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FOURTH ANNUAL REPORT

BY THE
MEDICAL OFFICER OF HEALTH

ON THE
*Health and Sanitary Conditions of the
County of Aberdeen*

FOR THE YEAR

1928.

ABERDEEN:
PRINTED BY G. CORNWALL & SONS.

1929.



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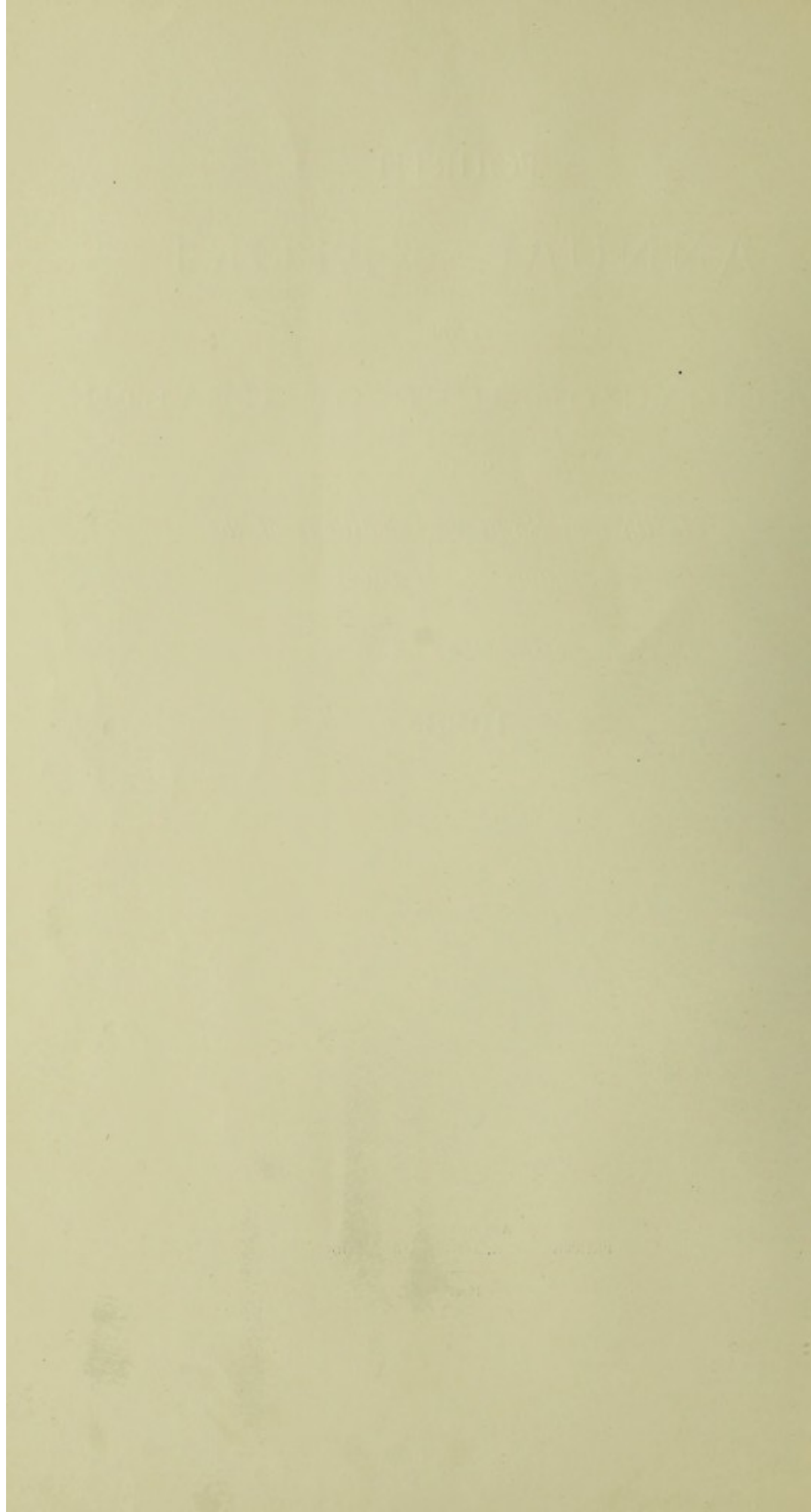
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STATISTICAL SUMMARY

(For the Districts and all the Burghs, unless otherwise stated).

	Districts.		Burghs.		Total.
1. Acreage,	1,251,735	...	3,917	...	1,255,652
2. Population, (As estimated to the middle of 1928.)	105,713	...	37,478	...	143,191
3. Density of population per acre,	.084	...	9.6	...	.114
4. Birth-rate, (Excluding Peterhead and Fraserburgh.)	21.9	...	20.5	...	21.7
5. Infantile Mortality, (Excluding Peterhead and Fraserburgh.)	64.6	...	55	...	63.5
6. Death-rate, (Excluding Peterhead.)	13.4	...	14.1	...	13.5

4, ALBYN PLACE,
ABERDEEN, 8th May, 1929.

*To the Department of Health for Scotland,
and to the
Members of the Joint Committee for Public Health Services
of the County of Aberdeen.*

MY LORDS, LADIES AND GENTLEMEN,

I submit herewith by Fourth Annual Report for the year ending 31st December, 1928, on the Health and Sanitary Conditions of the County of Aberdeen. There are also incorporated Reports by the County Veterinary Inspector on the operation of the Milk and Dairies (Scotland) Act, 1914, and by the County Bacteriologist. A synopsis of the work coming more directly under the supervision of the District Sanitary Inspectors is also included. The general public health of the Burghs is dealt with in a separate section.

The Joint Committee for Public Health Services consists of representatives from the County Council, the Education Authority and the Town Councils of the Burghs within the County. The services connected with tuberculosis, inspection and treatment of school children, venereal diseases and bacteriology are common to all the Districts and Burghs. The Scheme for Mother and Child Welfare embraces the whole County with the exception of Peterhead and Fraserburgh. As regards general public health, the Joint Committee supervises the health services in all the Districts and Burghs, Peterhead alone being excepted.

**Scope of
Co-ordinated
Scheme.**

The statistics for 1928 are, on the whole, very satisfactory. The number of deaths in the eight Districts was 1,415, which is equal to a death-rate of 13·4 per 1,000 of estimated population. The same death-rate prevailed in 1927. Compared with 1927, there was a decrease in the number of deaths both from influenza and cancer, but there was an increased number of deaths from diseases of the heart and blood vessels and from tuberculosis.

**General
Death-rate.**

There was a decrease in the incidence of scarlet fever and a slight increase in the number of diphtheria notifications. Schick and Dick testing and re-testing, with subsequent immunisation of those found to be positive, continued to be employed as a preventive measure, but this work, in a rural area, must be more or less sporadic in character unless special medical staff is employed.

**Infectious
Diseases.**

As regards infectious diseases, the most alarming occurrence was a sharp, but fortunately limited, outbreak of infantile paralysis, affecting chiefly the Fyvie area. In all, 13 cases were attacked by this disease and one died.

The Maternity Service and Child Welfare Scheme continues to expand. Towards the end of the year, a new Clinic was opened at Bucksburn, and, in the near future, a Clinic is likely to be established at Ellon. It is satisfactory to

**Mother and
Child Welfare.**

report the small number of cases of ophthalmia neonatorum. The maternal mortality rate, however, was higher than usual; the case mortality was 47·8 in 1928, as against 6·6 in 1927.

School Medical Services.

The inspection and treatment of school children was carried out as in previous years. The dental treatment of school children is gaining in popularity with the result that difficulty is being experienced by the dentists in visiting all the schools each year. Increasing attention is also being given to the treatment of eye defects, but, every year one encounters a few parents who refuse to allow their children to follow the oculist's advice. No official arrangements have yet been made for the operative treatment of enlarged tonsils and adenoids; this work is usually carried out by the Voluntary Hospitals in Aberdeen, and sanction has lately been obtained for the payment in necessitous cases of travelling expenses to and from this centre.

Tuberculosis.

The intensive efforts that have been carried out in the County of Aberdeen for a number of years are leading to a slow, yet steady, diminution in the death toll from tuberculosis. The number of cases of phthisis or pulmonary tuberculosis notified is the lowest yet recorded, but, on the other hand, a greater number of non-pulmonary notifications was made in 1928 than in any previous year, with one exception, namely, 1924. There is much more hope of recovery resulting from treatment when cases are notified in the early stages, and the proportion of early cases notified during the past three years has certainly been satisfactory.

With regard to death-rates from tuberculosis in 1928, the County death-rate for all forms of tuberculosis was 97·07 per 100,000, and, for pulmonary tuberculosis, it was 71·2 per 100,000. The Scottish death-rate from all forms of tuberculosis was 97 per 100,000, and, for tuberculosis of the lungs, the rate was 68 per 100,000. It is satisfactory to be able to relate that these Scottish tuberculosis death-rates are the lowest yet recorded.

In the administrative control of tuberculosis, the expensive aspect of the scheme is institutional treatment, and one is often asked—"Do the results justify the expenditure?" Looking back over the past sixteen years, and reviewing the post-institutional cases who are still alive and engaged on remunerative work, one has no hesitation in definitely stating that the expenditure has been justified. Within the last few years, endeavours have been made to provide efficient treatment for cases of non-pulmonary tuberculosis which is much more serious and devastating in character than is generally supposed. To treat such cases and to restore them to usefulness in the community is bound to prove ultimately to be an economic procedure.

Housing.

Special attention is directed to the housing position in the County and Burghs. Reference to table XIV. in Section I. and table III. in Section II. shows at a glance the number of houses completed in 1928 or in course of erection at the end of the year. The progress being made in the provision of new houses is satisfactory, but a considerable time elapsed before it was fully realised how

advantageous were the provisions of the Housing (Rural Workers) Act, 1926. It seems to be the only Housing Act which will stem the tide of rural depopulation. In many of the Districts, especially the Deer District, every facility is given to proprietors to obtain assistance under this Act for the reconstruction of old houses and for the conversion of buildings into dwelling-houses.

It is not anticipated that the Local Government (Scotland) Act, 1929, will entail much alteration in the organisation of the health services, but, our future hospital policy will require to provide for a concentration of hospital accommodation for cases suffering from infectious diseases throughout the County. Presumably, the Public Health Committee which will be constituted under this Act will deal centrally with all public health matters; but scavenging, water supply and drainage will still be in the hands of local Committees.

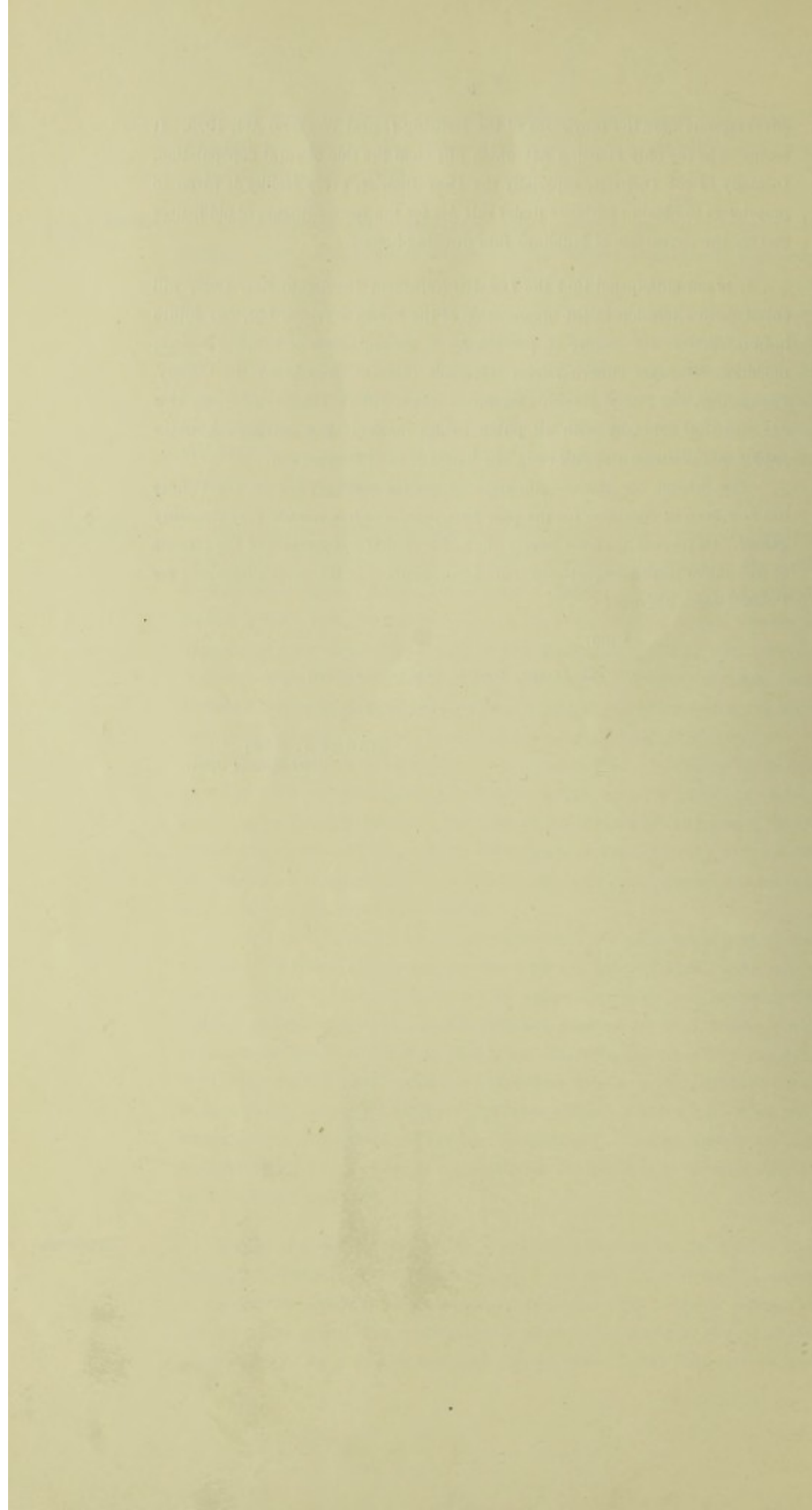
The Scheme for the co-ordination of the medical services in the County has now been in operation for the past four years and has worked very smoothly indeed. Its success has been largely due to the cordial co-operation of the officials of the Public Health Department and of the members of the Joint Committee for Public Health Services.

I am,

MY LORDS, LADIES AND GENTLEMEN,

Your obedient servant,

HARRY J. RAE,
Chief Medical Officer.



Section I.

GENERAL PUBLIC HEALTH OF THE DISTRICTS.

1.—VITAL STATISTICS.

Population.

The population of the eight Districts as ascertained at the last three decennial censuses was as follows :—

In 1901, the population was	124,007
In 1911, ,, ,,	119,209
In 1921, ,, ,,	113,567

Between 1901 and 1921, there was an actual fall in the population of 10,440. The population as estimated by the Registrar-General to the middle of 1928 was 105,713, a decrease of 18,294 since 1901, and of 1,511 as compared with the estimated intercensal population of 1927. Since the last census in 1921, the estimated decrease in each of the Districts is shown in Table I.

