 per cent. are dead, 14 per cent. are totally incapacitated (including 6 per cent. who are or have been in mental hospitals), 7 per cent. are able to do some light work, 15 per cent., though still suffering from minor disabilities, can follow their old occupations, and from 22 per cent. to 23 per cent. are completely cured. The figures for the non-hospital cases are even worse. This is due in great part to the inclusion of many of the serious conditions mentioned above, but doubtless the fact that these cases may have lacked some of the careful treatment and attention the others received at Walker Gate may have helped to diminish their prospects of recovery. The following table gives details of all the cases reported since 1919 :—

Year.	Notifications.	HOSPITAL CASES.										NON-HOSPITAL CASES.						
		Admitted.	Proved to be Encephalitis Lethargica.	Cases otherwise diagnosed Encephalitis Lethargica.	Total Hospital Cases.	Not traced.	Number of Patients.					Non-Hospital Cases.	Not traced.	Number of Patients.				
							Dead.	Totally incapacitated.	With Sequels interfering with usual occupation.	With Sequels not interfering with old occupation.	Cured.			Dead.	Totally incapacitated.	With Sequels interfering with usual occupation.	With Sequels not interfering with old occupation.	Cured.
1919.....	3	2	1	..	1	1	..	..	..	..	..	1	..	..	1	..	..	..
1920.....	12	5	4	3	7	..	4	2 (2M)	..	1	..	7	1	4	1 (1M)	..	..	1
1921.....	22	6	4	1	5	1	..	2 (1M)	..	1	1	16	1	7	4	..	2	2
1922.....	7	4	2	..	2	..	..	2 (1M)	..	..	..	3	2	1	..	..	..	..
1923.....	13	2	1	..	1	..	1	..	..	..	..	11	2	5	2	..	..	2
1924.....	140	76	62	2	64	4	23	8 (2M)	4	12	13	64	4	24	15 (4M)	1	8	12
1925.....	59	26	16	3	19	..	10	2	1	1	5	33	6	11	9 (2M)	4	..	3
1926.....	51	15	10	3	13	2	4	..	2	1	4	36	5	22	5	2	2	..
1927.....	26	13	5	..	5	1	2	..	1	1	..	13	1	10	..	..	..	2
1928.....	13	3	2	..	2	..	2	..	..	..	..	10	1	7	1 (1M)	..	1	..
1929	19	5	2	2	4	..	1	..	..	..	3	14	1	8	1	1	..	3
1930	3	..	..	..	..	..	..	..	..	..	..	3	..	..	..	2	1	..
1931	5	2	1	1	2	1	1	..	..	..	..	3	1	..	..	..	1	1
Total ...	373	159	110	15	125	10	48	16 (6M)	8	17	26	214	25	99	39 (8M)	10	15	26
					115							189						
Percentages based on 115 traced Hospital cases ..							41·7	13·9 (5·2M)	6·9	14·7	22·6							
Percentages based on 189 traced Non-Hospital cases							52·4	20·6 (4·2M)	5·3	7·9	13·7							

The figures in brackets, *e.g.*, (1M), indicate the number of Patients who are, or have been, in Mental Hospitals as a result of Encephalitis Lethargica.

ACUTE POLIOMYELITIS.

1 case occurred in the City. There were no deaths.

CEREBRO-SPINAL FEVER.

During the past few years there has been a steadily increasing incidence of cerebro-spinal fever, and during 1931, 41 cases occurred in Newcastle, 40 of which were removed to the City Hospital for treatment. In addition, 19 cases were admitted from surrounding areas, so that in all 59 patients have been treated in the City Hospital. There were 35 deaths amongst these 59 cases, equivalent to a case mortality rate of 59 per cent. The distribution of the cases according to the months in which they were notified, and their places of origin, is recorded in the following table :—

	Newcastle.	Extra-Mural.	Totals.
January	3(2)	1(1)	4(3)
February	6(4)	5(2)	11(6)
March	5(2)	2(1)	7(3)
April	4(1)	3(2)	7(3)
May	3(3)	2(2)	5(5)
June	2(2)	..	2(2)
July	3(1)	..	3(1)
August	5(4)	2	7(4)
September	2(1)	2(1)	4(2)
October	4(3)	..	4(3)
November	1(1)	2(1)	3(2)
December	2(1)	..	2(1)
Totals	40(25)	19(10)	59(35)

The figures in parentheses, which are included in the numbers alongside which they stand, indicate fatal cases.

The circumstances of all of the Newcastle cases have been carefully investigated, but only in one instance where two members of the same household contracted the disease, has it been possible to trace the probable source of infection.

It is well-known that cerebro-spinal fever is spread largely by people who are carrying, and not themselves suffering from, the disease. At the commencement of the epidemic steps were taken to isolate contacts from families living in overcrowded surroundings, as it was thought that these might readily be carriers, and so dangerous to others. This procedure, however, was found to be beset with difficulties, and was soon discontinued.

No fewer than 19 cases of cerebro-spinal fever were admitted to hospital from extra-mural authorities in the neighbourhood, and wherever possible, it has been the policy of the Health Department to give assistance to authorities whose hospital accommodation is of such a character as to prevent them from giving adequate treatment to patients suffering from this exceedingly dangerous disease. The following table shows the age and sex distribution of the 59 cases admitted to hospital :

Ages.	0–1.	1–2.	2–5.	5–15.	15–25.	25–45.	45 and upwards.	Totals.
Male	5 (4)	3 (2)	2 (1)	9 (4)	8 (5)	2 (1)	..	29(17)
Female ...	2 (2)	2 (1)	5 (5)	8 (5)	9 (4)	3	1 (1)	30(18)
Totals	7 (6)	5 (3)	7 (6)	17 (9)	17 (9)	5 (1)	1 (1)	59(35)

Figures in parenthesis indicate deaths.

It will be noted that the attack rate and mortality rate are particularly high under the age of 5, and that young persons and adults from 15 to 45 have the best chance of recovery from the disease.

The cases have been treated throughout by means of lumbar puncture and the injection of anti-meningococcal serum, but the results have varied. During the first six months, when the serum used was evidently not sufficiently potent to cope with the infection, the mortality rate was high, and 22 patients out of 36

treated between January 1st and June 30th died. During the second six months, following the introduction of a more effective serum, 13 out of 23 cases died, and the case mortality rate fell from 61 per cent. to 56 per cent. If the cases which die within 48 hours of admission are omitted from the record, the mortality rate for the first six months of 1931 was 56 per cent., and for the second half-year 47 per cent. There is still scope for further improvement in our knowledge and treatment of this serious infection.

BACILLARY DYSENTERY.

Bacillary dysentery has been prevalent in the City since 1928, and during the past year 144 cases were notified. In only 88 of these, however, was the diagnosis confirmed bacteriologically. Of the latter number, 13 were extra-mural cases, who were either admitted to one or other of the City's hospitals suffering from the disease, or contracted it while patients in these institutions.

There were six deaths attributed to the disease, four of which occurred in Newcastle inhabitants. The majority of patients were isolated in institutions, and of the 88 proved cases 78 were admitted to Walker Gate, where four died. The remaining two fatal cases died at the Newcastle General Hospital.

There were five hospital outbreaks. Two of these occurred in children's wards at the Newcastle General Hospital, where eight and five patients respectively were affected. These two outbreaks were quite separate and distinct, being caused by two different types of the dysentery bacillus. The disease also made its appearance at the Fleming Memorial Hospital on two occasions, and in each of these the Bacillus Dysenteriæ Sonne

was the causal organism. The patients affected numbered five in the first outbreak, and 14 in the second. In addition, two cases occurred in a small ward at the Babies' Hospital.

It is probable that the disease was introduced into the hospitals from outside, and that the infecting agents were patients who, though admitted with indefinite abdominal symptons, proved on subsequent investigation to be suffering from dysentery.

Though dysentery so introduced is particularly liable to set up minor epidemics in hospitals and wards where children are treated, it is rare that cases so infected are attended by fatal results, unless the patient is suffering from some other serious disease at the time of infection. This, unfortunately, was the case with several of the patients in these particular outbreaks.

Although more prevalent during the spring and autumn months of 1931, dysentery was present throughout the year. Its relation to the so-called " summer diarrhœa " of infants has not been fully determined as yet ; but it is probable that continued investigation may throw light on this problem.

The circumstances and history of all cases were carefully investigated with a view to obtaining information as to the probable sources of infection. The possibility of the existence of carriers who might have acquired the disease while on foreign service, was also considered. Prolonged enquiries along these lines elicited no definite incriminable cause or source of the infection. The age, sex, and mortality incidence of the series of 88 cases are given in the following table :—

Ages.	Under 1.	1–2.	2–5.	5–15.	15–25.	25–45.	45 upwards.	Total.
Male	8 (4)	15 (1)	13	11	1	4	1	53 (5)
Female ...	7	8 (1)	8	6	..	5	1	35 (1)
Total	15 (4)	23 (2)	21	17	1	9	2	88 (6)

The figures in parentheses indicate fatal cases.

The incidence of the disease on children in the first two age groups is higher than usual, but this is due to the epidemics in the children's wards already referred to. Apart from this, there are no outstanding features in the age and sex distribution of the disease on which comment is necessary.

Bacteriological investigations were carried out very systematically, and no case was discharged from hospital or from supervision unless the stools, which form the main material for transmitting the disease, were free from the causal organism. In all, seven different dysentery organisms were implicated in the causation of the cases—five of the recognised strains of the Flexner bacillus, one atypical Flexner organism, and the Sonne bacillus. The recently discovered bacillus which has been named the Newcastle bacillus by its discoverers, Dr. F. H. A. Clayton and Dr. S. H. Warren, was not encountered.

The distribution of these organisms among the cases is as follows :—

	Flexner.						Sonne Bacillus.	Totals.
	V.	W.	X.	Y.	Z.	Atypical.		
Total No. of Cases ...	1	24	1	2	12	1	47	88
Fatal Cases	..	..	..	..	3	..	3	6
Non-Fatal Cases.....	1	24	1	2	9	1	44	82

The actual significance of the increased prevalence of the disease in recent years is still perplexing. It is probable that dysentery has always been present in this country. Records of its existence go back to the time of Edward I., who died of the disease at Burgh-on-Sands in 1307. During the eighteenth century Newcastle was a veritable hotbed of the disease, and in the nineteenth century it often featured in the records of the Newcastle uponTyne Dispensary. Throughout the history of the disease there have been periods when it has practically disappeared, or if present, has been exceedingly mild and modified in type, only to return in cyclical fashion, with high incidence and heavy mortality. Whether this present outbreak, which has now been with us for four years, is to be regarded as the beginning or as the peak of a wave of activity on the part of the dysentery organisms, it is impossible to say. The best hope of keeping the invader within bounds, and of limiting its severity, lies in the careful investigation of all cases as they occur, and in the employment of patient research and enquiry.

CITY HOSPITALS FOR INFECTIOUS DISEASES.

Accommodation.

Names and Situation of Hospitals.		Total Available Beds
City Hospital for Infectious Diseases, Walker Gate—		
	Beds.	
Fever Pavilions	232	
(One of 30 beds temporarily appropriated for Tuberculosis)		
Tuberculosis Pavilions	106	
		338
Smallpox and Isolation Hospitals, Town Moor		172

City Hospital, Walker Gate.

Year.	Population of the City.	Number of Beds at Hospital for Fever Cases.	Total Admissions (exclusive of Phthisis and Smallpox).	Percentage of Scarlet Fever, Diphtheria and Enteric Fever Cases Admitted to Cases Notified.
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	82·4
1922	281,600	232	1,032	86·3
1923	283,800	232	991	92·6
1924	285,900	232	1,502	90·5
1925	286,300	*232	1,711	86·4
1926	284,700	*232	1,397	89·1
1927	288,500	*232	1,493	89·7
1928	281,500	*232	1,294	92·9
1929	283,400	*232	1,713	89·1
1930	283,400	*232	1,649	96·4
1931	283,600	*232	2,347	95·6

* 30 of these beds temporarily appropriated for Tuberculosis patients.

CITY HOSPITAL FOR INFECTIOUS DISEASES, WALKER GATE.

Diseases Admitted—1931.

		After Observation Proved to be:—																												
Sent in as	Number.	Scarlet Fever.	Diphtheria.	Diphtheria Carriers.	Enteric Group Fevers.	Dysentery.	Measles.	Rubella.	Varicella.	Mumps.	Anthrax.	Pertussis.	Epidemic Cerebro-Spinal Meningitis.	Other forms of Meningitis.	Poliomyelitis.	Encephalitis Lethargica.	Pneumonia.	Bronchitis.	Influenza.	Other Respiratory Diseases.	Erysipelas.	Skin and Septic Conditions.	Puerperal Pyrexia.	Tonsillitis.	Gastro-enteritis.	Other Gastro-intestinal Diseases.	Ophthalmia Neonatorum.	General Diseases.	Injuries.	Unclassified.
Scarlet Fever	1063	973	..	..	..	..	11	..	1	..	..	..	1	..	..	..	3	2	2	..	..	40	..	24	2	..	..	3	..	1
Diphtheria	178	11	93	..	1	..	1	..	..	1	..	..	..	..	..	..	4	4	..	9	..	1	..	51	..	1	..	..	..	1
Diphtheria Carriers	19	..	..	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Group Fevers	42	1	..	..	20	..	..	..	..	..	..	..	..	1	..	1	3	..	1	..	..	..	..	..	6	2	..	5	..	2
Dysentery	113	..	..	..	..	78	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35	..	..	..	..	..
Measles	352	3	1	..	..	..	338	..	..	..	..	3	..	..	..	..	1	..	..	1	..	5	..	..	..	..	..	..	..	..
Rubella	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Varicella	14	..	..	..	..	..	..	..	8	..	..	..	..	1	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	1
Mumps	3	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anthrax	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pertussis	69	1	..	..	..	..	2	..	..	..	..	57	..	..	..	..	2	4	..	1	..	..	..	..	..	..	..	1	..	1
Epidemic Cerebro-Spinal Meningitis	50	..	..	..	..	..	..	..	..	..	..	..	43	2	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	3
Other forms of Meningitis	44	..	..	..	..	..	1	..	..	..	..	..	14	16	..	..	7	1	1	..	..	..	..	1	2	..	..	1	..	..
Poliomyelitis	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Encephalitis Lethargica	7	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	3
Pneumonia	182	..	..	..	..	..	3	..	..	..	..	8	..	1	..	..	141	12	2	..	..	..	..	..	..	..	..	15	..	..
Bronchitis	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	..	..	..	..	..	..	..	..	..	..	..
Other Respiratory Diseases	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..
Erysipelas	104	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	91	11	..	..	..	..	..	..	..	1
Skin and Septic Conditions	21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	..	..	..	..	..	..	..	..
Puerperal Pyrexia	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..
Tonsillitis	23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	..	..	..	..	..	..
Other Gastro-intestinal Diseases	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..
Ophthalmia Neonatorum	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
General Diseases	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..
Injuries	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
Unclassified	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
Totals	2347	989	94	19	21	78	357	1	9	4	1	68	59	22	..	2	162	24	28	13	91	82	4	100	45	7	3	35	3	26

CITY HOSPITAL, WALKER GATE.

(Fever Pavilions).

Admissions during the year—2,347.

The *average daily number* of patients in the hospital was 170, exclusive of 125 cases of Phthisis.

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

	1890	1895	1900	1905	1910	1915	1920	1925	1926	1927	1928	1929	1930	1931
Scarlet Fever	13·4	33·0	35·0	50·1	84·5	91·3	85·7	85·0	86·6	88·6	91·9	94·7	95·9	95·2
Diphtheria	8·3	28·7	40·0	36·8	80·1	89·1	89·1	94·1	93·3	95·2	94·6	96·5	97·5	99·1
Enteric Fever	38·9	48·0	54·5	52·0	90·5	87·0	90·0	96·4	90·9	78·9	95·5	94·7	97·6	92·3
All cases of the above, together with Continued and Typhus Fever and Cerebro-Spinal Fever, etc.	21·3	34·6	38·6	47·8	83·0	90·5	86·4	86·0	87·2	89·7	91·8	93·8	96·1	95·6

Diseases and Mortality Rates.

MORTALITY OF CASES TREATED IN HOSPITAL AS COMPARED WITH CASES NOT REMOVED DURING 1931.

DISEASE.	HOSPITAL.			NOT REMOVED.		
	Total Cases. (Verified)	Deaths.	Case Mortality per cent.	Total Cases.	Deaths.	Case Mortality per cent.
Scarlet Fever	989	5	0·5	51	..	..
Diphtheria ...	94	5	5·3	1	1	100
Enteric Group of Fevers	21	2	9·5	1	1	100

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.

YEARS.	NUMBER OF CASES ADMITTED TO HOSPITAL.			NUMBER OF DEATHS.			CASE MORTALITY PER CENT.		
	Scarlet Fever.	Diph-theria.	Enteric Fever.	Scarlet Fever.	Diph-theria.	Enteric Fever.	Scarlet Fever.	Diph-theria.	Enteric Fever.
1891-1895 ..	1105	92	277	34	26	51	3·1	28·3	18·4
1896-1900 ..	1087	103	442	41	21	86	3·8	20·6	19·5
1915–1929.									
1915-1919 ..	3,402	998	194	99	89	21	2·9	9·0	10·8
1920-1924 ..	3,919	1,037	78	37	73	9	0·9	7·5	11·6
1925-1929 ..	3,612	908	123	43	62	23	1·2	6·8	18·7
1930–31.									
1930.....	584	158	66	4	4	2	0·69	2·5	3·0
1931.....	989	94	21	5	5	2	0·5	5·3	9·5

Admissions and Deaths, 1931.

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	57	52	79	73	90	93	82	66	111	97	93	96	989	..	1	1	..	1	..	..	1	..	..	1	..	5
Diphtheria	6	10	11	5	10	8	6	6	8	8	8	8	94	..	..	..	1	..	2	1	..	1	..	..	..	5
Diphtheria Carriers	..	7	..	1	1	..	4	1	..	..	3	2	19	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Group Fevers	1	..	1	..	3	2	1	1	1	5	4	2	21	..	..	..	..	..	1	..	..	..	1	..	..	2
Dysentery	4	1	14	9	2	2	6	..	5	10	11	14	78	..	..	..	..	..	..	..	..	..	2	2	..	4
Measles	96	113	77	34	20	10	6	1	..	..	..	..	357	16	15	18	5	5	1	..	..	..	..	..	..	60
Rubella	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Varicella	..	6	..	..	..	..	..	..	1	..	..	2	9	..	..	..	..	..	..	..	..	..	..	..	..	..
Mumps	1	2	..	..	..	1	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..
Anthrax	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Pertussis	1	9	10	4	6	4	3	6	7	5	8	5	68	..	4	4	..	2	..	1	1	3	2	3	1	21
Epidemic Cerebro-Spinal Meningitis	4	11	7	7	5	2	3	7	4	4	3	2	59	3	6	3	3	5	2	1	4	2	3	2	1	35
Other forms of Meningitis	1	..	3	4	3	1	7	..	..	2	1	..	22	1	..	3	4	3	1	6	..	..	2	..	..	20
Encephalitis Lethargica	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	1
Pneumonia	15	22	7	18	12	11	11	5	6	10	23	22	162	4	6	..	1	2	1	..	1	1	4	4	7	31
Bronchitis	4	2	2	1	..	1	4	..	4	3	3	..	24	..	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	2	9	1	2	1	1	..	..	5	3	3	1	28	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Respiratory Diseases	2	1	2	1	1	1	..	..	2	2	1	..	13	..	..	..	..	1	..	..	..	..	..	..	..	1
Erysipelas	11	10	13	10	7	2	4	4	8	6	9	7	91	1	..	1	..	1	..	..	..	..	..	..	1	4
Skin and Septic Conditions	8	5	2	5	3	4	4	12	10	10	9	10	82	..	..	..	1	..	1	..	..	1	..	..	..	3
Puerperal Pyrexia	2	..	..	1	..	..	..	..	..	..	..	1	4	1	..	..	..	..	..	..	..	..	..	..	..	1
Tonsillitis	10	5	10	8	9	13	8	5	10	5	6	11	100	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastro-Enteritis	5	2	4	3	5	6	4	2	..	1	5	8	45	..	..	..	..	..	..	..	..	..	..	1	1	2
Other Gastro-Intestinal Diseases	..	1	..	1	..	..	..	..	1	1	..	3	7	..	..	..	..	..	..	..	..	1	..	..	1	2
Ophthalmia Neonatorum	1	..	1	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..
General Diseases	2	6	8	1	3	..	2	..	4	3	1	5	35	..	2	1	..	..	..	..	..	1	..	..	1	5
Injuries	..	..	..	..	..	1	..	..	1	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..
Unclassified	..	1	6	2	5	..	1	3	4	1	..	3	26	..	..	1	..	..	..	..	..	..	..	..	1	2
Totals	233	275	260	191	186	163	156	119	192	177	192	203	2347	26	34	33	15	20	9	9	7	10	14	13	14	204

Length of Stay in Hospital of Early Fatal Cases.—The following cases died within a short period after their admission to Hospital :—

	Within 24 hours.	*Within 48 hours.*
Scarlet Fever	1	..
Diphtheria	2	1
Enteric Fever	..	1
Measles	9	6
Pertussis	1	3
Pertussis with Dysentery	..	1
Epidemic Cerebro-spinal Meningitis	3	5
Tuberculous Meningitis	1	..
Pneumococcal Meningitis	1	..
Pneumonia	7	6
Laryngitis	1	..
Erysipelas	1	..
Facial Cellulitis	1	..
Miliary Tuberculosis	1	..
Total	29	23

Average stay in Hospital during the last Twenty-four Years.

Years.	All Cases.		Scarlet Fever.		Diphtheria (including carriers).		Enteric Fever.		Other Diseases.	
Average	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
1908-12	1,054	46·7	599	51·7	326	41·3	68	46·3	61	29·6
1913-17	1,538	39·6	929	45·6	220	39·9	70	47·4	318	20·6
1918-22	1,408	31·2	758	37·1	215	43·2	15	46·6	420	16·8
1923-27	1,419	31·9	751	35·2	185	44 3	21	54·0	462	21·1
1928 ..	1,294	22·5	452	29·3	205	33·6	25	44·5	612	12·9
1929 ..	1,713	21·7	543	29·7	247	29·6	38	42·2	885	13·6
1930 ..	1,649	23·9	584	32·5	194	34·7	66	44·3	805	13·5
1931 ..	2.347	27·3	989	36·5	113	46·3	21	50·2	1224	17·8

DIPHTHERIA.

94 cases were admitted to hospital. 73 of these were simple faucial or tonsillar cases, and in one other the infection was limited to the nose. All of these recovered. In a group of 16 faucio-pharyngeal cases, with varying degrees of nasal involvement, there were four deaths—equivalent to a case mortality of 25 per cent.

There were four cases of laryngeal or tracheal diphtheria, of whom one, or 25·0 per cent., died. In two of these cases the obstruction was so considerable as to require tracheotomy shortly after admission to the City Hospital. One of these cases recovered and the other died.

The case mortality of the whole series of 94 cases was 5·3 per cent., a figure below the average for the years 1925-1929, but considerably higher than that for 1930, which was the lowest on record. There was again a comparatively high mortality among the faucio-pharyngeal cases with nasal involvement.

Diphtheria is in many cases a " silent " disease at its onset, and the failure of parents to recognise the serious significance of the early stages is often responsible for a fatal issue. When diagnosed early much can be done to arrest the progress of the disease by the immediate injection of antitoxin, and it is now generally accepted that a small dose of antitoxin given in the early stages is much more efficacious in preventing the harmful effects of the disease than enormous doses in the later stages.

A method by which the full and immediate effect of antitoxin can be secured is to inject the serum into a vein so that it enters directly into the blood stream and the general circulation. This method is not without its difficulties, especially in small children ; but in the last year every effort has been made to use the intravenous route in all late or severe cases. In the whole series of 94 cases, serum was given intravenously in 32 cases.

So far as the laryngeal and tracheal types of the disease are concerned, the records show that during the 12 years from 1920-1931, 367 such cases have been admitted to the City Hospital, and 70 have died—a case mortality rate of 19·07 per cent. If we analyse the figures still further, and consider those who were treated without operative interference, we find that in 225 cases of this kind 21—or 9·3 per cent.—died, a mortality rate little higher than that for all cases of diphtheria. But where tracheotomy was necessary, the mortality was much higher, and of the 142 patients submitted to the operation, 51—or 35·9 per cent.—died. (This includes three cases where intubation was performed, two of which were fatal.) These figures com pare quite favourably with the general English experience ; but of recent years American investigators have attacked this problem, and by the introduction of new methods of treatment, have reduced their operation mortality rate for this type of case from 40 per cent. to little more than 3 per cent. The method employed consists of introducing a fine tube through the mouth into the larynx, and by means of an electric exhaust pump, sucking out the membrane. The treatment may be required to be repeated two or three times a day ; but the results appear to have been eminently satisfactory. The procedure requires a certain amount of surgical dexterity, and the use of apparatus collected and adapted for the special purpose. It is still hoped to make this form of treatment available at the City Hospital in due course.

SCARLET FEVER.

During the year 1931, 989 cases of scarlet fever were admitted to Walker Gate, as against 584 in 1930. The incidence of the disease was relatively heavier in the last four months of the year, during which 397 cases were admitted.

The prevailing type of scarlet fever remained mild, and the mortality rate was slightly lower than for the previous year—0·5 per cent., instead of 0·69 per cent. The complication attack rate, however, was again distinctly higher, namely, 40·4 per cent., as contrasted with 30·0 per cent.

Scarlet fever antitoxin has been used to an even greater extent than in previous years. The numbers and relative proportions of patients receiving this form of treatment for the period 1926-1931 are as follows :—

	1926	1927	1928	1929	1930	1931
Scarlet Fever Cases admitted	831	741	452	543	584	989
Number treated with Antitoxin...	78	172	177	169	249	483
Percentage treated with Antitoxin	9·5	20·3	39·2	31·1	42·6	48·8

In previous reports attention has been directed to the benefits accruing from the use of scarlet fever antitoxin and the difficulties experienced in statistically demonstrating these facts. Comparisons between various forms of treatment are always subject to the fallacy that in practice one cannot divide all the cases met with into two similar groups, and give the remedy to one and withhold it from the other. If the remedy is of any value at all, the impulse to give it to every serious case is irresistible, and under these circumstances no true comparison can be drawn. The two groups of such a suggested experiment can never be similar ; the one which receives the remedy under trial always contains the severer cases, and the patients from whom the

remedy is withheld, *i.e.*, the milder cases, find their way into the second group. Nevertheless, despite the fact that complete statistical proof as to the efficacy of scarlet fever antitoxin is lacking, every practitioner who has had any experience of the remedy in practice testifies to its merits. Not only is the administration of the serum to any severe case of scarlet fever almost invariably followed by a fall in temperature, amelioration of symptoms, and diminution of toxæmia, but it is now recognised that its remedial powers are not limited to that disease. Recent research has demonstrated the value of the antitoxin in the treatment of certain other diseases, notably puerperal fever and erysipelas.

In the following table is summarised the statistical information regarding all cases of scarlet fever treated during the year under review :—

Scarlet Fever.	Number.	Percentage treated with Antitoxin.	Percentage with Complications.	Mortality Rate.	Return Case Rate.	Average stay in Days in Hospital.		
						All Cases.	Complicated Cases.	Non-complicated Cases.
All Cases ..	989	48·8	40·4	0·5%	3·9%	36·5	45·1	30·6
Antitoxin Cases ..	483	100	44·5	0·62%	3·1%	37·9	44·8	32·3
Non-Antitoxin Cases	506	Nil.	36·5	0·4%	4·7%	35·1	45·5	29·1

Percentage Incidence of Complications.

	Rhinorrhœa.	Otorrhœa.	Adenitis.	Rheumatism.	Albuminuria.	Nephritis.	Cardiac.	Other Complications.
All Cases	11·8	7·0	16·5	0·4	2·3	0·8	0·1	1·5
Antitoxin Cases	13·5	6·2	19·5	0·4	2·5	0·6	..	1·4
Non-Antitoxin Cases	10·1	7·7	13·4	0·4	2·1	1·0	0·2	1·5

Otorrhœa and Rhinorrhœa.—The work of the Consulting Oto-Rhinologist to the Hospital (Mr. W. Frank Wilson), in the treatment and supervision of scarlet fever cases complicated by otorrhœa or rhinorrhœa has been continued along lines developed in recent years.

The incidence of these complications, though higher than in 1930, was, nevertheless, below the average for recent years. 186 cases occurred in 989 admissions—a complication rate of 18·8 per cent., as contrasted with 11·6 per cent. in the previous year.

The distribution of these cases according to whether or not they were treated with scarlet fever antitoxin, and their respective stay in hospital, are shown in the following table :—

		Number of Cases.	Average stay in Hospital (days).
Non-Antitoxin Cases	Rhinorrhœa	51	45·5
	Otorrhœa	39	50·8
Antitoxin Cases	Rhinorrhœa	66	50·9
	Otorrhœa	30	49·8
	Total.....	186	49·2

The average stay per patient of cases in this group was 49·2 days, as contrasted with the figure given for 1930, namely 44·8 days.

In the treatment of these patients it was found necessary to perform nineteen operations—thirteen for the removal of tonsils and adenoids, four for mastoidectomy, one for a cerebral abscess, and one for a retro-pharyngeal abscess. The operations were, with one exception, successful, and the patients concerned made uneventful recoveries. The case of cerebral abscess died three weeks after operation.

Subsequent Progress.—As in previous years, supervision of all cases of rhinorrhœa and otorrhœa has been maintained after their discharge from hospital, and every one of the 186 cases of this type has been visited at varying intervals. The result of these visits showed that amongst 117 cases of rhinorrhœa, three, or 2·4 per cent., still had slight nasal discharge, whilst 5, or 7·2 per cent., of the cases of otorrhœa had slight persisting deafness or discharge from the ear.

All the cases in which the nasal or aural discharge has persisted have been kept under observation by Mr. Wilson at the Out-Patient Department of the Royal Victoria Infirmary.

" 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.
989	37	3·7	39	3·9	40

Seasonal Occurrence.

Quarter.	Total Scarlet Fever Admissions.	" Infecting " Cases.		" Return " Cases.	
		No.	Percentage	No.	Percentage.
January to March	188	1	0·5	2	1·06
April to June	256	9	3·5	10	3·9
July to September	259	9	3·4	9	3·4
October to December ..	286	18	6·9	18	6·3

Of the 37 " infecting " cases (*a*) 17 had no complications or discharges whilst in hospital, and remained " clean " after reaching home, (*b*) four had no complica-

Hospital and Home "Isolation" compared.

Year	1913		1914		1915		1916		1917		1918		1919		1920		1921		1922		1923		1924		1925		1926		1927		1928		1929		1930		1931.		19 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.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.
Cases of Scarlet Fever treated	853	90	1404	311	1305	111	677	51	409	36	381	3	630	86	1105	184	1115	249	599	101	434	40	705	78	1036	179	831	134	750	100	419	40	479	31	549	26	1,074	51	14,698	1,901
"Susceptibles" in the homes of each class of patient	1131	53	1708	244	1462	86	809	8	509	17	450	20	726	47	1203	87	1401	147	647	59	563	16	807	32	1084	102	911	67	831	35	477	26	509	8	595	12	1,032	29	16,846	1,077
"Incidental" infections	69	3	78	28	85	7	33	2	25	..	18	..	59	1	69	5	88	16	37	5	31	2	34	3	74	10	32	3	41	5	20	1	31	..	23	..	36	7	883	98
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	12·5	4·2	9·4	6·8	9·8	3·5	4·5	4·9	14·3	4·2	3·8	6·1	..	3·8	..	3·5	35·0	5·24	9·1
"Return" Infections	29	..	84	..	55	2	21	1	20	..	14	..	22	..	49	3	30	7	7	1	17	1	29	..	23	..	34	1	26	..	6	..	29	1	16	1	39	1	550	19
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	3·0	6·2	3·6	..	2·1	..	3·7	1·5	3·1	..	1·3	..	5·7	12·5	2·7	8·3	3·8	5·0	3·2	1·7
Total of "incidental" and "return" infections	98	3	162	28	140	9	54	3	45	..	32	..	81	1	118	8	118	23	44	6	48	3	63	3	97	10	66	4	67	5	26	..	60	1	39	1	75	8	1,433	117
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	8·5	18·7	7·8	9·4	8·9	9·8	7·2	6·0	8·1	14·3	5·4	3·8	11·8	12·5	6·5	8·3	7·2	40·0	8·5	10·9
Average number of rooms in the home per "susceptible"	2·1	6·9	2·2	4·1	1·9	4·8	2·0	18·5	2·1	5·2	2·2	6·2	2·5	4·8	2·2	7·5	2·1	6·0	2·1	6·9	2·1	9·9	2·3	8·8	2·3	5·8	2·3	7·6	2·3	10·5	2·7	6·7	2·8	16·6	2·8	9·7	2·5	8·5	2·2	6·3

For the purpose of this table a "return" case is counted to the year in which the "infecting" case was admitted, even though the latter may have been discharged, or the "return" case admitted, in the following year.

tions whilst in hospital, but developed discharges after reaching home, while (*c*) 16 had complications whilst in hospital, but were " clean " on discharge.

Of these 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 " cases, were as follows :—

Class (*a*)—32 and 11 days.
Class (*b*)—31 ,, 14 ,,
Class (*c*)—49 ,, 11 ,,

" Return " Cases for Years 1906–1931.

Years.	Total Scarlet Fever Admitted.	" Infecting " Cases.		" Return " Cases.	
		No.	Percentage.	No.	Percentage.
1906–10...	2,203	63	2·8	82	3·7
1911–15...	5,185	217	4·2	251	4·8
1916–20...	3,202	104	3·2	112	3·5
1921–25...	3,850	93	2·4	105	2·7
1926.....	831	31	3·7	33	3·9
1927.....	750	25	3·3	26	3·5
1928.....	452	7	1·5	6	1·3
1929.....	543	31	5·7	29	5·3
1930.....	584	17	2·9	16	2·7
1931.....	989	37	3·7	39	3·9

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 nineteen years of the number of presumably susceptible persons in each invaded 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 are 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, are classed as " incidental " infections. Cases occurring within 28 days after the release of the original case from " isolation " are classed as " return " infections.

The table on page 135A shows the results obtained.

ERYSIPELAS.

Of recent years erysipelas has shown a tendency to become one of the commoner and severer infectious diseases prevailing in the City. Its incidence and mortality approximate roughly to those of diphtheria, with the notable exception that while the latter is a disease of children and young people, erysipelas principally attacks the middle-aged and elderly.

In the following table the number of notifications of erysipelas, the deaths caused by the disease, and the case mortality rate are detailed for the years 1926-1931. In addition, similar information is given for such of these cases as were admitted to the City Hospital, together with the duration of their stay in hospital.

Year.	Total Notifications.	Deaths.	Mortality Rate. Per Cent.	City Hospital.			
				Admissions.	Deaths.	Mortality Rate. Per Cent.	Duration of stay in Hospital Days.
1931.....	218	11	5·0	91	4	4·4	14·0
1930.....	208	12	5·8	107	11	10·3	11·3
1929.....	220	11	5·0	85	8	9·4	13·0
1928.....	234	19	8·1	49	6	12·2	12·6
1927.....	212	12	5·7	51	2	3·9	14·5
1926.....	172	5	2·9	31	2	6·5	25·6

The policy of admitting these patients to Walker Gate was extended during 1929, with a view to giving them the benefit of good nursing and the most recent

advances in treatment. In practice, it is the severer cases that are brought to hospital, and accordingly it is fallacious to contrast the results of these cases with those which are so mild, or so conveniently situated, that they can be left at home

Erysipelas is due to an organism of the same family as the recently determined causal agent of scarlet fever —namely, the hæmolytic streptococcus. The antitoxin which has been discovered and used in the treatment of scarlet fever is also of considerable value in neutralising the toxæmia in erysipelas, and a specific antitoxin for the type of streptococcus causing erysipelas has recently been introduced. By the use of these antitoxins it is possible, in a large number of cases, to shorten the period of illness and bring about an early and uneventful recovery. This antitoxin treatment has been in use at the City Hospital since 1928, and has been extensively and increasingly employed during 1930 and 1931. It will be observed from the table that the present duration of stay in hospital—14 days—while slightly in excess of the figure for the last three years, is still less than in 1927, and cannot be compared with the period of hospital treatment found necessary in 1926.

On the other hand, there is this year a distinct improvement in the mortality rate. In 1931 this was 4·4 per cent. for all cases of erysipelas treated in hospital —as contrasted with 10·3 per cent. in 1930 and 9·4 per cent. in 1929. With the exception of 1927, when the figure was 3·9 per cent., this is the lowest rate for the last six years. One of the cases was moribund on admission, and died before any treatment could be given. Of the 91 cases admitted to hospital, 64 were given antitoxin, of whom two, or 3·1 per cent., died. Among the

27 non-antitoxin cases there were two deaths—a mortality rate of 7·4 per cent., one of these being the case already mentioned.

The difficulties encountered in demonstrating statistically the value of any antitoxin have already been touched on in the section on scarlet fever, and the same apply in the case of erysipelas. Nevertheless, the possession of such a valuable remedial agent as scarlet fever antitoxin has undoubtedly been of advantage to the practising physician, and so to the patient.

Mixed Infections.

45 patients, or 1·9 per cent. of those sent into hospital were found, on or shortly after admission, to be suffering from or incubating two or more distinct infectious diseases, as follows :—

Scarlet Fever with Diphtheria	4
Scarlet Fever with Dysentery	1
Scarlet Fever with Measles	3
Scarlet Fever with Varicella	3
Scarlet Fever with Pertussis	10
Scarlet Fever with Paratyphoid	1
Diphtheria with Scarlet Fever and Varicella	1
Paratyphoid B. Fever with Dysentery	2
Dysentery with Measles	1
Dysentery with Varicella	1
Dysentery with Pertussis	3
Measles with Dysentery	1
Measles with Varicella	1
Measles with Pertussis	8
Pertussis with Dysentery	1
Pertussis with Measles	2
Tuberculous Meningitis with Varicella	1
Miliary Tuberculosis with Pertussis	1
Total	45

Cross Infections.

During the year 58 patients, or 2·47 per cent. of the total admissions contracted a second infection in the wards of the hospital. The details are as follows, the primary infection being stated first :—

Scarlet Fever with Dysentery	6
Scarlet Fever with Measles	16
Scarlet Fever with Varicella	22
Diphtheria with Scarlet Fever	1
Diphtheria with Varicella	2
Measles with Scarlet Fever	3
Measles with Dysentery	1
Pertussis with Measles	2
Erysipelas with Paratyphoid B. Fever	1
Erysipelas with Dysentery	1
Tonsillitis with Scarlet Fever	2
Rheumatic Fever with Dysentery	1
Total	58

It is gratifying to know that every one of the " cross infected " patients made a satisfactory recovery.

Bacteriological Laboratory, City Hospital.

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

Swabs for Diptheria Bacilli	1,424
Sputa for Tubercle Bacilli	812
Other Examinations	163
Total	2,399

Staff Sickness.

The incidence of sickness amongst members of the nursing and domestic staffs was very high during 1931, as can be seen from the following figures :—

Nursing Staff.—77 of the nursing staff were off duty owing to sickness for a total of 1,616 days. 17 suffered from tonsillitis, 17 from influenza, 14 from skin disorders or septic conditions, one developed pleurisy

with effusion, and one contracted pulmonary tuberculosis. These two latter cases were transferred to Barrasford for treatment.

Domestic Staff.—77 were off duty through sickness for a total of 794 days. 21 suffered from influenza, 10 from skin disorders or septic conditions, and seven from tonsillitis.

This amount of sickness was probably attributable to the large number of patients in hospital, which in its turn necessitated an increase in the staff, and consequent overcrowding of the sleeping accommodation of the personnel. The additional accommodation now being provided by the extension of the Nurses' Home should materially improve the conditions under which both nursing and domestic staffs are housed.

Despite the frequency with which minor infections and ailments occur in the above list, it is satisfactory to note that there was no case of scarlet fever, diphtheria, or the enteric group of fevers among the nursing or domestic staffs. This freedom from the major infectious diseases is due to the steady pursuit of inoculation and immunisation against these diseases, which has been carried on during recent years. The great saving in health, time and expense which has accrued from the adoption of these preventive measures will be sufficiently obvious without further comment.

The extension of this preventive work, which was introduced in 1930, has been continued throughout the past year. Before commencing duty in the Sanatorium, all nurses and members of the domestic staff are subjected to an intradermal tuberculin test to determine their susceptibility to tuberculosis. In addition, an X-ray photograph of the chest of each individual is taken

and filed for future reference. Needless to say, where any condition at all suspicious of tuberculosis is discovered, the affected nurse or maid is not employed in the Sanatorium.

SMALLPOX AND ISOLATION HOSPITALS, TOWN MOOR.

Owing to the disappearance of Smallpox from the neighbourhood of Newcastle upon Tyne, it was not found necessary to bring the wards of the Smallpox Hospital into use for that disease at any time throughout the year.

The wards of both Hospitals, however, were utilised occasionally for the accommodation of convalescent scarlet fever and other cases from Walker Gate.

DISINFECTION, Etc.

9,017 cases of notifiable infectious disease were inquired into by the Infectious Disease Inspectors and Health Visitors, and, with the exception of measles and chickenpox, the houses or rooms connected therewith disinfected by spraying with formalin. In connection with cases of tuberculosis, 766 houses, including 890 rooms, were similarly disinfected. 940 visits were made, and disinfection was also carried out in 470 special cases.

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

450 visits were made to cases who had suffered from otorrhœa and rhinorrhœa whilst in hospital.

Inquiries were also made in connection with several smallpox contacts (cases outside of the City). These persons were kept under observation until the possible incubation period was over.

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

ARTICLES FROM CITY.		ARTICLES—HOSPITAL PROPERTY.	
1931	1930	1931	1930
23,283	20,752	15,628	22,203

1,227 articles were also disinfected at the Smallpox Hospital.

The staff have thus dealt with 40,138 articles 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—1931.

FROM	FOR INFECTIOUS DISEASES.	FOR PHTHISIS.
	FLUID (½ pint tins.)	FLUID (½ pints.)
Health Department	117	..
Tuberculosis Dispensary	..	640
Corporation Yard, Benwell.....	20	..
TOTAL	137	640

BACTERIOLOGICAL INVESTIGATIONS, 1931.

The following is a report on the bacteriological examinations carried out on behalf of the Health Department of the Newcastle Corporation, at the Public Health Laboratory (University of Durham College of Medicine), Armstrong College.

A total of 6,760 specimens were submitted for examination. The nature of the investigations and the results obtained are given under the various sections as follows:

BACTERIOLOGICAL EXAMINATIONS :—

	Diphtheria.			Phthisis.			Swabs for Haemolytic Streptococci.		
	Total.	Positive.	Negative.	Total.	Positive.	Negative.	Total.	Positive.	Negative.
No. of Examinations	1,309	76	1,233	804	126	678	16	9	7
Percentage positive	..	5·8	..	..	15·7	..	..	56·2	..

AGGLUTINATION REACTIONS :—

	Agglutination Tests for the Enteric Fevers.			Agglutination Tests against Brucella Abortus and Brucella Melitensis.		
	Total.	Positive.	Negative.	Total.	Positive.	Negative.
No. of Examinations	95	*31	64	12	1	11

* Of these positive results:—

7 agglutinated B. typhosus.
5 ,, B. paratyphosus A.
19 ,, B. paratyphosus B.

MILK EXAMINATIONS :—

	Total.	Found.	Not Found.	Percentage positive.
1. For the tubercle bacillus by animal inoculation :—	376	14	362	3·8

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

Colon bacilli not found in 1·0 cc. or less	47
Colon bacilli found in 1·0 cc., but not in less	56
Colon bacilli found in 0·1 cc., but not in less	32
Colon bacilli found in 0·01 cc., but not in less	22
Colon bacilli found in 0·001 cc., but not in less	14
Colon bacilli found in 0·0001 cc., but not in less....	17
Colon bacilli found in 0·00001 cc., but not in less..	12
	200

In addition to the colon bacillus indicator as mentioned above, a total estimation of the number of organisms present was carried out on all the samples during the year.

3. 225 samples of " Graded Milk " were examined during the year in accordance with the scheme of the Ministry of Health under the Milk and Dairies (Amendment) Act, 1922, and Milk (Special Designations) Order, 1923. The following results were obtained :—

	Satisfied the Test.	Failed to satisfy the Test.
" Certified " Milk	49	3
" Grade A " Milk (T.T.)	145	23
Pasteurised Milk.....	4	1
	198	27

WATER EXAMINATIONS :—

(i.) *Routine Samples.*

Class I. (Colon bacilli not found in 100 cc. or less).....	132
Class II. (Colon bacilli found in 100 cc. but not in less)	34
Class III. (Colon bacilli found in 10 cc. but not in less)	20
Class IV. (Colon bacilli found in 1 cc. but not in less)..	2
	188

(ii.) During the months of August and September 30 samples of water were examined from the several Corporation Swimming Baths in the City, and the following is a summary of the results obtained :—

Colon bacilli not found in 100·0 cc. or less	24
Colon bacilli found in 100·0 cc., but not in less	1
Colon bacilli found in 10·0 cc., but not in less	5
Colon bacilli found in 1·0 cc., but not in less	....
	30

(iii.) In addition to the before-mentioned samples of water, the following samples were also received and examined, detailed results being furnished at the time:—

From various sources at Barrasford Sanatorium	23
Mineral Waters	4
Other sources (food poisoning enquiry)	1
	28

Shell Fish.—One sample of mussels and three samples of oysters were submitted for bacteriological examination, and reports were furnished at the time.

Venereal Diseases :—

	Serological reactions.	Microscopical examinations.	Total.
From Treatment Centre	1,225	..	1,225
From Private Practitioners ...	1,237	214	1,451
Total	2,462	214	2,676

Other Examinations :—

(*a*) **Diphtheria.**—In addition to the daily examinations, virulence tests for suspected diphtheria bacilli from throat and nasal cultures were carried out in 37 cases :—

9 cases proved virulent.
22 cases proved non-virulent, and in
6 cases no diphtheria bacilli were isolated.

(*b*) **Enteric Fevers.**—The following specimens of fæces were received and examined for organisms of the enteric group :—

From the City Infectious Diseases Hospital	98
From the City Health Department	1
From the Newcastle General Hospital	20
Other sources	1
	120

In this total of 120, 39 were positive and 81 were negative ;

Typhoid bacilli being isolated	9	times.
B. paratyphoid bacilli being isolated	30	,,

Other organisms isolated were :—

B. Morgan No. 1	26	,,
B. pyocyaneous	8	,,
B. paracolon	17	,,
B. fæcalis alkaligenes	3	,,
Late lactose fermenting bacilli	4	,,
Other non-lactose fermenting bacilli	11	,,

The following specimens of urine were received and examined for organisms of the enteric group :—

From the City Infectious Diseases Hospital	4
From the City Health Department	1
	5

B. typhosus was isolated from one specimen ;

B. Morgan No. 1 was isolated from one specimen ; the remainder proved negative.

(*c*) **Bacillary Dysentery.**—Examination of fæces for dysentery bacilli from suspected cases has been continued throughout the year, and as previously done, one specimen was submitted after the patient was convalescent to determine freedom from infection before discharge from hospital.

The following results were obtained :—

	From City Infectious Diseases Hospital.	From City Health Department.	From Newcastle General Hospital.	From other Sources.	Total Specimens.
Total	214	24	84	9	331
Positive.....	71	8	27	1	107
Negative	143	16	57	8	224
Flexner Bacillus.....	44	3	16	..	63
Sonne Bacillus	27	5	11	1	44
Newcastle Dysentery Bacillus	..	..	..	..	..
	71	8	27	1	107

The following is a list of the types of Flexner bacilli obtained :—

	V.	W.	X.	Y.	Z.	Atypical Dysentery Bacillus.	Not typed.	Total.
From—								
City Infectious Diseases Hospital	1	28	1	1	9	3	1	44
City Health Department ..	..	1	..	..	2	..	..	3
Newcastle General Hospital	..	8	..	2	5	1	..	16
Other Sources	..	..	..	..	..	..	..	..
Total	1	37	1	3	16	4	1	63

Other organisms isolated were :—

B. Morgan No. 1 ..... 42 times.
B. pyocyaneous..... 3 ,,
B. paracolon ..... 31 ,,
B. fæcalis alkaligenes ..... 2 ,,
Late lactose fermenting bacilli ..... 15 ,,
Other non-lactose fermenting bacilli .... 16 ,,

(*d*) **Food Poisoning :—**

During the month of July an outbreak of food-poisoning occurred at a City establishment. The following specimens were received and examined against B. Aertrycke (Mutton) :—

11 specimens of sera ;
30 specimens of fæces.

The results obtained were as follows :—

	Material.	Positive.	Negative.	Total.
From City Health Department	Sera	10	1	11
Do. do. ..	Fæces	11	15	26
From City Infectious Diseases Hospital	,,	3	1	4

(*e*) **Cerebro-Spinal Meningitis :—**

44 specimens of cerebro-spinal fluid were examined during the year 1931, as compared with 12 specimens for the year 1930.

These gave 4 positive meningicoccal,
12 positive tubercle,
the remaining 28 being negative or inconclusive.

26 post-nasal swabs from cerebro-spinal fever contacts were also examined, and

Two post-nasal swabs from a recovered case in hospital, to ascertain freedom from infection.

(*f*) **B. Anthracis :—**

One specimen of pus was submitted from a suspected case of anthrax. The result of the examination was positive.

(*g*) **Miscellaneous :**—The following specimens were also received and reports furnished :—

5 cultural examinations of blood,
5 specimens of sera for B. dysenteriæ group,
3 specimens of sera for food-poisoning group,
1 rat for food poisoning group,
1 specimen of sputum for cultural examination.

(*h*) **Newcastle General Hospital :—**

The whole of the bacteriological examinations for the above-named hospital have been carried out in this laboratory during the year 1931, and the following is a summary of the various specimens received :—

The numbers and results of the fæces examinations (enteric-dysentery group) are given under the respective diseases.

Nature of Investigation.	No. of Specimens. 1931.
Autogenous Vaccines	5
Blood Cultures for Organisms	8
Cerebro-spinal Fluids	58
Fæces for Tubercle Bacilli	10
Pleural Fluids	21
Post-mortem Specimens	1
Pus from Various Sources	16
Sputum for Organisms	2
Synovial Fluids	10
Urine for Organisms	44
Total	175

The following table gives a complete summary of the various examinations, including the year 1930 for comparison :—

Nature of Investigation.	1930.	1931.
Throat Swabs for B. Diphtheria	1,979	1,309
Sputa for Tubercle Bacilli	990	804
Swabs for Hæmolytic Streptococci	54	16
Agglutination Tests :—		
Against the Enteric Fevers	264	95
Against Brucella Abortus	9	12
Against B. Aertrycke	..	11
Milk Examinations :—		
For the Tubercle Bacillus	377	376
For Bacillus Coli and Count	188	188
Graded Milk	187	225
Special Examinations	108	12
Ice Cream	24	..
Water Examinations :—		
For Bacillus Coli	180	188
For Complete Examination	46	30
Other Examinations	23	28
Shell Fish	..	4
Venereal Diseases	3,028	2,676
Other Examinations :—		
(*a*) Diphtheria Virulence Tests	11	37
(*b*) Enteric Fevers—Fæces	317	120
Urine	18	5
(*c*) Bacillary Dysentery	319	331
Amœbic Dysentery	4	..
(*d*) Food-poisoning—Fæces	..	30
(*e*) Cerebro-spinal Meningitis—		
C.S. Fluid	12	44
Post-nasal Swabs	..	28
(*f*) B. Anthracis	..	1
(*g*) Miscellaneous	15	15
(*h*) Newcastle General Hospital	..	175
Total	8,153	6,760

(Signed) S. H. WARREN, M.R.C.S. (Eng.), D.P.H. (Lond.).

Director, Public Health Laboratory.

University of Durham College of Medicine,

Newcastle upon Tyne,

12th May, 1932.

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

IV.—TUBERCULOSIS.

TUBERCULOSIS DISPENSARY
BARRASFORD SANATORIUM.

TUBERCULOSIS.

Report of the Tuberculosis Medical Officer.

To the Medical Officer of Health.

Sir,

I beg to submit, herewith, my report on the work of the Tuberculosis Section for the year 1931.

There has been an increase of 48 in the number of sputum positive cases upon the Dispensary Register, the figure at the end of the year was 709, which is the highest recorded since the commencement of the Dispensary in 1913.

At a time when there is an idea that tuberculosis is on the decline, it is well to bear the fact in mind that in Newcastle upon Tyne the number of cases alive and known to the department is larger than it has ever been before, and, in view of this, it is essential that the efforts made to combat the disease should be increased.

The figures since 1926 are as follows :—

All Forms of Tuberculosis on the Dispensary Register at the end of each Year—Definitely Diagnosed Cases.

Year.	*No. of Cases.*	*Population of the City.*
1926	1,043	284,700
1927	1,153	288,500
1928	1,211	281,500
1929	1,298	283,400
1930	1,389	283,400
1931	1,466	283,600

Showing an increase at the end of 1931 of 423 : equal to 28·8 per cent. The increase between the years 1926, 1927, and 1928 and that of 1929, 1930, and 1931 is shown in the following table :—

Year.	Pulmonary. *Positive Cases.*	*Negative Cases.*	Total.	Non-Pulmonary. Cases.
1926	237	50	287	91
1927	191	74	265	93
1928	208	47	255	90
	636	171	807	274
1929	261	101	362	95
1930	270	113	383	123
1931	259	122	381	116
	790	336	1,126	334

The increase is 319 for Pulmonary (28·3 per cent.) and 60 for Non-pulmonary (18 per cent.). See Schedule III., Memo. 37/T, revised (pages 171A and 171B).

The Sanatorium Pavilions, City Hospital for Infectious Diseases, Walker Gate, have been continuously occupied by 92 males and 44 females. The 52 beds for non-pulmonary tuberculosis in Newcastle General Hospital have also been fully occupied. A mutual transference of cases between the two hospitals has taken place as necessary during the year, pulmonary cases to the City Hospital, Walker Gate, and non-pulmonary or surgical cases to the Newcastle General Hospital.

Through the co-operation of a surgeon at the Newcastle General Hospital, the thoracoscope and thoracocautery for the division of adhesions in artificial pneumothorax patients has been used on five cases at Newcastle General Hospital with success ; as these cases arise they are admitted to the Newcastle General Hospital for operation.

As has always been mentioned in my previous reports, full use has been made of the X-ray machine at the City Hospital for Infectious Diseases, Walker Gate, both in connection with in-patients and also with out-

patients from the Dispensary. No examination of a chest is complete without an X-ray picture. The doctor with his stethoscope may be an imposing figure; but the stethoscope, at its best, only gives information about a small part of the underlying lung. An X-ray photograph gives a complete picture of the chest. It is not denied that the stethoscope is of great value, but it only supplies part of the information that is supplemented by the radiograph.

In Newcastle facilities for X-raying patients have existed since 1925, but these should be improved by the installation of an up-to-date X-ray machine in the Tuberculosis Dispensary itself—the centre of the Tuberculosis Scheme.

In addition to the routine work of the department, the probationer nurses at the City Hospital for infectious Diseases have all been X-rayed and tuberculin tested.

It is regretted that the examination of " Contacts " as defined by Memo. 37/T. (revised) Ministry of Health, has been poor: the number for the year being only 71, which equals one contact per 17 new cases. This examination of contacts of cases of tuberculosis is important. It is repeatedly mentioned by the Ministry of Health, and in their recent report upon tuberculosis by Dr. A. S. Macnalty, a section is devoted to it—page 163. It concludes with the following paragraph: " It is to be hoped that with this evidence before them contact examinations will be more thoroughly and efficiently done by all tuberculosis officers in the future. It is the best method of detecting the incipient and early case of tuberculosis, the case which responds most favourably to sanatorium treatment." Without an increase in

staff and better facilities at the Tuberculosis Dispensary contact examination in Newcastle can not be greatly improved.

No action was necessary under the Public Health Act of 1925 (compulsory removal of patients to hospital) nor under the Public Health Prevention of Tuberculosis Regulations of 1925 with regard to patients dealing with milk.

43 per cent. of the people who died from pulmonary tuberculosis lived in one or two-roomed houses.

93 per cent. of the patients who died from pulmonary tuberculosis had received institutional treatment at some time. Slightly modified tables of the returns required by the Ministry of Health, and supplied to them during the year are included in this report.

At the time of writing a " Report on Tuberculosis " has been issued by the Ministry of Health by Dr. Macnalty, the Senior Medical Officer for Tuberculosis, Ministry of Health. This volume of 172 pages should be read by every person dealing with or interested in tuberculosis.

There have been no changes in the staff of the Dispensary. As in previous years, I wish to acknowledge their interest in the work, and loyal assistance.

Yours faithfully,

GEORGE HURRELL, M.D.,
Tuberculosis Medical Officer.

18th May, 1932.

REPORT.

Notifications.—789 notifications were received during the year but some were duplicates, so that the total number of new cases was 739, of whom 507 were certified to be suffering from "pulmonary" and 232 from "non-pulmonary" 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, 1931.
(THE PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1930.)

AGE PERIODS.	Primary Notifications.												Total Notifications (including Cases previously notified by other doctors).
	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.	
Pulmonary—Males	3	11	10	9	46	42	59	50	43	21	8	302	322
Females	1	5	15	17	32	35	49	23	16	10	2	205	222
Non-Pulmonary—Males	8	29	27	30	10	7	7	4	2	4	1	129	135
Females	5	14	19	21	11	10	10	6	3	1	3	103	110
TOTALS.....	17	59	71	77	99	94	125	83	64	36	14	739	789

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 739 cases notified, 541 attended the Dispensary and 76 others were visited in their homes by the Health Visitors 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 that if the 62 patients in this category,

and 49 who died within one week of notification, and were not known to the Dispensary, be deducted, it will be seen that the Dispensary gets into touch with most of the known cases of tuberculosis.

With reference to the 11 cases neither examined at the Dispensary nor visited by the nurses, some were living in institutions, or common lodging houses, and others did not wish to be visited.

A table has been prepared to illustrate these points, and also to show the nature of the institutional treatment afforded to the cases notified during 1931. 331 of the 507 patients notified as suffering from pulmonary tuberculosis were treated in beds belonging to, or controlled by the City Council, and 81 out of a total of 232 patients notified as suffering from forms of tuberculosis other than pulmonary were treated in such beds.

The number of patients dying in the year of notification is also given, and it will be seen that 238 (equal to 32 per cent.) of all the new cases died in the same year as they were notified.

NOTIFICATIONS OF TUBERCULOSIS DURING 1931.

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.	Newcastle Gen. Hosp.	Totals.	
Pulmonary—									
Male	302	250	16	51	148	3	..	202	90
Female	205	161	27	24	102	3	..	129	65
Non-Pulmonary—									
(Male)	129	70	15	..	1	6	33	40	45
(Female) ...	103	60	18	..	2	5	34	41	38
TOTALS	739	541	76	75	253	17	67	412	238

Cases re-admitted to the Sanatorium Pavilions Walker Gate, and those transferred to Barrasford Sanatorium during the year, are counted as only receiving treatment on one occasion.

During the year 212 cases (over 28 per cent. of the total) were notified by the Dispensary Medical Staff.

Deaths of non-notified cases of pulmonary tuberculosis were 32, equal to 10·6 per cent. of deaths, while those of non-pulmonary tuberculosis were 30, equal to 31·9 per cent. of deaths.

Practitioners were written to by the Medical Officer of Health when notification appeared to have been neglected.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1924.

NUMBER OF CASES OF TUBERCULOSIS REMAINING ON THE NOTIFICATION REGISTER AT END OF YEAR.

Year.	PULMONARY.			NON-PULMONARY.			Total Cases.
	Males.	Females.	Total.	Males.	Females.	Total.	
1925.....	855	608	1,463	340	312	652	2,115
1926.....	744	515	1,259	297	263	560	1,819
1927.....	644	441	1,085	236	204	440	1,525
1928.....	720	443	1,163	294	254	548	1,711
1929.....	744	501	1,245	319	270	589	1,834
1930.....	737	495	1,232	316	264	580	1,812
1931.....	767	501	1,268	298	251	549	1,817

Deaths.—460 deaths were registered as due to some form of tuberculosis, and of these 314 were certified as due to pulmonary tuberculosis 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	314	1·11
Non-Pulmonary Tuberculosis	146	0·51
Total Tuberculosis Death Rate (uncorrected) ...	460	1·62

It must be noted, however, that 13 residents of Newcastle died in other parts of the United Kingdom from tuberculosis (10 pulmonary ; 3 non-pulmonary), while 76 of the deaths (21 pulmonary ; 55 non-pulmonary) 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	303	1·07
Non-Pulmonary	94	0·33
All forms of Tuberculosis (corrected)	397	1·40

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 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.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Respiratory System	3	1	4	3	2	1	2	5	17	21	19	22	35	29	33	23	41	10	16	6	8	2	180	123
Central Nervous System	4	1	9	4	6	9	3	1	3	3	..	..	1	2	..	..	..	..	1	..	..	..	27	20
Intestines and Peritoneum	..	..	3	..	..	..	..	2	..	5	..	3	..	3	1	1	1	1	..	1	..	1	5	17
Vertebral Column.....	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	3	..
Bones and Joints	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..
Other Organs	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..	1	1	6	1
Disseminated	..	1	3	..	2	1	2	1	..	1	1	..	..	1	..	..	..	..	..	1	..	..	8	6
Totals	7	3	21	7	10	11	7	9	20	30	21	25	37	35	36	24	43	11	19	8	9	4	230	167

82·5 per cent. of the pulmonary cases were known to the dispensary staff, 229 having visited the dispensary and an additional 21 having been attended in their homes by the visiting nurses.

38·3 per cent. of the "non-pulmonary" were attended at or from the dispensary. This is not so high as the pulmonary cases; the main reason being that 31·9 per cent. of the non-pulmonary cases were not notified before death.

Of 303 deaths from pulmonary tuberculosis the diagnosis was verified bacteriologically in 207 instances, *i.e.*, 68 per cent.

9 other dispensary patients who were known to be suffering from pulmonary tuberculosis, and in whose sputum tubercle bacilli had been found, died during the year. The cause of death being registered as: acute Bronchitis, 1; General Tuberculosis 1; Miliary Tuberculosis 1; Tuberculosis of Peritoneum 1; Cancer of Stomach 1; Tuberculosis of Spine 1; Chronic Empyema 1; Cerebral Hæmorrhage 1; Cancer of Rectum 1.

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 40·4 months. As in previous years, important differences were discovered when age and sex were considered, the figures being 46·2 months for adult males, 35·4 months for adult females, and 14·2 months for those below 15 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 20·9 months for all cases.

As the duration of illness for all cases was 40·4 months, each patient who died during the year must, on the average, have been ill over 19·5 months before notification.

37·9 per cent. of the patients had either not been notified prior to death (10·6 per cent.), or died within 3 months of notification (27·3 per cent.).