TABLE I.

District.	Population at 1921 Census.	Estimated decrease at middle of 1928.
Deer,	27,177	... 1,943
Ellon,	13,311	... 923
Garioch,	12,490	... 1,099
Deeside,	12,037	... 593
Turriff,	10,684	... 846
Aberdeen,	22,777	... 962
Alford,	8,668	... 886
Huntly,	6,423	... 602
Total,	113,567	... 7,854

The natural increase of population in 1928, that is, the increase of births over deaths during the year, was 905.

The total area of the Districts is 1,251,735 acres and the density of population '084 persons per acre.

Marriages.

In 1928, 476 marriages were registered. This is equivalent to a rate of 4·5 per thousand of population, as compared with 430 in 1927, representing a rate of 4·01.

Births.

After correction for inward and outward transfers, there were 2,320 births—1,213 males and 1,107 females. There were 44 more births in 1928 than in 1927.

The birth-rate was 21·9 per thousand, as compared with 21·2 in 1927, 23·02 in 1926, 22·02 in 1925, 22·3 in 1924, and 24·5 in 1923.

Of the 2,320 births, 407 were illegitimate. The illegitimate birth-rate was thus 17·5 per 100 births, as compared with 16·04 in 1927, 14·5 in 1926 and 15·3 in 1925.

The Scottish birth-rate for 1928 was 19·8, the same rate as prevailed in 1927. This is the lowest Scottish birth-rate yet recorded. The Registrar-General states that the maximum Scottish birth-rate occurred in 1876 when it was 35·6 per thousand, and, compared with it, the rate of 1928 is 15·8 per thousand or 44 per cent. less. It is interesting to note that from 1855 to 1893, the national birth-rate was always over 30 per thousand; from 1894 to 1914 it was always over 25 per thousand; during the war, it fell below 25, but it rose in 1920 to 28·1. Since 1920, it has continually declined, and, during the past three years, it has been under 21.

Deaths and Death-rate.

The number of deaths, corrected for transfers, was 1,415, (688 males and 727 females), representing a death-rate of 13·4 per thousand of estimated population, which was also the death-rate in 1927.

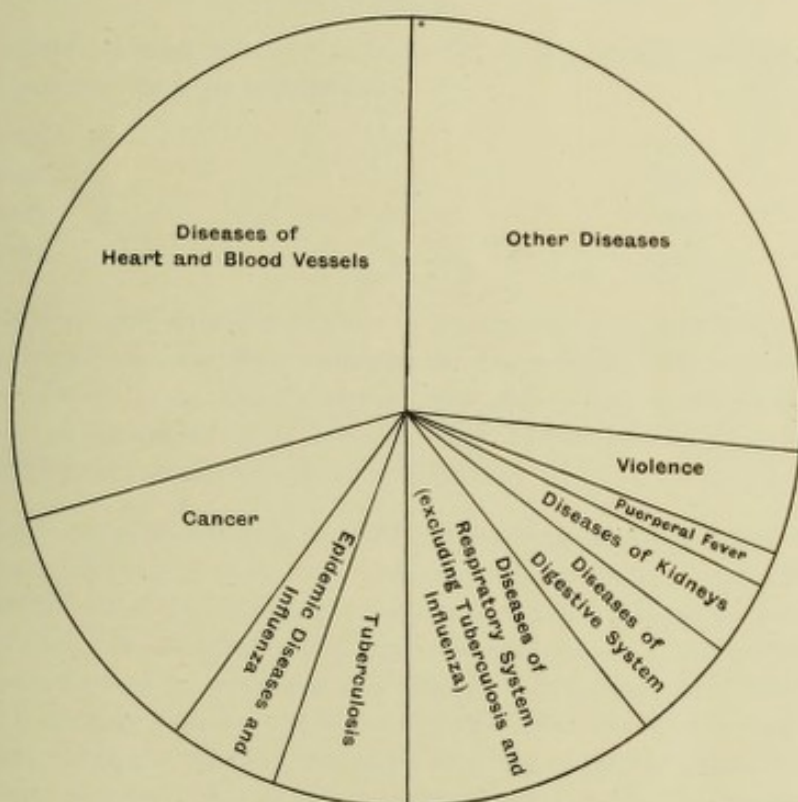
The total number of deaths registered in Scotland in 1928 was 65,263, as compared with 65,830 in 1927. The annual death-rate was 13·3 per thousand. This is the fourth consecutive year in which the national death-rate has been under 14. With two exceptions, namely, 1923 and 1926, this is the lowest death-rate yet recorded; in the two years mentioned, the rates were 12·9 and 13 respectively.

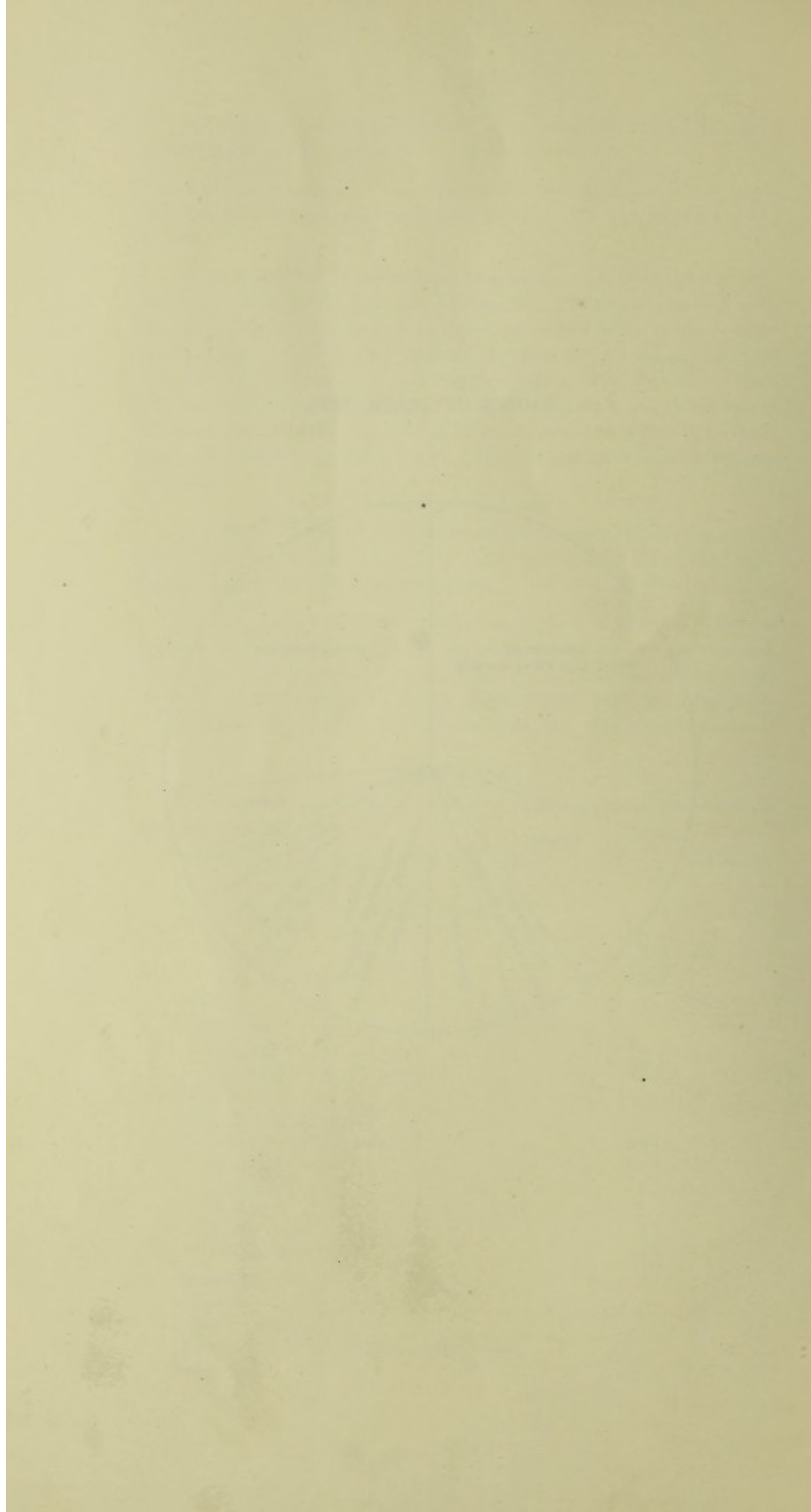
Causes of Death.

The principal killing diseases, with the number of deaths attributable to each, are given hereunder:—

Organic disease of the heart and blood vessels	.	.	.	435 deaths.
Respiratory diseases—				
(Excluding tuberculosis and influenza.)				
Pneumonia	.	.	.	81
Bronchitis	.	.	.	59
Other lung diseases	.	.	.	20
Cancer	.	.	.	136
Tuberculosis—				
Pulmonary	.	.	.	83
Non-pulmonary	.	.	.	25
Kidney disease	.	.	.	46
Chief epidemic diseases—				
Diarrhoea and enteritis	.	.	.	13
Whooping cough	.	.	.	7
Diphtheria	.	.	.	6
Measles	.	.	.	5
Scarlet fever	.	.	.	4
Enteric fever	.	.	.	2
Appendicitis	.	.	.	17
Influenza	.	.	.	13
Puerperal sepsis	.	.	.	11
Diseases of early infancy and malformations	.	.	.	78
Violence	.	.	.	61

CAUSES OF DEATH, 1928.





The outstanding features in the causes of death are that there were 48 fewer deaths from influenza and 30 fewer from cancer in 1928, as compared with 1927. On the other hand, in 1928, there were 48 more deaths from organic diseases of the heart and blood vessels, 19 more deaths from tuberculosis, and 4 more from the six principal epidemic diseases, as against the 1927 figures. The County death-rate from cancer was 129 per 100,000, whereas the Scottish death-rate from the same cause was 141. An analysis of the tuberculosis death-rate is given in the section of this Report dealing with tuberculosis.

The accompanying chart shows graphically the proportion of each group of deaths to the total number of deaths.

2.—MORBIDITY AND MORTALITY FROM INFECTIOUS DISEASES.

(a) Notifiable Infectious Diseases.

SCARLET FEVER.

The number of cases of scarlet fever notified in the Districts and Burghs during the past four years was as follows :—

1925	398
1926	627
1927	603
1928	577

Scarlet fever again showed a decrease in the number of cases notified compared with the previous year, thus continuing the downward inclination from the crest of the wave in 1926. Deeside District again showed the greatest decrease with 8 cases, as against 43 in the preceding year. Alford District showed an increase with 58 cases, compared with 10 in 1927.

The most important outbreaks occurred in the neighbourhood of Alford and Inch. In the Alford area, most of the cases occurred outside the village. The outbreak never reached the dimensions of a big epidemic but it lasted for a considerable period. Investigation showed that the continuance of the outbreak depended on unrecognised atypical forms of infection with the scarlatinal streptococcus. It is strongly to be stressed that every sore throat should be treated as an infectious condition. Enquiry into cases occurring at periods remote from preceding cases frequently showed links between the notified cases in a sequence of sore throats, usually with little or no other disturbance of general health.

The Inch cases occurred mostly in November, and, owing probably to the slightness of attack, some cases at the start were not recognised, so that there was greater chance of infection.

Scarlet fever also occurred at a Boy Scout Camp near Huntly. In this case, the disease was imported from Aberdeen by one of the scouts. He, along with the scout-master and two other scouts, was treated in Huntly Infectious Diseases Hospital. The camp was placed in quarantine. No further case occurred.

Age Incidence.—From the Districts, there were 502 notifications, and of these, 277 or 55 per cent. occurred amongst children between the ages of 5 and 15 years. The ages of the notified cases are given in Table II.

TABLE II.

SCARLET FEVER.

Age Incidence of Cases (Districts).

Districts.	Under 1 year.	1-5.	5-15.	15-25.	25-45.	45-65.	Over 65.	Total.
Deer	1	19	50	18	9	3	—	100
Ellon	—	11	32	12	5	1	—	61
Garioch	—	12	54	9	9	—	—	84
Deeside	—	—	3	2	2	—	1	8
Turriff	—	4	16	—	—	—	—	20
Aberdeen	1	21	51	29	15	3	—	120
Alford	—	6	39	8	4	—	1	58
Huntly	—	11	32	6	1	1	—	51
Totals	2	84	277	84	45	8	2	502
Percentage . .	·39	16·73	55·1	16·73	8·96	1·59	·39	—

Seasonal Prevalence.—The last four months of the year provided more cases than all the rest of the year. October was the month of greatest incidence.

TABLE III.

SCARLET FEVER.

Monthly Incidence of Cases (Districts and Burghs).

Month.	Districts.		Burghs.		Total.
January	46	...	9	...	55
February	48	...	2	...	50
March	31	...	4	...	35
April	18	...	10	...	28
May	25	...	3	...	28
June	36	...	—	...	36
July	16	...	5	...	21
August	23	...	7	...	30
September	57	...	10	...	67
October	79	...	15	...	94
November	72	...	6	...	78
December	51	...	4	...	55
	—	...	—	...	—
Total	502	...	75	...	577

Hospital Treatment.—Of the 577 cases notified, 535 or 93 per cent. were treated in Infectious Diseases Hospitals. There are eleven such hospitals in the County, but Braemar Hospital has not functioned as an Infectious Diseases Hospital for several years. In 1928, two cases of scarlet fever were treated in Ballater

Hospital. In the following table are given data relating to the cases treated institutionally. The number of days in hospital per completed case was 41·1; in 1927, it was 41·7 :—

TABLE IV.
SCARLET FEVER.
Hospital Treatment.

Hospital.	Area Served.	Cases Notified.	Admissions to Hospital.	Period of Institutional Treatment in Days, per completed case.	Number Discharged during Year.	Number of Days in Hospital per Completed Case.	Number of Deaths.	Death-Rate per 100 Cases.
Strichen	Deer District; Rose-hearty Burgh	102	95	3,885	89	43·6	1	1·05
Ellon	District and Burgh	64	53	2,551	55	46·3	—	—
Inverurie	District of Garioch and Burghs of Inverurie, Kintore and Oldmeldrum	116	108	4,448	95	46·8	1	·92
Aboyne	Deeside District	8	18	479	11	43·5	—	—
Turriff	District and Burgh	20	18	593	16	37	—	—
Summerfield	Aberdeen District	120	111	4,289	121	35·4	2	1·8
Alford	District	58	46	1,435	34	42·2	—	—
Huntly	District and Burgh	65	62	2,299	65	35·3	1	1·6
Ballater	Burgh	2	2	66	2	33	—	—
Fraserburgh	Burgh	22	22	1,046	25	41·8	—	—
Braemar	—	—	—	—	—	—	—	—
Total		577	535	21,091	513	41·1	5	·93

Mortality.—The number of deaths from scarlet fever in the Districts and Burghs was 5, giving a total case mortality of '87.