Further details and comparative figures for previous years are submitted in the following table :—

RETURN OF DEATHS FROM PULMONARY TUBERCULOSIS OCCURRING IN :—

	Deaths which occurred in these years.									
	Average for 1913—17.	Average for 1918—22.	Average for 1923—27.	1928	1929	1930	1931.			
							M.	F.	C.	Total.
Persons not notified	43	51	33	21	23	16	16	8	8	32
,, notified under 1 mth.	35	47	50	43	40	37	28	11	5	44
,, between 1 and 3 ,,	94	48	44	58	49	44	20	16	3	39
,, between 3 and 6 ,,	53	30	38	30	39	40	12	20	2	34
Total under 6 months	226	183	166	152	151	137	76	55	18	149
Persons notified between 6 and 12 months	47	46	40	28	32	39	22	17	1	40
,, 12 and 18 ,, ..	28	21	25	23	15	30	10	10	1	21
,, 18 and 24 ,, ..	15	15	17	23	23	9	7	7	..	14
,, 2 and 3 years ...	20	18	22	17	25	20	19	8	..	27
,, over 3 years ...	21	47	53	52	63	63	35	16	1	52
TOTALS	357	331	324	295	309	298	169	113	21	303

The figures for non-pulmonary forms of tuberculosis were even worse, for in 30 instances out of the 94 deaths, the disease had not been notified prior to death.

The records show that 22 of the 32 fatal unnotified cases of pulmonary tuberculosis, and 22 of the 30 fatal unnotified cases of non-pulmonary tuberculosis, died in hospitals ; included in the 22 " other forms " were 12 cases of tuberculous meningitis.

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 excess of adult male over adult female deaths from pulmonary tuberculosis.

147 "insured persons" (111 males and 36 females) are included in the 303 deaths.

Family History.—In 76 instances amongst the 265 cases of pulmonary tuberculosis known to the Dispensary who died during the year, *i.e.*, in 29 per cent., there was a history that some near relation was suffering from, or had died of pulmonary tuberculosis. The figures were 25 per cent. for males, and 35 per cent. for females.

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 the above 265 persons were as follows :—

Rooms in Dwelling.	1	2	3	4	More than 4	Common Lodging Houses.	Not Known.	Total.
Deaths	42	65	70	44	27	6	11	265

As regards the type of house occupied 125 were flats, 76 tenements, 47 self-contained, 6 were common lodging houses, and in 11 cases the particulars were not known.

Treatment in Institutions.—It is noteworthy that of the 245 patients suffering from pulmonary tuberculosis who attended the Dispensary and died in 1931, 228, or 93 per cent., had received institutional treatment on one or more occasions. This is a high percentage,

and shows what a large proportion of the cases visiting the Dispensary avail themselves of the accommodation provided.

Ward Distribution.—As in previous years a table is presented to show the ward distribution of tuberculosis during 1931. The estimated population of each ward is given, together with the number of notifications and deaths, and the rates per thousand living (see next page).

The following table shows the number of positive cases living in one, two, three, four, and more than four roomed houses, and also the total number of persons living under these conditions. It will be seen that the largest number of cases occur in two and three roomed houses. This point, in conjunction with the ward distribution of the disease, emphasises the necessity of improving the homes of the people in order to stamp out tuberculosis.

Housing Conditions of Sputum Positive Cases.

Holding.	Number of Cases.	Number of Persons.	Average number of persons to one Room.
1 Room	62	178	2·87
2 Rooms	148	614	2·07
3 Rooms	204	941	1·54
4 Rooms	182	860	1·18
More than 4 Rooms	100	505	1·01
Common Lodging Houses	9	..	..
Not Known	4	..	..
TOTALS	709	3,098	1·41

In 19 instances there were 2 cases in one house.
In 2 instances there were 3 cases in one house.

WARD DISTRIBUTION OF TUBERCULOSIS, 1931.

WARD.	Population 1931.	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'	2,148	5	2·33	2	0·93	7	3·26	1	0·46	..	..	1	0·46	10
St. Thomas'	13,714	21	1·53	3	0·22	24	1·75	15	1·09	4	0·29	19	1·38	26
St. John's	13,482	32	2·37	17	1·26	49	3·63	22	1·63	7	0·52	29	2·15	67
Stephenson	18,084	46	2·54	15	0·83	61	3·37	29	1·60	5	0·28	34	1·88	81
Armstrong	14,311	22	1·53	13	0·91	35	2·44	12	0·84	2	0·14	14	0·98	76
Elswick	13,048	29	2·22	6	0·46	35	2·68	15	1·15	3	0·23	18	1·38	56
Westgate	13,478	23	1·70	9	0·67	32	2·37	12	0·89	1	0·07	13	0·96	51
Arthur's Hill	9,199	12	1·31	3	0·32	15	1·63	7	0·76	1	0·11	8	0·87	17
Benwell	19,284	28	1·45	18	0·93	46	2·38	13	0·67	6	0·31	19	0·98	99
Fenham	24,714	33	1·33	13	0·53	46	1·86	22	0·89	3	0·12	25	1·01	90
All Saints'	14,549	37	2·54	18	1·24	55	3·78	24	1·65	7	0·48	31	2·13	85
St. Andrew's	10,412	22	2·11	5	0·48	27	2·59	15	1·44	5	0·48	20	1·92	48
Jesmond	10.960	10	0·91	5	0·46	15	1·37	9	0·82	1	0·09	10	0·91	14
Dene	17,424	20	1·15	6	0·34	26	1·49	9	0·52	3	0·17	12	0·69	28
Heaton	13,109	21	1·60	14	1·07	35	2·67	11	0·84	4	0·30	15	1·14	53
Byker	15,609	29	1·86	16	1·02	45	2·88	23	1·47	9	0·58	32	2·05	95
St. Lawrence	17,556	37	2·11	21	1·19	58	3·30	17	0·97	10	0·57	27	1·54	121
St. Anthony's	15,375	34	2·21	20	1·30	54	3·51	22	1·43	10	0·65	32	2·08	101
Walker	27,144	46	1·69	28	1·03	74	2·72	25	0·92	13	0·48	38	1·40	127
City	283,600	507	1·78	232	0·82	739	2·60	303	1·07	94	0·33	397	1·40	1245

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 cases who attended the Dispensary for the first time was 1,033. In addition, there were 212 cases who had been discontinued previous to the year 1931, who returned for examination, and are also counted as new cases in accordance with instructions in Memo. 37/T. Revised, making a total of 1,245.

601 of these were sent by general practitioners, 149 were referred to the Dispensary by the Visiting Nurses, 166 by the Newcastle-upon-Tyne Dispensary, 40 by the Royal Victoria Infirmary, 53 by the School Medical Officer, 34 by the Tuberculosis Medical Staff, 91 by the Medical Staff of the Newcastle-upon-Tyne General Hospital, 21 by the Maternity and Child Welfare, 67 came of their own accord, and smaller numbers from other sources.

395 had been notified previously, and the balance, 850, of whom 212 were notified by the Dispensary Medical Staff, were suspects, or contacts of known cases. Of the new cases 220 had lived with patients known to have tubercle bacilli in their sputum, 24 with patients who had not tubercle bacilli in their sputum, and 70 were home contacts of persons certified to have died of pulmonary tuberculosis. The following table gives the details of the new cases, including contacts :—

NEW CASES EXAMINED, INCLUDING CONTACTS, DURING THE YEAR 1931.
(First Schedule., Sect. A. & B., Memo. 37/T., Revised).

Diagnosis.	Males.		Females.		Totals.
	Over 15 yrs.	Under 15 yrs.	Over 15 yrs.	Under 15 yrs.	
Pulmonary Tuberculosis	208	14	129	21	372
Non-Pulmonary Tuberculosis .	18	43	22	28	111
Diagnosis not completed	23	30	29	38	120
Non-Tuberculous	183	151	183	125	642
TOTALS	432	238	363	212	1,245

In respect of these new patients, at the end of the year it was found that 39 per cent. were suffering from active tuberculosis.

508 were "insured persons," and 631 were dependents of "insured persons," leaving only 106 of the uninsured classes.

Of the 212 cases who had been discontinued previous to the year 1931, and returned for examination, 44 were found to be suffering from tuberculosis. Details of these cases are given in the table which follows :—

CASES DISCONTINUED IN PREVIOUS YEARS, AND RETURNED DURING THE YEAR 1931. (INCLUDED IN PREVIOUS TABLE.)

Diagnosis.	Males.		Females.		Totals.
	Over 15 yrs.	Under 15 yrs.	Over 15 yrs.	Under 15 yrs.	
Pulmonary Tuberculosis	18	..	12	3	33
Non-Pulmonary Tuberculosis	3	4	..	4	11
Diagnosis not completed	6	5	7	7	25
Non-Tuberculous	54	27	43	19	143
Totals	81	36	62	33	212

The Tuberculosis Medical Officer visited 49 patients in their homes.

2,325 persons visited the dispensary during the course of the year, and registered 7,193 attendances, an average of over 3 per patient.

The total number of complete physical examinations made was 2,020, including 792 males, out of 2,936 attendances ; 582 females, out of 2,084 attendances ; and 646 children out of 2,173 attendances ; giving an average of approximately 1 every 3 visits for all cases.

In 34·5 per cent. of the cases attending the Dispensary, tubercle bacilli were found in the sputum; 51·5 per cent. of the males, 42·0 per cent. of the females, and only 3·8 per cent. of those under 15 years of age. The details are tabulated below :—

	Number of Patients and Cases who attended the Dispensary during the Year 1931.			
	Total.	Males.	Females.	Under 15 years of age.
"Sputum Positive Cases"	802	479	297	26
"Negative Cases"	1523	451	410	662
Totals	2325	930	707	688

Sputum Positive Patients.—The number of living sputum positive patients on the Dispensary Register on January 1st, 1931, was 661; during the year 122 of these died, and also 78 patients in whose sputa tubercle bacilli were found in the course of the year. In addition 48 patients were written off the Dispensary Register (10 cured, 38 left the district.)

296 patients were added to the register, making a total at the end of the year of 709, consisting of 436 males, 247 females and 26 children. 610 of these patients visited the Dispensary during the year. Of the 99 who failed to attend 72 were reported by the nurses to be working or fit for work; 17 were moderately well, while 10 had relapsed, and were mostly confined to bed; 75 of these had been treated at Barrasford Sanatorium, or the Sanatorium Pavilions, Walker Gate.

"Negative Cases."—The records of the patients in respect of whom no tubercle bacilli have been found in the sputum, together with non-pulmonary patients and suspects, are filed separately from those of the sputum positive patients, and 1,523 cases in these categories attended during the year. This number included 451 adult males, 410 adult females, and 662 children. 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 43 per cent. of the total, as opposed to 3·2 per cent. of the bacteriologically verified cases. The majority of these "negative cases" were "suspects" or "contacts."

939 cases were removed from the Dispensary Register, these included 48 patients with bacilli in sputum. The details are given in the following table:—

CASES AND PATIENTS WRITTEN OFF THE DISPENSARY REGISTER DURING THE YEAR 1931.

(First Schedule, Sect. C., Memo. 37/T., Revised).

DIAGNOSIS.	MALES.		FEMALES.		TOTALS.
	Over 15 yrs.	Under 15 yrs.	Over 15 yrs.	Under 15 yrs.	
Pulmonary Tuberculosis, Cured	11	1	13	..	25
Non-Pulm. Tuberculosis, Cured	9	5	6	2	22
Non-Tuberculous.....	188	179	212	145	724
Left district, lost sight of, or will not attend Dispensary ..	78	21	53	16	168
TOTALS	286	206	284	163	939

ANNUAL RETURN SHOWING IN SUMMARY FORM (*a*) THE CONDITION AT THE END OF 1931 OF ALL PATIENTS REMAINING ON THE DISPENSARY REGISTER; AND (*b*) THE REASONS FOR THE REMOVAL OF ALL CASES WRITTEN OFF THE REGISTER. THE TABLE IS ARRANGED ACCORDING TO THE YEARS IN WHICH THE PATIENTS WERE FIRST ENTERED ON THE DISPENSARY REGISTER AS DEFINITE CASES OF PULMONARY TUBERCULOSIS, AND THEIR CLASSIFICATION AT THAT TIME.

	Condition at the time of the last Record made during the year to which the Return relates.	Previous to 1926.					1926.					1927.					1928.					1929.					1930.					1931.				
		Class T.B. minus.	Class T.B. plus.				Class T.B. minus.	Class T.B. plus.				Class T.B. minus.	Class T.B. plus.				Class T.B. minus.	Class T.B. plus.				Class T.B. minus.	Class T.B. plus.				Class T.B. minus.	Class T.B. plus.				Class T.B. minus.	Class T.B. plus.			
			Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).		Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).		Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).		Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).		Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).		Group 1.	Group 2.	Group 3.	Total (Class T.B. plus)		Group 1.	Group 2.	Group 3.	Total (Class T.B. plus).
(*a*) Remaining on Dispensary Register on 31st December.	*Disease Arrested*—																																	
	Adults—Male	11	10	6	4	20	1	..	3	..	3	5	..	1	..	1	2	..	4	..	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..
	Female	4	2	6	..	8	2	..	..	..	..	2	..	..	..	..	2	..	1	..	1	6	..	..	..	..	..	..	..	..	..	..	..	..
	Children	7	..	2	..	2	1	..	..	..	..	2	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Disease not Arrested—																																	
	Adults—Male	11	24	41	21	86	2	2	12	1	15	3	3	12	6	21	8	1	36	1	38	26	2	41	4	47	31	6	46	32	84	18	2	48	58	108
	Female	7	10	28	6	44	4	..	9	2	11	5	..	6	2	8	3	2	16	1	19	9	4	22	8	34	24	1	33	11	45	26	1	27	35	63
	Children	9	3	7	2	12	1	1	1	..	2	5	..	2	1	3	2	..	3	1	4	11	..	8	..	8	21	1	3	4	8	19	..	8	2	10
	Total on Dispensary Register at 31st December	49	49	90	33	172	11	3	25	3	31	25	3	21	9	33	23	3	60	3	66	58	6	71	12	89	76	8	82	47	137	93	3	83	95	181
(*b*) Not now on Dispensary Register and reasons for removal therefrom.	*Discharged as Recovered*—																																	
	Adults—Male	50	..	..	..	74	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Female	23	..	..	..	40	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Children	16	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Lost sight of, or otherwise removed from Dispensary Register	22	..	..	..	130	14	4	15	3	22	28	1	12	6	19	14	2	9	2	13	15	..	16	6	22	15	..	5	6	11	7	..	1	3	4
	DEAD—Adults—Male	23	..	..	..	238	8	3	45	40	88	13	2	31	47	80	6	1	43	34	78	14	..	25	49	74	11	..	24	51	75	12	..	3	37	40
	Female	13	..	..	..	122	5	4	32	50	86	8	1	24	28	53	2	1	19	26	46	10	1	34	35	70	10	..	16	29	45	6	..	10	22	32
	Children	1	..	..	..	12	4	..	2	8	10	..	..	..	6	6	2	..	4	1	5	4	..	3	3	6	1	..	..	2	2	4	..	1	1	2
	Total written off Dispensary Register	148	..	..	..	618	39	11	94	101	206	49	4	67	87	158	24	4	75	63	142	43	1	78	93	172	37	..	45	88	133	29	..	15	63	78
	GRAND TOTALS	197	49	90	33	790	50	14	119	104	237	74	7	88	96	191	47	7	135	66	208	101	7	149	105	261	113	8	127	135	270	122	3	98	158	259

MEMO. 37/T. REVISED. SCHEDULE III.—*Continued.* NON-PULMONARY TUBERCULOSIS.

ANNUAL RETURN showing in summary form (*a*) the condition at the end of 1931 of all Patients remaining on the Dispensary Register; and (*b*) the reasons for the removal of all cases written off the Register.

Condition at the time of the last Record made during the year to which the Return relates.		Previous to 1926.					1926.					1927.					1928.					1929.					1930.					1931.				
		Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.	Bones and Joints.	Abdominal.	Other Organs.	Peripheral Glands.	Total.
(*a*) Remaining on Dispensary Register on 31st December.	*Disease Arrested*—																																	
	Adults—Male	..	..	..	1	1	..	1	..	..	1	..	..	..	3	3	..	1	..	1	2	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..
	Female	2	..	..	1	3	..	..	..	..	..	..	..	..	2	2	..	1	..	..	1	..	1	..	1	2	..	..	..	2	2	..	..	..	..	..
	Children	3	..	1	3	7	1	1	..	3	5	2	4	..	2	8	3	1	..	3	7	..	..	..	4	4	..	1	..	..	1	..	..	..	..	..
	Disease not Arrested—																																		
	Adults—Male	4	..	3	2	9	2	..	1	..	3	..	..	..	1	1	5	..	1	..	6	2	..	..	4	6	10	2	5	2	19	7	1	1	4	13
	Female	2	..	2	2	6	..	..	..	1	1	2	2	..	..	4	..	1	..	1	2	2	3	..	2	7	8	2	1	7	18	5	4	3	4	16
	Children	16	4	4	12	36	7	5	1	1	14	7	5	1	8	21	8	3	2	12	25	20	13	1	6	40	17	21	4	14	56	16	13	8	31	68
	Total on Dispensary Register at 31st December	27	4	10	21	62	10	7	2	5	24	11	11	1	16	39	16	7	3	17	43	24	17	1	17	59	36	26	10	26	98	28	18	12	39	97
	Transferred to Pulmonary	..	..	..	3	3	..	..	..	1	1	..	1	..	3	4	..	1	1	1	3	..	1	..	..	1	1	..	..	..	1	..	..	..	..	..
(*b*) Not now on Dispensary Register and reasons for removal therefrom.	*Discharged as Recovered*—																																		
	Adults—Male	..	..	..	..	21	2	1	1	..	4	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Female	..	..	..	..	18	..	..	..	4	4	1	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Children	..	..	..	..	55	4	1	1	3	9	3	1	..	3	7	1	2	..	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Lost sight of, or otherwise removed from Dispensary Register	..	..	..	..	35	15	4	2	20	41	5	2	2	24	33	9	1	2	19	31	11	4	2	12	29	4	1	..	6	11	..	1	2	1	4
	DEAD—Adults—Male	..	..	..	..	14	2	..	1	1	4	2	1	3	1	7	..	2	..	..	2	..	..	1	1	2	..	..	2	..	2	2	..	1	..	3
	Female	..	..	..	..	7	..	1	..	..	1	..	1	1	..	2	..	2	2	..	4	1	2	1	1	5	..	1	1	1	3	..	4	1	..	5
	Children	..	..	..	..	5	1	2	1	..	4	..	1	1	..	2	3	3	..	..	6	..	..	..	..	..	3	4	1	1	9	..	3	2	2	7
	Total written off Dispensary Register	..	..	..	..	155	24	9	6	28	67	12	6	7	29	54	13	10	4	20	47	12	6	4	14	36	7	6	4	8	25	2	8	6	3	19
	GRAND TOTALS of (*a*) and (*b*) (excluding those transferred to Pulmonary)	27	4	10	24	217	34	16	8	33	91	23	17	8	45	93	29	17	7	37	90	36	23	5	31	95	43	32	14	34	123	30	26	18	42	116

The number of patients and cases on the Dispensary Register at the end of the year are tabulated below :—

NUMBER OF CASES AND PATIENTS ON DISPENSARY REGISTER AT END OF YEAR 1931.

(First Schedule, Sect. D., Memo. 37/T., Revised).

DIAGNOSIS.	MALES.		FEMALES.		TOTAL.
	Over 15 yrs.	Under 15 yrs.	Over 15 yrs.	Under 15 yrs.	
Pulmonary Tuberculosis (T.B. in Sputum)	436	9	247	17	709
Pulmonary Tuberculosis (no T.B. in Sputum)	169	34	104	28	335
Non-Pulmonary Tuberculosis.	95	127	92	108	422
Diagnosis Not Completed	22	40	30	42	134
Totals	722	210	473	195	1,600

The two tables which follow are self-explanatory, and are required by the Ministry of Health under Memo. 37/T., Revised.

Relations with other Departments, etc.— The majority of new cases entered on the Dispensary Register were referred either directly by the local doctors (71·3 per cent.) or else by the visiting nurses after notification (12·0 per cent.). In many cases it was considered that more appropriate treatment or advice could be given elsewhere, and 374 letters of recommendation were given to other departments, hospitals, or charitable agencies. 150 cases were referred to the Voluntary Tuberculosis Care Council, 21 to the Citizens' Service Society, 8 to the United Services Fund, 23 to the Principal School Medical Officer, 19 to the Public Assistance Committee, 37 to the Royal Victoria Infirmary, 84 to the Housing Committee, 12 to Newcastle General Hospital, and smaller numbers to various organisations.

Every effort is made to verify each notified case by bacteriological means, and during the year 1,184 specimens of sputum were examined at the Dispensary. Of this number 261 were found to contain tubercle bacilli, while 923 gave negative results. In addition 804 samples of sputum were sent, for examination, to the College of Medicine by the medical practitioners of the City. Of these 126 proved positive, and 678 negative.

Work of the Nurses.—907 new patients were seen, as against 1,046 in 1930, and 10,425 subsequent visits were made, giving a grand total of 11,332 for the year. The number of patients on the nurses' lists on December 31st, 1931, was 1,648, comprising 704 males, 476 females, and 468 children.

In 678 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.

During the year, the names of 1,184 patients were removed from the nurses' lists ; this total includes 283 deaths (171 sputum positive and 112 negative). Visits to 901 patients were discontinued on the instruction of the Tuberculosis Medical Officer ; of these only 37 were sputum positive cases, 24 of whom had left the district, while 864 were negatives. In 802 of the negative cases the names were removed because there was no evidence of active tuberculosis, while 62 had left the district.

The Work of the Sanitary Inspector.—This officer disinfects houses after deaths, or changes of address, of persons suffering from pulmonary tuberculosis, arranges for the removal and disinfection of 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		847
Houses disinfected (total)		766
For patients going to Sanatoria	160	
For patients changing their address	116	
For patients going to Hospital	400	
After death	90	
Rooms disinfected in above houses		890
Total number of visits		1472

The types of houses disinfected were as follows:—one roomed, 77 ; two-roomed, 200 ; three-roomed, 225 ; four-roomed, 160 ; more than four rooms, 104.

Houses found to have sanitary defects (including overcrowding) and referred to the Senior Sanitary Inspector	79

INSTITUTIONAL TREATMENT.

Approximately 70 beds were provided at Barrasford Sanatorium for early or moderately advanced cases of pulmonary tuberculosis from Newcastle; 136 beds were available for more advanced or emergency cases at the Sanatorium Pavilions at the City Hospital, Walker Gate, 52 at the Newcastle General Hospital for the treatment of non-pulmonary tuberculosis, while at Stannington Sanatorium (a private institution) 30 beds were maintained for the treatment of tuberculous children.

Barrasford Sanatorium.—The following particulars refer only to Newcastle patients. The report of the Medical Superintendent of Barrasford Sanatorium will be found under a separate heading, and contains the complete statistics for that Institution.

112 patients (75 men and 37 women) were admitted in the course of the year, and were classified at the Dispensary in the following categories, in accordance with the classification in Memo. 37/T.: G.1 +, 2; G.2 +, 54; G.3 +, 19; T.B. Minus, 32. (In the latter category 18 were pleurisy with effusion, and 5 were sent for the purpose of observation).

Details of the admissions and discharges are given in the following table. The total number of days, and average length of stay is given in the table on page 173:—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM DURING THE YEAR 1931.

	Sex.	In Barrasford Sanat'm on 1st January, 1931.	Admitted during the Year.	Discharged during the Year.	In Barrasford Sanat'm on 31st December, 1931.
Patients	M.	28	72	66	34
Do.	F.	24	35	37	22
Observation Cases	M.	1	3	3	1
Do.	F.	1	2	2	1
TOTALS.....		54	112	108	58

Of the 5 patients discharged who had been under observation, 3 were found to be suffering from tuberculosis.

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

Results.	Males.	Females.	Total.
Quiescent	9	9	18
Improved	45	23	68
Without Improvement	14	7	21
	1	..	1
Totals	69	39	108

Discharged patients are visited at frequent intervals by the Dispensary staff and are encouraged to report periodically so that they can be examined and records kept.

In the next table a summary is given of the condition on December 31st, 1931, of all the patients treated at the Corporation expense during the last five years :—

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 1931.					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.		
1927	114	79	35	27	9	4	58	16	15,417	133
1928	110	85	25	39	9	6	30	26	14,088	128
1929	115	75	40	53	9	4	34	15	19,659	171
1930	127	85	42	68	20	7	22	10	26,649	210
1931	108	69	39	85	16	1	6	..	20,381	189
Totals ..	574	393	181	272	63	22	150	67	96,194	168
Received treatment in previous years ..	80	61	19	30	11	2	35	2	..	..
Nett Cases	494	332	162	242	52	20	115	65	96,194	195

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

BACTERIAL HISTORY OF PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM.

YEAR.	Persons discharged from Barrasford Sanatorium.				Persons deceased at the end of the year.				
	TOTAL Nett Cases.	Number who had Tubercle Bacilli found in the Sputum.	Number who had *not* Tubercle Bacilli found in the Sputum.	Number who had Tubercle Bacilli found in the Sputum after discharge.	TOTAL.	Tubercle Bacilli found in the Sputum before or during treatment.	Tubercle Bacilli found in the Sputum after discharge.	No record of Tubercle Bacilli ever found in Sputum.	Cases who had Tubercle Bacilli in the Sputum and could not be traced at end of Year.
1927	98	71	27	6	45	40	4	1	11
1928	94	59	35	..	22	18	..	4	12
1929	98	75	23	..	24	24	..	..	10
1930	110	81	29	1	18	16	..	2	5
1931	94	64	30	..	6	5	..	1	..
TOTALS	494	350	144	7	115	103	4	8	38

The very heavy mortality experienced by the bacteriologically verified cases shows how serious is the finding of tubercle bacilli in the sputa of patients of the industrial classes.

STANNINGTON SANATORIUM.

The 30 beds were kept fully occupied throughout the year, and 44 patients completed treatment.

The details appear below :—

CHILDREN WHO RECEIVED TREATMENT IN STANNINGTON SANATORIUM DURING YEAR 1931.

	In Sanatorium on 1st Jan., 1931.	Admitted during the Year.	Persons who completed Treatment during the year.			In Sanatorium on 31st Dec. 1931.
			Number	Total Number of Days	Average length of stay in Days.	
Males	13	22	21	4,126	196	14
Females	17	22	23	7,629	331	16
TOTALS....	30	44	44	11,755	267	30

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

	Males.	Females.	Total.
Disease quiescent	6	10	16
Improved	13	13	26
Without Improvement	1	..	1
Died in Institution	1	..	1
TOTALS	21	23	44

SANATORIUM PAVILIONS, WALKER GATE.

464 patients were admitted (293 males and 171 females), and included 57 transferred from Newcastle General Hospital who were found to be suffering from pulmonary tuberculosis.

Details of the number of patients admitted and discharged are given in the accompanying table :—

PATIENTS WHO RECEIVED TREATMENT IN THE SANATORIUM PAVILIONS, WALKER GATE, DURING THE YEAR 1931.

		Sex.	In Institution on 1st January, 1931.	Admitted during the Year.	Discharged during the Year.	Died in Institution during the Year.	In Institution on 31st Dec., 1931.
Number of Patients.	Adults ..	M.	80	226	159	68	79
	Do.	F.	32	124	98	31	27
	Children .	M.	4	11	14	..	1
	Do.	F.	4	14	9	2	7
Observation Cases.	Adults ..	M.	5	39	33	6	5
	Do.	F.	3	23	23	1	2
	Children .	M.	2	17	18	..	1
	Do.	F.	4	10	10	..	4
TOTALS...	..	..	134	464	364	108	126

N.B.—28 patients were re-admitted and are counted as 56 admissions.
1 patient was re-admitted twice, and is counted as 3 admissions.

Of the 91 patients discharged who had been under observation, 35 were found to be suffering from tuberculosis. The total number of days of those who received treatment was 47,779, giving an average length of stay of 101 days.

108 patients died in the institution; the condition of the other patients on discharge is given in the table below :—

	Males.	Females.	Total.
Improved	177	91	268
Without Improvement	47	49	96
Died in Hospital	74	34	108
Totals	298	174	472

Many of those discharged " improved " were fit for light work, while 32 were transferred to Barrasford Sanatorium and 3 to Stannington Sanatorium. 16 patients were sent to the Newcastle General Hospital, and 3 to the Royal Victoria Infirmary for special treatment.

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 patient's tolerance.

Artificial Pneumothorax.—There were 19 initial inductions of artificial pneumothorax and 826 refills performed at Walker Gate Sanatorium during the year. Since the year 1922, 208 patients have received this form of treatment at Walker Gate Sanatorium, and 180 at Barrasford Sanatorium.

The following three tables are self-explanatory: they are a review of the cases of artificial pneumothorax induced at the Sanatorium Pavilions, City Hospital for Infectious Diseases, Walker Gate, from 30th May, 1922, to 31st December, 1928—the latter date was taken as the end of the review in order to allow time to elapse to see the fate of the cases.

Out of a total of 149 attempted, 102 had a pneumothorax successfully induced. Of the successful cases, 30 are still alive; this figure is not very high, but the majority of the cases were "advanced" at the commencement of the treatment.

TABLE I.

ARTIFICIAL PNEUMOTHORAX CASES INDUCTED AT THE SANATORIUM PAVILIONS WALKER GATE, FROM 30TH MAY, 1922, TO 31ST DECEMBER, 1928.

Age Period (Years.)	Age Periods at Induction.								Totals.
	Males.				Females.				
	Successful.		Not Successful.		Successful.		Not Successful.		
	Alive.	Dead.	Alive.	Dead.	Alive.	Dead.	Alive.	Dead.	
10—15	..	..	..	1	1	4	..	2	8
15—20	2	9	..	6	6	8	..	3	34
20—25	6	13	1	11	5	8	1	3	48
25—30	1	5	..	2	2	6	..	2	18
30—35	1	4	..	2	1	1	1	..	10
35—40	..	2	..	3	3	4	1	1	14
40—45	1	2	..	2	1	3	1	1	11
45—50	..	2	..	1	..	..	..	1	4
50—55	..	..	..	..	..	1	..	..	1
55—60	..	..	..	..	..	..	..	1	1
TOTALS	11	37	1	28	19	35	4	14	149

TABLE II.

CATEGORIES ACCORDING TO MEMO. 37/T. REVISED.

Categories.	Males.				Females.				Totals.
	Successful.		Not Successful.		Successful.		Not Successful.		
	Alive.	Dead.	Alive.	Dead.	Alive.	Dead.	Alive.	Dead.	
G1+.....	..	3	..	3	..	1	1	..	8
G2+.....	6	18	..	11	10	16	3	10	74
G3+.....	5	16	1	14	9	18	..	4	67
Totals....	11	37	1	28	19	35	4	14	149

TABLE III.

CONDITON OF PATIENTS ON 31ST MARCH, 1932.

	Males.						Females.						Totals.
	Successful.			Not Successful.			Successful.			Not Successful.			
	G1+	G2+	G3+	G1+	G2+	G3+	G1+	G2+	G3+	G1+	G2+	G3+	
Well	..	4	2	..	..	1	..	7	4	..	2	..	20
Mod. Well	..	2	..	..	..	..	..	1	1	..	..	..	4
Relapsed	..	..	2	..	..	..	..	1	3	..	..	..	6
Left District ..	..	..	1	..	..	..	..	1	1	1	1	..	5
Dead	3	18	16	3	11	14	1	16	18	..	10	4	114
Totals	3	24	21	3	11	15	1	26	27	1	13	4	149

NEWCASTLE GENERAL HOSPITAL.

118 patients were admitted (69 males and 49 females). Details are given in the following table:—

PATIENTS SUFFERING FROM NON-PULMONARY TUBERCULOSIS WHO RECEIVED TREATMENT IN NEWCASTLE GENERAL HOSPITAL DURING THE YEAR 1931.

	Sex.	In Institution on 1st Jan., 1931.	Admitted.	Discharged.	Died in Institution.	In Institution on 31st Dec., 1931.
Adults	M.	9	41	25	10	15
Do.	F.	7	24	16	4	11
Children	M.	13	28	22	5	14
Do.	F.	10	25	12	6	17
TOTALS		39	118	75	25	57

The results of the treatment received are given in the table below :—

	Males.	Females.	Children.	Totals.
Improved	17	11	31	59
Without Improvement	8	5	3	16
Died in Hospital	10	4	11	25
Totals.....	35	20	45	100

The total number of days of those who received treatment was 12,887, giving an average length of stay of 129 days.

X-Ray Examinations.—During the year the following thoracic examinations were carried out, viz., 752 films and 1,312 screen examinations. These include patients screened as a routine, especially during artificial pneumo-thorax treatment, and before discharge from hospital.

Deaths in Institutions.—199 of the deaths from tuberculosis (140 " lungs " and 59 " other forms ") occurred in institutions. 117 patients (96 "lungs" and 21 " other forms ") died in the Sanatorium Pavilions, Walker Gate and the City Hospital for Infectious Diseases, 48 patients (28 " lungs " and 20 " other forms ") in Newcastle General Hospital, 18 patients (8 " lungs " and 10 " other forms ") in the Royal Victoria Infirmary, 3 patients (1 " lungs," 2 " other forms ") in the Fleming Memorial Hospital, and 13 patients in other institutions.

The various activities of the Tuberculosis Section have been summarised, and are set out on page 182, together with the corresponding figures for previous years.

TUBERCULOSIS SECTION.

SUMMARY.

	Average for 5 years.			1928.	1929.	1930.	1931.
	1913-17	1918-22	1923-27.				
Notifications ... Total.	1013	786	828	788	787	719	739
Pulmonary	661	538	543	508	551	507	507
Non-Pulmonary.....	352	248	285	280	236	212	232
Notified by Disp. Med. Staff.....	174	184	151	145	198	204	212
Deaths (Corrected) Total.	536	469	419	372	384	365	397
Pulmonary	382	354	325	295	309	298	303
Non-Pulmonary.....	154	115	94	77	75	67	94
Attendances at Dispensary	6777	10588	8283	7209	7053	7132	7193
New Patients	899	919	954	934	997	1053	1033
Discontinued cases returned	..	..	..	..	178	176	212
Barrasford Sanatorium							
Admitted.....	74	105	112	127	120	121	112
Discharged	74	103	112	110	115	127	108
Stannington Sanatorium.							
Admitted.....	58	44	43	46	43	38	44
Discharged	52	44	43	46	43	38	44
Sanatorium Pavilions, Walker Gate.							
Admitted.....	92	187	281	267	303	442	464
Discharged	62	134	207	198	206	297	364
Died	23	48	67	72	85	105	108
Newcastle General Hospital— Non-Pulmonary Cases only—							
Admitted	..	..	..	..	..	62	118
Discharged	..	..	..	..	..	42	75
Died	..	..	..	..	..	13	25
Bacteriological Exams.							
College of Med..Total.	690	604	619	706	699	990	804
Sputum—Positive ..	177	138	110	114	109	149	126
Negative .	513	466	509	592	590	841	678
Dispensary ... Total.	678	1546	1357	1191	1250	1251	1184
Sputum—Positive .	151	343	295	289	330	293	261
Negative .	527	1203	1062	902	920	958	923
Urine Examinations .	586	921	947	960	996	999	919
Work of Nurses.							
New Patients	800	632	1035	1060	1085	1046	907
Subsequent Visits ...	5362	11295	11188	9978	10029	9930	10425
Total Visits ..	6162	11927	12223	11038	11114	10976	11332
Special Inspector's Visits	1560	1016	1331	1325	1325	1506	1472
Houses Disinfected ..	533	513	706	629	673	738	766
Rooms Disinfected ..	853	578	806	698	781	896	890
Sanitary Defects— Houses.....	38	68	148	117	66	65	79

GEORGE HURRELL, M.D., D.P.H.,
Tuberculosis Medical Officer.

Annual Return to the Ministry of Health, under Memo 37/T (Revised).

SCHEDULE I.

Year.	On Dispensary Register 1st January.	Transferred from other areas and lost sight of cases returned.	Examinations for First Time during the Year. (a) New Cases in Roman Type. (b) Contacts in Italics. — Pulmonary. Adults.	Pulmonary. Children	Non-Pulmonary. Adults.	Non-Pulmonary. Children	Doubtfully Tuberculous. Adults.	Doubtfully Tuberculous. Children	Non-Tuberculous. Adults.	Non-Tuberculous. Children	Totals. Adults.	Totals. Children	Number of Persons added during the year.	Removed from Dispensary Register during the Year. — Recovered.	Non-Tuberculous.	Transferred to other areas, etc.	Dead.	Totvl.	On Dispensary Register at the end of the Year — Diagnosis completed for Tuberculosis. Adults.	Diagnosis completed for Tuberculosis. Children	Under Observation. Adults.	Under Observation. Children	Totals. Adults.	Totals. Children	Total Attendances during the Year.	Visits to Patients' Homes for Dispensary Purposes. By T.M.O.	By Nurses.	Number of Specimens of Sputum examined at Dispensary.	Ex-Ray Examinations. Films.	Screens.	Number of Insured Persons on Dispensary Register on 31st December.	Number of Insured Persons under Domiciliary Treatment on December 31st.	G.P. 17 received during the Year.	G.P. 36 received during the Year
1925..	2580	12	171	5	27	14	9	4	211	229	418	282	2627	..	627	20	280	927	1152	357	534	559	1686	916	8043	32	12305	1375	210	464	1013	Not known	3	1
.. ..	..	..	*69*	*3*	*5*	*14*	*4*	*3*	*79*	*60*	*157*	*80*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1926..	2602	110	260	17	32	55	70	48	249	216	611	336	2510	148	1259	281	260	1948	862	181	292	446	1154	627	8508	66	11512	1175	174	548	679	40	13	..
.. ..	..	..	*8*	*1*	..	..	*7*	*10*	*18*	*26*	*33*	*37*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1927..	1781	208	220	20	31	49	148	116	147	144	546	329	2521	16	933	188	228	1365	930	223	164	243	1094	466	7630	70	11485	1067	252	469	557	180	74	75
.. ..	..	..	*5*	..	..	..	*18*	*15*	*6*	*17*	*29*	*32*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1928..	1560	224	216	8	28	41	115	78	189	187	548	314	2215	23	816	217	221	1277	978	233	104	126	1082	359	7209	61	11038	1191	247	324	691	177	58	137
.. ..	..	..	*3*	*3*	*1*	*1*	*13*	*13*	*10*	*28*	*27*	*45*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1929..	1441	29	300	20	29	52	88	67	318	218	735	357	2158	26	630	160	234	1050	1028	270	139	158	1167	428	7053	114	10587	1250	380	304	748	43	56	122
.. ..	..	..	*7*	*3*	*1*	..	*5*	*7*	*31*	*29*	*44*	*39*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1930..	1595	43	316	21	40	52	135	102	289	163	780	338	2352	71	850	153	261	1335	1086	303	63	80	1149	383	7132	75	10609	1251	379	329	723	26	37	34
.. ..	..	..	*5*	*1*	*1*	*2*	*8*	*14*	*39*	*41*	*53*	*58*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1931..	1532	41	327	34	40	70	47	61	347	248	761	413	2325	47	724	168	279	1218	1143	323	52	82	1195	405	7193	49	11083	1184	453	157	776	28	31	19
.. ..	..	..	*19*	*1*	..	*1*	*5*	*7*	*19*	*28*	*34*	*37*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

BARRASFORD SANATORIUM.

Report of the Medical Superintendent.

To the Medical Officer of Health.

Sir,

I beg to submit a report on the work at Barrasford Sanatorium during the year 1931.

Accommodation.—At the time of writing, the number of beds available for patients remains at 90, being divided into 63 for males and 27 for females.

The accommodation for the staff also remains unchanged at present, but the City Council has approved the provision of a Nurses' Home, and it is hoped to proceed with the scheme shortly. Only by the building of separate quarters for the staff can the living conditions of the nurses and domestics be raised to a satisfactory standard.

Water.—The output from the new bore hole referred to in the report for 1930 has been maintained so far, and consequently there has been no shortage of water during the year under review. The serious effects and anxieties resulting from shortage of water at certain times in previous years have up to the present been eliminated. Unfortunately the quality and appearance of the water obtained from the new source was not above criticism, and during the year plant has been installed to deal with these defects. The total amount of water is now chlorinated during the course of pumping by means of an instrument known as a chloronome, introduced by the Paterson Engineering Co., of London. As a result of the treatment by chlorination, all samples

taken have been shown by bacteriological examination to be free of pathological organisms. To endeavour to improve the appearance of the water, it is conducted from the bore hole into the well through a device which sprays it in a finely divided state and allows æration. As a result of this, there is perhaps some lessening of the slight turbidity which is a characteristic of the bore hole supply. The improvements whereby a plentiful supply of pure water has been made available have removed a source of danger for the sanatorium population, and a cause of great administrative anxiety for the staff.

Dental Clinic.—The dental surgical work has been carried out regularly by the visiting dental surgeon, Mr. G. Hutchinson, L.D.S. A fortnightly clinic has been held throughout the year, when the following work was completed :—

Extractions	308
Fillings	101
Temporary Fillings	10
Scalings	44
Dressings	12
Attentions to Dentures	5

Unfortunately a session each fortnight is not sufficient to deal with the work required for patients, and all the dental attention that should be given cannot be completed. The Health Sub-Committee considered the advisability of increasing the number of sessions, but decided that this could not be done at present.

Handicrafts.—The handicrafts department has worked smoothly during the year, and is undoubtedly an essential of sanatorium life. In the case of the more robust type of patient, it is a very welcome relief and

stimulus after his general condition has been restored by rest and his tone improved by exercise, to have some practical occupation under suitable conditions whereby he can use his brain and hands at some constructive work. In the case of the patients whose general condition is poor, who for some reason or other cannot do the long walks, handicrafts occupies their time without tiring them. Considerable trouble is taken to provide suitable work for the individual patient, both from the point of view of health and temperament. The work is divided into two departments, housed in suitable premises —the wood-working section, which is combined with the estate work under the charge of the joiner (Mr. F. C. Gerdes), and the crafts under the control of a whole time instructor (Mr. J. A. Caughey). In the former section oak stools are made, which are finished in handicrafts. During the year every bedroom has been fitted with a corner cupboard for each patient, and an open air shelter 30 feet by 12 feet has been completed, together with wood repairs and estate work too varied to mention. In handicrafts the usual crafts have been taught, including leather work, raffia, seagrass weaving, rug and basket making, and the production of tea-trays, tea cosies, lampshades, etc. The attendances numbered 7,010; the women worked 3,247 hours and the men 3,763. The cost of material is estimated at £222, whilst the takings amounted to £203.

X-Ray Plant.—The X-ray plant, which was provided in 1923, is still standing up to its work. The use of X-rays continues to be an essential in the work of the Sanatorium, in that their use gives vital information in diagnosis, in treatment, and in assessing the effects of treatment when the latter has been continued for a reasonable time. A film is taken of the chest of each

incoming patient as a routine, and also on discharge in the cases of patients staying 12 months or longer. Patients undergoing treatment by lung collapse are examined by radioscopy (that is "screened," without the taking of a film) after each operation, and in many cases between times, so that the degree of collapse of the lung can be observed and the presence of any complication recognised.

During the year 282 films were completed, and the interpretation recorded in the patients' notes. The screenings numbered 781, and the appearances shown entered in the patients' notes by means of a diagram.

Library.—As in previous years, regular gifts of books have been received from the British Red Cross Society, Dr. Harold Kerr, and numerous other donors. Sincere thanks are due to all of them. Books, especially those of fiction, are of the greatest value to the patients, many of whom spend long periods in bed whilst raised temperatures are being controlled. The Health Committee have now agreed to pay an annual subscription to the British Red Cross Society in return for the gifts of books.

Admissions.—The type of case admitted was much the same as in recent years, the bulk of them being Group 2 cases: that is, intermediate in stage, being neither minimal nor far advanced. Cases with limited disease of the lung continue to be rare.

The total number of cases admitted to the Sanatorium during 1931 was 185, one less than in the previous year. The number of Newcastle admissions was less than in 1930, being 112 as against 121. Gateshead and Tynemouth Corporation admissions were little changed as compared with those in 1930, but West Hartlepool Corporation had 36, as against 25 in 1930.

Of the 185 admitted cases, 14 had been in the Sanatorium previously, and were disposed as follows :—

	Newcastle Corporation	12 out of 112
	Gateshead Corporation	2 out of 25
1	case had been admitted twice previously	in 1914 and 1922
1	of the readmitted cases was first admitted in	1922
1	,, ,, ,, ...	1923
1	,, ,, ,, ...	1925
4	,, ,, ,, ...	1926
1	,, ,, ,, ...	1927
3	,, ,, ,, ...	1928
1	,, ,, ,, ...	1929
1	,, ,, ,, ...	1930

All these 14 re-admitted cases had had at some time or other tubercle bacilli demonstrated in the sputum, but in two of them bacilli were not seen in the sputum during residence in 1931.

One case was admitted and discharged twice during the year, and is counted as two cases.

ADMISSIONS TO THE SANATORIUM DURING 1931.

Authority.	Male.	Female.	Total.
*Newcastle Corporation	75	37	112
Gateshead Corporation	25	..	25
Tynemouth Corporation	2	7	9
West Hartlepool Corporation	21	15	36
Private Cases	2	1	3
	125	60	185
During 1930	121	65	186
During 1929	124	54	178
During 1928	147	55	202
During 1927	151	65	216
During 1926	166	62	228
During 1925	182	59	241
During 1924	150	51	201
During 1923	155	52	207
During 1922	212	55	267
During 1921	220	60	280

* One case was admitted twice during the year and counts as two admissions.

Discharges.—There were 184 discharges during 1931, as compared with 190 in 1930. One case died in the Sanatorium during the year. The great majority of the discharges were arranged with the approval of the Medical Superintendent, but the average duration of stay in connection with the discharged cases is less by 20 days than in 1930. Unfortunately economic circumstances often compelled male patients to return to their homes in an endeavour to increase the income, whilst females felt drawn to the care of their husbands and children, but the younger and unmarried patients of both sexes stayed extremely well. The average period of stay of all cases was just over 23 weeks. This includes 10 patients who were discharged as soon as it was clear that they were not suffering from active pulmonary tuberculosis, those who left early because they "could not settle," and those who were too ill to be retained in the institution.

There was no summary dismissal during the year, and the total of these is only six since 1921, when the Corporation acquired the Sanatorium.

DISCHARGES FROM THE SANATORIUM DURING 1931.

Authority.	Male.	Female.	Total.
*Newcastle Corporation	69	39	108
Gateshead Corporation	24	..	24
Tynemouth Corporation	2	7	9
West Hartlepool Corporation	27	14	41
Private Cases	2	..	2
	124	60	184
During 1930	131	59	190
During 1929	115	54	169
During 1928	142	45	187
During 1927	151	71	222
During 1926	172	61	233
During 1925	171	57	228
During 1924	152	46	198
During 1923	167	52	219
During 1922	229	65	294
During 1921	212	62	274

* One case was discharged twice during the year and counts as two discharges.

SUMMARY OF MOVEMENTS OF PATIENTS DURING 1931.

Authority.	In residence night of Dec. 31st, 1930.	Admitted during 1931.	Discharged during 1931.	In residence night of Dec. 31st, 1931.
Newcastle Corporation	54	112	108	58
Gateshead Corporation	9	25	24	10
Tynemouth Corporation	2	9	9	2
West Hartlepool Corporation	14	36	41	9
Private Cases	..	3	2	1
	79	185	184	80

Details in connection with Discharged Cases.

The particulars of patients, and the results of their treatment, which are set out later, are based on the completed cases discharged. Of these 184, 10 exhibited no definite signs or symptoms of clinical tuberculosis, and were discharged as soon as this fact was established, and are excluded from the particulars and results of treatment which follow. These details are therefore based on the 174 cases of definite tuberculosis.

(*a*) Length of stay—

The average duration of treatment of all cases was 164·1 days.
Excluding the 10 non-tuberculous cases, 172·03 days.
The 103 Newcastle cases alone averaged 196·34 days.
The longest stay was 617 days; the shortest 1 day.

(*b*) Beds occupied and patient days—

Average number of beds occupied, 85·2; 52·7 by males, and 32·5 by females.
Total number of patient days was 31,115; 19,250 male, and 11,865 female.

Below is given an analysis of the average number of beds occupied and the number of patient days.

Authority.	Average Beds occupied daily.	Patient Days.
Newcastle Corporation	59·6	21,878
Gateshead Corporation	9·94	3,630
Tynemouth Corporation	1·84	673
West Hartlepool Corporation	12·87	4,700
Private Cases	·64	234

(c) *Social Status*—

	Male.	Female.	Total.
Single	69	35	104
Married	49	17	66
Widowers	1	..	1
Widows	..	3	3
TOTAL	119	55	174

(d) *Age*—

Years.	Male.	Female.	Total.
16—20	18	8	26
20—25	30	18	48
25—30	19	13	32
30—35	16	9	25
35—40	11	5	16
40—45	11	2	13
45—50	8	..	8
50—55	3	..	3
55—60	2	..	2
60—65	1	..	1
TOTAL	119	55	174

(e) *Occupations of 119 Male Patients*—

Labourers	22
Clerks	10
Engineering and Metal Workers	8
Machinists	3
Miners	3
Riveters	3
Travellers	2
Electrical Engineers	2
Grocers	2
Cartmen	2
Crane Drivers	2
Ex-Naval Men	2
Tram Drivers	2
Joiners	2
Salesmen	2
Policemen	2
Motor Drivers and Mechanics	2
Upholsterers	2
Painters	2
Coal Teamers and Trimmers	2

and one each of the following :—barman, 'bus inspector, glass worker, bookmaker's assistant, pit boy, newspaper boy, millwright, store buyer, hotel porter, copper smith,

horsekeeper, newspaper despatcher, railway porter, navigation officer, shipyard plater, postman, printer, draughtsman, coach trimmer, warehouseman, tanner, electrician, acetylene burner, gun fitter, telegraphist, fruiterer, leather machinist, vegetable salesman, process engraver, sales manager, motor wagon boy, medical practitioner, divinity student, deal carrier, ship's fireman, school teacher, rivet catcher, seaman, moulder, carpenter, plumber, and butcher—Total 119.

(*f*) *Occupations of 55 Female Patients*—

Housewives	17
Shop assistants	6
Clerks and typists	4
Domestic work at home	3
Domestic servants	3
Nurses	3
Tracers	2
School teachers	2

and one each of the following:—Surgery maid, office cleaner, saleswoman, tailoress, dressmaker's presser, tin-making machinist, children's nurse, machinist, dress-maker, printer's reader, examiner, fish fryer, salt packer, dry cleaner, and barmaid—Total 55.

Diagnosis.

The diagnosis of pulmonary tuberculosis was confirmed bacteriologically, either before admission or during residence, in 137 cases; 96 males and 41 females. 31 patients (23 males and 8 females) were apparently without tubercle bacilli in the sputum, and 5 females said they had no expectoration; making 36 cases of tuberculosis in whose sputa tubercle bacilli had never been demonstrated. The clinical examination findings in all sputum negative cases can be divided as follows:—

Not suffering from clinical tuberculosis	10
Definite pleural tuberculosis without evidence of lung tuberculosis	18
Definite physical signs and X-ray evidence of lung tuberculosis without demonstrable bacilli	18

In the cases of the 18 patients in the last group, the radiographs all showed appearances suggesting the presence of deposit in the pulmonary situation for which tuberculosis shows a predilection. 232 sputum examinations were made in connection with these 18 cases, or an average of 13 each. 1,114 sputum examinations were made at the Sanatorium during the year; of these 309 were positive as regards the presence of tubercle bacilli, and 805 were negative. 955 complete examinations of the chest were made during the year, together with routine examinations of the larynx and urine on admission of the patient, and subsequently when necessary.

During the year 10 cases were discharged as not suffering from pulmonary tuberculosis, and the diagnoses in these cases were as follows :—

Chronic Bronchitis	2
Bronchiectasis	1
Chylothorax (no autopsy obtained)	1
Menorrhagia	1
Mitral stenosis with mitral regurgitation	1
Tuberculosis of abdominal glands	1
No pathological condition detected	3

These 10 non-tuberculous cases were included in the 13 patients sent for observation for the purpose of making a diagnosis. Three were found to be suffering from pulmonary tuberculosis.

The period of observation for the purpose of diagnosis is set out below :—

	Under 1 week.		1 to 2 weeks.		2 to 4 weeks.		More than 4 weeks.	
	M.	F.	M.	F.	M.	F.	M.	F.
Tuberculous	2	..	..	..	..	1	..	..
Non-Tuberculous	..	1	1	..	2	3	2	1
Doubtful	..	..	..	..	..	..	..	..

In connection with diagnosis, lipiodol was used in four cases. The material was introduced through the crico-thyroid membrane in the usual manner. In three of the cases no positive appearances were displayed, but in the fourth the characteristic shadows associated with bronchiectasis made the diagnosis definite.

Treatment.

Routine treatment remains unchanged. Patients are told that whereas fresh air is desirable, rest is essential, and that the disease will not heal unless the affected part is put at rest. They are implored, therefore, to avoid exertion of any sort that causes breathlessness, and told that the conscientious carrying out of the resting periods given on the time table is expected of them.

In the cases of those showing a raised temperature, rest in bed is absolutely essential. When a normally ranging temperature is present, the patient commences graduated walks, and is later drafted to some form of occupational therapy.

The diet is as varied as it is possible to make it in such an isolated situation as Barrasford. Butter is used and fresh vegetables are served daily. The chief points of routine treatment are rest, diet and occupation.

83 of the 174 definite cases of tuberculosis were found to have normal temperatures during the whole of their residence, while 91 patients were feverish at some time or other of their treatment in the Sanatorium, spending amongst them 4,420 days in bed.

Afebrile throughout Treatment.	Febrile on Admission, Afebrile on Discharge.	Febrile Intermittently	Febrile throughout Treatment.	Afebrile on Admission, Febrile on Discharge.
83	51	19	20	1

Special forms of treatment are available for those who need them. The most widely used form of special treatment used at Barrasford is that of lung collapse, or artificial pneumothorax.

Artificial Pneumothorax Treatment.—It is no longer sufficient to treat a patient of the industrial classes by routine treatment alone if the case can be treated by lung collapse. It is felt here that it is wrong to wait for some months to see how the patient will do, and save up lung collapse until there is a breakdown in health. If the case is suitable for pneumothorax treatment, this should be induced at once, and then the full period of treatment can usually be put to good use. By waiting for a relapse valuable time is wasted, the patient may have become discouraged and, more dangerous, the time for inducing lung collapse may have passed—the lung having become adherent to the chest wall in the waiting period. No case in the working classes is too early a one for artificial pneumothorax treatment, and it is a mistake to save it for the advanced type of case.

Here most of the lung collapse treatment is commenced in the first week after admission. It entails a large amount of work for the staff, and perseverance on the part of the patients, but the information obtained on comparing the results of the successful artificial pneumothorax cases with those who were suitable, but in whom the treatment could not be employed on account of changes in the chest, shows that undoubtedly the treatment is of the greatest value.

62 of the tuberculosis cases discharged during 1931 were found to be suitable for treatment by this means, but in 16 of them the lung could not be collapsed owing to changes in the chest in the course of the disease. Of

the 46 discharged cases in whom lung collapse was employed, 22 were right sided cases and 24 were left. In addition to these, three cases had had an artificial pneumothorax induced before admission, bringing the number treated during the year to 49—24 right and 25 left. In 12 of the cases the induced pneumothorax was ineffective, and was abandoned after a fair trial. In the remaining 37 cases it was effective.

In connection with the above cases, all of whom were discharged during the year, 706 insufflations of air were performed, whilst during the year the total number of such operations was 784.

Sanocrysin.—Ten cases were treated with this gold salt, which was injected into a vein in the ordinary manner. In two cases it was abandoned, as diarrhœa occurred, and in one case it was discontinued as the patient was too ill and died soon after discharge from the Sanatorium. The remaining seven cases all completed the course of just above or below five grams, and made good immediate recoveries, where routine treatment in all cases, and artificial pneumothorax as well, in one case, had failed to control a persistently raised temperature.

Ultra-Violet Radiation.—The mercury vapour lamps were employed in three cases. Two cases with tuberculous disease of the glands of the neck were treated, and one with tuberculous abdominal glands. These cases received amongst them 45 exposures. One of the glands of neck cases was very much improved by radiation, with aspiration in addition.

Phrenic Evulsion.—This operation was performed in six of the discharged cases. In three it was employed to terminate artificial pneumothorax treatment, to give some permanent degree of rest to the lung, which

had been kept collapsed by the latter treatment for 12 months. In one case it was used to give better collapse in a case treated by artificial pneumothorax, where the lung was held at a vital point by an adhesion. In these cases it has proved to be a valuable help. In the fifth instance the operation was performed in a case where an artificial pneumothorax could not be induced on account of general pleural obliteration, but was of no help ; and in the sixth it gave some temporary benefit to a case of pyopneumothorax developing in the course of an artificial pneumothorax.

This surgical method of treatment is becoming more and more widely used, but its employment is restricted in an institution which has no operating table of its own.

Oleo-Thorax.—In the case of a pyopneumothorax the purulent fluid was withdrawn repeatedly and partially replaced by olive oil and gomenal. No permanent benefit resulted, however.

Results of Treatment.

It is recognised that many cases who leave the Sanatorium with their disease under control (that is in a good state of general health, with normal temperatures under the test of long walks and work, and with cough and sputum absent or reduced to a minimum), relapse through no fault of the sanatorium, but on account of the conditions under which so many of them live on their return to their homes. It is better, therefore, to refer only to the immediate results of treatment.

The best results are seen in the cases of pleural tuberculosis, where there is no evidence of lung involvement, and without exception these have done well, and recovered their normal health. Moreover, no case of uncomplicated pleural tuberculosis, with fluid, that has

stayed the required six months under sanatorium treatment during the last 11 years, has had to return to the sanatorium for further treatment.

The majority of the pulmonary cases showed very much improvement. An increase in weight was recorded in most instances, but although this is regarded by many observers as of prime importance in measuring improvement, it is doubtful if it is anything but a rough guide, and certainly is no indication as to the likelihood of the patient to continue in an improved state of health.

The weight records of the 174 definite cases of tuberculosis of the lungs or pleura, and those of the 10 non-tuberculous cases are as follows :—

		Gained up to 7 lbs.	Gained 7 to 14 lbs.	Gained over 14 lbs.	Remained stationary.	Lost up to 7 lbs.	Lost over 7 lbs.	Not weighed on discharge.	Total.
174 definite cases.	Gained weight..	52	65	32	..	..	..	..	149
	Lost weight....	..	..	..	..	14	6	..	20
	Stationary	..	..	..	3	..	..	..	3
	Not weighed on discharge....	..	..	..	..	..	..	2	2
	Total.....	52	65	32	3	14	6	2	174
10 non tuberculous cases.	Gained weight..	6	2	1	..	..	..	..	9
	Lost weight ..	..	..	..	..	..	..	..	..
	Stationary	..	..	..	1	..	..	..	1
	Not weighed on discharge....	..	..	..	..	..	..	..	..
	Total.....	6	2	1	1	..	..	..	10

The results in the lung collapse cases seem to be the best amongst those treated for lung disease. Many of these lose their cough and sputum, and X-ray evidence after 12 months treatment indicates that definite fibrosis has occurred in the diseased areas of the lung. As the lung collapse is maintained in the Newcastle cases by the Tuberculosis Medical Officer for a further long period, there are real grounds for believing that permanent

healing occurs, and that if living and working conditions are satisfactory, a number of these cases will obtain lasting benefit.

There are now sufficient patients treated by lung collapse in the last 10 years to make a survey of interest, and it is hoped to make an effort to gauge the results.

Under the classification of cases introduced by the Ministry of Health, patients suffering from pulmonary tuberculosis are divided into :—

Class T.B. Minus, or those cases in which tubercle bacilli have never been demonstrated in the sputum, and,

Class T.B. Plus, viz., cases in which tubercle bacilli have at any time been found.

The latter class is further divided into three groups—

Group 1.—Cases with slight constitutional disturbance, if any, and in which the obvious physical signs are of very limited extent.

Group 3.—Cases with profound systemic disturbance or constitutional deterioration, with marked impairment of function, and with little or no prospect of recovery.

Group 2.—All cases which cannot be placed in Groups 1 or 3.

To indicate results of treatment, the following terms are laid down :—

"Quiescent."—Cases which have no symptoms of tuberculosis and no signs of tuberculous disease, except such as are compatible with a completely healed lesion, and in which the sputum, if present, is free from tubercle bacilli.

"Arrested."—In pulmonary cases the term should be applied only to cases which have been "quiescent" for a period of at least 2 years.

"Improved."—Cases short of "quiescent," in which the general health is fair and the symptoms of tuberculosis have materially diminished.

"No Material Improvement."—All other patients who are alive.

When considered in these terms, the results of treatment of the 174 cases of lung or pleural tuberculosis can be set out as follows :—

T.B. Minus.

	M.	F.	Total.
Quiescent	11	8	19
Improved.....	10	3	13
No material improvement ..	2	2	4

T.B. Plus.

		M.	F.	Total.
G.1	Quiescent	..	..	..
	Improved	..	3	3
	No material improvement	..	..	..
G.2	Quiescent	1	2	3
	Improved	66	26	92
	No material improvement	17	3	20
	Died in the Sanatorium	1	..	1
G.3	Quiescent	..	..	..
	Improved	..	..	..
	No material improvement	11	8	19

The comparatively large numbers of T.B. minus cases which improved to the degree of quiescence is made up of the cases of pleural tuberculosis, which had no evidence of disease in the lungs themselves, and on discharge had no symptoms, no sputum, and no signs of anything but pleural thickening. It will be seen that a large proportion of the cases sent for treatment had extensive disease on admission, and that the results of treatment are best in the sputum negative class, and the two higher groups of the sputum positive cases.

I am greatly indebted to the Matron (Miss F. Baguley, A.R.R.C.), for her continued co-operation, and thanks are due to the whole of the staff for their assistance.

Yours faithfully,

CECIL G. R. GOODWIN, M.R.C.S., L.R.C.P.,
Medical Superintendent.

Barrasford Sanatorium,
Northumberland,
2nd May, 1932.

REPORT OF THE
MEDICAL SUPERINTENDENT,
NEWCASTLE GENERAL HOSPITAL.

V.—GENERAL DISEASES HOME AND HOSPITAL.

DOMICILIARY MEDICAL SERVICE.
NEWCASTLE GENERAL HOSPITAL.

DOMICILIARY MEDICAL SERVICE.

On the transfer of the Poor Law on 1st April, 1930, one of the matters delegated to the Health Committee by the City Council was the care of the sick poor. This work is carried on by District Medical Officers, each of whom is in charge of a specified district of the City, and in addition to giving attendance, supplies medicines. It is proposed, however, to gradually introduce a panel system, under which any poor person may have the choice of a doctor, while the Health Committee will be responsible for the provision and dispensing of medicines. A scheme on this basis, covering six of the districts which are at present temporary appointments, has been approved by the Health and Public Assistance Committees, but at the time of writing it awaits the sanction of the Minister of Health.