DIPHTHERIA.

There was a slight increase in the number of diphtheria cases, 109 being notified in 1928, as contrasted with 93 in the foregoing year. Deer District showed an increase of 20 cases. The age incidence, the monthly incidence and particulars relating to cases treated in hospital appear in Tables V., VI. and VII. respectively. With regard to cases treated in hospital, representing 95 per cent., the duration of treatment in days per completed case was 27.1, as compared with 23.6 in 1927.

TABLE V.

DIPHTHERIA.

Age Incidence of Cases (Districts).

Districts.	Under 1 Year.	1-5.	5-15.	15-25.	25-45.	45-65.	Over 65.	Total.
Deer	—	1	25	6	3	2	—	37
Ellon	—	2	4	4	1	1	—	12
Garioch	—	—	2	1	—	—	—	3
Deeside	—	1	1	1	1	—	—	4
Turriff	—	2	7	1	1	—	—	11
Aberdeen	—	1	5	1	—	—	—	7
Alford	—	—	—	1	—	—	—	1
Huntly	1	1	1	—	—	—	—	3
Totals	1	8	45	15	6	3	—	78
Percentage	1.2	10.2	57.7	17.9	7.7	3.8	—	100

TABLE VI.

DIPHTHERIA.

Monthly Incidence (Districts and Burghs).

Month.	Districts.	Burghs.	Total.
January	—	4	4
February	4	1	5
March	1	—	1
April	4	—	4
May	8	—	8
June	2	—	2
July	10	5	15
August	15	—	15
September	5	2	7
October	9	1	10
November	5	9	14
December	15	9	24
Total	78	31	109

TABLE VII.
DIPHTHERIA.
Hospital Treatment.

Hospital.	Cases Notified.	Admissions to Hospital.	Period of Institutional Treatment in Days, per completed case.	Number Discharged during Year.	Number of Days in Hospital per Completed Case.	Number of Deaths.	Death-rate per 100 Cases.
Strichen .	39	38	859	28	30.6	3	7.8
Ellon .	12	12	389	12	32.4	—	—
Inverurie .	6	6	146	5	29	1	16.6
Aboyne .	4	3	49	3	16	—	—
Turriff .	11	10	136	9	15	1	10
Summerfield .	7	8	191	6	31.8	1	12.5
Alford .	1	—	—	—	—	—	—
Huntly .	4	2	25	2	12	—	—
Ballater .	—	—	—	—	—	—	—
Fraserburgh .	25	25	486	19	25.5	—	—
Braemar .	—	—	—	—	—	—	—
Total .	109	104	2,281	84	27.1	6	5.7

Mortality.—Six deaths occurred amongst the 109 notified cases, a case mortality of 5.5. In 1927, there were only two deaths from diphtheria or a case mortality of 2.1.

Prevention of Diphtheria and Scarlet Fever.

Tests were made, of children who had not previously been tested or immunised, in all Fraserburgh Schools and in the following schools in the Aberdeen District:—

Whitestripes, Bridge of Don, Bucksburn, Dyce Village, Overton, Parkhill, Kepplehills and Stoneywood.

Re-tests of children previously inoculated were made at all these schools except Whitestripes and Bridge of Don.

The numbers who underwent the tests for the first time and the results were as follows:—

TABLE VIII.

	SCHICK (Diphtheria).			DICK (Scarlet Fever).		
	Number Tested and Read.	Number Positive.	Per cent. Positive.	Number Tested and Read.	Number Positive.	Per cent. Positive.
Fraserburgh	743	288	38.7	774	416	53.7
Aberdeen District	182	145	79.5	188	141	75

In addition, by request, tests were made at three associated dairy farms, whence is supplied certified milk. The consequent inoculations were made by a private doctor. Several children at these farms had previously been immunised by us at the Public Schools. Re-tests showed that of 15 children re-tested, against diphtheria and scarlet fever, one was still positive to the Schick test, and one to the Dick test. First tests, made on children and workers, showed 37 Schick positive and 17 Schick negative, 27 Dick positive and 27 Dick negative.

Re-tests.

The results of the *re-tests*, including Huntly and Peterhead, were :—

TABLE IX.

SCHOOLS.	SCHICK (Diphtheria).			DICK (Scarlet Fever).		
	Number Re-tested and Read.	Number still Positive.	Per cent. Positive.	Number Re-tested and Read.	Number still Positive.	Per cent. Positive.
Huntly	413	24	5.8	429	25	5.8
Peterhead	462	44	9.5	282	124	43.9
Fraserburgh	165	13	7.9	169	50	29.6
Aberdeen District	363	104	28.6	370	95	25.6
Total	1403	185	13.2	1250	294	23.5

During the year, two children who had been tested and found Schick negative were notified as cases of diphtheria. One was negative in 1925 and again negative on re-test in 1928; the other was negative in 1925. A boy who had been strongly positive to Schick test in April 1928 and who had thereafter a series of three anti-diphtheria inoculations was notified eight months later as a case of diphtheria. He had not been re-tested. These three cases are the only notifications of diphtheria during the year relating to children tested and inoculated by the Public Health Staff.

Inoculations.

In order to obtain a higher immunity against scarlet fever, it was decided to extend the series to four instead of three injections so that a final (fourth) dose of 5,000 skin test doses might be given without causing undue reaction. The numbers receiving four injections, the full series in the case of scarlet fever; three injections, which complete the anti-diphtheria injections and which were given as the complete series in the earlier part of the year in the case of scarlet fever (the final dose being 3,000 skin test doses); and numbers who did not complete the series are shown in Table X.

TABLE X.

Tested and Immunised for the first time.

	SERIES OF INOCULATIONS.			
	4	3	2	1
Combined	234	177	18	3
Diphtheria only . .	—	145	5	6
Scarlet Fever only .	157	90	8	3

TABLE XI.

Inoculation after Re-test following a previous Immunisation.

	4	3	2	1
Combined	25	84	4	1
Diphtheria only . .	—	88	1	33
Scarlet Fever only .	57	88	3	4

It is to be noted that the fourth injection in the case of combined inoculation was against scarlet fever only. In the inoculations after re-test, one injection was in many cases regarded as sufficient—where the Schick re-test had been slight though positive.

Can Active Immunisation of Scarlet Fever and Diphtheria Contacts Prevent "Return" Cases?

The problem of the "return" case is exceedingly difficult to cope with. It is well known that cases of scarlet fever may be discharged from hospital with no actual discharge, nasal or aural, but, from a few days to four weeks of their return home, they may develop a temporary discharge and originate fresh or return cases. It has also been shown that cases, with apparently no discharge whatever during convalescence, have originated fresh cases when they return home. The hospital administration and the nursing are usually blamed but it is rare to find any fault in either of these directions. Can any immunising device be used to prevent these return cases? In the City of Aberdeen, where there is what may be called an *ad hoc* medical immunising staff, an experiment was carried out whereby, whenever the patient was removed to hospital, the contacts were Dick-tested. Children under 6 years of age were not Dick-tested because 97 per cent. in this age group have been proved to be Dick-positive. The results of the Dick tests were interpreted 12 hours after, and those who were positive received a first immunising dose of 500 skin doses of scarlatinal streptococcus toxin, a second injection of 1,000 skin doses five days later, and, after a further period of five days, a third injection of 3,000 skin doses. In the majority of cases, immunity was established 14 days after the last injection. Two hundred and fifty-two families were thus treated; 510 individuals were immunised; out of the 252 families so immunised, there was only one return case. With a scattered population, such a procedure is not possible unless the work were done by general practitioners in the area.

Whilst in scarlet fever active immunisation may prevent the occurrence of return cases, the same cannot be said of diphtheria. Immunity conferred by injections of toxoid-antitoxin takes from six weeks to six months to develop and thus this device is of no value in preventing return cases. What is practised in the County is that intimate contacts are passively immunised, usually without previous Schick-testing, by an injection of diphtheria antitoxin.

What is the Procedure in the Use of Antitoxin in Diphtheria?

The immense value of diphtheria antitoxin in the treatment of cases of diphtheria and in the passive immunisation of diphtheria contacts is fully acknowledged by all who have had experience in the treatment of this disease.

The importance of early treatment cannot be over-estimated, for the delay of a few hours in the administration of antitoxin may seriously endanger the patient's life. If the clinical symptoms are such as to make the diagnosis of diphtheria likely, a full dose of antitoxin should be given at once, without waiting for the result of the swab. The matter of dosage is important, but, the minimum therapeutic dose should be taken in all cases as 4,000 units, irrespective of age. Diphtheria is more severe in young children who can stand large doses without bad results. In definite cases of diphtheria, the dosage should be as follows:—

- (1) On the first day of the illness . . . 4,000 units.
- (2) On the second day of the illness . . . 6,000 „
- (3) On the third day of the illness . . . 8,000 „

In the more severe cases, the maximum dose is repeated every 12 hours until the membrane separates, but in less severe cases repetition of administration may be delayed for 24 hours. In mild cases, seen at the commencement of the disease, one dose may be sufficient. By the injection of an adequate dose of antitoxin, given early in the disease, the likelihood of paralysis supervening during convalescence is minimised.

With regard to contacts, these should receive passive immunisation by the injection of 2,000 units of antitoxin. Some little economy would be effected if the contacts were first Schick-tested, for then the positive reactors only would receive protective immunisation. On the other hand, if all intimate contacts receive antitoxin whenever a case is diagnosed, the delay occasioned between the performance of the Schick test and interpretation of the result is avoided.

TYPHOID AND PARA-TYPHOID FEVERS.

The Department received 16 notifications of typhoid and para-typhoid fever in 1928 and all were proved by laboratory methods to be actual sufferers. Thirteen cases occurred in the Deer District, two in the Turriff District, and one in the Aberdeen District.

The number of notifications and deaths in each year since 1914 is given below:—

TABLE XII.

YEAR.	Notifications.	Deaths.	Percentage Case Mortality.
1914	25	3	12
1915	19	4	21
1916	17	—	—
1917	22	4	18·2
1918	26	4	15·4
1919	16	3	18·8
1920	28	2	7·1
1921	23	4	17·4
1922	19	1	5·3
1923	13	1	7·7
1924	3	—	—
1925	22	2	9·1
1926	3	—	—
1927	22	1	4·5
1928	16	2	12·5
Totals	274	31	11·3

Six of the 16 cases suffered from typhoid fever. The remaining 10 cases suffered from para-typhoid B, and constituted a sharp and rather alarming outbreak in an institution in the County.

In this institution, a case was diagnosed as suffering from typhoid fever on 5th April. The patient was removed to the Infectious Diseases Hospital where the diagnosis of *typhoid fever* was confirmed. He died two weeks after admission. On 5th April another case was removed to hospital, and was proved serologically and bacteriologically to be suffering from *para-typhoid B*. Between 19th April and 9th May, 9 other cases of *para-typhoid B* were removed to the Infectious Diseases Hospital. Careful investigation was made with a view to ascertaining the source of infection. In the middle of March, one of the kitchen staff was off duty for several days. She returned to duty after the illness, which was apparently slight, and, when the outbreak occurred, the possibility of her being the source of the outbreak was considered and samples of excreta were examined, with negative results. Later, a sample of blood was taken, and a positive Widal Reaction to *para-typhoid B*, in dilution 1 in 60, was obtained. She was admitted to hospital and even then showed signs of not having fully recovered from the illness, although the excreta on repeated examination gave negative results. All these *para-typhoid* cases made complete recoveries. In November, the excreta of the recovered cases were examined and were found to be negative for *Bacillus Para-typhosus B* and for organisms of the "Enterica" group. No further clinical cases of the disease appeared.

The old theory that bad sanitation is the cause of spread of typhoid fever has now been universally abandoned. Bad sanitary conditions lower the resistance of the individual and make him susceptible to attack. The chief factors in promoting the spread of the disease are personal contact with "carriers," contacts, and "missed" cases, so mild as to be unrecognised, or infection of food or water by an infected person.

ACUTE POLIOMYELITIS (INFANTILE PARALYSIS).

Contemporaneous outbreaks of acute poliomyelitis or infantile paralysis occurred in the County of Aberdeen in 1928, causing in all 10 cases with paresis and 3 abortive cases, confirmed bacteriologically.

This disease became notifiable in 1912. The numbers notified in the County in the three quinquennial periods from 1913 to 1927 were as follows:—

1913-1917	.	.	.	.	.	18 cases.
1918-1922	.	.	.	.	.	3 ..
1923-1927	.	.	.	.	.	3 ..

Previous Local Outbreaks.

In this part of the country, there has been relative immunity from this disease during the notification period. The first recorded epidemic since notification became compulsory occurred in the City of Aberdeen. This epidemic commenced in April, 1916, and, in all, 79 cases were notified as occurring in the epidemic period which extended until September, 1916, when the outbreak ended. In this epidemic, several interesting points were brought to light. Thus, of the 79 cases, 72 occurred in houses of three rooms and under, the remaining 7 being in houses of larger size. All the houses involved are stated to have been above the average in respect of cleanliness and the families were well cared for. In the vast majority of the families, the cases were isolated, and, only in two instances, was there a second case in the same household. In addition, the cases in the City were widely distributed. Except in the two households in which there were two cases each, it was exceedingly difficult to trace connection between the cases. Then again, there was practically no community of school attendance in the families. Of the 79 cases, 4 died, representing a case mortality of 5.1 per cent.

Practically coincident with this outbreak, 16 cases of acute poliomyelitis were notified in the County of Aberdeen between the months of July and October, 1916. These cases were very widely scattered, five occurring in the Alford District, four in the Aberdeen District, three in the Deeside, two in the Deer, one in the Ellon and one in the Turriff District. With two exceptions, where two members of a family were affected, no connection could be traced between them.

or with any known source. The majority of the cases were said to have suffered from a comparatively mild type of disease and were reported to have made good recoveries. There were no deaths in connection with this outbreak.

Present County Outbreaks.

The chief outbreak of infantile paralysis in the County in 1928 occurred in the neighbourhood of Fyvie and was sudden in onset. The matter was brought to the notice of the Public Health Department on 30th August when the doctor in this District telephoned to say that he had three children in one family suffering from sore throat with considerable congestion, malaise and feverishness. One of the Medical Officers of the Health Department visited the affected family along with the doctor, and took nose and throat swabs which, on 31st August, were reported to be negative for diphtheria bacilli. On 1st September, one of the children developed arm paresis, and all three, along with a child of another family who sickened on 1st September, were, on that day, removed to the Aberdeen City Hospital. The diagnosis of infantile paralysis was confirmed bacteriologically. Of these four cases, one had paralysis of an arm, another paralysis of a leg, the third paralysis of both legs, and the fourth was an abortive case—no paralysis making its appearance. In the cases which were paralysed, the paresis appeared within four days of the onset of illness. In the following week, two other cases were admitted to the City Hospital. One case (aged 2), in whom the symptoms were very acute, died before removal to hospital. On 10th September, another case (aged 7½ years), was removed to hospital.