The following table gives particulars of the work of the District Medical Officers during 1931 :—

District No.	District Medical Officer.	Number of Cases Treated.	Attendances by the M.O. at the Homes of the Patients.	Attendances by the Patients at the M.O.'s. Surgery.
1	*Dr. R. L. Bell	806	1,780	1,651
2	*Dr. J. MacRae	602	1,369	763
3	Dr. G. D. Newton (Resigned 6th May, 1931)	586	493	935
	*Dr. J. B. Sinson			
4	Dr. F. Hawthorn (Died 20th November, 1931)	645	1,889	2,787
	*Dr. J. MacRae			
5	*Dr. E. P. Tulloh	1,491	834	1,213
6	* Do. do.	2,230	847	1,957
7	Dr. W. Simpson	1,150	2,012	935
8	Dr. R. W. Nevin	906	1,893	1,762
9	Dr. W. T. Hall	815	2,588	.. †
Walker.	Dr. T. J. Ryan	798	2,338	2,121

* *Temporary appointments.* † *Included in previous column.*

NEWCASTLE GENERAL HOSPITAL.

To the Medical Officer of Health.

Sir,

It affords me much pleasure to submit for your consideration this report on the year's work in the **Newcastle General Hospital.**

Looking back over the twelve months that are past, one is bound to confess to a certain degree of disappointment that greater progress has not been made in the development of the hospital; but possibly too much was expected. I am very much afraid that it is not yet realised that there is every justification for the increase of accommodaton for the treatment of the sick. The general public is coming to understand and appreciate the advantage to be derived from hospital treatment. The most important necessity in very many diseases is efficient nursing. Where operative intervention becomes necessary, without question it can best be carried out in a well-equipped hospital.

Much time was spent during the year in an endeavour to obtain an increase in the number of beds, but without success. The present position, however, is much more hopeful, as it looks as if there would be an addition of 50 beds to the present complement, and this will be a very great advantage.

I still consider it a great pity that the more ambitious scheme, involving the removal of Elswick Grange, was not undertaken, but realise that the present economic situation makes such an undertaking extremely difficult.

In conformity with the staffing scheme, passed by the City Council, additional consultants were appointed, and the number of resident medical officers increased. However, considerable difficulty was experienced in getting applications at the suggested remuneration,

viz., £100, so sanction was obtained to increase the salary to £150, only five appointments being made instead of seven. However, on account of sickness, accident and changes, the Hospital has hardly had the full benefit of the five residents. One of the residents, I regret to say, developed a virulent septic throat, followed by pyæmia, and died. Another of them, shortly after, met with a bad accident, which necessitated his being off duty for a month. He, I am pleased to say, made a good recovery.

What I have said as regards the greater frequency of sickness among the nurses during the first six months spent in hospital, would also appear to apply to young residents, newly qualified. They are more susceptible to the germs which they cannot avoid meeting. As time passes an immunity is acquired.

An important development was the notifying of all doctors in Newcastle of the new arrangements in connection with the Hospital, and increasing advantage is being taken of the facilities, both as regards consultations and admissions. Lectures and demonstrations have also been given by the Medical Staff each Sunday morning, and these, I am led to understand, are very much appreciated by the doctors who attend them. It is to be hoped that in the very near future the utilisation of the valuable clinical material in the hospital will be extended to students. From what I have been told, students would welcome the opportunity, and the next word would appear to lie with the authorities of the College of Medicine.

As will be seen from the statistical return accompanying this report, there has been a decided increase in the volume of work. Practically there was an increase of 500 patients treated, and the number of operations, including those of a minor nature, was almost doubled.

Tuberculosis.

The new arrangement for the treatment of patients suffering from tuberculosis has worked more or less satisfactorily, and although the accommodation provided has been pretty constantly taxed, I have been able to admit all patients sent to the hospital.

Difficulties have arisen over a number of these patients being charged for treatment. In most cases this occurs where the diagnosis of tubercle has not been made till after admission and observation. As soon as the diagnosis is made the Relieving Officer is notified, and he has instructions that no assessment has to be made in these cases.

Very good results have been obtained on the whole in the treatment of surgical tubercle. The general outlook is quite good, but I find very frequently that impatience on the part of both the patient and the parent nullify the chances of a good result. Most of these patients are children or young adolescents, and the bi-weekly visit of parents is a most upsetting factor. Quite a number of children after they are able to get about are transferred to Louisville, and I find that usually progress is made, both in the local and general condition. Unfortunately, the home circumstances are frequently very poor, so that sending the child out simply means a recurrence in a comparatively short time.

As will be seen from the statistical return, quite a number of cases of pulmonary tuberculosis are admitted to hospital. Wherever possible we try to avoid admitting them, and in those who actually reach hospital, transfer to the City Hospital is effected as soon as possible.

In my last report I referred to the question of surgical interference in tuberculous phthisis. A small number of cases have been dealt with, but so far the results have not been at all encouraging.

Maternity.

During the year 93 cases were attended in the maternity ward, a reduction of one on the previous year, and of these 80·7 per cent. were married mothers. This latter figure has been increasing steadily in recent years, and the number of paying patients seeking admission is also very much on the increase.

No arrangement has yet been fixed for maternity cases to be taken at the Princess Mary Maternity Hospital, and it is unfortunate that the cases attended in the hospital are not being utilised for the teaching of the nurses.

In my opinion, the maternity ward should continue to function, as it would appear that there is certainly a need for it.

Mental.

The conditions under which these patients are treated remain the same, viz., under the Public Assistance Committee, although under the New Mental Treatment Act, power was given to transfer that function to the Public Health Committee. I have already expressed the opinion that the sick in mind should be treated on a par with the sick in body. Certain disadvantages have certainly been removed by the new Act, but the objection to admission into the Poor Law Institution still exists.

Nothing whatever has been done to carry out the provisions of the Act dealing with " voluntary " and " temporary " patients, and there is certainly no accommodation available at present.

An important change made was the transfer of the male mental patients to a new ward, and this has been a very great improvement.

During the year 1931 the number of patients admitted to the mental wards was 345, a decrease of five on the previous year. Of these 167 were men and 178 women. I found it necessary to certify 60 men and 61 women, giving respective percentages of 35·9 and 34·3. Of the remainder, 33·3 per cent. had to be transferred to the hospital or to some suitable department in Elswick Grange.

Till recently it was necessary to take mental patients to Court to appear before a Justice, but an arrangement has now been made for a Justice to see the cases at Elswick Grange. The new plan is working very efficiently, and is very advantageous to the patients, and to the relatives, I might say, as they did not at all like the idea of having to go to Court, such always being associated in their mind with something criminal.

Infectious Diseases.

There is nothing very outstanding to report under this heading. The most prevalent infectious disease among the children was measles; the next most prevalent being dysentery, and the latter disease also occurred in several adults. The number of cases of erysipelas was practically similar to that of the previous year. A number of cases of cerebro-spinal meningitis were admitted and also other varieties of meningitis. It would appear that there is a decided increase in the prevalency of meningitis. No fresh case of encephalitis lethargica was admitted, but a number in the advanced stage are permanent patients in the hospital, several of them being practically bed-ridden. It has been possible to transfer a number of the less helpless ones to Elswick Grange, and they are being dealt with quite satisfactorily there.

One case of scarlet fever occurred in the nursing staff, and one Sister developed pneumococcal meningitis, from which she unfortunately died.

Electrical and X-Ray Department.

During the year 815 patients passed through the X-ray room, 1,404 exposures being made. This method of investigation is being utilised more and more every year, and its scope seems to increase. In the examination of the stomach, intestinal tract, gall-bladder, kidney, bladder, lungs, heart and vessels it has almost become a matter of routine. It is possible that there is a tendency to overdo this useful adjunct to diagnosis. It would appear that the general public is being educated to expect that as a matter of course such examination will take place, and their idea of what can be told by X-ray is rather an exaggerated one.

It was hoped that it would be possible to provide more suitable and commodious accommodation for the X-ray installation by the reconstruction of the old hospital kitchen, but after further consideration it was decided that the space so provided would be too limited. Sooner or later it will be necessary to consider the question of installing the necessary apparatus for superficial and deep X-ray therapy.

A smaller number of cases were treated by artificial sun-light, viz., 1,056, this largely being accounted for by the reduction in the number of children sent from the Maternity and Child Welfare Clinics. A distinct improvement has been noted in cases of chronic rheumatism and rheumatoid arthritis from this treatment.

A slight reduction in the number of treatments by massage is to be noted, but I anticipate an increase in this very valuable method of treatment in the future.

Nursing Staff.

The following facts regarding the nursing staff have been supplied to me by the Matron.

During the year 51 probationer nurses commenced trial duty, and of these 29 subsequently signed the agreement of training, and 22, for various reasons, were found unsuitable, or did not desire to take up the training.

Examinations.—The following are the results of the examinations held during the year :—

For the **Hospital Certificate** 28 nurses entered ; 28 passed. Of the above, 12 have since taken midwifery training.

State Examinations :—

Preliminary—29 entered ; 26 passed.

Final—28 entered ; 28 passed.

Of the above nurses who have completed their three years training, three are holding sisters' positions in other hospitals, four remain in the hospital as staff-nurses, and three are married.

Staff Sickness.—During the year, 41 members of the nursing staff were off duty on account of sickness. The following is a summary :—

20 Nurses off duty from five to nine days with tonsillitis.

One pneumonia (broncho).

One acute mastoid.

One scarlet fever.

17 minor ailments.

One meningitis (pneumococcal).

All the above patients, with the exception of the case of meningitis, made good recoveries. The meningitis affected one of the Ward Sisters, and she unfortunately died.

The most frequent ailment is tonsillitis, and this almost always occurs during the nurse's first six months of training.

The following figures may prove of interest, indicating the extent of the work carried out in the sewing-room :—

13,141 yards of new material have been cut up and made into 6,631 articles.

6,954 articles of various kinds were made, marked and issued.

1,171 articles of uniform for the staff were made and issued.

1,179 articles were made from condemned material and issued.

It will readily be understood that a considerable amount of repairing requires to be done, *e.g.*, from one ward alone 826 articles were repaired during the year. Formerly the bulk of this was done in the wards by the female patients, and also by a few of the male. One man who frequently came into Hospital with an ulcerated leg was a most excellent and expeditious knitter of stockings. It is found now, however, that the number of patients able to do mending is very small. Some of the Sisters at times take in hand some of the repairing. This is certainly not their work. All the repairs should go to the sewing-room, and to cope with this work an extra seamstress and another electrical machine should be obtained.

The marking of the linen could be very much improved on, as marking-ink sooner or later has a destructive effect, and also washes out. Embroidering the names and numbers would be infinitely more satisfactory, and would repay the initial cost very quickly.

In conclusion, I desire to record my thanks to you and the members of your staff of the Public Health Department for the willing assistance and co-operation extended to me throughout what has been a difficult year.

ADMISSIONS AND DISCHARGES FOR THE YEAR 1931.

	Males.	*Females.*	*Children.*	*Total.*
Admissions	1,383	1,362	853	3,598
Discharges	1,374	1,345	855	3,574

Of the Discharges—Cured	1,102
Relieved	1,786
Died	686
Total	3,574

TABLE OF AGES OF PATIENTS TREATED.

Men over 60	528
Women over 60	398
Men under 60	847
Women under 60	945
Boys 3–16	207
Girls 3–16	207
Children under 3	442
	3,574

TRANSFERS FROM OTHER HOSPITALS, HOMES AND UNIONS.

From Royal Victoria Infirmary	9
From Cottage Homes, Ponteland	13
From Prudhoe Hall Colony	4
From Harton Hospital, South Shields.....	8
From County of Durham	9
From Shotley Bridge Colony	7
From Other Unions, etc.....	19
Private Cases admitted for Treatment	63
Inquests Held—	
Hospital	38
Elswick Grange	15

MENTAL CASES TREATED.

Admitted during the year—Males	163
Females	171
	334

MENTAL CASES—RESULTS OF TREATMENT.

	Males.	*Females.*	*Total.*
Cured	29	14	43
Improved	23	37	60
I.S.Q.	4	8	12
To Mental Hospital	60	61	121
To Newcastle General Hospital	27	40	67
To Aged and Infirm Wards	3	2	5
To House—Chronic	3	7	10
To House	1	2	3
Died	12	5	17
Carried forward to 1932	5	2	7
Totals	167	178	345

RETURN OF CASES TREATED IN X-RAY AND MASSAGE DEPARTMENT.

MEDICAL.

	Massage.	*Medical Electricity.*	*X-Ray.*	*Sunlight.*
Treatments	1,503	1,436	1,404	1,056

ADULTS—CLASSIFIED LIST OF DISEASES TREATED.

Circulatory	251	Blood	8
Respiratory	310	Chorea	3
Pneumonia	45	Myxœdema	3
Nervous	241	Aneurism	3
Digestive	81	Liver	3
Rheumatic	60	Sciatica	4
General (*a*)	41	Arthritis	41
Excretory	60	Diabetes	17
Mental	14	Herpes Zoster	3
Lumbago	6	Scurvy	3
Exophthalmic Goitre	3	Internal Parasites	1
Observation (*b*)	23		

(*a*) Includes chiefly senile cases and those diagnosed as "Debility."
(*b*) Chiefly observation for tuberculosis and mental condition.

DISEASES OF SPECIAL SYSTEMS.

Skin	30	Eye	9
Contagious Skin	20	Throat, Nose and Ear	29
Venereal	41		

TUBERCULOSIS.

Of the Lungs	73	Other Forms	39

PREGNANCY AND DISEASES OF WOMEN.

Pregnancy	104	Diseases of Women	55
Puerperal Sepsis	11	Nursing	2
Albuminuria	1	Other Conditions	19
Abortions	66		

INFECTIOUS DISEASES.

Measles	4	Encephalitis Lethargica	16
Whooping Cough	1	Cerebro Spinal Meningitis	3
Influenza	32	Erysipelas	13
Dysentery	3		

SURGICAL.

Carcinoma	109	Bladder	10
Sarcoma	5	Burns	11
Septic Conditions	122	Gangrene	13
Abdominal Conditions	173	Phlebitis	4
Fractures and Dislocations	61	Joints	18
Injuries, Wounds and Sprains	41	Brain and Spinal Cord	7
Hæmorrhoids	34	Empyema	4
Post-Operative	9	Deformities	2
Varix	5	Teeth	7
Bone Disease	7	Bursitis	4
Gland Disease	2	Simple Tumour	6
Male Generative Organs	20	Prostate	14
Rectum	23	Others	11

CHILDREN—CLASSIFICATION OF DISEASES.

MEDICAL.

Respiratory	95	Observation	6
Circulatory	8	General	6
Lobar Pneumonia	17	Chorea	15
Broncho Pneumonia	62	Internal Parasites	1
Rheumatism	11	Mental Deficiency	5
Digestive	55	Malnutrition	2
Nervous	9	Blood	1
Excretory	15	Prematurity	2
Nursing	91	Hæmophilia	1
Rickets	6	Herpes Zoster	1

INFECTIOUS DISEASES.

Non-Pulmonary Tuberculosis	41	Dysentery	22
Pulmonary Tuberculosis	12	Influenza	2
Scarlet	7	Cerebro-Spinal-	
Varicella	10	Meningitis	2
Pertussis	6	Meningitis	5
Measles	29	Enteric	1
Vaccinia	1	Encephalitis Lethargica	1

DISEASES OF SPECIAL SYSTEMS.

Throat, Nose and Ear	47	Contagious Skin	34
Eye	6	Specific	9
Skin	13		

SURGICAL.

Appendicitis	13	Perinephric Abscess	1
Intestinal Obstruction	1	Glands	2
Hernia	3	Burns	4
Septic conditions	26	Abscess, Brain	1
Bone	6	Empyema	6
Deformities	6	Teeth	2
Injuries	6	Male Organs	5
Fractures	7	Rectum	1
Hare-lip	4	Others	5
Mastoid	4		

OPERATIONS.

Hernia (varieties)	50	Fissure-in-Ano	5
Gastroenterostomy	15	Mastoidectomy	23
Appendicectomy	37	Sequestrectomy	14
Laparotomy	22	Osteotomy	8
Anastomosis	3	Resection of Rib	27
Colostomy	15	Eslander	1
Cholecystotomy	5	External Urethrotomy	1
Cholecystectomy	14	Internal „	1
Salpingectomy	5	Amputations	12
Perenephritic Abscess	5	Bone Plating	5
Gastrostomy	3	Pyelogram	9
Gastrectomy	2	Pleural Adhesions	7
Splenectomy	2	Vesical Calculus	1
Nephrectomy	1	Renal Calculus	1
Cerebral Abscess	3	Ischio-Rectal Abscess	13
Hysterectomy	7	Hare-lip	3
Thoracotomy	5	Excisions (varieties)	17
Phrenicectomy	4	Cæsarean Section	1
Ovariotomy	3	Re-suturing Wounds	3
Prostatectomy	5	Manipulations, Joints	9
Supra-pubic Cystotomy	16	Radium Treatment	3
Thyroidectomy	1	Tonsils and Adenoids	44
Hydrocele	5	Teeth Extraction	31
Orchidectomy	3	Incisions (varieties)	136
Varicocele	2	Examinations	18
Hæmorrhoids	29	Fracture Set	1
Curettage	83	Cystoscopy	23
Phimosis	6	Tuberculous Abscess	20

OPERATIONS—*continued.*

Strictures Dilated	17	Aspirations	15
Colpoperineorraphy	4	Carbuncle	2
Varicose Veins	3	Others	22
Prolapsus Ani	2		
			828
		Minor Operations in Wards	297
		Total	1,125

Geo. P. Harlan, m.d.,
Medical Superintendent.

Newcastle General Hospital,
6th June, 1931.

MAINTENANCE IN OTHER INSTITUTIONS.

Nine persons were being maintained in various special institutions in different parts of the country at the beginning of the year. One of these cases was transferred to the Education Committee in May, 1931, and the number at the close of the year was eight. The cases are as follows :—

Institution.	M.	F.	Type of Case.
Home for Epileptics, Maghull	1	1	Epileptics.
St. Elizabeth's School for Epileptics, Much Hadham	..	1	Epileptic.
Home for Crippled Children, Gosforth	1*	..	Infantile Paralysis.
St. Vincent's Hospital for the Dying, Liverpool	..	1	Advanced Phthisis.
St. John's Institution for the Deaf and Dumb, Boston Spa	..	1	Blind, Deaf and Dumb.
St. John's Home, Birmingham	..	1	Deformity.
Hospital of St. John of God, Scorton	2	..	Cripples.
Total	4	5	

* Transferred to Education Committee, May, 1931.

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

VI.—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.

During the year 14 samples were reported by the Bacteriologist to be tuberculous. The samples were from nine different farms, one of which was situated in the City, six were in Northumberland, one was in Durham, and one in Dumfriesshire.

All of the cases were investigated by the appropriate authorities. The results may be summarised as follows :

Cases in which cows were excluded for observation, and in which the milk of the suspected animals was positive on bacteriological examination (subsequent check samples were negative)	3
Cases in which cows were excluded for observation, but in which the milk of the suspected animals was negative on biological examination (in all these a subsequent check sample of the mixed milk of the herd was negative)	4
Case in which a tuberculous cow was found on the first examination, but the subsequent check sample was positive (a second inspection revealed another tuberculous animal, and a subsequent check sample of the mixed milk was negative)	1
Case in which a tuberculous cow had been removed immediately after the first sample was taken (a check sample could not be obtained as the milk was no longer coming into the City)	1
	9

Year.	Percentage of Samples found Tuberculous.
1907	5·9
1908	3·8
1909	9·0
1910	5·4
1911	3·0
1912	10·4
1913	8·4
1914	6·7
1915	5·8
1916	8·7
1917	3·1
1918	2·9
1919	3·6
1920	6·3
1921	5·5
1922	7·0
1923	4·5
1924	3·2
1925	8·0
1926	4·0
1927	3·7
1928	3·7
1929	8·7
1930	4·2
1931	3·7

Report of the

Veterinary Officer, Inspector of Meat, etc.

To the Medical Officer of Health.

I have pleasure in submitting the following Report which includes the work of inspection under the Public Health Acts during the year 1931.

DISEASES OF ANIMALS.

Diseases of Animals Acts, 1894-1927.

During the year, 13 outbreaks of scheduled diseases occurred amongst the animals within the City, as compared with six outbreaks during the previous year. Nine of the outbreaks were due to diseases communicable from animal to man.

Tuberculosis.

During the year, nine animals—eight within the registered cowsheds, and one owned by an occupier and grazing near the moor—were found affected with one of the forms of the disease which requires them to be dealt with under the Tuberculosis Order of 1925.

Irrespective of other symptoms of the disease present, five animals were found giving tuberculous milk. In each case, immediately the condition had been confirmed by making microscopical examinations of samples taken from the cow concerned, the milk was excluded from the public supply. Of the remaining four animals, whilst three were found suffering from chronic cough, all presented some evidence of the disease, clinically, other than cough; and from two of them throat swabs were examined microscopically, both proving positive.

The animals were slaughtered and, with the exception of one case, the owners were compensated according to the value of each animal before slaughter, as agreed upon by the Veterinary Officer, on behalf of the Corporation, and the owner, in accordance with the Order. The one exception referred to was that concerning a cow-keeper, who was proceeded against and fined for failing to notify suspected disease in a cow (not in milk), grazing on land near the Town Moor. The Committee, in this case, withheld compensation in accordance with Article 20 of the Diseases of Animals Act, 1894.

In two cases the disease was found to come within the category of "tuberculosis not advanced," whilst in the remaining seven, the animals were found to have been suffering from "tuberculosis advanced," necessitating the condemnation and destruction of the entire carcass and internal organs of each as unfit for human consumption.

When the total amount (£43 12s. 0d.) paid as compensation to owners, costs for cartage and slaughtering, commission on sales, etc., was deducted from the amount (£51 18s. 11d.) obtained through the disposal of carcasses, hides, offal, etc., together with the amount recoverable from the Ministry of Agriculture, there remained a balance of £8 6s. 11d. in favour of the Corporation on the administration of the Tuberculosis Order during the year.

In the course of meat inspection within the City during the year, 721 animals were found on slaughter to be affected with the disease, this being an increase of 25·17 per cent. as compared with the number found diseased during the previous year.

In 587 cases some part of the carcass or internal organs of each was condemned and destroyed, whilst in the case of each of the remaining 134 animals, it was found necessary, owing to the extent and distribution of the disease, to destroy the entire carcass and internal organs.

The considerable increase is chiefly accounted for by the fact that not only was there a greater number of pigs slaughtered, but the number found diseased was more than twice as great as in the previous year, and included several of a large number sent into the City from outside areas for slaughter in connection with Swine Fever outbreaks.

The Milk and Dairies Order of 1926.

Within the City there are 16 cow-keepers, who occupy 27 cowsheds on 17 premises, and possess a total of 243 milch cows. During the year, 180 visits were made to the cowsheds and dairies for the purpose of inspecting the animals, buildings, and the conditions as to cleanliness, etc.

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. (under the Tuberculosis Order, 1925)*
					Of Udder.	Other than Udder.	Udder.	Other than Udder.	
1907	44	..	..	540	4	5	4	..	4
1908	43	..	..	528	3	7	4	1	6
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	..	..	3
1914	31	43	33	510	1	1	1	..	..
1915	31	43	33	554	3	..	6	..	..
1916	30	44	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	..	..	..	..	..
1923	25	39	26	484	2	..	8	..	1
1924	22	34	23	436	3	2	2	..	4
1925	21	33	23	337	9	..	1	..	4*
1926	20	31	21	410	5	2	1	3	5*
1927	18	29	19	334	2	4	2	3	6*
1928	19	31	20	308	3	1	1	3	4*
1929	19	30	20	258	4	1	1	2	4*
1930	17	28	18	251	2	3	1	4	4*
1931	16	27	17	243	4	7	1	3	9*

Tuberculosis in the Sheep.

During the year, tuberculosis as affecting the sheep was met with in one of the slaughterhouses, this being the second case known to have occurred within the City. The animal in question was a half-bred ewe, which had arrived along with other sheep from Aberdeen. On slaughter, almost every organ and lymphatic gland of the body presented tuberculous lesions. As tuberculosis in the sheep is not common, this being about the ninth case on record within this country since the year 1898, specimens were forwarded to the Pathological Department, Royal Veterinary College, London, for further bacteriological investigation. The latter indicates infection to be of bovine origin.

Anthrax.

No animals within the City have been found affected with this disease since the year 1925. Whilst during the year under report no case coming within the category of suspected anthrax has occurred, it has been necessary, as a precautionary measure, to examine five carcasses for the presence of infection, but, fortunately, all proved negative.

Anthrax Contacts from Scotland.

On the 20th January, 1931, information was received from Dingwall Police Office to the effect that six days earlier a cow had died from the disease in a pen at a sale yard in their district, and that a red polled cow, which had been penned with the diseased animal, had been sold and then sent along with other cattle to Newcastle upon Tyne.

On making inquiries it was found that the animals had arrived within a lair near the Cattle Market, where they were housed with other cattle. All excepting two had already been disposed of and sent to various parts of the County of Durham and Doncaster. The cattle remaining were inspected and found apparently healthy. The chief Constables of the places of destination of the cattle disposed of were communicated with for the purpose of causing the animals to be subjected to veterinary inspection. It was subsequently ascertained that in no case was the disease found present.

Within Great Britain 466 outbreaks of the disease were confirmed, in which 516 animals were attacked, as compared with 391 outbreaks during the previous year, in which 443 animals were attacked.

Rabies.

During the year no case, as suspicious of this disease, has been reported for investigation within the City; and no case has been confirmed within the country since the year 1922.

In connection with the control of foreign animals under isolation, as required by the Importation of Dogs and Cats Order of 1928, the Ministry of Agriculture issued, during the year, licences in respect of two, one and twelve performing dogs, respectively, the place of detention specified being the Hippodrome, Northumberland Road. In the case of one dog, the owner, a United States subject, was proceeded against and convicted for failing to observe the terms of the licence by unlawfully moving the animal from the place of detention.

LIVE STOCK AND MEAT SUPPLIES.

For the third year in succession, according to Agricultural Statistics, there was a decrease in the total number of cattle in Great Britain, the number in 1930 being 7,085,775, a decrease of 104,764, or 1·4 per cent., as compared with the previous year. As compared with ten years ago, however, when the number totalled 6,659,859, there was an increase of 425,916.

The total number of sheep in 1930 was 23,965,394, an increase of 304,421, or 1·28 per cent., as compared with the previous year; but compared with ten years ago, the figures for 1930 indicate that sheep have during the intervening period increased by no fewer than 3,475,350, or 16·9 per cent.

The total number of pigs within Great Britain in 1930 was 2,453,510, or 55,250 fewer than in the previous year. The total of these animals within the country each year has been found to vary within wide

limits, for on at least two occasions during the past ten years, they have reached a total of well over three million.

Fifty years ago there were about 5,900,000 cattle, 25,000,000 sheep, and nearly 2½ million pigs within the country. It will be seen, therefore, that whilst the production of pigs has remained practically stationary, sheep have decreased by more than one million head, and cattle have increased by about 1,185,000, during the past half-century. Broadly stated, the amount of meat available at the present time from animals produced within this country is greater, as compared with the amount available 50 years ago, by the quantity available from approximately one million cattle. But even with this fractional increase, the fresh meat available from home produced animals at the present time is required to meet a still greater demand proportionately than hitherto, because of the population having increased during the same period by 50 per cent. Whilst the total weight of fresh meat available from home bred live stock is greater to-day than fifty years ago, it is proportionately less per head of the population. When, however, it is remembered that at that time approximately 300,000 cattle, 900,000 sheep, and 24,000 pigs were imported annually, from which fresh meat was available, it will be understood that, irrespective of the source of the food producing animals, the supplementary supplies of fresh meat more or less provided for that proportion of the demand now supplied by meat imported from over the seas. The latter supplies gradually increased with the gradual disappearance of imports of live stock. In this connection it is interesting to note that it was on 24th May, 1882, when the sailing vessel *Dunedin* arrived in the London Docks from New Zealand with the first trial shipment of frozen mutton and lamb.

After a voyage lasting 98 days, the cargo of 4,909 carcasses was discharged and sold within a fortnight in Smithfield market. Following this successful effort, the New Zealand methods of breeding, rearing, slaughtering, grading, inspection, and freezing and shipping facilities have been brought to such a pitch of perfection that between ten and eleven million sheep and lamb carcasses are now being sent annually to be disposed of in this country. To more completely fulfil our requirements, however, imports arrive from other of our Dominions as well as from Denmark, South America, and other countries, for during the year 1930 a total of approximately 30,789,000 cwts. of meat, including bacon and hams, was imported. Of the total, approximately 5,715,000 cwts., costing £19,000,000, came from Australia, New Zealand and Canada, whilst the remaining 25,074,000 cwts., costing £87,000,000, were imported from South America, Denmark, Netherlands, United States of America, and other countries.

During the 30 years from 1870 to 1900, when the amount of meat imported was insignificant as compared with the amount imported to-day, the area of land in Great Britain under crops decreased from 18,335,000 to 15,708,000 acres, whilst permanent pasture increased from 12,073,000 to 16,729,000 acres. Since that time, however, that is to say, from 1900 to the year 1930, the amount of arable land has been reduced from 15,708,000 to 9,833,000 acres, and land under permanent pasture has decreased from 16,729,000 to 15,547,000 acres, which simply means that there are now only 25,380,000 acres of land under crops and grain Gress at Britain, as compared with 32,437,000 acres thirty years ago. It would appear reasonably certain, therefore, that were it found possible to gradually increase the demand for home fed meat as well as the produce of other

crops for human consumption, in order to gradually displace the greater proportion of the 25,074,000 cwts. of frozen, chilled, and other meat, imported from foreign countries, not only would agriculture benefit, but the scores of industries intimately associated therewith would also become prosperous again, to the benefit of the country as a whole.

To produce more live stock within the country means the production of more meat and fresh milk for the people and more manure or food for the land. More live stock and manure means better land cultivation and more corn crops and other food for the people; and the production of more live stock and food for both animal and human consumption means considerably more employment on the land and elsewhere. It would appear highly essential therefore, in the interests of the entire community, that nothing should be permitted likely to further minimise the production of live stock necessary for the purposes of our fresh meat and milk supplies; but what proportion—if any—of the £87,000,000 now spent annually in foreign countries for imported meat should in future be spent in Great Britain instead, is a problem the solution of which naturally remains, more or less, a responsibility of those charged with the direction of national affairs.

Cattle Market.

During the year a total of 35,546 cattle was exhibited, this being a decrease of 716 as compared with the previous year's total; consequently, last year's total remains the largest recorded for any one year since the year 1917. Sheep showed an increase over the previous year by 9,346, there being a total of 214,442 exhibited, which is the greatest total for any one year since 1917, five years before the Market day was changed from Tuesdays to Mondays. Whilst there were 1,602

calves exhibited, or 12 fewer than during the previous year, pigs showed an increase by 1,407, there being a total of 4,047 exhibited during the year. Unlike cattle and sheep, the number of pigs exhibited within the Market varies within wide limits from year to year and, in any case, constitutes only a small proportion of the number dealt with within the City. For example, during the year a total of 35,857 was licensed for removal from authorised lairs within the City to slaughterhouses.

NUMBER OF ANIMALS EXHIBITED WITHIN THE NEWCASTLE CATTLE MARKET.

Year.	Cattle.	Calves.	Sheep.	Swine.	† Dairy 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
*1923	28,828	1,665	138,447	5,545	99
*1924	18,555	453	68,654	15,684	—
1925	31,397	1,994	135,468	3,302	512
1926	29,368	755	147,461	893	413
1927	32,697	1,318	182,409	1,045	500
1928	33,531	1,585	201,825	2,644	395
1929	31,697	1,796	197,225	2,189	392
1930	36,262	1,614	205,096	2,640	311
1931	35,546	1,602	214,442	4,047	322

The Market Day was changed from the Tuesday to the Monday of each week as from 31st July, 1922.

* Market closed for some time during each of these years owing to extensive outbreaks of Foot-and-Mouth Disease in the district.

† Milch Cows sold on Fridays within the Cattle Market lairs.

INSPECTION OF MEAT AND OTHER FOODS.

The number of animals slaughtered within the City for food purposes during the year was 183,390, this being an increase of 23,119, as compared with the number slaughtered during the previous year. Whilst the numbers of cattle, calves and horses slaughtered were fewer

by 1,577, 2,347, and 801, respectively, the considerable increase as above stated was accounted for by the fact that there were 19,109 more sheep and 8,735 more pigs slaughtered than during the previous year.

Animals Slaughtered on Licensed Premises within the City.

Year 1931.			1930.	1929.	1928.	1927.
Horses		1,983	2,784	2,107	1,747	1,740
Cows	1,185					
Heifers	12,147					
Bulls	226	18,246	19,823	18,059	17,513	19,246
Bullocks	4,688					
Calves		2,895	5,242	4,843	4,299	5,249
Sheep		127,106	107,997	103,497	121,005	137,120
Pigs		33,160	24,425	41,671	46,964	42,849
Total Animals		183,390	160,271	170,177	191,528	206,204

Of the carcasses and internal organs examined, including those dressed in other districts and sent into the City for disposal, tuberculosis was found present in those of 721 animals, an increase of 25·17 per cent. as compared with the previous year.

Four hundred and thirteen and a half animal carcasses, together with 2,157 lbs. of meat (excluding offal, etc.), were condemned and destroyed as being unfit for human consumption, as compared with 486 animal carcasses and 2,067½ lbs. of meat condemned and destroyed during the previous year. Of the 413½ carcasses, 135 carcasses and two quarters were condemned on account of tuberculosis, as compared with 166 carcasses and 15 quarters condemned on account of that disease out of the previous year's total of 486 carcasses. Although there were more animals slaughtered, it will be observed that the total carcasses condemned for all causes was rather less than in the previous year.

On the other hand, it may be noted that of the 33,160 pigs slaughtered (as compared with 24,425 slaughtered during the previous year), more than twice as many as in the previous year were found affected with tuberculosis. The number of instances in which the disease in these animals was found confined to the region of the throat was 342, and resulted in a greater number of pig heads being condemned as unfit for human consumption than during any previous year. It would appear a practical certainty, therefore, that were greater precautions taken by more complete veterinary supervision of dairy cows and the prevention of the use of tuberculous milk as food for pigs, much of the loss referred to would be obviated.

Although the total number of all classes of animal carcasses condemned was slightly less and the amount of offal, provisions, etc., slightly greater, making the approximate total weight of meat and other foodstuffs condemned approximately 6½ tons less than during the previous year, the number of carcasses, parts of carcasses, and internal organs of pigs condemned for all causes was considerably in excess of the number reported for the previous year. This may be explained by stating that, irrespective of approximately four tons of imported heads, maws, etc., being condemned as unfit, of 942 pigs sent by licence from swine fever infected premises in different parts of England and Scotland to slaughterhouses within the City, the carcass and certain organs of several and the stomachs and intestines of all were condemned and destroyed. In addition, the whole or part of the carcass or internal organs or both of no fewer than 445 pigs were condemned on account of tuberculosis alone, whilst a total of 430 pig plucks was condemned on account of decomposition.

Cattle, Calves and Pigs Slaughtered within the City. (See also previous Table).	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 1931.	Year 1931.			
Cows 1,185	56	71	48	49
Heifers 12,147	36	76	29	60
Bulls 226	1	3	1	3
Bullocks 4,688	24	43	16	24
Totals 18,246	117	193	94	136
Calves 2,895	46	5	4	1
Pigs 33,160	92	1923	36	409

† Sex not known, 41.

§ ,, ,, 319.

* The figures representing the numbers of animals found tuberculous on slaughter do not necessarily 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.

Carcasses of Beef Condemned within the City during the past Twenty-two 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
1923	69	58	84·05
1924	66	61	92·42
1925	157	130	82·80
1926	126	102	80·95
1927	123	107	86·99
1928	115	109	94·78
1929	124	118	95·16
1930	147	124	84·35
1931	117	94	80·34

Note.—The above refers to whole carcasses and quarters, but does not indicate the total number of animals found tuberculous, and therefore does not include those carcasses in which only the organs or parts were found diseased and condemned. See preceding table.

Public Health (Meat) Regulations of 1924.

For the purposes of these Regulations, 6,278 visits were made to meat and provision shops, restaurants, stalls, vehicles, etc., and, as a result, 32 contraventions were found requiring to be dealt with.

In one case the occupier was using for the preparation and storage of food, a room with which a water-closet directly communicated. In a number of cases it was found necessary to enforce measures for the prevention of food being exposed to the risk of contamination. For example, butchers were found blowing or inflating carcasses with the mouth, conveying meat in dirty or unprotected vehicles, unduly exposing meat in shops to street dust, whilst some were discovered using slaughter-houses for the purpose of gut-scraping. In each instance, when the occupiers attention was directed to the matter complained of, the offence immediately ceased, and any further improvements suggested were carried out.

The protection of meat during transport is a matter not always correctly appreciated by those concerned, inasmuch as dirty cloths have been used for protecting meat during transit from street dust, which in reality may be less offensive than the dirt or filth attached to the cloth used. For the purpose of directing the attention of all traders to the necessity for precautions in this direction, a circular letter, headed " Notice to persons handling, carrying, transporting or conveying meat by vehicles or otherwise," was prepared and distributed.

INSPECTION OF CARCASSES SENT INTO THE CITY FROM OUTSIDE DISTRICTS DURING THE YEAR 1931, INCLUDING THE CARCASSES OF ANIMALS TAKEN UNDER THE TUBERCULOSIS ORDER, 1925, BY OTHER LOCAL AUTHORITIES AND SLAUGHTERED WITHIN THE CITY.

Material Examined.	Condition Found.	How Dealt With.
*Cow Carcass and Organs ..	Tuberculosis	Udders, Lungs, and Mesenteric Fat condemned.
* ,, ,, ..	,, ...	Carcass and Organs condemned
* ,, ,, ..	,, ...	,, ,,
* ,, ,, ..	,, ...	,, ,,
* ,, ,, ..	,, ...	,, ,,
* ,, ,, ..	,, ...	,, ,,
* ,, ,, ..	,, ...	Udders, Lungs and Mesenteric Fat condemned.
,, ,, ..	,, ...	Carcass and Organs condemned
* ,, ,, ..	,, ...	,, ,,
* ,, ,, ..	,, ...	,, ,,
* ,, ,, ..	,, ...	,, ,,
* ,, ,, ..	,, ...	Lungs condemned.
Heifer Carcass and Organs.	Tuberculosis	Head and Tongue condemned.
Bullock Carcass and Organs	Septicæmia	Carcass and Organs condemned
,, ,, ..	Actinomycosis	Head and Tongue condemned.
Cow Carcass and Organs ..	Fatty Degeneration and Congestion	Heart and Liver condemned.
Cow, 4 qrs. and Organs ...	Cirrhosis	Liver condemned.
Cow Carcass and Organs ..	Normal	Passed.
,, ,, ..	,, ...	,,
,, ,, ..	,, ...	,,

** Slaughtered under the Tuberculosis Order, 1925. Certificate of result of examination in each case sent to the Local Authority concerned.*

Imported Foodstuffs.

During the year, 304 vessels carrying meat and other foods from Denmark, Norway, Sweden, Holland, Canada, Australia, America and Madagascar arrived at the Quayside, this being a decrease of 33 as compared with the number of arrivals during the previous year.

Whilst the number of packages of fresh offal, comprising chiefly pig feet, maws, heads, etc., and barrels of salted pork is somewhat smaller as compared with the previous year, not only the number of frozen quarters of beef, but also the imports of bacon and hams have considerably increased. For example, during the year, 2,500 fore and hind quarters of frozen beef, 1,139,188 sides of Danish, Dutch, etc., bacon, and 1,723 cases of American bacon and hams were imported, as compared

with 1,500 hind quarters of frozen beef, 1,061,427 sides of Danish bacon, and 7,928 cases of American bacon and hams imported during the previous year. In addition, the number of cases of tinned meats imported was 53,071, an increase of 12·46 per cent., as compared with the previous year.

Three hundred and forty-four visits were made to the wharves and vessels alongside, 2,204 packages, containing meat, etc., being opened and examined. Both before and while being discharged from the vessel, it is not practicable to make more than a general survey or superficial inspection of frozen beef quarters and carcasses of mutton, but these, as well as imported meat arriving by rail within the City, are subjected to supervision and inspection within the cold storage depots and wholesale meat shops.

Caseous Lymphadenitis.

Owing to the prevalence of this disease in the flocks of the exporting countries, it has been found necessary, during recent years, to make a systematic inspection of all imported carcasses of mutton arriving within the City.

During the year, a total of 73,909 carcasses of mutton arrived, this being an increase of 18,153, as compared with the previous year's total. Of the total, 38,040 were from Australia, 33,003 from South America, and 2,866 from New Zealand. The whole of these carcasses were discharged at and forwarded by rail from the Ports of London and Liverpool, with the exception of the Australian carcasses, of which 2,958 arrived at the Quayside direct.

Of the total imported, 5,753 were examined, 27 being found diseased, and therefore condemned and destroyed. Of the 27 diseased carcasses, three were from Australia, the remainder being from South America.

IMPORTED CARCASSES OF MUTTON EXAMINED FOR CASEOUS LYMPHADENITIS.

Year.	Number of Separate Consignments.	Number of Carcasses.	Number of Carcasses Examined.	Number of Carcasses Condemned.
1928	3	1,615	1,615	118 or 7·30%
1929	102	28,145	3,945	110 or 2·78%
1930	206	55,756	7,926	55 or ·69%
1931	221	73,909	5,753	27 or ·046%

Foreign Meat, etc., Arriving by Vessel.

Fresh Offal, etc. (Packages).

PIG.—1,514 feet, 1,981 maws, 1,053 heads, 87 cheeks, 4 tongues, 5 plucks, 76 casings, and 136 sausages.

Salted Meat.

PORK.—211 barrels.

Frozen Meat.

BEEF.—2,500 fore and hind quarters. Packages.—1,780 boneless beef.

Offal (Packages).—3,618 livers, 36 hearts, 798 kidneys, 75 skirts and 36 tails.

MUTTON AND LAMB.—3,958 carcasses.

PORK.—231 caracsses.

Other Goods.

1,139,188 sides Danish, Dutch, etc., bacon. Cases.—1,723 American bacon and hams, 53,071 tinned meats and 136 sausages.

NUMBER OF VESSELS AND ORIGIN, ARRIVING WITH FOOD.

Denmark.	Holland.	Norway.	America.	Canada.	Sweden.	Australia.	Madagascar.
103	149	2	7	10	31	1	1

Exported Foodstuffs.

The number of horses slaughtered within the City, for the purpose of the carcasses being exported for consumption on the Continent, was 1,983, or 801 fewer than during the previous year. In accordance with the requirements of the Netherlands Government, certificates of examination as to fitness were granted in respect of four consignments comprising 20 barrels of horse casings, weighing a total of 5 tons, 2 cwt., 2 qrs., prior to export to Holland. In addition, for the purpose of Regulations made by the Dominion of Canada, certificates in respect of 69 packages of meat products, weighing 1,863 lbs., and intended for export, were granted to a firm within the City.

NUMBER OF VISITS AND INSPECTIONS OF PREMISES DURING THE YEAR 1931.

	Central Markets.			Meat Shops.		Fish Shops.		Provision Shops.		Fruit Shops.									
Slaughter Houses.	Meat and Provisions.	Fruit and Vegetables.	Fish.	Wholesale.	Retail.	Wholesale.	Retail.	Wholesale.	Retail.	Wholesale.	Wharves and Vessels.	Cold Stores.	Goods Stations (Fish Docks).	Restaurants.	Stalls, Carts, etc.	Fish Curing Establishments.	Warehouses.	Food Preparing Factories.
15,747	435	321	313	3,287	769	76	4	29	2	7	344	188	3	45	1707	3	2	2

POULTRY, GAME, FISH, FRUIT AND VEGETABLES, PROVISIONS, &c., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION DURING THE YEAR 1931.

Cause of Unfitness.	Poultry and Game.	Fish.	Fruit and Vegetables.	Provisions, &c.
Unsound and Unwholesome.	Chickens ... 2 Fowls ..... 2 Grey Hens .. 2 Pigeons .... 27 Rabbits 33	lbs. Cod ..... 532 Fish (mixed).. 9 boxes Haddocks 2 boxes +2,436 Halibut 2 boxes+4+448½ Ling..... 476 Plaice ..... 1,935½ Roes ..... 392 Salmon .....1+48 Skate ..... 224 Soles ..... 258 SHELL. Prawns ..... 204 tins	Apples ..... ½-barrel Onions .....20 cwts. Potatoes .....273½ cwts. Pears ..... 20 boxes+18 cwts. 3 qrs. Peas..... 2½ cwts. Raisins..... 5 cwts. 3 stones Tomatoes..... 100 lbs.	lbs. Bacon ..... 168 Brawn ..... 820 Confectionery..29 boxes TINNED GOODS. lbs. Apricots ..... 144 Corned Beef ..... 3,492 Fruit (mixed) .... 1,200 Frozen Eggs ..... 104 Ham ..... 360 Lunch Tongue ... 1,147 Pork ..... 9 Tomatoes ..... 30 Tomatoe Purie.... 10

TOTAL CARCASSES, &c., DESTROYED AS BEING UNFIT FOR

	Carcasses, &c.				Lungs.				Hearts		Kidneys.	
	Beef.	Veal.	Mutton.	Pork.	Sets Ox.	Sets Calf.	Sets Sheep.	Sets Pig.	Ox.	Pig.	Ox.	Pig.
Tuberculosis	94+2 qrs + 124 lbs.	4	1	36	156	1	..	9	22	..	..	2
Caseous Lymphadenitis	..	..	27	..	..	..	..	..	..	..	..	..
Swine Fever	..	..	..	2	..	..	..	..	..	..	..	..
Actinomycosis	..	..	..	..	..	..	..	..	..	..	..	..
Actinobacillosis	..	..	..	..	..	..	..	..	..	..	..	..
Pyobacillosis	..	..	4	..	..	..	2	..	..	..	..	..
Pyrexia	1	..	..	12	..	..	..	..	..	..	..	..
Pyæmia	..	2	..	..	..	..	..	..	..	..	..	..
Pericarditis (including Septic and Traumatic)	..	..	..	..	2	..	..	..	3	1	..	..
Septic Conditions	8+34 lbs.	3	2+1 qr. + 6 lbs.	2	5	..	1	..	..	..	2	..
Dermatitis	..	..	..	..	..	..	..	..	..	..	..	..
Jaundice	..	..	..	3	..	..	..	..	..	..	..	..
Melanosis	..	..	..	..	..	..	1	..	..	..	..	..
Lymphadenoma	..	..	1	..	..	..	..	..	..	..	..	..
Fatty Degeneration	..	..	..	..	..	..	..	..	..	..	..	..
Hyaline Degeneration	60 lbs.	..	..	..	..	..	..	..	..	..	..	..
Pneumonia	..	..	..	..	7	..	..	301	..	..	..	..
Pleurisy	..	..	..	..	18	..	..	3	2	..	..	..
Peritonitis	2+6 lbs.	2	..	4	1	..	..	..	..	..	..	..
Pleurisy and Peritonitis	2	1	..	5	1	..	..	1	..	..	..	..
Nephritis	..	..	..	..	..	..	..	..	..	..	5	..
Mastitis	..	..	..	..	..	..	..	..	..	..	..	..
Cirrhosis	..	..	..	..	..	..	..	..	..	..	..	..
Cavernous Hæmangioma	..	..	..	..	..	..	..	..	..	..	..	..
Œdema and Emaciation	1	..	22	3	..	..	..	..	..	..	..	..
Parasites (Distomatosis, Cysts, etc.)	..	..	..	..	14	..	3	..	..	..	..	..
Dead, Moribund, Imperfect Bleeding, Congestion, etc.	6	..	52	17	3	..	1	..	1	..	4	..
Immaturity	..	5	..	..	..	..	..	..	..	..	..	..
Traumatism	1 qr. + 842 lbs.	..	..	24 lbs.	..	..	..	..	..	..	..	..
Decomposition	3+6 qrs. + 1032 lbs.	29	39+ 19 qrs. 1 side and 29 lbs.	8+5 qrs. and 3 sides.	2	..	..	..	3	..	36	..

HUMAN CONSUMPTION DURING THE YEAR 1931.

Livers.			Heads.			Plucks.			Cow's Udders.	Ox Tails.	Pig Maws.	Stomachs and Intestines.		Sausage Casings.	Fat.		Sweetbreads.		Ox Cheeks.	Pork Griskins.
Ox.	Sheep.	Pig.	Ox.	Sheep.	Pig.	Calf.	Sheep.	Pig.				Ox.	Pig.		Ox.	Pig.	Calf.	Sheep.		
91	..	4	39	..	326+ 16 halves.	..	..	74	4	..	..	4	4	..	39	6	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	936	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
32	..	1	1	..	2½	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	4	65	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	1	4	..	..	..	..	..	..	..	..	..	..	..	..
3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..
153	40	14	..	..	..	..	2	9	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	84	7	..	..	..	..	114	28	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	6	4	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
30+ 3½ lbs.	15+ 20 lbs.	..	12	36	7+ 9 cwts. & 1 tierce.	..	148	430	..	10	63 cwts	..	..	1 cak	..	..	135 lbs.	28 lbs.	1+ 137 lbs.	6½ cwts

Total Weight of Meat and Other Foodstuffs Condemned.

The approximate total weight of meat and other foodstuffs condemned during the year was 70 tons 10 cwts., comprising :—

	tons.	cwts.	qrs.	lbs.
Beef, Mutton, Veal, Pork	44	16	3	15
Offal, Provisions, etc.....	25	13	—	13
	70	10	—	—

Slaughterhouses.

During the year, 98 separate premises were licensed for slaughtering purposes, this being three fewer than in the previous year. The reduction was due to alteration of certain of the buildings within the Dispensary Lane New Yard group.

The total comprises five groups and a number of separate establishments in various parts of the City, extending from Scotswood to Walker.

Three of the Byker Hill Group and two of the Dispensary Lane group are used exclusively for the purpose of horse slaughtering, the carcasses being exported to the Continent, whilst two near the river in the St. Lawrence district are licensed and used as Knackers' Yards.

About 25 years ago, that is to say in 1907, there was a total of 134 slaughterhouses licensed within the City. These comprised 103 slaughterhouses, arranged in six groups, in addition to 31 separate premises, the whole being situated in 31 different places in about 20 different areas within the City.

In the year 1908, the Scotswood Road (Cattle Market) group was reconstructed, the result being 19 separate slaughterhouses instead of 24. Within the

following two years one new establishment near the Cattle Market was opened and licensed, twenty separate premises, in most cases behind private dwellings, were compulsorily closed because of being insanitary and otherwise unfit, whilst one group of fourteen in the Stepney district was reconstructed to form seven separate slaughterhouses.

Since that time the occupation of four separate premises in different parts of the City has ceased voluntarily, and two newly constructed premises have been licensed, one being for the purpose of sheep slaughtering only. The number of slaughterhouses licensed within the City has, therefore, undergone but little change during the past twenty years. Within recent years, however, there has been a tendency towards an increase in the amount of slaughtering within the larger, in particular the wholesale, establishments. This increase is due chiefly to the rapid development of the City as a distributing centre, from which large and gradually increasing quantities of meat are being supplied to the surrounding populous towns and country districts.

The meat trade, briefly stated, consists of two sections, namely, home-killed and imported. Within the City, the latter is comparatively well catered for, there being modern wholesale establishments in close proximity to large cold storage depots. However, to enable this district, which is admirably placed geographically, to develop into one of the greatest meat distributing centres within the country, it remains necessary to provide modern live stock markets and centralised slaughtering facilities, preferably as a combined scheme.

The provision of a modern establishment with equipment for dealing with by-products, along with modern live stock markets, has been under consideration for some time, but, unfortunately, owing to a suitable and adequate site not yet being determined upon, is being held in abeyance.

Slaughterhouse Bye-Laws.

The Slaughterhouse Bye-laws for the City, which became operative about four years ago, provide that no one shall, in a slaughterhouse, proceed to slaughter any animal, except horses, mares, asses, and mules, or animals slaughtered by any member of the Jewish faith, duly licensed by the Chief Rabbi, until the same shall have been effectually stunned with a mechanically operated instrument suitable and sufficient for the purpose. During the past two years, between three and four hundred thousand cattle, sheep, and pigs have been slaughtered, and it is satisfactory to be able to state that no complaints have been received concerning the condition of the carcasses because of the use—in the process of stunning—of mechanically operated instruments.

Microscopical Examinations.

During the year, microscopical examinations were carried out, as an aid or confirmation of diagnosis, in connection with 34 cases under investigation.

The material examined comprised specimens of milk, blood, pus, tissues, and swabs taken from the throats of cows. Of the samples of milk examined for tuberculosis, five were found positive and eight negative; and of the throat swabs examined for the same disease, three were positive and eight negative. In none of the specimens of blood and other tissues examined

for anthrax was that disease found present. Of material other than milk or throat swabs examined for tuberculosis, one was positive, the other being negative. In one case only—bronchial mucus—was the examination made for parasites, the result being positive.

Microscopical Examinations.

	Specimens Examined.	Result of Examination.	
		Positive.	Negative.
Samples of Milk examined for Tuberculosis	13	5	8
Throat Swabs examined for Tuberculosis..	11	3	8
Smears made from Tissues and examined for Tuberculosis and other Organisms..	4	2	2
Bronchial Mucus examined for Parasites..	1	1	—
Blood examined for Anthrax	5	—	5
	34	11	23

Rats and Mice (Destruction) Act, 1919.

During the year, 132 visits were made to premises in respect of 103 complaints received, 217 premises, including others than those complained of, being inspected and dealt with.

Of the 217 separate premises, rats were found infesting 191, the remaining 26 being found free from any evidence of infestation. As will be seen in the following table, the premises most frequently invaded by the pests were dwellings, shops, slaughterhouses, warehouses, workshops and stables in the order named, the first three referred to accounting for a little more than 80 per cent. of the whole.

Many occupiers have the impression that it is only necessary to lay poisoned bait to solve the problem, no attention being given to the question of prevention. The rat problem, so far as buildings are concerned, is

one that invariably involves the question of construction and repair. With the view of obtaining successful results and efficient administration, it has always been the practice—within the City, at least—to place before the public, so far as possible, the best known means of prevention, besides educating the individual occupiers as to the advantages of rendering premises independent, structurally, one from the other, and of operating simultaneously.

RATS AND MICE (DESTRUCTION) ACT, 1919.

Complaints received	103
Number of premises inspected and dealt with in connection with the above	217
Number of premises infested with rats	191
Number of visits	132

KIND OF PREMISES DEALT WITH.

Dwellings	101
Shops	56
Slaughterhouses	18
Warehouses	8
Workshops	7
Stables	5
Factories	4
Allotment Gardens	3
Hospitals	2
Offices	2
Church	1
Church Hall	1
Sports Field	1
Poultry Runs	3
Mill	1
Bakery	1
Railway Premises	1
Institution	1
Public House	1
Total	217

CONTRAVENTIONS.

Offence.	No. of Cases.	Action taken, etc.
Slaughterhouse Bye-Laws. Slaughtering animals without stunning previously with a mechanically operated instrument	19	In two cases offenders fined £3 and £1, respectively; a third being dismissed. Remaining offenders cautioned.
Dirty Slaughterhouses	3	Offenders cautioned.
Tuberculosis Order of 1925. Failing to give information to the Local Authority of the possession of a cow, which was, or appeared to be, suffering from tuberculous emaciation	1	Offender fined £2.
Public Health (Meat) Regulations of 1924. Using for the preparation and storage of food, a room with which a water-closet directly communicated	1	W.C. removed.
Blowing carcasses of mutton with the breath	3	Offenders cautioned.
Meat conveyed in dirty vehicles	12	Offenders cautioned.
Uncovered or unprotected meat exposed in vehicles	2	Offenders cautioned.
Meat exposed outside shop windows ...	5	Offenders cautioned.
Shed used for the purpose of domestic washing and preparation of foodstuffs	1	Ceased to use shed for washing purposes.
Dirty condition of food preparing factory, utensils, and workers' overalls	1	Offender cautioned. Premises, etc., cleansed.
Dirty butcher's shop	1	Offender cautioned. Premises cleansed.
Meat carried by workers not wearing overalls	3	Offenders cautioned. Overalls provided.
Gut scraping in slaughterhouses	3	Offenders cautioned.

Yours faithfully,

Town Hall,
Newcastle-upon-Tyne,
24th August, 1932.

THOMAS PARKER, F.R.C.V.S.,
Veterinary Officer.

FOOD AND DRUGS ADULTERATION, Etc.

Total Samples.—The number of samples of foods and drugs obtained for analysis during the year was 1,174, as compared with 1,155 in 1930. They were of a varied nature, and included most articles in common use in the household. Of this number 615 were submitted to the Public Analyst, the remainder being samples of milk which were tested in the office and found to be genuine.

Informal Samples.—270 informal samples were taken as against 258 last year. Although legal proceedings cannot be taken in the event of such a sample not being genuine, this method is a guide to the general quality of food stuffs sold in any particular district. Any adulterated samples are followed up by taking "formal" or "official" samples, so that legal proceedings may be taken if necessary.

Milk Samples.—As usual, the greatest number of samples obtained has been of milk, one of the most important articles of food, and one which unfortunately lends itself to fraudulent practices. 879 samples were taken, and of these 42 were certified to be below the minimal limits fixed by the "Sale of Milk Regulations, 1901." Of this number 25 were deficient in non-fatty solids, 13 in milk fat, and 4 in both. The percentage of deficiency in fat varied from 1·6 to 26·6 (the average being 5·45), and of solids not fat from 0·9 to 18·1 (average, 6·75.)

"Appeal to Cow" Samples.—Only in two cases was it found necessary to visit farms for the purpose of obtaining samples direct from the cows. Six samples in all were taken, 5 of which proved to be genuine. The other was very slightly deficient in non-fatty solids.

Notwithstanding the large number of samples (1,174) of upwards of 70 different articles of foods and drugs, it was only necessary to institute legal proceedings in 12 cases.

Samples not Genuine, etc.—The percentage of all samples not genuine to the total number taken was 4·60 (compared with 2·34 for the previous year). The percentage of non-genuine milk samples to the total number of milk samples obtained was 4·78 (as against 2·18 in 1930). The total number of samples taken was at the rate of 4·14 per 1,000 of the population (estimated) of the City for the year 1931. This is in excess of the number suggested by the Ministry of Agriculture (viz., 3 per 1,000 of the population).

Margarine.—18 samples of margarine were purchased and analysed. All were genuine, free from preservatives, and in compliance with the requirements of the Act in all other respects.

Margarine Warehouses.—62 visits were made to the registered margarine warehouses in the City. The packages were examined as regards proper marking, and all found to comply with the Act.

Preservatives in Food.—Of the total samples obtained for analysis (1,174), only 41 contained preservative, the quantity being in most instances well within the limit allowed.

Eight samples of sausage contained sulphur dioxide in quantities above the permissible limit, the vendors (five) being cautioned.

Eight offences were disclosed of selling sausage containing similar preservative, the presence of which was not declared as required. The offenders (four) were cautioned.

Two samples of jam (informal and formal, from the same vendor) contained an excessive quantity of sulphur dioxide, and this case also was met by a caution.

Further samples taken after the vendors had been cautioned were all found to comply with the law.

OFFENCES OTHER THAN ADULTERATION.

Offence.	No of Cases.	Action Taken, etc.
Milk and Dairies Order, 1926 *Section* 14 (1) :— Milk stored in room communicating with a sleeping apartment.	1	Offender cautioned.
Sections 21 *and* 26 :— Dairy not kept in accordance with the requirements.	1	Offender (after notice) appeared before Health Committee. Necessary improvements carried out and no further action taken.
Sections 27-29 :— Milk churns in a condition contravening the Order.	6	Offenders cautioned.
Milk churns not properly cleansed before being returned.	22	Offenders cautioned.
Section 30 :— Selling skimmed milk from a hand-can not labelled "skimmed milk."	1	Offender cautioned.
Sections 30 *and* 32 :— Milk churns deposited on street, not protected from dust and dirt; also churn of "skimmed milk" not labelled as such.	2	Offenders cautioned.
Section 31 (2) :— Milk bottles filled from hand-can on public street.	1	Offender cautioned.
Milk and Dairies (amendment) Act, 1922, *Section* 2; *and Milk and Dairies Order*, 1926, *Section* 6 :— Selling milk without being registered for the purpose.	3	Offenders cautioned.
Carried forward ...	37	

OFFENCES OTHER THAN ADULTERATION—*continued.*

Offence.	No of Cases.	Action Taken, etc.
Brought forward ..	37	
Milk and Dairies (Amendment) Act, 1922, *Sections* 2-3 ; *Milk and Dairies Order*, 1926, *Section* 6 ; *Milk (Special Designations) Order*, 1923 :— Retailing "Grade A.T.T." and ordinary milk without being registered for the purpose.	1	Offender cautioned.
Milk and Dairies (Consolidation) Act, 1915 ; *Section* 6 :— Selling milk from vessels not inscribed with the name and address of vendor.	3	Offenders cautioned.
The Milk (Special Designations) Order, 1923 ; *Third Schedule, Part iii.* :— Caps on milk bottles not in accordance with requirements.	2	Offenders cautioned.
Third Schedule, Part iv. :— Advertising "pasteurised" milk not treated in accordance with the conditions specified.	1	Offender cautioned.
Public Health (Dried Milk) Regulations, 1923, *Section* 4 :— Selling Dried Milk ("Nutrix") in package not labelled with the particulars required.	1	Offender cautioned.
Public Health (Preservatives, etc., in Food) Regulations, 1925-1927 :— Selling sausage containing sulphur dioxide, the presence of which was not declared as required.	8	(Two offences against each of four vendors, in respect of informal and formal samples, respectively). Offenders cautioned.
Total	53	

The Public Health (Condensed Milk) Regulations, 1923-1927, and the Public Health (Dried Milk) Regulations, 1923-1927.

Six samples of condensed milk and four of dried milk were obtained. All were genuine, and in compliance with the Regulations with regard to composition and labelling.

BACTERIAL IMPURITY OF MILK AND WATER.

Milk.—376 samples were examined by the Bacteriologist for the presence of tubercle bacilli, which were found in 14, or 3·7 per cent. This is a reduction on last year's figures, which were 16 and 4·2 per cent. respectively.

Action taken is described on page 219.

200 samples were examined for evidence of excremental pollution, which was found to an undesirable degree in 43, or 21·5 per cent. In every case the Medical Officer of Health of the district from which the milk originated was informed, with the result that steps were taken to secure more cleanly methods of production.

Cleanliness of Milk Churns.—During the year 22,081 churns awaiting return to the farmers were examined at the various railway stations in the City. Of this number, 35 (as compared with 33 in 1930) were found in an uncleansed condition. The offender in each case was cautioned by the Medical Officer of Health.

In addition, 3,147 churns in course of transit through the City were examined, and 4 (as compared with 15 last year) were found in a dirty condition. These matters were reported to the Medical Officers of Health of the districts concerned.