The premonitory symptoms in all these cases were headache—usually frontal—malaise, sickness, severe vomiting and head retraction. The last named sign was present in practically all the cases. It was considered advisable to remove to hospital all cases in this area with these symptoms. Between 15th and 26th September, 4 patients were admitted to the Aberdeen City Hospital, but only one of these gave a positive bacteriological result on lumbar puncture. The other three were discharged after a short period of institutional observation.

On 23rd October, another suspected case—a boy aged 10 years—was admitted to hospital for observation, but the diagnosis was not, in this case, confirmed bacteriologically.

Three other cases occurred in September and October in areas widely distant from Fyvie. On 1st September, a girl aged 17 years, was admitted to hospital, where the diagnosis was confirmed by laboratory methods, and, on 8th September, tracheotomy was performed as there was complete abductor paralysis of the vocal cords; she made a perfect recovery. A boy, six years of age, developed the disease in September; he resided just beyond the boundary of the City; he did not receive institutional treatment. On 20th October, a farm servant, aged 31 years, residing in Cluny (Deeside District) was removed to the City Hospital, and, in this case, the diagnosis was bacteriologically confirmed. None of these three cases had any connection whatsoever with the Fyvie cases.

Age and Sex Distribution of the Cases.

As regards the Fyvie cases, 7 suffered from typical acute poliomyelitis with paralysis whilst 3 were abortive cases, that is, although on bacteriological examination of the cerebro-spinal fluid they were proved to be suffering from the disease, yet no paralysis or paresis appeared. Three cases, showing typical premonitory symptoms were ultimately proved not to have the disease.

Of the 7 definite cases, the ages were 2 years, 6, 7 (two cases), 8, 9 and 10 years. Five were males and two females. Of the abortive cases, two were females and one male; two were 4 years of age and one 9 years. The three suspected cases—two males and one female—were aged 2, 6 and 7 years.

The term "infantile paralysis" is a misnomer for it indicates that the disease affects young children, but it is not confined to children. Two of the 13 cases were adults—one, a girl of 17 years and the other a man of 31 years.

Bacteriological Investigation.

Lumbar puncture was performed in all the cases admitted to the City Hospital and the cerebro-spinal fluid gave the following results :—

1. Increase in the number of mononuclears.
2. Increase of Globulin.
3. Colloidal Gold Reaction—positive, indicating inflammatory involvement of the central nervous system.

In every case, on lumbar puncture, the cerebro-spinal fluid was under considerable pressure. In all the cases, the fluid was clear.

Schools Attended.

Six of the seven bacteriologically positive cases from the Fyvie District were of school age and they attended three schools in the neighbourhood of the Village of Fyvie. The Headmaster of Fyvie Higher Grade P. School had morning "gargling drill"—solution of a weak disinfectant being used. The wisdom of this procedure is open to argument, for, if the disinfectant is too strong or if the gargling is too vigorous, there is a risk of the mucous membrane of the fauces becoming inflamed and this membrane instead of acting as a natural defence may become a more suitable nidus for the reception of extraneous germs.

Case Mortality.

The total number of actual cases of this disease throughout the County in 1928 was 13. There was 1 death and thus the case mortality was 7·7 per cent.

Glasgow Outbreak.

From July to October, 1928, a severe outbreak of infantile paralysis occurred in the City of Glasgow. There were 91 cases and 8 of these died.

Conclusions.

In the Fyvie outbreak, milk-supply bore no relation whatsoever to the spread of infection.

Social circumstances did not appear to have any influence as regards the incidence of the disease.

A noteworthy point in the Fyvie cases, as contrasted with the previous local outbreaks of 1916, is that out of a total of 10 cases, 3 of the cases occurred in one family and 2 of the cases in another family. This demonstrates the predominant part played by personal infection in the spread of an epidemic of acute poliomyelitis. Individual investigation of the cases proved that the epidemic was almost certainly spread by case-to-case infection, by "carriers" and by abortive cases.

Again, one of the Fyvie cases, in whom two members of the same family were affected in the 1928 outbreak, was admitted to the City Hospital six years ago with a diagnosis of infantile paralysis. Examination made at that time showed that the cerebro-spinal fluid was practically typical of this disease. The child showed no evidence of paralysis and was sent home apparently quite well in three weeks' time. Shortly after leaving hospital, he is said to have developed weakness in the right leg, which persisted for six months. Thus, between the onset of the initial symptoms and the appearance of the leg weakness there elapsed a period of five weeks—whereas the paralysis usually occurs towards the commencement of the illness, or at least, within the first fortnight. In September, 1928, he was again admitted to the City Hospital as a case of acute poliomyelitis. He then had paresis of the left arm. The facts of this case are confirmed in duplicate by the records of the County Public Health Department and of the City Hospital.

Although in all the Fyvie cases the disease was ushered in by acute disturbance, it sometimes happens that paralysis is the first definite sign to appear.

All the cases recovered with the exception of two who were still under treatment in the Aberdeen City Hospital at the end of the year. The treatment of

the paralysis requires infinite patience and it would appear that the prevention of strain to the affected muscles is essential to recovery.

An interesting point about the outbreak is that about six weeks prior to the first recognised case there was prevalent in the area amongst school children a condition popularly called "influenzal cold," characterised by feverishness, malaise, varying degree of sore throat and in most cases some headache. This condition therefore closely resembled the initial condition in acute poliomyelitis but was not associated with any degree of paresis or paralysis.

ENCEPHALITIS LETHARGICA (SLEEPY SICKNESS).

Encephalitis lethargica, epidemic encephalitis or sleepy sickness was made compulsorily notifiable throughout Scotland in December, 1925. In 1928, no case of this disease was notified in the County. The number of cases brought to the notice of the Public Health Departments of the County and City of Aberdeen since 1921 are shown in the following table :—

TABLE XIII.

Year.	County.	City.
1921,	0 . . .	3
1922,	1 . . .	0
1923,	3 . . .	0
1924,	2 . . .	7
1925,	2 . . .	9
1926,	2 . . .	0
1927,	4 . . .	1
1928,	0 . . .	4
Total, . . .	14 . . .	24

This disease is regarded as infectious, but the infectivity is low and the method of dissemination uncertain. Cases in the acute stage of the disease may be efficiently treated in the ordinary Infectious Diseases Hospitals, but adequate accommodation cannot be found for cases suffering from the after-effects of this malady—and the necessary treatment is often for a very prolonged period—in Infectious Diseases Hospitals, in General Hospitals, or in Hospitals for Incurables. In a proportion of cases, the mental condition is such that the patients have to be removed to asylums.

Some two years ago, an offer was made by the Parish Council of Glasgow to make available in Stobhill Hospital a limited number of beds for the reception of persons suffering from the after-effects of encephalitis lethargica. Cases for admission to this hospital were selected by the Scottish Board of Health, primarily on the ground of domestic difficulty, but the number of applications was so large that many cases throughout Scotland were refused admission although the domestic circumstances were most unsatisfactory.

A conference was held at Glasgow on 25th October to discuss the problem of institutional treatment. At this conference, it was held by one representative that the Public Health Authority should not be held to be responsible for the treatment of cases in the later stages of the disease, which is accepted to be then only slightly, if at all, infectious, but this opinion was not generally supported.

The general feeling was that Stobhill Hospital, from the character of the cases admitted, could not be regarded as a research centre and that the Local Authorities of larger Burghs might, after all, find accommodation for their "late" cases in Municipal Hospitals. The Medical Officer of Health for the City of Aberdeen explained that he had made an arrangement whereby patients suffering from the after-effects of this disease might be admitted to Kingseat Mental Hospital as voluntary patients.

So far, the matter of institutional treatment for these cases has not assumed serious proportions in the County. One "chronic" case was reported to be requiring institutional treatment, but, whilst negotiations were being carried out for her removal, she married, much against the advice of her family doctor.

CEREBRO-SPINAL FEVER.

One case—a man, aged 55 years—was notified as suffering from cerebro-spinal (spotted) fever. He died on the day of notification. There was no bacteriological confirmation.

ACUTE INFECTIVE JAUNDICE.

This disease was made notifiable by the Public Health (Infective Jaundice) Regulations (Scotland) 1924. Within the notification period, the numbers notified were:—1925—3 cases; 1926—no case; 1927—4 cases; and, 1928—2 cases. Neither of the cases notified in 1928 received hospital treatment. No bacteriological confirmation was obtained in either of the cases.

ERYSIPELAS.

There were 75 notifications of erysipelas, as compared with 69 in 1927, 61 in 1926, 51 in 1925 and 55 in 1924. No deaths were attributable to this cause. It is worthy of note that, in two households visited owing to an outbreak of scarlet fever, an adult member in each was found to be suffering from erysipelas. It has been proved that the causal organisms in scarlet fever and erysipelas are the same.

SMALL-POX.

No case of small-pox was notified, nor was any case of suspected small-pox brought to the notice of the Public Health Department.

CHICKEN-POX.

Chicken-pox was made compulsorily notifiable by the Public Health (Chicken-pox) Regulations (Scotland) 1927. The Scottish Board of Health then made the Public Health (Chicken-pox) Amendment Regulations, 1927, whereby notification remained in operation until 31st December, 1928. As cases of small-pox of the mild type occurred in 1928 in various parts of the country, the Board decided that the precaution requiring cases of chicken-pox to be notified should not be relaxed and they therefore made the Public Health (Chicken-pox) Amendment Regulations (Scotland) 1928, in terms of which chicken-pox remains a notifiable disease until 31st December, 1930.

In 1928, 179 cases of chicken-pox were notified, as compared with 219 in 1927. None of the cases required institutional treatment. All the cases were mild in character, with the exception of several scarlet fever cases that developed the disease whilst resident in one of the County Infectious Diseases Hospitals.

The double infection of scarlet fever and chicken-pox caused grave illness amongst some of the patients. Fortunately, all ultimately recovered completely.

PNEUMONIA.

Under the Public Health (Pneumonia, Malaria, Dysentery, &c) Regulations (Scotland), 1919, acute primary and influenzal pneumonias were made compulsorily notifiable. It should be noted that cases of broncho-pneumonia, if acute and primary, should be notified.

In 1928, 338 cases were notified from the Districts and Burghs (excluding Peterhead) and these may be classified as under :—

1. Acute primary pneumonia	166 cases.
2. Acute influenzal pneumonia	27 „
3. Acute primary broncho-pneumonia	98 „
4. Acute pneumonia (type not specified)	47 „
	<hr/>
	338 „
	<hr/>

It is rather remarkable that, although influenza was prevalent in the County especially in the last quarter of 1928, only 27 cases of acute influenzal pneumonia were notified, as against 70 in 1927.

The number of cases of pneumonia notified in 1927 was 346, in 1926—207 and in 1925—154.

Of the 338 cases, 102 died, representing a percentage case mortality of 30·2. Of the 102 deaths, 24 occurred in children under one year of age and 8 in children between one and five years of age. Thus 31 per cent. of the deaths occurred in children under 5 years of age.

The scheme for the treatment of pneumonia has been adopted by all the Districts and Burghs (excepting Peterhead and Fraserburgh), and patients may now be sent by the general practitioners through the Medical Officer of Health to the following institutions :—

1. City Hospital, Aberdeen.
2. Inch and District War Memorial Hospital, Inch.
3. Huntly Jubilee Cottage Hospital, Huntly.
4. Fyvie Cottage Hospital, Fyvie.
5. Kincardine O'Neil War Memorial Hospital, Torphins.

During the year, the total number of cases who received institutional treatment was 44, and the results of treatment were satisfactory. Where institutional treatment is considered advisable, provision can always be made for the reception of patients in the Special Wards of Woodend Hospital. The numbers quoted do not include those who were treated either in the Aberdeen Royal Infirmary or in the Sick Children's Hospital.

Many practitioners hold that cases of pneumonia should be treated at home, the chief objection to their transference to hospital being the strain experienced during transport. Under the Pneumonia Scheme, provision is made whereby nurses may be sent to the patients' homes. If these homes are not suitable for the accommodation of the nurses, then lodgings in an adjacent hotel or a dwelling-

house are usually obtained. During the year, 3 cases had the services of the special pneumonia nurses supplied by the Public Health Department.

MALARIA.

One case of malaria was notified. The disease was contracted abroad, and a relapse compelled the sufferer to seek medical advice.

DYSENTERY.

One case of dysentery was notified. The patient, a man of 46 years, contracted the disease whilst serving with the army in India.

(b) Non-Notifiable Infectious Diseases.

Under this heading come the three diseases, measles, whooping cough and mumps.

Measles was prevalent, chiefly during the first five months of the year, in the Braemar area, Garioch District, Deer District, the Burghs of Inverurie and Oldmeldrum and in the neighbourhood of Aberdeen. Three hundred and thirty-seven cases were brought to the notice of the Public Health Department by Head Teachers. The fatal complication in this disease is broncho-pneumonia. Five deaths were registered as being due to this cause, representing a death-rate of '05 per 1,000 of the estimated population.

Whooping cough was most prevalent in the end of the year. Only 92 cases were brought to our notice, but there were 7 deaths from this disease. The death-rate was thus '07 per 1,000 of population.

Eighty-seven cases of mumps were reported. There were no deaths.

Although the Infectious Diseases Hospitals in the County are primarily for the reception of cases of notifiable disease, nevertheless cases of measles, whooping cough and mumps may be admitted so far as available accommodation will permit. The objection to admitting a case of, say, measles to any of our County Infectious Diseases Hospitals is that a whole ward is thereby put out of action and more deserving cases of notifiable diseases may have to be diverted to other hospitals.

3.—HOUSING.

During the last three years, there has been a considerable increase in the provision of new houses in the Districts. In 1926, 124 new houses had been completed and 69 were in course of erection at the end of that year.

In 1927, 111 houses were completed, whilst 107 were in course of erection at the end of the year. In 1927, there were 50 applications lodged with Local Authorities under the Housing (Rural Workers) Act, 1926.

In 1928, the number of new houses completed at 31st December, 1928, was 149, whilst, at the end of the year, 70 were in course of erection. In addition, 136 applications were lodged under the Housing (Rural Workers Act).

The number of new houses completed in 1928, or in course of erection at the end of the year, per 1,000 of population, is shown, along with other data relative to each District, in Table XIV. Aberdeen District heads the list with 5·6. Then comes Ellon District with 2·7, Deeside District with 1·6 and Garioch District with 1·2.

TABLE XIV.
HOUSING IN COUNTY DISTRICTS—1928.