6 farmer-consignors were also communicated with respecting churns found to be defective or not in conformity with the requirements of the Milk and Dairies Order.

Water.—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 144.

PREMISES ON WHICH FOOD IS PREPARED.

Bakehouses.—There are in the City 299 bakehouses, of which 43 are factories (*i.e.*, places in which mechanical power is used), and 256 are workshops.

The number of " domestic " bakehouses, or private dwelling houses in which the occupier makes bread for sale amongst the neighbours, is 98, an increase of 17 over 1930. Domestic bake-houses are under the same supervision as when the business is carried on in an ordinary bakehouse, and, generally speaking, are kept in a cleanly state. It is seldom that any contraventions are found.

Restaurant Kitchens (which include hotels, cafés, and dining rooms). The number on the Register is now 114—a decrease of nine since last report. They are regularly inspected. 39 notices were served during the year (principally for limewashing, which was overdue) These were all complied with.

Fried Fish Shops.—The number of these is 156 (as against 158 in the previous year). For comments see " Offensive Trades " (Section VII.).

Ice Cream Manufactories and Retail Shops.—14 applications were received during the year for permission to make and/or sell this commodity. 6 were refused, the general sanitary conditions of the premises not being up to the standard.

The number of makers of ice cream is 115, as compared with 117 in 1930, whilst the number of retailers only has decreased from 171 to 169.

The premises of both manufacturers and retailers are regularly inspected. In the case of manufacturers, they are advised that the persons actually engaged in making the ice cream be supplied with white washable

overalls, which is done in many cases. Unfortunately, however, under the existing law, this cannot be insisted upon, with the result that a large number have not yet accepted the advice.

In three instances it was found that ice-cream was being sold from barrows which were not properly inscribed with the owner's name and address, as required by Section 52 (4) of the Newcastle Corporation Act, 1911. A caution in each case resulted in compliance with the Act.

The Milk and Dairies (Amendment) Act, 1922, *Sec.* 2, and *The Milk and Dairies Order*, 1926, *Sec.* 6.—During the year 12 applications were received for permission to retail milk, 8 being granted and 4 refused on sanitary grounds. At the close of the year there were 616 retail milk shops in the City, including 64 belonging to the 10 larger dairy companies. Of the total, 65 were shops in which only dairy products and like commodities were retailed, 513 were shops selling other articles, and 38 were hawkers. The latter class of milk-seller is being discouraged, and the number gradually reduced. Comparatively little " loose " milk is dealt in nowadays, most of the milk sold being in bottles, closed by a cardboard disc or cap. This is a distinct improvement upon the old methods of dealing with loose milk, especially in the smaller general shops. One large Society who deal exclusively in " Pasteurised " milk extended their operations to supplying shopkeepers, and furnished a list of 168 names of retailers for registration purposes. They did not, however, inform their customers that this being a " graded " milk, a licensing fee of 5s. per year was also required. This gave rise to considerable difficulty, as many retailers, ignorant of the special regulations, could not understand why other shops

Samples taken for Analysis during the Year 1931.

Article	No. of Samples obtained.			Result of Analysis.			Action taken.			Remarks.
	Formal.	Informal.	Total.	Genuine.	Not Genuine.	Doubtful.	Prosecutions.	Convictions.	Cases Dismissed.	
New Milk	878	1	879	837	42	..	12	5	7	In 1 case (1 of a series of 5 " appeal to cow " samples — the others being genuine), 1 in which the deficiency was very slight, and 2 in which samples taken at the request of the vendor from the farmer, proved to be deficient, no proceedings were taken. In the remaining 26 (of the 42 samples " not genuine ") the vendors were cautioned by order of the Health Committee.
Goats' Milk	..	2	2	2	..	..	..	..	..	
Skimmed Milk	7	..	7	7	..	..	..	..	..	
Condensed Milk	..	6	6	6	..	..	..	..	..	
Dried Milk	..	4	4	4	..	..	..	..	..	
Cream	2	1	3	3	..	..	..	..	..	
Butter	..	15	15	15	..	..	..	..	..	
Margarine	..	18	18	18	..	..	..	..	..	
Coffee (including " Coffee and Chicory Extract ")	..	6	6	6	..	..	..	..	..	
Cocoa	..	2	2	2	..	..	..	..	..	
Tea	..	7	7	7	..	..	..	..	..	
Sugar	..	7	7	7	..	..	..	..	..	
Baking Powder	..	3	3	3	..	..	..	..	..	
Custard Powder	..	2	2	2	..	..	..	..	..	
Flour (including self-raising flour)	..	2	2	2	..	..	..	..	..	
Oatmeal and Wheatmeal	..	2	2	2	..	..	..	..	..	
Yeast	..	6	6	6	..	..	..	..	..	
Barley	..	1	1	1	..	..	..	..	..	
Rice	..	1	1	1	..	..	..	..	..	
Ground Rice, Macaroni, Sago, and Arrowroot	..	4	4	4	..	..	..	..	..	
Corn Flour	..	1	1	1	..	..	..	..	..	
Pepper	..	1	1	1	..	..	..	..	..	
Mustard	..	1	1	1	..	..	..	..	..	
Vinegar	..	5	5	5	..	..	..	..	..	
Sauce	..	4	4	4	..	..	..	..	..	
Lard	..	7	7	7	..	..	..	..	..	
Bacon	..	13	13	13	..	..	..	..	..	
Cheese	..	5	5	5	..	..	..	..	..	
Suet	..	6	6	6	..	..	..	..	..	
Sausage, Tripe, Polony, Corn Beef, and Spiced Ham	7	30	37	29	8	..	..	..	..	The samples " not genuine " (all of sausage) contained preservative (sulphur dioxide) in quantities above that allowed. The vendors (5) were cautioned.
Meat Pastes (Rolls)	..	6	6	6	..	..	..	..	..	
Peas	..	2	2	2	..	..	..	..	..	
Jams	2	13	15	11	4	..	..	..	..	2 of the samples " not genuine " (informal and formal, from the same vendor), contained an excessive quantity of sulphur dioxide, respecting which the vendor was cautioned. The other 2 (informal and formal, from one vendor) were slightly deficient in soluble solids. This case was also met by a caution.
Lemon Curd	..	1	1	1	..	..	..	..	..	
Rusks	..	1	1	1	..	..	..	..	..	
Dried Fruits (Currants, Raisins, and Sultanas)	..	7	7	7	..	..	..	..	..	
Candied Peel	..	2	2	2	..	..	..	..	..	
Table Jelly and Gelatine	..	9	9	9	..	..	..	..	..	
Household Drugs (Tincture of Rhubarb, Syrup of Rhubarb, Paregoric, Camphorated Oil, Gregory Powder, Tartaric Acid, Cream of Tartar, Olive Oil, Glycerine, Castor Oil, Glauber Salts, Cod Liver Oil, Capsules and White Precipitate Ointment)	3	38	41	41	..	..	..	..	..	
Cod Liver Oil and Malt Extract	..	5	5	5	..	..	..	..	..	
Meat Extracts (" Vitamalt " and " Jardox ")	..	2	2	2	..	..	..	..	..	
Whiskey	..	4	4	4	..	..	..	..	..	
Rum	..	4	4	4	..	..	..	..	..	
Beer	4	4	8	8	..	..	..	..	..	
Wines (Alcoholic)	..	3	3	3	..	..	..	..	..	
Fruit Wines (Non-Alcoholic)	1	6	7	7	..	..	..	..	..	
Totals	904	270	*1174	1120	54	..	12	5	7	Amount of Penalties obtained £8 0s. 0d.

* Includes 240 samples taken " in course of delivery " (at railway stations, hospitals, etc.).

selling ungraded milk in bottles could do so without paying any fee. This, of course, is quite permissible.

Milk and Dairies Order, 1926, *Sections* 21 *and* 26.—Owing to the unsatisfactory manner in which a dairy was kept, the condition of the utensils, and the absence of a hot water supply, the occupier was summoned to appear before the Health Committee to show cause why his name should not be removed from the Register. As a result, satisfactory improvements, which have since been maintained, were made, and further action has been unnecessary.

C. Raimes,

Inspector under the Sale of Food and Drugs Acts, etc.

Health Department,
Town Hall,
18th June, 1932.

REPORT OF THE
CHIEF SANITARY INSPECTOR.

VII.—THE HOME AND THE WORKSHOP.

NUISANCES, HOUSING, FACTORIES AND
WORKSHOPS, Etc.

NUISANCES, HOUSING, FACTORIES AND WORKSHOPS, ETC.

The following is the

Report of the Chief Sanitary Inspector.

To the Medical Officer of Health.

Sir,

I have pleasure in submitting the following report on the work carried out in my Section of the Department during the year ended December 31st, 1931.

NUISANCES.

The number of nuisances reported upon and dealt with during the year was 13,777, which is a slight decrease upon the previous year.

Two of the worst cases were unfortunately caused by another Department of the Corporation. The first resulted from the filling in of a pond in close proximity to a destructor. The nuisance was very serious.

The second resulted from the tipping of house and shop refuse, road sweepings, and other foul organic matter in close proximity to dwelling houses. This gave rise to a most objectionable smell and a positive plague of flies. In one house especially the windows and walls were covered with these pests, notwithstanding the efforts of the occupier to keep the numbers down. Ultimately, as the tipping progressed away from the houses, the nuisance abated.

Overcrowding.

During the year three reports on overcrowding in tenements and flat properties in the City were presented to the Insanitary Property Sub-Committee. These referred to types of houses which are known to be overcrowded. 650 rooms were inspected and measured up, and enquiries revealed many serious cases. A number of these have been relieved through the Housing Department. There is, however, a certain type of tenant which cannot be accepted for Council houses. The Housing Committee rightly exercise great care in the selection of tenants, and have a somewhat high standard, which excludes many families who are living under conditions that can only be described as deplorable.

Many of these families have really never had a fair chance to do better, having lived all their lives under such conditions. The high rents, especially in decontrolled houses, is also a serious matter, especially at the present time, when unemployment is rife. Cases have come to our knowledge where the rent of such houses is half, and even two-thirds of the weekly income.

The following are examples of the conditions under which many of the poor live :—

(1) One room in a tenemented house occupied by husband, wife, and seven children (three daughters, aged 17, 12, and 2 years; and four sons, 10, 8, 6, and 3 years respectively).

Amount of space required	3,000	cubic feet.
Cubic contents of room	1,417	,,
Deficiency	1,583	,,

Husband unemployed, and only the eldest daughter working for a small wage.

(2) Two rooms on ground floor, one of which is sub-let. Front room occupied by husband, wife, and three children. (Two daughters, 3 and 10 years, and one son, 7 years, respectively).

Amount of space required	1,700	cubic feet.
Cubic contents of room	1,252	,,
Deficiency	448	,,

Back room occupied by husband, wife, and five children (one daughter, 2 years ; four sons, 17, 12, 8, and 5 years, respectively).

Amount of space required	2,350	cubic feet.
Cubic contents of room	1,072	,,
Deficiency	1,278	,,

Here we have two families of 12 persons in a house which was originally built for one tenant. Both of the occupiers are unemployed, and are dependent on state relief.

(3) One room occupied by husband, wife, and six children (three daughters, 10, 8, and 4 years ; and three sons, 6, 2, and 1 year, respectively).

Amount of space required	2,450	cubic feet.
Cubic contents of room	1,280	,,
Deficiency	1,170	,,

Husband unemployed, and one of the daughters suffering from tuberculosis.

(4) One sub-let room in a downstairs flat occupied by husband, wife, and four children (three daughters, 12, 5, and 2 years ; and one son, 4 years, respectively).

Amount of space required	1,950	cubic feet.
Cubic contents of room	1,404	,,
Deficiency	546	,,

The husband, an unemployed labourer, states that sickness is never absent from the house, every child having been in hospital at one time or another. He has tried to obtain a Council house, but being unemployed, is not successful.

(5) One room occupied by husband, wife, and five children (three daughters, aged 16, 4, and 2 years ; and two sons, 18 and 6 years, respectively).

Amount of space required	2,350	cubic feet.
Cubic contents of room	1,508	,,
Deficiency	842	,,

A very clean, decent, and industrious family ; admirable tenants for either a Council or any other house ; husband in constant employment. A larger house was obtained for them shortly after the inspection was made.

(6) In an upstairs flat of three rooms, the principal tenant and his wife (no children) occupied the kitchen and sitting rooms, both good sized rooms. They sub-let the small bedroom, which measured 9 feet 4 inches by 7 feet by 8 feet 6 inches high, or 550 cubic feet capacity, to a man, his wife, and four children (one daughter, 11 years, and three sons, 13, 11, and 2 years, respectively). The amount of space required was 2,100 cubic feet, giving a deficiency of 1,550 cubic feet. Here we had two persons only occupying two rooms, and a family of six persons occupying one small bedroom for both living and sleeping purposes.

Action was taken in this case, which resulted in a re-arrangement of the rooms, the principal tenant and his wife using the front room, and the sub-tenant having the use of the kitchen and bedroom.

Notices Served.

The following are the numbers of notices and letters issued during the year :—

Number of notices served :—		
Informal	5,144	
Statutory	799	
	——	5,943
Number of special letters sent		2,126
Number of circular letters sent		2,095
Total		10,164

Magisterial Proceedings.

Considering the total number of letters sent out and notices served (10,164), it is worthy of note that it was only necessary to take legal proceedings in 43 cases. In the remaining instances in which proceedings were ordered by the Health Committee, the necessary work was carried out without the issue of summonses. For details see page 276.

The Rent and Mortgage Interest (Restrictions) Acts.

Five applications were received during the year from tenants for certificates under these Acts. In four cases certificates were granted, and in the other the repairs necessary were carried out before the certificate was issued. It is remarkable that greater advantage is not taken of this provision, for certainly a house let at from 15s. to 22s. per week should be kept in a reasonable state of repair.

Conversion of Dry Closets to Water Closets.

During the year 201 pail-closets and four " cell " privies have been converted to water-closets. This represents a decrease as compared with the number converted during 1930, which is accounted for by the fact that the older houses have been dealt with first. The privies still remaining belong to houses of more modern construction, and are mostly kept in such a condition as not to be a " nuisance " within the meaning of Section 91 of the Public Health Act, 1875, or to be " insufficient " according to Section 36 of that Act. Section 39 (4) of the Public Health Acts Amendment Act, 1907, which empowers a local authority to order a general scheme of conversion at the cost of the ratepayers, is not in force in this City, that Section not having been adopted by the Corporation. The only contribution made towards the cost is the granting of the first dustbin for the storage of house refuse in cases where these conversions are carried out.

43 " dry " ashpits were removed and replaced by portable dustbins, the first of which was given free of charge in these cases also.

Altogether 281 such bins were supplied during the year.

As in previous years, a circular letter, giving an abstract of Sec. 21 Public Health Acts (Amendment) Act, 1890, which provides that any person improperly fouling or damaging any water closet shall be liable to a penalty of 10/-, is given to each tenant when a conversion is carried out. This has proved of great value.

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'	..	..	..	..	..
St. Thomas'	..	..	..	..	..
St. John's	..	..	..	..	..
Stephenson	..	..	..	..	..
Armstrong	..	..	..	..	..
Elswick	10	10	..	..	..
Westgate	2	2	..	..	..
Arthur's Hill	1	1	..	..	..
Benwell	5	..	3	2	2
Fenham	9	6	..	3	2
All Saints'	2	2	..	..	..
St. Andrew's	3	3	..	..	..
Jesmond	..	..	..	..	..
Dene	..	..	..	..	..
Heaton	..	..	..	..	..
Byker	67	67	..	..	..
St. Lawrence	237	237	..	..	..
St. Anthony's	101	96	1	4	4
Walker	29	..	2	27	14
Total in City	466	424	6	36	22

Smoke Abatement.

As will be seen from the appended table, observations have been made of factory and other chimneys in the City, and although it was found necessary to issue statutory notice only in one instance, informal notices were served in 31 cases, and these resulted in a great decrease both in the quantity and density of the smoke emitted. In seven cases the drivers of steam wagons were also cautioned.

The class for stokers and firemen commenced at the Rutherford Technical College appears to have resulted in much good. From conversations with those attending they seem to have gained a greater insight into the subject, and to fully appreciate the tuition. At the end of the session 16 sat for examination, and of that number all passed.

In addition to black smoke it was found necessary to draw the attention of the occupiers of two factories to the quantity of grit and ashes emitted from the chimneys. This comes under the definition of " smoke " in the Public Health (Smoke Abatement) Act, 1926. One new smoke-preventing apparatus has been installed in a factory the chimney of which, for some time, had been a source of concern to the Department. From careful observation since the installation it appears to fulfill all that is claimed for it.

The following table gives details as to smoke inspection :—

No. of chimneys watched.	No. of observations made.	No. of chimneys from which black smoke issued in such quantity as to be a nuisance.	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	
96	520	9	10	38*	1	..

* Includes communications sent in respect of excessive " medium " smoke.

Atmospheric Pollution Records.—Three observation stations, under the immediate control of the City Analyst, are placed—one in Westgate Cemetery, one in the grounds of the Moor Hospital, and one in St. Lawrence area, in connection with similar stations in other towns, the monthly results from all of which are compared and published by the Department of Scientific and Industrial Research.

Owing to the ground at St. Lawrence being required for Quay extensions, the gauge there was removed in October to a position at the Water Company's reservoir, Byker Village.

The monthly readings from the Newcastle stations are appended :—

ATMOSPHERIC POLLUTION.—NEWCASTLE RECORDS, 1931.

TOWN MOOR.

MONTH.	RAIN (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.	Sulphate as SO_4.
January .	56·8	0·03	0·34	0·82	1·48	2·16	4·83	0·98	0·48	0·07	1·18
February	41·2	0·14	1·31	1·51	1·39	1·97	6·32	0·94	0·41	0·07	1·12
March ...	36·9	0·16	0·81	2·27	1·26	2·66	7·16	1·04	0·75	0·07	1·25
April	88·0	0·10	0·87	1·50	1·05	3·00	6·52	0·97	0·88	0·10	1·16
May	90·9	0·14	2·06	2·58	1·82	2·91	9·51	1·25	0·51	0·09	1·51
June	120·7	0·07	2·36	2·09	2·17	3·86	10·55	1·49	0·43	0·09	1·79
July	127·8	0·01	1·53	1·41	2·56	2·30	7·81	1·05	0·23	0·07	1·26
August ..	139·2	0·16	0·61	1·18	2·23	2·50	6·68	0·95	0·60	0·07	1·14
Sept.	85·2	0·04	0·81	1·53	1·02	2·73	6·13	0·88	0·72	0·06	1·05
Oct.	35·5	0·03	0·77	1·33	1·14	2·20	5·47	0·85	0·33	0·01	1·02
Nov.	76·7	0·14	1·14	1·65	2·44	3·38	8·75	1·99	0·27	0·04	2·39
Dec.	35·5	0·07	0·20	0·67	0·99	1·63	3·56	0·72	0·45	0·07	0·87
Total, 12 months .	934·4	1·09	12·81	18·54	19·55	31·30	83·29	13·11	6·06	0·81	15·74
Average per month	77·9	0·09	1·07	1·54	1·63	2·61	6·94	1·09	0·51	0·07	1·31

An average of 6·94 metric tons per square kilometre per month = 6·6 cwts. per acre per annum, or 213 tons per square mile per annum, as compared with 7·5 cwts. per acre, or 239 tons per square mile in 1930.

WESTGATE CEMETERY.

Month.	Rain (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.	Sulphate as SO_4.
January .	47·5	0·03	1·23	1·74	1·05	1·80	5·85	0·84	0·41	0·08	1·00
February	29·9	0·18	3·04	3·51	0·83	1·44	9·00	0·57	0·30	0·05	0·66
March ...	29·9	0·16	3·03	4·70	0·60	2·68	11·17	0·88	0·53	0·05	1·33
April	92·3	0·12	2·40	4·13	0·92	2·58	10·15	1·33	0·58	0·09	1·60
May	67·8	0·11	2·84	4·60	0·81	2·17	10·53	0·98	0·43	0·08	1·17
June ...	81·4	0·05	1·68	2·74	0·65	2·28	7·40	1·00	0·41	0·05	1·21
July	95·0	0·03	1·56	2·02	0·76	1·90	6·27	0·84	0·15	0·05	1·00
August ..	111·3	0·15	1·98	2·74	1·78	2·01	8·66	0·91	0·56	0·11	1·09
Sept.	57·0	0·12	1·48	2·55	0·92	2·39	7·46	0·62	0·45	0·04	0·75
Oct.	25·8	0·14	1·32	2·25	0·83	1·44	5·98	0·60	0·26	0·01	0·72
Nov.	61·1	0·12	2·10	2·37	0·98	2·44	8·01	1·00	0·26	0·05	1·21
Dec.	27·1	0·14	0·80	1·26	0·60	1·19	3·99	0·52	0·27	0·04	0·62
Total, 12 months .	726·1	1·35	23·46	34·61	10·73	24·32	94·47	10·09	4·61	0·70	12·36
Average per month	60·5	0·11	1·96	2·88	0·89	2·03	7·87	0·84	0·38	0·06	1·03

An average of 7·87 metric tons per square kilometre per month = 7·6 cwts. per acre per annum, or 242 tons per square mile per annum, as compared with 11·1 cwts. per acre, or 354 tons per square mile in 1930.

ST. LAWRENCE.

Month.	Rain (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.	Sulphate as SO_4.
January .	52·1	0·03	1·61	2·86	0·31	1·36	6·17	1·00	0·56	0·08	1·20
February	41·7	0·08	1·83	2·55	1·17	2·75	8·38	1·12	0·57	0·08	1·34
March ...	36·5	0·10	1·55	4·33	1·46	3·93	11·37	1·46	0·91	0 05	1·74
April	78·1	0·29	1·21	3·20	1·87	4·22	10·79	1·72	0·83	0·10	2 06
May	69·0	0·09	1·11	3·31	1·52	2·62	8·65	1·13	0·39	0·07	1·35
June	79·4	0·12	1·51	3·06	0·79	4·77	10·25	1·42	0·56	0·05	1 70
July	92·4	0·03	0·99	4·07	1 30	3 14	9·53	1·28	0·30	0·05	1·54
August ..	65·1	0·10	0·78	2·87	1·30	2·08	7·13	1·03	0·36	0·05	1·24
Sept.	67·7	0·12	2·08	3·28	2·30	3·66	11·44	1·30	0·77	0·03	1·56
Oct.	23·4	0·13	1·80	2·94	1·54	2·16	8·57	1·03	0·51	0·01	1·24
*Nov.	53·4	0·08	1·02	1·61	1·39	1·81	5·91	0·95	0·30	0·04	1·15
Dec.	22·1	0·09	0·73	1·31	0·94	1·81	4·88	0·73	0·51	0·04	0·87
Total 12 months .	680·9	1 26	16·22	35·39	15·89	34·31	103·07	14·17	6·57	0·65	16·99
Average per month	56·7	0·11	1·35	2·95	1·32	2·86	8·59	1·18	0·55	0·05	1·42

* This gauge was removed to Byker Reservoir on 1st November.

An average of 8·59 metric tons per square kilometre per month = 8·2 cwts. per acre per annum, or 264 tons per square mile per annum, as compared with 11·3 cwts. per acre, or 360 tons per square mile in 1930.

TOTAL IN THREE GAUGES IN THE CITY.

Month.	Rain (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.	Sulphate as SO_4.
Total, 12 months .	2341·4	3·70	52·49	88·54	46·17	89·93	280·83	37·37	17·24	2·16	45·09
Average per month	195·1	0·31	4·37	7·38	3·85	7·49	23·40	3·11	1·44	0·18	3·76
Average per gauge 12 months	780·5	1·23	17·50	29·51	15·39	29·98	93·61	12·46	5·75	0·72	15·03
Average per gauge per month	65·0	0·10	1·46	2·46	1·28	2·50	7·80	1·04	0·48	0·06	1·25

An average of 7·8 metric tons per square kilometre per month = 7·5 cwts. per acre per annum, or 240 tons per square mile per annum, as compared with 9·9 cwts. per acre, or 318 tons per square mile in 1930.

For comparison with the foregoing, the following returns of sunshine recorded at the Armstrong College, Newcastle, and at Cockle Park, near Morpeth (about 15 miles from the City), are given :—

Month.	Armstrong College. Sunshine (hours).	Cockle Park. Sunshine (hours).
January	40·7	83·8
February	58·9	62·7
March	110·3	130·3
April	109·7	129·4
May	172·2	185·9
June	148·9	139·3
July	89·9	87·9
August	136·7	141·2
September	73·3	91·4
October	125·9	142·4
November	36·4	48·7
December	38·9	53·8
Total for year	1141·8	1296·8
Average per month	95·1	108·1

CINEMAS, THEATRES, AND OTHER PLACES OF PUBLIC ENTERTAINMENT.

Nine applications for certificates of sanitation, which are required by the Licensing Justices before a licence is granted or renewed, were considered. Of these eight were granted and one refused.

The number of places so certified now totals seven theatres and music halls, 30 cinemas, and 103 other places such as dance and concert halls, billiard rooms, cafés, etc.

145 visits were made during both the day and evening, to inspect the sanitary arrangements and dressing rooms. Little or no cause of complaint was found.

The testing of the air and ventilation systems has again been systematically carried out. Every cinema, music hall and theatre was tested with the "Kata"

apparatus. In some cases as many as five separate tests were made in various parts of the halls. The total number was 86, carried out in 40 different premises. The tests revealed only a slight improvement upon those made in 1930, for in that year 28 fulfilled the conditions for first class halls. This year only one can be added to that category, giving a total of 29 first class and 7 second class. This, however, shows a great improvement since this work was commenced in 1925, for at that time there were three classes—16 first class, 10 second class, and 11 third class. The last has now been entirely eliminated.

In addition to the cinemas, etc., four tests were made in four classrooms at the Rutherford College, and in each case the results were satisfactory.

OFFENSIVE TRADES.

Fried Fish Shops still predominate in the registered offensive trades, as they do in all large towns. At present there are 156, a decrease of 2 as compared with 1930. This gives one such business to every 1,818 head of population in the city. They were regularly visited, both by day and night. In three cases it was necessary to serve notices to carry out minor alterations or improvements. All were duly complied with, without any necessity for further action. With these exceptions, the businesses in question were conducted in a very satisfactory manner.

21 applications were received for permission to establish trades of this description during the year. Of that number six were granted and 15 refused, the proposed premises not being up to the standard required in this city.

Other Trades.—The total number of offensive trades now carried on in the City is 192.

This represents a decrease of 2 rag and bone dealers, 1 fat melter or extractor, 1 bone boiler, and 2 fish fryers, and an increase of 2 gut scrapers.

The number now on the register is :—

Rag and Bone Dealers	12
Dealers in Hides and Skins	4
Dealers in Blood or other putrescible animal products	1
Fat Melters or Extractors	2
Glue and Size Makers	2
Gut Scrapers	3
Fish Fryers	156
Bone Boilers	4
Soap Boilers	1
Tripe Boilers	7

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES WERE SERVED DURING 1931.

Foul pail-closets (to replace with water-closets)	120
Defective waste water-closets (to replace with fresh water-closets with flushing cisterns, etc.)	6
Foul or defective ashpits not connected with privies (to remove and provide dust bins)	47
Insufficient water-closet accommodation (additional water-closets ordered)	10
Defective or insufficient dust bins (for houses)	1,518
,, ,, (for business premises)	23
Defective water-closets	844
Water-closets without adequate water supply	80
Choked water-closets (mostly served on tenants)	25
Dirty water-closets (all served on tenants)	43
Defective drains (to repair, or construct new drains)	182
Insufficient means of drainage	4
Choked drains, etc.	382
Defective, want of, or choked sinks, waste pipes, etc	264
Defective or choked soil-pipes, vent shafts, etc.	35
Sink waste-pipes not trapped	25
Want of or defective pavement in yards, passages, etc.	321
Dirty rooms	49
Dirty bedding	1
Damp rooms	288
Overcrowding	12
Dirty yards, passages, stairs, etc.	146
Animals, pigeons, and fowls improperly kept	25
Offensive accumulations	97
Accumulations of manure	15
Want of or defective manure pits	9
Broken roofs and want of or defective or choked spouting	1,336
Want of water (other than in tenements—see below)	114
Smoke nuisances	9
Smoke and grit emitted from chimneys	2
Want of proper ventilation to rooms (including to floor space), broken window cords, etc.	575
Rooms, etc., inadequately lighted	6
Structural defects—internal and external—(broken plaster, floors, stairs, walls, fireplaces, etc.)	3,344
Cisterns supplying water to sinks, etc., dirty or defective	7
Filth thrown on yards, streets, etc.	3
Stables (unsuitable, defective, etc.)	3
Food manufactured or stored for sale under improper conditions	18
Bakehouses—Dirty, etc.	82
Ice Creameries—	
Want of Cleansing, etc.	3
No name and address on barrows	3
Council (and other) Schools—Spouting defective	1
Cellar dwellings illegally occupied	1
Fried fish shops—(Defects and contraventions)	3
Tenements—Limewashing not done	30
No adequate accommodation for washing of clothes	276
,, ,, storage of food	1,435
,, ,, preparation and cooking of food	229
Water supply and sinks not adequate, conveniently accessible, etc.	692
Water supply (only) not adequate, conveniently accessible, etc.	60
Insufficient number of water-closets provided	75

SUMMARY OF NUISANCES, ETC.—*Continued*

Tenements—continued.		
Inadequate lighting of common staircases—Natural	141	542
Artificial	401	
Staircases without proper handrails, etc.		161
Houses converted to "tenements" without the Byelaws being complied with		5
Cinemas—Temperature excessive		3
Other defects and contraventions		2
Name and address of landlord and of Medical Officer of Health not inscribed upon tenants' rent books		4
Tents, vans, sheds, and similar structures (defects and contraventions of the Byelaws)		3
Unclassified minor nuisances		179
TOTAL		13,777

DETAILS RELATING TO CERTAIN WORKS CARRIED OUT IN THE ABATEMENT OF NUISANCES AND TO INSPECTIONS MADE DURING 1931.

Length (in yards) of old drains removed	1,138
Length (in yards) of new drains constructed	2,762
New trapped gullies provided to drains	440
"Cell" privies removed (in Walker)	4
Pail-closets removed	201
Defective water-closets removed	55
Water-closets provided (in place of the foregoing privies and defective water-closets removed, also in 73 cases where the accommodation was previously insufficient)	331
Dry ash-pits removed and replaced by galvanised iron dust bins	43
Dust bins substituted for dry ash-pits where water-closets existed, and provided in cases where privies have been replaced by water-closets	*281
No. of drains tested	743
No. of tests of above drains made by smoke and water	768
No. of inspections from complaints made at office (verbally or by letter)	3,785
No. of tenement inspections made	15,113
No. of contraventions of Tenement Bye-laws for which notices have been served to obtain remedy	6,208
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	5,257
Inspections to learn if works ordered were in progress	18,122
Supervisions of work in progress	8,016
Common yards and courts in the worst localities specially visited on Friday afternoons and Saturday mornings to obtain weekly cleansing	21,996
Inspections after infectious disease	1,158
Inspections of milk shops and ice creameries (including retail shops)	1,558
,, bakehouses	†1,670
,, offensive trades	1,466
,, wholesale margarine warehouses	62
,, as to limewashing of tenements	2,464
,, of schools	129
,, under Housing Act	2,472
Inspection of cinemas, etc. (day visits, 94 ; night visits, 51)	145
Tents, vans, sheds and similar structures	216
Miscellaneous visits	8,694

* Dust bins supplied free by Corporation.

† Including 1,129 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 1931.

NATURE OF COMPLAINT.	No of Cases.	Work done and Nuisances abated without the Summonses being applied for.	Summonses issued.	
			Work done and Summonses withdrawn.	Other Results.
Public Health Acts :—				
Roofs and spouting defective.....	25	21	2	In two instances owners fined 20/–
Yard pavements defective .	9	8	1	
Dampness (in room, staircases, etc.)	4	4	..	
Inadequate ventilation of rooms, staircases, etc. (broken sash-cords, etc.) .	2	2	..	
Structural defects (fireplaces, walls, wall and ceiling-plaster, floors, scullery bench, etc.) ...	12	9	2	In one instance owner fined 20/–
Sink waste-pipes defective .	2	1	1	
Drains obstructed	2	1	1	
Accumulations of refuse ..	2	1	..	In one case owner fined 20/–
Public Health Act, 1875, *Section* 36, *and Newcastle upon Tyne Improvement Act*, 1892, *Section* 53 :—				
Foul privies (to be replaced by waterclosets)	46	46	..	
Foul ashpits (to be replaced by portable dustbins)	3	3	..	
Water-closets defective, without adequate water flush, etc.	8	5	3	
Public Health Acts Amendments Act, 1890, *Section* 22 :—				
Insufficient water-closet accommodation for use of persons employed.....	2	2	..	
Newcastle upon Tyne Corporation Act, 1911, *Section* 55 :—				
Want of or defective dustbins for house refuse ...	15	11	3	In one case owner fined 20/–
Carried forward .	132	114	13	5

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC., DURING THE YEAR 1931.—*continued.*

NATURE OF COMPLAINT.	No. of Cases.	Work done and Nuisances abated without the Summonses being applied for.	Summonses Issued.	
			Work done and Summonses withdrawn.	Other Results.
Brought forward	132	114	13	5
Newcastle upon Tyne Improvement Act, 1892, *Section* 39 :—				
Paving of passageway defective	1	..	1	
Newcastle upon Tyne Corporation Act, 1926, *Section* 33 :—				
Living vans placed and kept on land without the approval of the Corporation	4	..	..	Occupiers fined 2/6 (three cases) and 10/- (one case).
Byelaws with respect to Tenemented Houses :—				
Water-closet accommodation insufficient (No. 8).	4	4	..	
Yard in dirty condition (No. 9)	1	1	..	
W.C. structure, apparatus, etc., not maintained in good order (No. 11).....	4	2	1	In one instance owner fined 20/-
Common staircase not kept in proper repair (No. 18a)	4	3	1	
Common staircases without adequate means of :—				
(*a*) Natural light (No. 18b)	2	1	1	
(*b*) Artificial light (No. 18c.)	14	12	2	
Means provided for the artificial lighting of common staircases not kept efficient and lighted at all times when necessary (No. 19)	2	1	..	In one instance owner fined 40/-
Staircases without sufficient handrails (No. 20)..	3	2	..	In one instance owner fined 20/-
Carried forward	171	140	19	12

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC., DURING THE YEAR 1931.—*continued.*

NATURE OF COMPLAINT.	No. of Cases.	Work done and Nuisances abated without the Summonses being applied for.	Summonses Issued.	
			Work done and Summonses withdrawn.	Other Results.
Brought forward	171	140	19	12
Byelaws with respect to Tenemented Houses—continued :—				
Fowls improperly kept (No. 24)	1	1	..	
Rooms inadequately ventilated (window sash-cords broken, etc.) (No. 26c.)	6	6	..	
Limewashing of yards, passages, staircases, etc. (No. 28a)	2	2	..	
Yard pavement defective (No. 28c).....	7	6	1	
Water supplies and sinks inadequate; not conveniently accessible, etc. (No. 28d)	9	8	1	
Inadequate accommodation for—				
(*a*) Washing of Clothes (No. 28f.i.)	10	7	2	In one instance owner fined 20/–
(*b*) Storage of food (No. 28f.ii.)	9	5	4	
(*c*) Preparation and cooking of food (No. 28f.iii.)	7	4	2	In one instance owner fined 20/–
Houses not throughout of adequate stability (structural defects, including floors, plaster, etc.) (No. 28g.)	5	5	..	
Totals	227	184	29	14

Total amount of Penalties—£11 17s. 6d.

HOUSING.

That the problem of finding houses is little 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., 1918	Nov., 1922	Nov., 1925	Nov., 1926	Nov., 1927	Nov., 1928	Nov., 1929	Nov., 1930	May, 1932
elf-contained	306	137	29	93	105	179	215	222	205	182	147
lats (each Flat counted as a separate dwelling).	903	75	..	35	15	41	55	34	52	21	20
ouse and Shop combined.....	68	29	2	9	6	27	18	28	20	42	45
enemented Houses	28	3	..	..	..	1	..	..	..	8	..
Total	1,305	244	31	137	126	248	288	284	277	253	212

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 death rates from all causes are high in Elswick Ward (18·2), St. Andrew's (17·3), All Saints' (16·8), St. John's (16·7), and low in St. Thomas' (9·9), Fenham (8·4), Dene (9·6), which occupy respectively also opposite ends of the scale in regard to quality of housing and density of population (see tables on pages 51 and 58).

Similarly infantile mortality generally follows the same rule, and the wards with the highest wastage of child life are again among the most crowded. Thus Stephenson Ward has an infantile rate of 130 deaths per 1,000 births, St. Nicholas', 130, St. Andrew's, 119, and St. Anthony's, 118, as compared with rates of 10 and 43 in Jesmond and Dene Wards respectively. Over a period of twenty-three years, the deaths per 1,000 births in one room, two room, and three room houses have been respectively 126, 113, and 94, and in the year under report were 138, 104, and 80.

In the case of tuberculosis one sees again the influence of congestion and bad houses in the fact that the highest mortalities for the year were in St. John's (2·15), All Saints' (2·13), St. Anthony's (2·08), Byker (2·05), while the lowest occurred in Dene (0·69), Arthur's Hill (0·87), and Jesmond (0·91). The tuberculosis death rate for the whole City in 1931 was 1·40 per 1,000 population. Again, about 34 per cent. of the population live in one and two room houses, yet over 40 per cent. of the deaths from consumption were among these.

The Housing Acts, 1925 and 1930.

During the year 2,472 inspections were made under these Acts. Difficulty is still experienced in obtaining compliance with notices. A great impetus would be given to this work if the Committee in some cases carried out the necessary repairs in default of the owner, as provided for by the Act. If housing conditions were normal, and closing orders could be made in some cases, it would no doubt have a most salutary effect in inducing owners to keep their houses in a reasonable state of repair.

Housing.

MINISTRY OF HEALTH TABLE.

1.—*Inspection of Dwelling Houses during the Year :—*	
(1) (*a*) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	4,626
(*b*) Number of inspections made for the purpose	8,224
(2) (*a*) Number of dwelling-houses (included under sub-head (1) above) which were inspected and recorded under the Housing Consolidated Regulations, 1925	1,308
(*b*) Number of inspections made for the purpose	2,472
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	*595
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation	2,401
*(*Dealt with as Clearance Areas* (*see page* 282)).	
2.—*Remedy of Defects during the year without Service of formal Notices :—*	
Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers	308
3.—*Action under Statutory Powers during the Year :—*	
A.—Proceedings under Sections 17, 18, and 23 of the Housing Act, 1930—	
(1) Number of dwelling-houses in respect of which notices were served requiring repairs	957
(2) Number of dwelling-houses which were rendered fit after service of formal notices :—	
(*a*) By owners	919
(*b*) By Local Authority in default of owners	..
B.—Proceedings under Public Health Acts :—	
(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	1,136
(2) Number of dwelling-houses in which defects were remedied after service of formal notices :—	
(*a*) By owners	1,101
(*b*) By Local Authority in default of owners	..
C.—Proceedings under Sections 19 and 21 of the Housing Act, 1930 :—	
(1) Number of dwelling-houses in respect of which Demolition Orders were made	..
(2) Number of dwelling-houses demolished in pursuance of Demolition Orders	..
D.—Proceedings under Section 20 of the Housing Act, 1930 :—	
(1) Number of separate tenements or underground rooms in respect of which Closing Orders were made	..
(2) Number of separate tenements or underground rooms in respect of which Closing Orders were determined, the tenement or room having been rendered fit	..

HOUSING—MINISTRY OF HEALTH TABLE—*Continued.*

E.—Proceedings under Section 3 of the Housing Act, 1925 :—	
(1) Number of dwelling-houses in respect of which notices were served requiring repairs	..
(2) Number of dwelling-houses which were rendered fit after service of formal notices :—	
(*a*) By owners	..
(*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	..
F.—Proceedings under Sections 11, 14, and 15 of the Housing Act, 1925 :—	
(1) Number of dwelling-houses in respect of which Closing Orders were made	..
(2) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	
(3) Number of dwelling-houses in respect of which Demolition Orders were made	..
(4) Number of dwelling-houses demolished in pursuance of Demolition Orders	..

Clearance Areas and Improvement Schemes.

In October the Ministry of Health held a local inquiry into a representation as to five slum areas, which were as follows :—

AREA.	Number of		Population.
	Houses.	Dwellings.	
Elswick East Terrace and Back George Street	100	205	852
Dunn's Cottages	8	8	34
St. Peter's	139	228	937
Cut Bank—No. 1 Area	54	147	533
,, No. 2 Area	3	7	32
Total	304	595	2,388

The inquiry was attended by a large number of owners house agents, solicitors and architects, and there was strong opposition to the action of the Council.

Elswick East Terrace, Back George Street, and Dunn's Cottages were originally included as one area, but on the suggestion of the Ministry of Health, they were formed into two separate Schemes : (1) Elswick East Terrace and Back George Street

Clearance Area, and (2) Dunn's Cottages Clearance Area, and dealt with under the Housing Act 1930. The method of procedure was by the definition and declaration of a clearance area under Section 1 of the Act, followed by an Order for the compulsory acquisition of all the land in the areas. The Dunn's Cottages Scheme was approved in April, 1932. With regard to Elswick East Terrace, however, the Minister made certain modifications in the scheme, and these, it was suggested, would so increase the cost of the acquisition of the site as to render the cost of re-housing prohibitive. In view of this, the idea of acquiring the site by compulsory purchase was abandoned, and it was decided to take fresh proceedings for a demolition order.

Another representation was made, and a further inquiry took place in May, 1932. The approval, or otherwise, of Back George Street and Elswick East Terrace is not yet to hand.

General Description of the Areas.

Elswick East Terrace and Back George Street.—This area consists of 100 houses, occupied by 205 separate families, with a total population of 852 persons. It is situated between George Street and Rye Hill.

The houses are congested and overcrowded on space, and in many cases surrounded by higher buildings, which prevent the free access of light and air.

The structures are generally of brickwork, although some are of stone. They are in a poor state of repair, with wall and ceiling plaster sagging and broken, woodwork of doors, windows and floors dilapidated, while the sanitary accommodation and water supply in many cases are not conveniently accessible to the occupiers.

Dampness is prevalent in a large number of the houses, especially in the ground floor rooms, which are provided with stone floors. It is also caused by defective roofs, spouts and windows. In many cases the stair-head windows and frames have fallen out, leaving only the opening.

Ventilation of the rooms is totally inadequate. Usually no washing accommodation or food storage is provided.

The displaced tenants from this area will be re-housed on the Ferguson's Lane Estate, consisting of 108 four-room houses, 30 three-room houses, 40 three-room flats, 16 two-room flats.

Dunn's Cottages.—This is a small triangular-shaped area, between Elswick East Terrace and Rye Hill, and consists of eight houses, (one of which, owing to its dilapidated condition, was voluntarily closed some time ago by the owner). The number of separate families is eight, with a total population of 34 persons. The block is surrounded by two narrow, badly-paved, and generally dirty back lanes.

The houses themselves are of the back-to-back type. They are all in a most dilapidated condition. The roofs are sagging, the spouts decayed or missing; floors, where of stone, are damp, uneven and broken, and those of wood are worn, holed, and patched.

The lighting is inadequate, owing to surrounding high buildings, and the ventilation very bad indeed, as, owing to the houses being back to back, there is no through current of air.

There are only two water closets for the 34 persons. They are situated in a dark, narrow passage, each end of which is open to the street, and are accessible to the public, with the result that they are generally in a filthy state. Owing to the absence of yard space, there is no available room for additional accommodation.

No accommodation for washing, food storage, or cooking is provided. The water supply is obtained from a tap, discharging over a gully, which is fixed in each living room.

The displaced tenants will be re-housed at Ferguson's Lane Estate in two four-roomed and six three-roomed houses.

This order was confirmed by the Minister of Health without modification on April 15th, 1932.

St. Peter's Area.—This area contains 139 houses, occupied by 228 separate families, with a total population of 937 persons.

It is a compact area, rectangular in shape, bounded on the north by St. Lawrence Road, on the south by Bottlehouse Street and the River Tyne, on the east by Hawthorn, Leslie & Co.'s Shipyard, and on the west by Glasshouse Street.

None of the houses can be said to conform to the standard of fitness suggested by the Ministry of Health. There are no back streets, the houses being practically "back-to-back," with the exception that there are small yards, which are entered through narrow passages from the main street. The tenants have thus to come into the street for access to the sanitary conveniences, water supply, and drainage.

The houses are more or less dilapidated, built of stone, which is badly perished and open-jointed. The roofs are of pantiles, which are not watertight, and complaints of rain entering the rooms are frequent. In the majority of cases the roof timbers are decayed.

Dampness is prevalent in the floors and walls, owing to the absence or defective condition of damp-proof courses.

As a rule, both the lighting and ventilation (owing to the narrowness of the streets, and small open space at the rear) are most inadequate. Many of the rooms are of the " well " type.

In many cases where the drains have been opened for repairs, or clearance, they are found to be of brick or stone in a most defective condition, and in some instances they pass under the houses to the sewers in front.

Although the majority of the houses are provided with water-closets, there are still about 60 pail-closets remaining. These are emptied by carrying the pails through the passages.

There are no water taps or sinks inside the houses, the supply being in the yard, and often at a considerable distance.

The yards are usually paved with bricks, badly broken, with open joints, but in many cases partly unpaved. The woodwork of the floors, stairs, doors, and windows is broken and warped. The plaster of the ceilings and walls is cracked and sagging.

Food storage accommodation is most inadequate. Generally the food is kept in a cupboard adjoining the fireplace, without any ventilation to the outer air.

Cooking accommodation, in most cases, is provided by penny-in-the-slot gas cookers, hired from the Gas Company by the tenants, owing to the stoves or ranges being defective.

No washhouses are provided. Washing is therefore done in the rooms or in the yards or front street.

87 per cent. of the rooms were found to be overcrowded.

The displaced tenants from this area will be re-housed on the St. Anthony's Estate, Walker Road, in 20 two-room flats, 63 three-room houses, and 129 four room-houses.

This area was approved by the Minister of Health, with slight modifications, on April 15th, 1932.

Cut Bank No. 1 Area.—This area comprises 54 tenemented houses, occupied by 147 separate families, with a total population of 533 persons. It contains three main streets—Cut Bank, Ouse Street, and Lime Street, and is bounded on the east by the Ouseburn, on the north by Byker Bridge, on the south by Cut Bank, and on the west by Tarset Street. In addition to the occupied houses there are several derelict buildings.

The houses themselves, more especially those in Ouse Street, are dilapidated, badly planned, and neglected. In Cut Bank and Lime Street there are only one or two houses in a reasonable state of repair, the remainder being quite unfit for habitation.

There are no back streets, the yards being entered through passages at the sides of the houses. The structures are of stone or bricks, badly perished, with open joints, and in various stages of decay. Dampness is prevalent in the floors and walls of the ground floor rooms.

The front rooms are fairly well lighted, but many of those at the rear are dark and badly ventilated.

There being no back street, the drainage passes under the houses. When repairs have been necessary it is generally found in a most defective condition, and constructed of bricks or stones.

Although water closets are provided to all the houses, chokages are frequent—generally from defective construction of the drains.

The water supplies are from taps in the yards. The distance of the taps from the houses varies, but in no case are they conveniently accessible.

The surfaces of the yards are in bad condition, while the interiors of the houses are very dilapidated—ceiling and wall-plaster being perished and broken, as is the woodwork of doors, window frames, floors, etc.

No properly ventilated food stores are provided, except in two houses. Cooking is done by gas-cookers, owing to the defective condition of the ranges.

No accommodation for washing clothes is provided, washing being generally done in the houses, yards or passages.

No notices under the Tenement Byelaws have been served, as it was found that in about 60 per cent. of the houses they could not be complied with, owing to the defective condition and bad planning of the buildings.

The displaced tenants will be re-housed on St. Anthony's Estate in 52 three-roomed and 65 four-roomed houses.

This order was also confirmed by the Minister of Health, without modification, on April 15th, 1932.

Cut Bank No. 2 Area.—This area consists of three tenemented houses, occupied by seven separate families, with a total population of 32 persons.

The houses are old brick structures, roofs partly tiled and partly slated, in very poor condition—one house being shored up.

Dampness is found in many of the ground floor rooms; in two of the houses the yard level is considerably above the floor of two holdings. Lighting and ventilation are fair in the front rooms, but poor in the back. Only two water closetss are provided for the seven tenants, or 32 persons.

There are no inside water taps, one being provided in the yard an average distance of 50 feet from the houses.

The houses are neglected and out of repair, the woodwork of the doors, windows, and floors being warped and broken, and the plaster work cracked and sagging.

No properly ventilated food storage is provided in any of the holdings. That existing is of a most unsatisfactory nature.

Gas cookers are in general use, owing to the unsatisfactory condition of the fireplaces.

The tenants generally wash in their rooms, or in the yard and passages.

A large yard is provided at the rear of the three houses, and is used in common by all the tenants. It is open to the public street. The surface is partly earth and partly cement concrete, in a defective condition.

The displaced tenants from this area will be re-housed on the St. Anthony's Estate, Walker Road, in 3 three-roomed houses and 4 four-roomed houses.

This order was confirmed, with slight modifications, by the Minister of Health, on May 19th, 1932.

Excessive Rents of De-Controlled Houses.—The fact of excessive rents being charged for de-controlled houses has been known to the Health Department for many years. It was not, however, until October last that a special committee as to rentals was appointed by the Council, when it was resolved that the Health Committee be requested to report to that Committee any cases brought to their notice where it was considered exorbitant rents were being charged. No standard was fixed, but it was decided that anything above 5/– for a single room and 7/6 for two rooms be reported to the Committee. In many instances this resulted in owners or agents being obliged to comply with the requirements of the law as to increase of rent.

Some outstanding cases were found, of which the following, taken at random, are typical of many more :—

1 room	13/1½	per week	.... Pre-war	4/–	per week.
1 ,,	7/2	,,	,,	2/9	,,
1 ,,	7/–	,,	,,	2/3	,,
2 rooms	20/–	,,	,,	8/6	,,
2 attics	6/–	,,	,,	1/6	,,
4 rooms	20/6	,,	,,	10/2	,,
3 ,,	21/6	,,	,,	6/9	,,

Charges of 7/– to 10/– a week for single rooms, designated as " furnished," are common.

It was also found that the owners or agents who were charging these rents were often the most reluctant to carry out repairs or to comply with the requirements of the Byelaws as ordered by the Health Department.

Houses Demolished, etc.—Apart from action by the Health Committee, 29 tenemented houses (of 68 holdings), 12 flats, and 13 self-contained houses have been demolished, or have ceased to be used as dwellings, for various reasons (dilapidations, street improvements, conversion to business premises, etc.)

Houses built during the Year 1931.—The City Engineer reports that there were 528 self-contained houses, and 20 houses in flats, built privately during the year under report. In addition, 843 dwellings were provided under housing schemes.

Tents, Vans, Sheds and Similar Structures.

Of the 112 occupied living vans in the City in 1924, only three remained at the end of 1931. These are located in Bunton's Yard and Jane Pit Yard, Walker. The occupiers have been frequently before the Magistrates, who, after listening to the accounts of the defendants as to the difficulty of obtaining other accommodation, etc., admonish them and further adjourn the cases.

Four applications for permission to place or keep vans on land within the City, as required by Section 33 of the Newcastle Corporation Act, 1926, were received, and were in every case rejected.

Tenemented Houses.

The number of tenemented houses in the City is 3,554, containing 10,230 holdings, as follows :—

1 Room.	2 Rooms.	3 Rooms.	4 Rooms.	5 Rooms.	Total.
3,219	5,789	1,103	117	2	10,230

During the year 15,113 inspections of tenemented holdings were made.

Tenement Byelaws.

In addition to the unhealthy areas, 566 houses, comprising 1,603 separate holdings, were inspected and reported upon in detail during the year. Although owners and agents are showing more willingness to comply with notices served under the byelaws, it was found

necessary to report for legal proceedings in 90 (as against 88 in 1930) cases; 16 for non-compliance with the most difficult byelaws to work, viz., those requiring the provision and maintenance of artificial light on common staircases. The total amount of fines only amounted to £11 17s. 6d., the greatest amount of work being carried out after the summonses were served, when they were withdrawn on payment of costs. In other instances the work was done on the owners being notified that legal proceedings were ordered. In some cases compliance with the byelaws is utilised as an excuse for raising the rent, a practice which ought to be stopped, as it is the Local Authority, and not the tenants, who are responsible for the expenses incurred in complying with the byelaws.

Towards the end of the year some amount of prominence was given in the local press to the closely related questions of the conversion of large self-contained houses, especially in the West end of the City, into tenements, and the exorbitant rents charged for such accommodation. In regard to the first of these questions, it should be pointed out that there is no compulsion on an owner or tenant to notify the Local Authority before a house is so converted, and it is sometimes difficult to judge by outside appearances when the change takes place. As soon as the Department becomes aware of this, the Tenement Byelaws are put into force.

So far as rent is concerned, as stated previously the rents demanded and paid are in many cases out of all proportion to the accommodation provided, more especially when the houses are occupied by unemployed persons, whose only source of income is from

Unemployment Insurance or Public Assistance allowances. After paying rent there is often very little left with which to provide food and clothing and the other necessaries of life.

A house-to-house inspection of the whole of one street was carried out. These houses, up to a few years ago, were occupied by prosperous tradesmen, but owing to various causes, the majority have now removed, their places being taken by people who occupy perhaps one or two rooms, and sub-let the remainder, or convert the house into a tenement. All of the houses in this street (143) were visited. Of that number, 30 were already known to be tenements, 85 were occupied by one family or taking in boarders, and 28 were found to be tenements not known to the Health Department. Notices to comply with the Byelaws were served in respect of the latter.

New Buildings and Sanitary Alterations.—422 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 384 during the previous year.

Common Lodging Houses.

The number of houses in the City is 34, as compared with 36 in 1930. Three were voluntarily closed and removed from the register. One application was received for the registration of a new house and was granted. Registration was transferred to new keepers in two instances.

Of the three houses closed, one (No. 43, Sandhill) was so old, ill-adapted for the purpose, and dilapidated, that the keeper and owner were informed that as the house was not in accordance with present-day requirements, it would be reported to the Health Committee with a view to its closure. This resulted in the keeper vacating the premises, and they were eventually removed from the Register.

In another case (No. 89, Percy Street) the lower portion of the premises having been altered by converting the yard into a workshop, the keeper removed to other premises. Further alterations have since been made to the house, and it is no longer used as a common lodging house.

As will be seen from the summary, lodging houses for men only are greatly in the majority. There is need of a good house for women, for there is now only one of this class in the City.

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	64	10	10	64	..	84
Women only	1	18	..	..	18	..	18
Men only	31	1003	..	..	..	1003	1003
TOTAL.....	34	1085	10	10 (20 persons)	82	1003	1105

The total number of lodgers for which the houses are registered is 1,105, as compared with 1,179 at the end of 1930, showing a decrease of 74 in the total accommodation, due to the removal of three houses, the addition of one, and a re-arrangement of beds in one of the existing houses.

The average number of lodgers per night was 679, the highest number being 716, and the lowest 650.

REGISTERED COMMON LODGING HOUSES.

SUMMARY OF WORK DONE AND VISITS MADE DURING THE YEAR 1931.

Number of Houses on the register at the end of the year	34
Applications for registration (Newcastle Corporation Act, 1911, Sec. 63); all granted	37
Houses added to the Register	1
Houses ceased to be occupied as common lodging houses	3
Inspections made in the day-time	4,077
Inspections made in the night-time	126
Notices served { *re* washing of bed clothes, 140 / *re* limewashing of houses, 70 }	210
Contraventions of Bye-laws, etc. :—	
Structural defects in houses	9
Defective water-closets	5
Defective roofs and defective or choked spouting	12
Choked W.C.'s and drains	22
W.C.'s without water	1
Dust bins defective or insufficient	5
Lack of efficient ventilation (broken sash-cords, etc.)	7
Sink wash-pipes choked and/or defective	1
Defective yard pavement	1
Bedding defective	1
Rooms not swept	1
Unclassified minor nuisances	3
Deaths reported	3
Cases of infectious disease reported (measles 4, tuberculosis 9, erysipelas 1)	14

Factories and Workshops.

The inspection of these was well maintained during the year, 9,167 visits having been made. These included visits to workshops, "domestic" workshops, workplaces, laundries and bakehouses, and also to factories on receipt of complaint from H.M. Inspector. Generally speaking, their condition as regards sanitary accommodation, ventilation, cleanliness, water supply, and other matters of a hygienic nature is satisfactory.

During the year 48 lists of "outworkers" were received, 18 employers having sent in their lists twice, as required by the Factory and Workshop Act, 1901, and 12 employers only once. Included in the lists were 2 names and addresses of outworkers residing in other towns, and these, in accordance with the requirements of

the Act, were forwarded to the Local Authority of the district concerned. In 5 cases contraventions of the Act were found in the 51 outworkers' premises inspected.

41 notices as to insanitary conditions in factories and workshops were received from H.M. Inspector of Factories, 26 of which related to factories (which are not visited by the Inspectors of the Health Department except on receipt of a complaint from H.M. Inspector), and 15 to workshops, etc. Many of the latter, however, had been found and dealt with by the District Inspectors before the complaint was received. The others were dealt with and the necessary works carried out without having to resort to legal proceedings.

ADMINISTRATION OF THE FACTORY AND WORKSHOP ACT, 1901, IN CONNECTION WITH FACTORIES, WORKSHOPS AND WORKPLACES, DURING THE YEAR 1931.

Home Office Tables.

1.—INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS.

PREMISES. (1)	NUMBER OF		
	Inspections. (2)	Written Notices. (3)	Occupiers Prosecuted (4)
Factories (Including Factory Laundries.)	308	281	None
Workshops (Including Workshop Laundries.)	7,311		
Workplaces (Other than Outworkers' premises.)	1,548		
Total	9,167	281	..

2.—DEFECTS FOUND IN FACTORIES, WORKSHOPS AND WORKPLACES.

Particulars.	Number of Defects.			Number of Offences in respect to which Prosecutions were instituted.
	Found.	Remedied.	Referred to H.M. Inspector.	
(1)	(2)	(3)	(4)	(5)
*Nuisances under the Public Health Acts:—				
Want of cleanliness	249	249	..	..
Want of ventilation	5	5	..	..
Overcrowding	2	2	..	..
Want of drainage of floors	..	..	..	..
Other nuisances	56	55	..	..
Sanitary accommodation (insufficient	19	16	..	..
Sanitary accommodation (unsuitable or defective	111	109	..	..
Sanitary accommodation (not separate for sexes	5	5	..	..
Offences under the Factory and Workshop Acts—				
Illegal occupation of underground bakehouse (s. 101)	..	..	..	..
Other offences (Excluding offences relating to outwork and offences under the Sections mentioned in the Schedule to the Ministry of Health (Factories and Workshops Transfer of Powers) Order, 1921.)	..	..	5	..
Total	447	441	5	..

* Including those specified in sections 2, 3, 7 and 8 of the Factory and Workshop Act, 1901, as remediable under the Public Health Acts.

OUTWORK IN UNWHOLESOME PREMISES, Section 108.

Nature of Work.	Instances.	Notices served.	Prosecutions.
(1)	(2)	(3)	(4)
As per Home Office List	None	None	None

TRADES.

Particulars as to the number and nature of the various trades carried on in the workshops of the City:

Trades.	Work-shops.	Domestic Work-shops.	Work-places.
Athletic Outfitters, etc.	12	..	..
Bacon Curing, Pickles, etc.	51	1	2
Bags, Waterproofs, etc. (making and repairing)	19	2	2
*Bakehouses	299	..	..
Blacksmiths, Plumbers, etc.	122	..	2
Bouquets and Wreaths (making, etc.)	13	..	..
Boots, etc. (making and repairing)	134	25	..
Dressmaking, Underclothing, etc.	268	55	..
Drysalters, Cleaning & Packing Fruit, Tea, etc.	33	1	98
Furniture Making, Joiners, etc.	222	9	..
Harness, etc. (making and repairing)	25	..	..
Jewellery, Watches, etc. (making and repairing)	75	2	..
Laundries	19	..	..
Machines and Tools (making and repairing)	146	3	3
Painters, Engravers, Photographers, etc.	89	3	13
Restaurant Kitchens, etc.	..	..	114
Tailoring, Shirts, etc.	268	31	..
Miscellaneous	106	..	125
Totals	1,901	132	359

* Includes 43 " Factory " and 98 " Domestic " Bakehouses.

Inspection of Council and Other Schools.

During the year 129 inspections of schools were made and at only one was any defect found. When brought to the notice of the Education Authority this was duly remedied.

Rag Flock Acts.

There are no manufacturers of Rag Flock or persons solely dealing in that commodity, the principal users being upholsterers and bedding makers, who number 36. Six samples were taken, all of which were certified to conform to the standard of purity required by the Regulations. 72 visits were also made under the Factory and Workshop Act, 1901.

Exhumations.

During the year 4 exhumations were carried out under the supervision of the Health Department, all being authorised by Home Office licence. In each instance re-interment took place in the same cemetery. The operations were carried out in the early morning, and were conducted in a sanitary and reverent manner.

Fertilisers and Feeding Stuffs Act, 1926.

In pursuance of this Act, 75 visits have been made to factories, warehouses and retail shops where fertilisers or feeding stuffs are prepared or stored for sale, for the purpose of seeing that the requirements were carried out as to the marking of packages, inspection of registers, etc.

13 samples of fertilisers and 10 of feeding stuffs were obtained for analysis. Offences were disclosed in 10 cases. Each of these was met by a letter of caution.

Merchandise Marks Act, 1926.

In the administration of the above, 163 inspections and personal visits to shopkeepers, stall-holders, hawkers, etc., have been made where imported goods were not properly marked with the "indication of origin" required by the Act. A verbal caution was given in each case, together with a copy of a printed notice to traders (setting out the principal provisions of the Act). The issue of this notice proves to be useful and advantageous, generally resulting in future compliance with the requirements.

Agricultural Produce (Grading and Marking) Act, 1928.

65 inspections of markets, shops and stores were made as to the grading and marking of eggs. No contravention of the Regulations was found.

Changes in the Staff.

It is with great regret that the death of Inspector Thomas Heslop, which occurred on December 26th, after a short illness, has to be recorded. Joining the staff in 1913, he proved a most efficient officer, and one in whom entire confidence could be placed.

Two other members of the staff, Inspectors E. G. Wingate and J. H. McAdam, resigned their appointments during the year, having obtained posts at Slough and Bolton respectively.

These vacancies were filled by the appointment of Arthur Ibbitson, Austen C. Taylor, and Herbert W. Grieves.

In conclusion, I would place on record the loyal co-operation of the members of the staff, who have given of their best in the discharge of their various duties.

I am, Sir,

Your obedient servant,

C. Raimes,

Chief Sanitary Inspector,

Inspector of Common Lodging Houses, etc.

Health Department,

Town Hall,

18th June, 1932.