	Deer.	Ellon.	Garioch.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Totals.
A.—Completed during 1928.									
1. With aid of Subsidy—									
(a) By Local Authority.	—	15	—	6	—	61	—	—	82
(b) By private enterprise.	4	7	4	—	2	7	1	—	25
2. By unassisted private enterprise	6	—	4	7	1	18	2	4	42
B.—In course of erection at 31st December, 1928.									
1. With aid of Subsidy—									
(a) By Local Authority.	—	10	—	—	—	19	1	—	30
(b) By private enterprise.	6	2	5	1	—	13	—	1	28
2. By unassisted private enterprise	—	—	1	5	—	5	1	—	12
Totals	16	34	14	19	3	123	5	5	219
Population	25,234	12,388	11,391	11,444	9,838	21,815	7,782	5,821	105,713
Number of new houses completed in 1928 or in course of erection, per 1,000 of population	6	2.7	1.2	1.6	.3	5.6	.6	.8	2.07
Number of applications lodged during 1928 under Housing (Rural Workers) Act, 1926	43	8	23	9	19	28	2	4	136

The most interesting and gratifying point in connection with rural housing is the fact that increasing advantage is now being taken of assistance offered through the Housing (Rural Workers) Act of 1926. Under this Act, there were only 50 applications in 1927, whereas, in 1928, there were 136. The largest

number of applications was dealt with by the Deer District Committee, namely, 43, a most creditable performance. It is only now that the advantages of the Act are being fully recognised. The impression commonly exists that this Act is only applicable to houses which are to be occupied by persons engaged in agricultural pursuits, but provision is made for the reconstruction of houses or the conversion of buildings into dwellings for the occupation of persons who, in the opinion of the Local Authority concerned, would not ordinarily pay rent in excess of that paid by agricultural workers in the area. There also seems to be an idea that the Act is not applicable to Burghs, but any Burgh Local Authority may adopt the Act and derive the benefits accruing therefrom. The amount of grant available under this Act is two-thirds of the estimated cost of the works, or a maximum sum of £100 in respect of each dwelling. The grant may either be made by way of a lump-sum payment or by the provision during a period not exceeding 20 years of any part of any periodical sums payable by way of loan charges for the purposes of carrying out the works. When, however, the grant is made to a landlord within the meaning of the Small Landowners (Scotland) Act, the grant should be made by way of a lump-sum payment.

Too much publicity cannot be given to the excellent provision afforded by the Housing (Rural Workers) Act. In many ways, it is the only Housing Act by which assistance has been given to conserve housing in rural areas and to prevent rural depopulation. It is the best means whereby the exodus of rural workers from country to town can be prevented, and it is the bounden duty of every Local Authority in an agricultural area to encourage farmers to derive all the advantages obtainable from this Act. From enquiry made, it would appear that Aberdeenshire has availed itself more than most areas of the operation of the Act, but it should continue to do so, and, by every possible means, encourage other Counties to follow suit.

In the case of housing in Burghs, it is often found that proprietors have not the wherewithal to reconstruct dilapidated properties so as to put them in a sanitary condition. In this connection, Local Authorities should be in a position to acquire such properties and reconstruct them with the aid of Government grants. Such provision is made in Section 1 (3) of The Housing, &c., Act, 1923, as applied to Scotland, by Section 23 (5). Section 1 (3) reads as follows:—

“The Board may, with the approval of the Treasury, make or undertake to make contributions out of moneys provided by Parliament towards the expenses incurred by a local authority in carrying out a rehousing scheme in connection with a scheme made under Part I. or Part II. of the principal Act (including the acquisition, clearance, and development of land included in the last-mentioned scheme, and whether the rehousing will be effected on the area included in that scheme or elsewhere), of such amounts, for such periods, and subject to such conditions as, with the approval of the Treasury and after consultation with the local authority, the Board may determine, so, however, that the annual contributions in respect of any such rehousing scheme shall not exceed one-half of the estimated average annual loss likely to be incurred by the local authority in carrying out the scheme.”

Section 23 (5) is as follows:—

Section 23. *Application to Scotland.*—This Act shall apply to Scotland, subject to the following modifications:—

(5) “Contributions may be made or undertaken to be made by the Scottish Board of Health with the approval of the Treasury under sub-section (3) of section one towards the expenses incurred by a local authority in carrying out a scheme under Part III. of the principal Act, so far as the scheme relates to the exercise by the authority of powers conferred by sub-section (1) of section eleven of the Housing, Town Planning, &c. (Scotland) Act, 1919, or so far as the scheme provides for rehousing persons displaced in consequence of closing or demolition orders, or of alterations under the said

sub-section (3) shall apply to the contributions towards the expenses aforesaid as they apply to contributions towards the expenses mentioned in the sub-section."

It will thus be seen that grant is available under these Sections towards the cost of alterations, repair, &c., on houses acquired by a Local Authority. Section 11 (1) of the Housing, Town Planning, &c. (Scotland) Act, 1919, referred to in Section 23 (5) of The Housing, &c., Act, 1923, is re-enacted in Section 43 (1) and Section 44 (1) (a) and (b) of the Housing (Scotland) Act, 1925.

Section 43 (1). A local authority may provide housing accommodation for the working classes—

- (a) By the erection of dwelling-houses on any land acquired or appropriated by them;
- (b) By the conversion of any buildings into dwelling-houses for the working classes;
- (c) By acquiring houses suitable for the purpose;
- (d) By altering, enlarging, repairing, or improving any houses or buildings on land acquired as a site for the erection of dwelling-houses for the working classes or any other houses any right or interest wherein has been acquired by the local authority.

Section 44 (1). A local authority shall have the power under this Part of this Act—

- (a) To acquire any land, including any houses or other buildings thereon, as a site for the erection of dwelling-houses for the working classes;
- (b) To acquire any right or interest in any houses which may be made suitable as dwelling-houses for the working classes, together with any lands occupied, or which may be occupied, with such houses.

The place of the Scottish Board of Health has now been taken by the Department of Health for Scotland. Any proposals by a Local Authority to provide housing accommodation under the powers referred to require to be approved by the Department of Health who, prior to giving approval, require information to be lodged and plans to be submitted to show the existing planning and structural condition of the houses, the nature of the alterations proposed to be carried out, the cost of acquiring the old properties and the cost of the improvements proposed. If grants under these Sections are desired, no commitments for the acquisition of the old properties should be made until the Department's approval has first been obtained.

The problem of preventing the depopulation of a rural area like Aberdeenshire, with its interspersed Burghs, has appeared to be sufficiently important to warrant the inclusion in this Report of the Sections of the various Housing Acts. Private enterprise in house building must be encouraged to the full extent, but one cannot get away from the fact that in many of the Burghs, especially, proprietors have been hard hit and in very many cases are financially unable to meet the cost of putting their properties into habitable repair according to present-day standards. In many instances, the provisions of the Housing (Rural Workers) Act, 1926, are invaluable, but Local Authorities—especially Burgh Local Authorities—should avail themselves of the advantages obtainable under the several Housing Acts referred to, acquire old properties from needy proprietors, reconstruct these properties and thus obviate the necessity of embarking on new Housing Schemes which are always expensive and by which houses are seldom provided for the class for which they are intended. In the Burghs, one comes across many houses which should be condemned, but the tenants of these houses are paying rentals of from £5 to £10 per annum. Under no new Housing Scheme can a house be obtained with a rental under £13—and this is the absolute minimum—which these poor tenants are quite unable to pay. But Local Authorities, by purchasing and reconstructing dilapidated properties, could let these reconstructed homes at rentals within the reach of the deserving poor.

4.—DISINFECTIONS.

The number of official disinfections of premises performed by the several District Sanitary Inspectors is given hereunder :—

TABLE XV.

	Deer.	Ellon.	Garioch.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Total.
After Scarlet Fever	80	60	71	8	20	116	55	40	450
„ Diphtheria	36	10	3	4	11	7	2	2	75
„ Enteric Fever	13	—	—	—	2	1	—	—	16
„ Tuberculosis	10	3	10	7	14	12	—	3	59
„ Other Infectious Diseases	—	6	16	6	12	11	1	4	56
Total	139	79	100	25	59	147	58	49	656

5.—FACTORY AND WORKSHOPS ACT.

In 1928, there were 851 factories and workshops on the Register. Details as to the number of inspections, notices served, defects found and remedied appear on Table XVI.

TABLE XVI.

	Deer.	Ellon.	Garioch.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Total.
Number on Register	165	76	103	137	85	145	78	62	851
„ of Inspections	83	82	85	137	134	97	91	42	751
Notices served under Section 2 (3), &c.	1	—	—	3	—	4	—	—	8
Defects found	1	5	2	3	—	4	4	1	20
„ remedied	1	5	2	3	—	4	4	1	20

Section II.

THE HEALTH OF THE BURGHS.

It has been found impracticable to treat separately some of the data relating to the health of the Districts and Burghs, such as the institutional treatment of scarlet fever and diphtheria and immunisation efforts against these diseases. The accompanying tables refer to the Burghs within the County, with the exception of Peterhead.

VITAL STATISTICS.

Population.—The population of the Burghs, as estimated by the Registrar-General to the middle of 1928, appears on Table I. There was an estimated decrease in all the Burghs, except Ballater, in which case there was an increase of 13. The total estimated decrease was 313.

TABLE I.

Burghs.	1921 Census.	As estimated at middle of 1927.	As estimated at middle of 1928.	Increase or Decrease.
Ballater . . .	1,542	1,667	1,680	+13
Ellon	1,261	1,197	1,182	-15
Fraserburgh . .	10,514	10,204	10,102	-102
Huntly	3,752	3,368	3,290	-78
Inverurie . . .	4,455	4,279	4,232	-47
Kintore	741	675	662	-13
Oldmeldrum . .	1,015	930	913	-17
Rosehearty . . .	1,267	1,206	1,190	-16
Turriff	2,152	1,977	1,939	-38
Totals	26,699	25,503	25,190	-313

Marriages.—There were 225 marriages and the marriage-rate per 1,000 of population was 8·9. In 1927, the marriages numbered 228 and the same rate, 8·9 prevailed.

Births.—In Table II. are given the total number of births, the corrected birth-rate, the number of illegitimate births and the illegitimate birth-rate per 100 total births. Compared with 1927, the total number of births was 58 fewer in 1928, but there were 5 more illegitimate births.

TABLE II.

Burghs.	Number (including Illegitimate Births).	Birth Rate (corrected).	Illegitimate Births.	Illegitimate Birth Rate per 100 Total Births.
Ballater . . .	23	13·7	2	8·7
Ellon	17	14·4	3	17·6
Fraserburgh . .	235	23·3	26	11·1
Huntly	67	20·4	9	13·4
Inverurie . . .	93	22·0	7	7·5
Kintore	13	19·6	3	23·1
Oldmeldrum . .	21	23·0	7	33·3
Rosehearty . . .	25	21·0	6	24·0
Turriff	50	25·8	8	16·0
Totals	544	21·5	71	13·05
Corresponding figures for 1927 . . .	496	19·4	66	13·3

INCIDENCE OF THE COMMONER INFECTIOUS DISEASES.**Scarlet Fever and Diphtheria.**

In 1928, there were notified 75 cases of scarlet fever and 31 cases of diphtheria, the corresponding figures in 1927 being 84 and 30 respectively. In the case of scarlet fever the months of greatest prevalence were September and October, and the greatest number of diphtheria cases was notified in November and December.

Typhoid Fever.

No case of typhoid or para-typhoid fever was notified from the Burghs.

HOUSING.

The question of housing generally is dealt with in some detail in the preceding Section of this Report. Particulars of housing activities in each Burgh are shown in Table III. The greatest number of new houses completed in 1928 or in course of erection at the end of the year was in the Burgh of Kintore which had 12 new houses, representing 18·1 houses per 1,000 of population. Next in order came Huntly with 10·03, Ellon with 7·6, Turriff with 4·6, Rosehearty with 4·2, Inverurie with 3·07 and Fraserburgh with 2·8 per 1,000 of population. In 1927 Kintore also headed the list with 13·3 houses per 1,000 of population. From this table it will be seen that, in the case of the Burghs of Inverurie and Huntly, applications were lodged for assistance under the Housing (Rural Workers) Act, 1926.

TABLE III.
Housing in Burghs—1928.

	Ballater.	Ellon.	Fraserburgh.	Huntly.	Inverurie.	Kintore.	Oldmeldrum.	Rosehearty.	Turriff.	Total
A.—Completed during 1928.										
1. With aid of Subsidy—										
(a) By Local Authority	—	—	28	24	—	8	—	—	7	67
(b) By private enterprise	—	8	—	—	7	—	—	—	—	15
2. By unassisted private enterprise	—	1	—	1	3	—	—	—	2	7
B.—In course of erection at 31st December, 1928.										
1. With aid of Subsidy—										
(a) By Local Authority	—	—	—	8	—	4	—	4	—	16
(b) By private enterprise	—	—	1	—	2	—	—	—	—	3
2. By unassisted private enterprise	—	—	—	—	1	—	—	1	—	2
Total	0	9	29	33	13	12	—	5	9	110
Population	1,680	1,182	10,102	3,290	4,232	662	913	1,190	1,939	25,190
Number of new houses completed in 1928 or in course of erection, per 1,000 of population.										
	—	7.6	2.8	10.03	3.07	18.1	—	4.2	4.6	4.3
Number of applications lodged during 1928 under Housing (Rural Workers) Act, 1926.										
	—	—	—	1	10	—	—	—	—	11

Section III.

MATERNITY AND CHILD WELFARE SERVICES.

The Scheme for the Maternity and Child Welfare work embraces the eight Districts of the County and eight Burghs, the two Burghs not coming within the scope of the scheme being Peterhead and Fraserburgh.

The scheme is even now only in its infancy. It has as its objects:—(1) the care of the mother before, during and after confinement, (2) the preservation of the health of children until they attain the age of five years, (3) home visitation of mothers and infants by District Nurses, (4) measures for the prevention and effective treatment of abnormal conditions in mother and child, (5) the provision of adequate institutional accommodation for women during confinement, for mothers suffering from puerperal fever and for children suffering from ophthalmia neonatorum, measles, whooping cough, diarrhoea and the like, (6) the provision of home-helps in exceptional circumstances, and (7) the dissemination of health propaganda through the medium of Child Welfare Clinics. The policy of the scheme is chiefly preventive and its success depends on two factors— assistance rendered by the District Nurses and voluntary workers and co-operation with the medical men of the area.

Births and Birth-rates.

The number of births registered in this area was 2,629 as compared with 2,559 in 1927. Thus, there was an increase of 70 births.

In the following table are shown the total number of births, the numbers of legitimate and illegitimate births, the birth-rate and the illegitimate birth-rate:—

TABLE I.

AREA.	Population.	BIRTHS.			Birth-Rate.	Illegitimate Birth-Rate per 100 Total Births.
		Total.	Legitimate.	Illegitimate.		
DISTRICTS—						
Deer	25,234	527	432	95	20.9	18.0
Ellon	12,388	349	288	61	28.2	17.5
Garioch . . .	11,391	236	193	43	20.7	18.2
Deeside . . .	11,444	213	180	33	18.6	15.5
Turriff . . .	9,838	270	212	58	27.4	21.5
Aberdeen . .	21,815	401	349	52	18.4	13.0
Alford	7,782	148	122	26	19.0	17.6
Huntly	5,821	176	137	39	30.2	22.2
BURGHS—						
Ballater . . .	1,680	23	21	2	13.7	8.7
Ellon	1,182	17	14	3	14.4	17.6
Huntly	3,290	67	58	9	20.4	13.4
Inverurie . .	4,232	93	86	7	22.0	7.5
Kintore . . .	662	13	10	3	19.6	23.1
Oldmeldrum .	913	21	14	7	23.0	33.3
Rosehearty . .	1,190	25	19	6	21.0	24.0
Turriff	1,939	50	42	8	25.8	16.0
Totals . . .	120,801	2,629	2,177	452	21.7	17.1

The birth-rate for the year was 21·7 per 1,000. For the same area, it was 20·88 in 1927 and 22·7 in 1926. The illegitimate birth-rate was higher than in the previous year; it was 17·1 in 1928, as against 15·8 in 1926. It will therefore be seen that in 1928 there was an increase in the total birth-rate and also an increase in the illegitimate birth-rate.

The notification of births to the Medical Officer of Health was made compulsory by the Notification of Births (Extension) Act, 1915. In 1928, the total number of births notified was 1,930 or 73·4 per cent. of the total births.

Infantile Mortality.

The infantile mortality, or the number of deaths amongst children under one year of age, in the area under review was 167, as compared with 188 in 1927, a decrease of 21.

The rate of infantile mortality, or the number of deaths of children under one year to 1,000 registered births, was 63·5, as compared with 73·5 in 1927 and 75·5 in 1926. The Scottish rate of infantile mortality was 86 per 1,000 births in 1928 and 89 in 1927.

In the accompanying table are shown the number of deaths and the infantile mortality in each District and Burgh. In a previous Annual Report emphasis was laid on the liability to statistical error when dealing with small numbers. In 1927, there was a marked divergence in some of the Districts. For example, in that year the infantile mortality rate in the Deeside District was 42 and in the Deer District it was 91. In 1928, the rate in the Deeside District was 66, and in the Deer, 57.

TABLE II.

	Number of Deaths Under 1 Year.	Infantile Mortality Rate.
DISTRICTS—		
Deer	30	57
Ellon	29	83
Garioch	16	68
Deeside	14	66
Turriff	16	59
Aberdeen	23	57
Alford	11	74
Huntly	11	63
BURGHs—		
Ballater	1	43
Ellon	1	59
Inverurie	2	30
Kintore	8	86
Oldmeldrum	1	77
Rosebearty	1	48
Turriff	1	40
Huntly	2	40
Totals	167	63·5

The causes of the 167 infant deaths appear on Table III.

TABLE III.

Causes of Death.	Districts.							Burghs.							Total.	
	Deer.	Ellon.	Garthoch.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Ballater.	Ellon.	Huntly.	Inverurie.	Kintore.	Oldmeldrum.		Rosebush.	Turriff.
Scarlet Fever	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
Measles	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Whooping Cough	2	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—
Heart Disease	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Epidemic Diseases	1	1	—	1	—	—	—	—	—	—	—	2	—	—	—	—
Tuberculous Meningitis	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tuberculosis of Intestines and Peritoneum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Tuberculous Disease	—	—	—	—	1	1	2	—	—	—	1	—	—	—	—	—
Bronchitis	3	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—
Influenza	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—
Pneumonia	8	3	1	2	2	3	—	2	—	—	—	1	—	—	1	—
Other Diseases of Respiratory System	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Diarrhoea and Enteritis	1	2	1	1	1	2	—	—	—	—	—	—	—	—	—	—
Nephritis	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diseases of early Infancy and Malformations	14	18	11	7	7	9	6	3	1	—	1	2	—	1	—	—
Violent Deaths	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—
Other defined diseases	—	1	2	2	5	5	3	1	—	—	—	2	1	—	—	—
Causes ill-defined or unknown	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	30	29	16	14	16	23	11	11	1	1	2	8	1	1	1	167

Maternal Mortality.

In 1928, there were notified 20 cases of puerperal fever, as compared with 15 in 1927 and 12 in 1926. Eighteen cases were notified from the Districts and 2 from the Burghs. Seventeen of the cases were treated institutionally in the puerperal wards of the Aberdeen City Hospital and 7 of these died. Three cases were treated at home, of whom 1 died. One County patient developed the disease whilst resident in a City institution and died; this death was transferred, for statistical purposes, to this Department, but the notification was made to the

City Authorities. In another case, difficult labour was followed by fatal parametritis. In the case of a patient who died in an institution, confidential inquiry elicited the fact that death was attributable to child-birth, and again for statistical purposes, the death was transferred to this Department as one of puerperal fever.

The total number of cases may therefore be taken as 23 and this gives a case mortality of 47·8.

In addition to these, two cases of incomplete abortion were removed for treatment to the Aberdeen City Hospital, one from her home and the other from the Infirmary. These were not regarded as primary cases of puerperal fever.

Puerperal fever appears on the statutory list of infectious diseases under the Infectious Diseases (Notification) Act, 1889, and it was made compulsorily notifiable by the Public Health (Scotland) Act, 1897. In no area can the notification of puerperal fever be regarded as complete and this is due largely to the vagueness of the term. The Ministry of Health of England issued regulations making notifiable puerperal fever and puerperal pyrexia. The Ministry define the latter term as "any febrile condition occurring within twenty-one days after child-birth or miscarriage in which a temperature of 100·4° F. or more has been sustained during a period of twenty-four hours or has recurred during that period." The adoption of this term would certainly simplify the matter so far as notification by the practitioner is concerned, but the Department of Health for Scotland have not yet decided to issue regulations on the subject. These two terms "puerperal fever" and "puerperal pyrexia," must be distinguished from "puerperal morbidity," a term used by the British Medical Association to include "all conditions in which the temperature reaches 100° F. on any two of the bi-daily readings from the end of the first to the end of the eighth day after delivery."

Midwives (Scotland) Act, 1915.

In accordance with the requirements of the Midwives (Scotland) Act, 1915, three women who were registered as midwives gave notice to the Joint Committee for Public Health Services, which is the Supervising Authority, of their intention to practice. One applicant was a District Nurse situated in a rural area, far removed from medical assistance. It has been our rule not to encourage District Nurses to act as midwives independently of doctors unless the nurse resides in a thinly populated area and is not within easy call of a doctor, but in most instances in this County the residences of nurses and doctors are not far removed.

In 1928, no payments were made by the Supervising Authority for medical assistance to midwives.

No official complaints of malpraxis or neglect were lodged against any of the midwives. No case of puerperal sepsis or of ophthalmia neonatorum was reported to have occurred in their practice.

Provision of Foods.

There were seven applications for food and milk for children. The foods are given for a period of one month at a time, but this period can be extended from time to time if the necessitous circumstances of the applicants persist. The standard of necessitousness which qualifies for reception of the grant remains as in previous years and is that the total income to the home shall not exceed 10s. for each parent and 7s. 6d. for each child.

The foods supplied were milk, Allenbury's Food, Almata and Virol and the total cost of these was £39 8s. 8d. In 1927, the cost to the Committee for foods supplied to mothers and infants was £41 8s. 7½d., and, in 1926, it was £38 5s.

Measles and Whooping Cough.

It has not as yet been found necessary to arrange for a definite number of beds being set aside for the reception in hospital of young children suffering from

these diseases. Accommodation for cases where the domestic conditions are unsatisfactory can be provided either in the County Infectious Diseases Hospitals or in the babies' ward of the Aberdeen City Hospital.

Ophthalmia Neonatorum.

In 1918, the Local Government Board for Scotland issued Regulations, made in terms of Section 78 of the Public Health (Scotland) Act, 1897, providing for the compulsory notification as from 1st November, 1918, of cases of ophthalmia neonatorum. Ophthalmia neonatorum is held to include any inflammation that occurs in the eyes of an infant within 21 days of birth and is accompanied by a discharge. It is immensely important to recognise ophthalmia in the new-born at the earliest possible moment, for, to wait for the appearance of marked purulence of discharge is to multiply enormously the danger to the child's vision.

The annual average number of cases notified since 1924 was 14, and the number of cases notified in each year of the quinquennium was as follows:—

1924	.	.	.	.	.	18 cases.
1925	.	.	.	.	.	11 „
1926	.	.	.	.	.	12 „
1927	.	.	.	.	.	19 „
1928	.	.	.	.	.	10 „

Of the 10 cases notified in 1928, 9 belonged to the Districts and 1 to the Burghs. All of them were notified by general practitioners.

Arrangements have been made with the Aberdeen Town Council for the admission of cases—along with the mother if necessary—to Special Wards in the Aberdeen City Hospital. Of the 10 notified cases, two were treated institutionally and the rest were treated at home. In no case was the vision impaired.

Epidemic Diarrhoea.

No definite provision has been made for the institutional treatment of cases of epidemic diarrhoea. Amongst children under one year of age 10 deaths occurred from diarrhoea and enteritis. In 1927, deaths from these diseases numbered 9, and in 1926 they numbered 21.

Provision for Sick Children.

Ailing children under five years of age may be admitted to the Aberdeen Royal Hospital for Sick Children. Where admission to this institution cannot be arranged, an agreement has been come to with the Aberdeen Town Council whereby children under five years of age may, according to their physical condition, be admitted to Burnside Home or to other institutions under the control of the Town Council. It is also possible to admit children from three to five years of age to Linn Moor Convalescent Home, Culter, but it was not found practicable during the year, to use this accommodation to any extent as the beds allocated to the Joint Committee for Public Health Services in this institution are limited and more appropriate cases were found amongst pre-tuberculous children of five years and upwards.

Home-helps.

During 1928, one home-help was supplied by the Joint Committee to attend on a family of five children, the mother of whom had been removed to the Aberdeen City Hospital suffering from puerperal fever. The cost of this provision amounted to £3.

Maternity Hospital and Ante-Natal Annexe.

An arrangement has been made with the Managers of the Maternity Hospital whereby expectant mothers, towards the end of pregnancy, are sent to this institution for advice and ultimate admission, if the consulting gynaecologist considers this necessary. Cases of abnormal pregnancy are admitted as also are cases in whom there is difficulty in satisfactorily carrying out the confinement at home.

The Joint Committee for Public Health Services make a payment to the Managers of the Maternity Hospital of 30s. per week per patient. In 1928, the sum paid to the Managers of this hospital amounted to £136 12s. 4d. In 1927, the sum paid amounted to £141 10s. 9d.

The total number of County patients treated in the Maternity Hospital was 102—69 in the Maternity Hospital and 33 in the Ante-natal Annexe.

Educational Measures.

Three Maternity and Child Welfare Centres were provided at Huntly and Inverurie in 1926 and at Bucksburn in 1928. These centres are also used as branch Tuberculosis Dispensaries, and the ultimate aim is that the minor ailments of children of school age should there also be dealt with. It should be clearly understood that the work carried on at these centres is almost wholly preventive, educative and advisory in character. Their object is not the distribution of drugs. They should not interfere in any way with the practice of the family doctors.

The Huntly Centre has its headquarters in the Brander Library. It is held fortnightly, and, in 1928, the number of new babies and mothers who attended was 52. The total number of attendances of mothers was 392, of babies under one year 327, and of children over one year 121, making the total number of attendances 840. At the Huntly Clinic, the services of the voluntary workers and of the District Nurse have been invaluable.

The Inverurie Centre was also opened in 1926 and is now held in the Railway Works Hall. The number of new mothers attending was 38 and of new babies 52. The total number of attendances was 834—380 by mothers, 300 by babies under one year and 154 by children over one year. The voluntary workers at this clinic have been most enthusiastic and zealous. They have a collection of children's clothing which is sold to the mothers at a nominal rate. Lectures are given by medical members of the Public Health Departments of the County and City and by general practitioners on such subjects as ante-natal welfare, infant feeding and clothing and home hygiene. Nurse Stewart, who recently retired from the post of District Nurse, performed excellent work, in her homely way, in connection with this centre.

At each session, in the case of these two clinics, the actual supervision of the arrangements is in the hands of Dr. P. L. Mitchell, Assistant Medical Officer of Health.

In furtherance of the policy to establish Child Welfare Centres in populous areas of the County, the clinic at Bucksburn, known as St. John's Clinic—with specially designed premises—was opened in November, 1928. This Welfare Centre was provided by Stoneywood District Nursing Association, assisted by a State grant. The total cost of erection and of furnishing, including redemption of feu-duty, was £1,500, and of this sum only about £100 remains to be raised. This reflects very creditably on the enthusiasm and generosity of the district. This centre, in addition to being a Child Welfare Centre, provides for the examination of tuberculous patients, for the treatment of dental and eye defects, and for the periodic testing and immunising of school children against scarlet fever and diphtheria. The local Company of the V.A.D. also make St. John's Clinic their headquarters. Several ladies in the district, by giving their unstinted support to the movement, have already made this clinic a successful Health Centre. The two District Nurses, in the service of the Association, have rendered most willing help. The meetings are held every fortnight, and, at these, lectures, including lantern demonstrations, have been given by the local medical practitioners, by practitioners from the City and by members of the County Health Department.

Under the auspices of the Ellon Red Cross V.A.D., a series of six lectures on mothercraft and general health subjects was given in the Parish Church Hall. These lectures were largely attended and proved to be so popular that it has been

decided to establish a Child Welfare Centre in Ellon in 1929. The clinic at this centre will be conducted by the local practitioners in turn, and every official assistance will be given to this splendid venture. It is only by having the closest co-operation with the general practitioners in the area that these clinics will fulfil their main objectives—the prevention of disease, the improvement in hygienic conditions, in dietary and in the habits of the infant. In addition, one of the advantages accruing from the clinic being run on these lines is that, whereas the official medical officer is handicapped in that he may not prescribe treatment, the general practitioners may provide treatment for minor ailments and will thus render the clinics immeasurably more attractive to the mothers.

Section IV.

SCHOOL MEDICAL SERVICES.

The work connected with the medical inspection and treatment of school children continues to be carried out in a satisfactory manner.

Briefly stated, school health administration has three main purposes—(1) the prevention of disease or defect; (2) the removal of existing disease or defect; and (3) the raising of the existing standard of what is regarded as good health to a definitely higher level. The chief duty of medical officers connected with school work is not to diagnose obvious disease but to detect abnormal conditions before they become patent. Obviously, the main aim should be prevention. And yet, there is a danger of this aim being lost sight of in-as-much as the results of treatment in removing defects are more obvious although of less benefit to the community.

Early curative treatment, however, can scarcely be dissociated from preventive treatment and has a peculiar value in that it lessens the onset of grave disabling conditions which, if neglected, handicap the child throughout his whole life.

The school medical officers have to grapple in the County of Aberdeen with 26,000 children, and it is an alarming fact that about one-quarter of the beginners require medical attention. Thus, in the pre-school period, the majority of defects have manifested themselves, due partly to hereditary degenerative processes, to malnutrition, and to the after-effects of infectious diseases, such as, measles, whooping cough and tuberculosis. On entering school, many children already suffer from late rickets, general debility, diseases of the ear, nose and throat, mouth breathing and the decay of the temporary teeth. The five-year old child, coming within the purview of the school medical officer, is too often physically defective owing to the lack of medical supervision and treatment in the pre-school period. School age and school health cannot effectively be dealt with in a water-tight compartment. The school child cannot be looked on as an independent unit but must be regarded as one of a family. Thus, the school medical officers and the child welfare medical officer, in the scheme of things, merge into one.

It is unlikely that legislation will be introduced to compel parents to have their younger children inspected and treated, and the only method likely to bridge the gap is an extension of the Insurance Acts to cover dependants of insured persons and the inclusion of the general practitioners into a comprehensive scheme for the prevention of disease. So far, the work of the school medical officers cannot be said to be an encroachment on the sphere of the general practitioners, because every child, excluding those suffering from teeth and eye defects, is referred to the family doctor for treatment, and, but for the school medical officers, very few of those defects would have become known to the general practitioner simply because parents, even if aware of defects, would not have considered them sufficiently gross to warrant their calling in a doctor. Whenever extension of the school medical services takes place, it is absolutely essential that general practitioners should have a definite standing in the enlarged scheme. There must be close co-operation between the preventive and curative branches of medicine. There is no palpable reason why there should be a hiatus between two groups of medical men who have the same end in view—the health of the community. Happily, the relations existing in the County between the practitioners on the one hand, and the whole-time Medical Officers of the Public Health Department on the other, are extremely cordial.

Number of Schools and Pupils.

The number of schools in the area is 239. During the year two new schools were built, one at Kinellar and the other at Dunecht.

The number of children on the register as at 31st July, 1928, was 26,369, a decrease of 229 as compared with the previous year.

The percentage of attendance was 90·8, as compared with 91·2, 90·4, and 90·3 in the three preceding years.

Number of Visits to Schools.

The number of visits paid by the medical officers to schools for purposes of routine or systematic examination was 434. The number of special visits, that is, visits other than for systematic examination was 661. The corresponding figures for 1926-27 were 426 routine and 652 special examinations.

Sanitary Condition of Schools.

The sanitary condition of schools in the County has been dealt with in some detail in previous Annual Reports.

(a) *Ventilation*.—The natural method of ventilation is in vogue in all the County schools and, where possible, cross ventilation, such as is used in hospital wards, should be aimed at. Classrooms should be thoroughly flushed with air both in the evenings and during the whole of the week-ends.

(b) *Heating*.—The usual method of heating is by open fires. By this method, it is not possible to get an equable temperature of, say, 60° F. The optimum temperature in infant departments is 65° F. and in other classrooms from 56°-60° F. The result of heating by open fires is that the children in front are too warm whereas those at the corners and back of the room are too cold. The important thing, however, is that the children should not sit hour after hour with damp clothes and wet feet. It is quite impracticable to introduce central heating into every school and the method of heating by open fires can usually be made effective if they are augmented by stoves with flues. In many private houses the hot water circulation is effected in conjunction with the open fire and in some of the smaller country schools this method might with advantage be adopted.

(c) *Lighting*.—In most of the County schools the lighting is quite good, but, in many instances, it could be improved by having the walls painted or durescoed with light colours. In some of the schools, the ceilings are of varnished wood and however well the room may be lit, there is practically no reflected light from such ceilings. It would be of great advantage if ceilings of this type were painted white so that the maximum of reflected light could be obtained.

(d) *Disinfection*.—The question of disinfection of schools has previously been dealt with. It is only necessary to reiterate that aerial disinfection by Formalin, Sulphur, and the like, is very much less effective than the free use of soap and water.

During the year, it was not found necessary to close any school for purposes of disinfection.

(e) *Sanitary Conveniences*.—A number of the smaller schools in the County have still dry closets which are frequently dark and badly ventilated. Since it came into being, the Education Authority have made considerable progress in improving the sanitary conditions of the schools in their area. A considerable time, however, must still elapse before all the schools in the County are brought to an up-to-date standard as regards sanitation. In some instances, it will be impossible to instal wet closets on account of the engineering impossibility of getting an adequate system of water supply and sewage disposal.

The Eastern or "native" type of closet has been in use in Lanarkshire for some time and has been adopted in the following schools in this County:—

Alford, Lumphanan, Kincardine O'Neil, Stuartfield, Monquhitter, and Fetter-near. So far as one can gather, they have given every satisfaction; they are superior to the old type of closet both from the physical and hygienic point of view.

ORGANISATION AND ADMINISTRATION.

During the session, all the schools in the County were visited once, most of them twice and many of them three times.

Every child, during school life, is examined at least three times, and those who remain at school until they are sixteen years old are examined a fourth time.

The following age groups are examined every year:—

1. Entrants.
2. Nine-year olds.
3. Twelve-year olds.
4. Sixteen-year olds.

It is doubtful whether there would be any appreciable advantage in shortening the intervals between medical inspections. Most of the serious defects, excluding dental and eye defects, are detected in the entrants. In actual practice, it is not possible to detect eye defects—except such obvious defects as squint—in children under eight years of age, but, at the special visits, eye defects in those between the entrants and the nine-year olds are brought to the notice of the medical officers by teachers and district nurses. For example, children who hold their books too close to their eyes are referred to the medical officers by the teachers at these special visits.

As regards dental disease, although the medical officers, at their routine visits, examine the teeth, the dentists carry out a complete dental survey before commencing treatment.

School Nurses.

The district nurses act as school nurses. There are no whole-time school nurses. In rural areas, it is generally acknowledged that whole-time school nurses would not give the same satisfactory service as do the district nurses. The latter have to attend families for general sickness and their visits in connection with ailments of the children are not looked on as an intrusion.

Arrangements for Following-up.

"Follow-up" records, giving the names and addresses of children suffering from defects and the nature of the ailment, are sent to the district nurses who on their next visit to the school ascertain whether the recommendation of the medical officer has been attended to. If no attention has been paid, the nurses visit the homes of the children and try to persuade the parents to get medical advice. It need hardly again be pointed out that the school medical officers never prescribe treatment, even for minor ailments. The affected pupils are on all occasions referred to the family doctors for advice and treatment.

The most thankless part of the nurses' duty is the visitation of the homes of children who are found to be persistently verminous. No mother welcomes the nurse on such an occasion. The general improvement of school children of all ages as regards cleanliness is in no small measure attributable to the excellent work being performed by our school nurses.

Supervision of Infectious Diseases in Schools.

(a) Notifiable Infectious Diseases.

1. SCARLET FEVER.

Amongst the school population, 293 cases of scarlet fever were notified, as compared with 424 in 1926-27.

The chief outbreaks were at the following schools :—

Drumblade	June, 1928.
Wester Hatton	October, 1927.
Tulloch	" "
Cairney	" "
Culsalmond	" "
Fetterangus	" "
Menie	" "
Cairnorrie	" "
Daviot	" "
Auchiries	August, "
Echt	September, 1927.
Westhill	" "
Oyne	January, 1928.
Glass	January-February, 1928.

2. DIPHTHERIA.

No decided outbreak occurred at any school. Thirty-four cases were notified, compared with 92 in the previous year.

3. CHICKEN-POX.

The chief outbreaks were at :—

Crimond School	June-October, 1927.
Rathen "	October, 1927.
Udny "	November, "
Cultercullen School	" "
Leylodge "	December, "
Strichen "	" "
Turriff "	January, 1928.
New Pitsligo "	May, "
Fraserburgh "	June, "

4. TYPHOID FEVER.

New Deer Higher Grade School. Several school children were affected in the New Deer outbreak in November-December, 1927.

(b) Non-notifiable Infectious Diseases.

1. MEASLES.

Braemar R.C. School	September, 1927.
Rosehearty "	October, "
Rathen "	November "
Braemar P. "	January, 1928.
Inverey "	" "
Tarves "	" "
Cairnorrie "	February, "
Oldmeldrum Infant School	" "
Kepplehills School	March, "
Craigdam "	" "
Stoneywood "	April, "
Bridge of Don "	" "
Huntly Gordon "	" "
Dyce "	May "
Clochcan "	" "
Boddam "	" "
Inverurie Infant School	" "
Parkhill School	June "

2. WHOOPING COUGH.

Sir A. Grant's School	August, 1927.
Rayne North	" "
Kildrummy	September, 1927.
Longside	October, "
Finzean	April, 1928.
Ballogie	May, "
Bogbrae	" "

3. MUMPS.

Lonmay P. School	October, 1927.
Keithhall	" "
Techmuiry	January, 1928.
St. Fergus Central School	" "
Disblair School	" "
Crimond	April, "

4. INFLUENZA.

Peterhead Central School	February, 1928.
" North	" "

Closure of Schools.

No school was closed on account of infectious disease.

In the previous three Annual Reports, much stress was laid on the futility of closing schools with the object of preventing the spread of ordinary infectious diseases. In this connection, the Scottish Board of Health issued a circular letter, under date 30th March, 1928, in which the following statements appear:—

"The Board are convinced that school closure is very exceptionally required for the protection of the public health even in rural areas; and that in urban areas it is practically never so required.

Further, closure is not likely ever to be effective from the preventive aspect unless it takes place at or towards the commencement of an epidemic outbreak. The fact that many school children are suffering from infectious disease, that others are excluded from school because they are living in infected houses and that attendance is accordingly far below the normal, is not in itself sufficient reason for advising closure of the school; when an outbreak has reached such proportions the chances of school closure doing anything to check it are extremely small.

Closure should be certified to be necessary only after all relevant matters have been taken into consideration—the nature of the disease, its period of incubation, its mode of infectivity, its age incidence, and the extent of its prevalence; the character of the district; the housing accommodation; and the risk of infection being spread through children mixing outside school in places where control is more difficult to exercise. In short, the closure of schools is such a serious interference with the educational work of a district and is, as a rule, of such doubtful value from the public health point of view, that it should only be resorted to for very substantial reasons. It should never be adopted to the exclusion of other methods of controlling infectious disease, such as isolation of patients, supervision of contacts, the frequent examination of children still in attendance, visitation of houses in which cases are likely to exist, exclusion from school of infected persons or persons living in infected houses, and discouragement of children from attending picture houses and other meeting places."

Co-ordination of Public Health Services.

In the County of Aberdeen, the County Council and Education Authority gradually realised that, although the school medical service was established on a sound footing so far as the scheme for inspection and treatment of school children was concerned, nevertheless complete co-ordination seemed to be impossible

so long as independent officials were in charge of the several health schemes. It became increasingly apparent that an efficient and economical service, covering all statutory health requirements, could best be obtained by the establishment of an *ad hoc* Committee responsible for all health services and under which the medical personnel of the several branches became unified under one head. The Aberdeenshire Joint Scheme was inaugurated in the beginning of 1925 and its main objects were :—

1. To further the prevention of disease ;
2. To co-ordinate and direct the various branches of the Public Health Services as a well-ordered whole, under one Chief Medical Officer who would act as liaison officer ;
3. To secure complete co-operation between the County Public Health staff and the general practitioners in the County in all matters appertaining to the health of the community ; and
4. To promote greater efficiency of the County Medical Services, the prevention of overlapping and ultimate economy.

Thus the County Council and Education Authority anticipated impending legislation by setting up this *ad hoc* Committee which consists of 15 County Councillors, 10 members of the Education Authority and 9 members from the Town Councils of the several Burghs and which can dispense finally of all matters except those connected with capital expenditure.

Under this completely co-ordinated scheme, all the institutional and equipment resources of the area, as controlled by the Executive Committee, are available for the treatment of school children. It is desirable, wherever possible, to utilise the services of the general practitioners in the area for the routine treatment of diseases and defects in school children. In supplement of the general practitioners' services, however, clinics—within which are required the services of medical specialists—are necessary particularly for dental treatment, for the treatment of eye defects and for the treatment of tonsils and adenoids. In my opinion, in a County like Aberdeenshire, it is essential for the sake of uniformity and records and thus for the comparison of results and for the recognition of the earliest signs of departure from health that the actual inspection of school children should, *in the main*, be carried out by whole-time medical officers.

Up to the present time clinics for the treatment of enlarged tonsils and adenoids have not yet been established.

Presence of Parents at Inspection.

Parents are always notified of the date on which their children are to undergo routine examination by the medical officer, but, unfortunately, only a small percentage avail themselves of this opportunity. In the session under review, only 10 per cent. of the parents were present.

Special Visits.

The special visits, 661 in number, were made for the following reasons :—

1. To investigate outbreaks of zymotic diseases.
2. To examine and classify mentally defective children.
3. To examine and recommend as to the treatment of physically defective children.
4. To re-examine verminous children.
5. To examine students in preliminary training at Peterhead, Fraserburgh, Huntly, Inverurie, Ellon and Turriff, as to their physical fitness to enter the teaching profession.

THE PHYSICAL CONDITION OF THE SCHOOL CHILDREN.

In the tabular statements that follow, "Special Cases" refers to the number of children, not undergoing systematic examination, who were found defective

under the heading given and bears no relation to the total number of special cases examined, because several of the cases referred to the medical officers for examination were found to have no abnormality.

A. Total Number of Children Examined—

(a) Systematic Examination—

Beginners	2,935
Nine-year-olds	2,230
Twelve-year-olds	2,599
Sixteen-year-olds	165
	<hr/>
	7,929

(b) Special cases examined at special visits and re-examinations

7,861

Total

15,790

B. Number of children notified to parents as suffering from defects 1,095

Number placed under observation for re-examination at subsequent visits, without treatment being recommended 1,987

C. Number of Children Receiving Attention—

Out of 2,312 defects in children requiring treatment, 1,842, or 79·6 per cent., received attention during the year. This includes 154 specially recommended by the medical officers for dental treatment; of these, only 50, or 32·4 per cent. were treated. Exclusion of these dental figures raises the percentage of treatment to 83. The number of cases recommended by the school dentists for treatment and notified to the nurses is not included here but will be found separately under the heading "Treatment—Dental Defects."

In the following statements, 7,927 is the number of pupils who underwent the full systematic examination, the only exception being the statement relating to visual acuity. The eyesight of entrants is not usually tested, and the total number of cases examined was 4,992, as compared with 4,988 in the previous session.

D. Clothing—

Clothing was found to be insufficient, dirty, or in bad repair in only 47, or '5 per cent. Four special cases were found to be unsatisfactory in this respect.

E. Footgear—

Footgear was found to be unsatisfactory in 30, or '3 per cent. and in 2 special cases.

F. Average Heights and Weights of Children—

TABLE I.

BOYS.

No. of Children.	Average Age in years.	Average Height in inches.	Average Weight in lbs.
136	$4\frac{7}{12}$	39·4	38·7
822	$5\frac{6}{12}$	42·6	42·4
521	$6\frac{3}{12}$	44·5	45·2
120	$7\frac{3}{12}$	45·4	47·6
546	$8\frac{7}{12}$	47·5	52·1
463	$9\frac{2}{12}$	49·2	56·2
715	$11\frac{6}{12}$	51·9	68·7
614	$12\frac{2}{12}$	55·2	72·4
40	$15\frac{4}{12}$	64·9	124·9
38	$16\frac{3}{12}$	65·3	126·1

GIRLS.

No. of Children.	Average Age in years.	Average Height in inches.	Average Weight in lbs.
121	$4\frac{5}{12}$	39.2	38.6
813	$5\frac{4}{12}$	42.5	42.3
522	$6\frac{3}{12}$	44.3	43.9
102	$7\frac{2}{12}$	45.3	47.1
487	$8\frac{5}{12}$	47.5	50.2
512	$9\frac{2}{12}$	50.9	57.3
598	$11\frac{5}{12}$	53.6	69.9
572	$12\frac{6}{12}$	55.8	75.3
42	$15\frac{6}{12}$	61.6	106.9
43	$16\frac{3}{12}$	62.7	117.2

It is interesting to note from the preceding table that in the earlier years of school life boys are rather heavier and taller than girls. About the age of 12 the girls surpass the boys in height and weight, but, at 15 and 16 years of age, the boys gain on and overtake the girls both in height and weight.

G. Cleanliness of Head and Body—

(a) Head—

Dirty or Nits	741 or 9.3 per cent.
Verminous	153 or 1.9 "
Special cases	120

(b) Body—

Dirty	60 or .7 "
Verminous	72 or .9 "
Special cases	50

During the year, the medical officers and nurses have engaged in intensive work with a view to diminishing the number of children who may be termed "dirty." It may truly be said that their efforts have not been in vain as is shown in the following statement relating to the past four sessions:—

TABLE II.

Session.	Heads Dirty or with Nits.	Bodies Dirty.
1927-28	9.3 per cent.	.7 per cent.
1926-27	14 "	.7 "
1925-26	14.8 "	1 "
1924-25	17.7 "	1.3 "

As was pointed out in a previous Report, the machinery for dealing with uncleanness of head and body is exceedingly cumbersome, but it is difficult to see how legally it can be speeded up. When the medical officers discover a dirty or verminous child a notice is sent to the parents by the examining medical officer. Another inspection, after a short period, is made, and, if the child is still verminous the Clerk to the Education Authority is advised. He informs the Clerk of the School Management Committee who issues a warning to the parents. If, after a third examination, the child is still found to be verminous, the Clerk to the Education Authority is again advised; the information is handed on to the School Management Committee who summon the parents to appear before them to explain why the children are verminous. The only plea that can be accepted is poverty or ill health, and if the School Management Committee are not satisfied as to this the next step is prosecution. Another medical examination is, however, usually made after the parents have appeared before the Committee, and it is not unusual at this examination to find that the child is non-verminous, but, within a short period, the child may again be and often is found to be verminous and the whole cycle has to re-commence. There are several families in the County who

might be termed "verminous families," that is, the children are found to be intermittently verminous and the principal parent concerned in this repulsive state of affairs is usually the mother.

Much credit for the improved cleanliness of these families is due to the energy of the district nurses, and of the inspectors of the R.S.S.P.C.C.—Inspector Cockburn, Aberdeen, and Inspector Currie, Peterhead.

There seems to be a popular idea in Aberdeenshire that verminous children—whatever the degree of verminousness may be—should be forthwith excluded from school until they are clean, but such a procedure would affect school attendance very adversely and would place an unbearable burden on the public health officials—especially as the County is not yet fully served with nurses. Only children who are grossly verminous need be excluded from attendance and then the exclusion should only be for two days at most. There are Cleansing Centres in various parts of the County, the most up-to-date being that in connection with Huntly Jubilee Cottage Hospital. On several occasions, during the period under review, whole families have been removed to these Centres for disinfection, and, during their absence from their homes, the Sanitary Inspectors have seen to it that the homes are thoroughly disinfected. In the disinfection of these homes, it is often found that efficient disinfection of the bed-clothes and bedding cannot be carried out; in such instances, these are burned and are replaced by the Local Authority.

H. Condition of Skin—

(a) Head—

Ringworm	2 or	·02 per cent.
Impetigo	36 or	·4 "
Favus	—	—
Other diseases	3 or	·03 "
Special cases	25	

(b) Body—

Ringworm	1 or	·01 "
Impetigo	—	—
Scabies	9 or	·1 "
Other diseases	—	—
Special cases	6	

I. Nutrition—

Above average	564 or	7·1 "
Average	7,057 or	89 "
Below average	306 or	3·8 "
Very bad	—	—
Special cases	6	

J. Teeth—

Sound	1,206 or	15·2 "
1-4 Decayed	5,645 or	71·2 "
5 or more Decayed	1,067 or	13·4 "
Oral sepsis	9 or	·1 "
Special cases	89	

K. (a) Nose—

Catarrh	171 or	2·1 "
Obstruction	2 or	·02 "
Other diseases	13 or	·1 "
Special cases	4	

(b) Throat—

Tonsils—

Slightly enlarged	879 or	11 "
Markedly enlarged	178 or	2·2 "

Adenoids—

Probably present	139 or 1·7	per cent.
Present	32 or ·4	"
Other diseases	114 or 1·4	"
Special cases	156	

(c) *Lymphatic Glands*—

1. Submaxillary—

Palpably enlarged	1,759 or 22·5	"
Markedly enlarged	26 or ·3	"
Suppurating	1 or ·01	"
Cicatrices	30 or ·3	"

2. Cervical—

Palpably enlarged	859 or 10·8	"
Markedly enlarged	2 or ·02	"
Suppurating	1 or ·01	"
Cicatrices	24 or ·3	"

L. *External Eye Diseases*—

Blepharitis	79 or ·9	"
Conjunctivitis	26 or ·3	"
Corneal opacities	1 or ·01	"
Squint	149 or 1·8	"
Other diseases	39 or ·4	"
Special cases	31	

M. *Visual Acuity* (number examined 4,992)—

Good vision	4,377 or 87·9	"
Fair vision	384 or 7·6	"
Bad vision	231 or 4·5	"
Special cases	76	

(The vision of entrants is not tested.)

In the Visual Acuity Table, it should be noted that classification is made according to the vision of the better eye and also with glasses, if these are worn, so that the number of children referred to the oculist has no relation to the number recorded as having defective vision.

N. *Ears*—

Otorrhœa	20 or ·2	per cent.
Wax	18 or ·2	"
Other diseases	24	

O. *Hearing*—

Slightly deaf	29 or ·3	"
Markedly deaf	1 or ·01	"
Special cases	6	

P. *Speech*—

Defective articulation	45 or ·5	"
Stammering	5 or ·06	"
Special cases	13	

Q. *Mental Condition*—

Backward	87 or 1	"
Mentally defective	12 or ·1	"
Special cases	36	

R. Heart and Circulation—

Acquired organic disease	59 or .7 per cent.
Congenital organic disease	4 or .04 "
Functional disease	73 or .9 "
Anæmia	106 or 1.3 "
Special cases	25

S. Lungs—

Chronic bronchitis	39 or .4 "
Tuberculosis	6 or .07 "
Suspected tuberculosis	46 or .5 "
Other diseases	98 or 1.2 "
Special cases	9

T. Nervous System—

Epilepsy	— —
Chorea	4 or .04 "
Paralysis	9 or .1 "
Other diseases	17 or .2 "

U. Tuberculosis (Non-pulmonary)—

Glandular	10 or .1 "
Bones and joints	6 or .07 "
Abdominal	4 or .04 "
Skin	1 or .01 "
Other forms	4 or .04 "
Special cases	5

In 1926-27, 41 cases of non-pulmonary or surgical tuberculosis were discovered, as compared with 30 in 1927-28.

V. Rickets—

Slight rickets	79 or .9 per cent.
Marked rickets	3 or .03 "
Special cases	1

W. Deformities—

Congenital	67 or .8 "
Acquired	13 or .1 "
Special cases	2

X. Infectious and Contagious Diseases

Special cases	67 or .8 "
	27

Y. Other Diseases and Defects

Special cases	253 or 3.1 "
	51

TREATMENT OF DISEASE IN SCHOOL CHILDREN.**(1) Dental Defects.**

Two whole-time and two part-time dentists are employed to cover this branch of school work. Gradually, the value of the dental services is coming to be realised by parents who each year give their consent to treatment in increasing numbers. It is advisable that dental treatment should not be at intervals of more than a year, but, with the steady increase in the number of consents this practice has been found impossible.

The details of the work performed during 1927-28 are shown in the following table in which comparison is made with the figures of the preceding year:—

TABLE III.

<i>Inspections—</i>	Whole-time Dentists.			Part-time Dentists.	
	1927-28.	1926-27.		1927-28.	1926-27.
Number of schools visited .	138	130	...	34	32
Number of scholars inspected	9,589	8,628	...	2,954	2,280
Number of children with sound teeth .	2,841	2,540	...	910	657
Percentage with sound teeth	33.7%	29.4%	...	30.9%	28.8%
Number of cases where parents were notified .	6,748	6,088	...	2,044	1,623
Number of consents .	3,874	3,370	...	993	757
Percentage of consents received .	57.4%	55.3%	...	48.5%	46.6%
<i>Treatment—</i>					
Number of schools visited .	143	146	...	28	16
Number of children recommended by School Dentists and treated .	3,743	3,283	...	970	749
Total number of children treated, including "specials" .	4,016	3,494	...	1,048	834
Percentage treated of those requiring treatment .	57.2%	—	...	49.3%	—
Percentage of number recommended treated .	—	57.3%	...	—	51.3%
Number of extractions—					
(Temporary) .	5,670	4,852	...	—	—
(Permanent) .	927	982	...	—	—
Number of fillings—					
(Temporary) .	345	534	...	—	—
(Permanent) .	2,670	1,758	...	—	—
Amount of fees received, 1927-28 .				£118 8 1	
" " 1926-27 .				100 19 2	

(2) Defective Vision.

Dr. Galloway examined 854 cases at 15 centres. In 659 of these cases spectacles were ordered, while in 170 the spectacles used were satisfactory or no spectacles were considered necessary.

The accompanying table gives the centres visited and the numbers examined at each centre :—

TABLE IV.

Centres.	Number of Cases.
Aberdeen .	96
Huntly .	91
Insch .	29
Ellon .	24
Maud .	34
Strichen .	28
Oldmeldrum .	30
Inverurie .	64
Fraserburgh .	148
Turriff .	91
Peterhead .	123
Kemnay .	28
Alford .	27
Aboyne and Ballater .	26
Strathdon .	15
Total .	854

The treatment given to or the condition found in the 854 cases was as under :—

TABLE V.

Spectacles ordered	659
Spectacles satisfactory or unnecessary	170
Corneal nebulae	8
Strumous ophthalmia	5
Conjunctivitis	4
Blepharitis	3
Lamellar cataract	2
Congenital colobomata of iris and choroid	1
Sequelae of ophthalmia neonatorum	1
Corneal ulcer	1
Total	<u>854</u>

In those children for whom spectacles were prescribed the various refractive errors occurred in the following proportions :—

Hypermetropia	321—48·71 per cent.
Hypermetropic astigmatism	127—19·27 "
Myopia	80—12·13 "
Myopic astigmatism	70—10·06 "
Mixed astigmatism	61—9·25 "
	<u>659</u>

Convergent strabismus occurred in 17·1 per cent. of the cases of hypermetropia, and in 3·9 per cent. of the cases of hypermetropic astigmatism. Among the refraction cases, one child of 8 years of age had myopia of 10 D, and another child had a congenital coloboma of iris and choroid in one eye.

(3) Mental Deficiency.

During the session, 13 cases of mental deficiency were certified under the Mental Deficiency and Lunacy (Scotland) Act, 1913. They were classified as follows :—

1. Feeble-minded and educable—3.
2. Imbecile and ineducable—10.

The ineducable mental defectives are referred to the Parish Council concerned, whilst those who are educable are dealt with by the Education Authority. Two of the feeble-minded children were sent to Baldovan Institution, Dundee. In the case of the third child, a border-line case, the parents refused the Authority's offer of education in a Special School. The matter was referred to the Board of Control who considered that, in the circumstances, it would be unwise to apply for a warrant for compulsory removal. One other mentally defective child was brought to our notice, but it has so far been impossible to come to a definite classification.

(4) Physical Deficiency.

Although the Committee have made no orthopaedic provision for the treatment of crippling defects in children yet appliances are supplied. Active treatment is provided at the Aberdeen Royal Infirmary or the Sick Children's Hospital.

Blind children are treated in the Royal Blind Asylum and School, Edinburgh, in which 5 cases were treated. One pre-1919 case continues to receive treatment in Donaldson's Hospital, Edinburgh.

Deaf-mutes are taught at Westburn Road Special School, where, in 1927-28, 11 County pupils were accommodated.

(5) Minor Ailments.

Minor ailments constitute such complaints as skin diseases, external eye diseases, running ears, &c. These are usually treated at school clinics, but organised effort in this direction has not yet been established. The treatment of minor ailments at clinics can never be effective unless the general practitioners in the area take an active part in their conduct.

(6) Enlarged Tonsils and Adenoids.

No provision has been made for operation on cases suffering from enlarged tonsils and adenoids. When the medical officer finds these conditions present, intimation is sent to the parents who are advised to consult the family doctor. The family doctor decides as to whether or not operation is advisable. He either operates himself or refers the case to the Voluntary Hospitals in Aberdeen.

It should be remembered that every case of enlarged tonsils does not require operation. The exciting cause should be investigated. The enlargement may be due to oral sepsis, to inappropriate diet, to absence of sunlight and fresh air. Nasal drill and breathing exercises may alleviate the condition. Only when the condition refuses to respond to treatment and when there is evidence of retardation of physical and mental growth should the tonsils be removed.

There is, however, often associated with enlarged tonsils the presence of adenoids which may give rise to deafness, mental apathy, retardation of mental and physical growth and hypertrophic rhinitis. Adenoids also predispose to the onset of asthma and tuberculosis. Adenoids, causing any or all of these symptoms, should be removed.

One would like again to impress that the removal of tonsils and adenoids cannot be regarded as a minor operation. These cases should be admitted to hospital and should be retained therein for, at least, 36 to 48 hours after operation.

(7) Tuberculosis.

Cases of tuberculosis in school children are treated in appropriate institutions to which adult County patients have access. Fortunately, active tuberculosis during the school period is comparatively rare, but there is in children a common condition in which there is involvement of the glands within the chest, known as, intrathoracic adenitis. Cases suffering from this type of the disease and requiring institutional treatment are sent to Linn Moor Convalescent Home, Culter, under the County Tuberculosis Scheme.

Special Schools and Classes.

There are no special schools or classes in the County. It is hoped that the Education Authority may, in the near future, be able to institute special classes at Peterhead and Fraserburgh for the education of mentally subnormal children.

Open-air Schools and Education.

Millbank Public School, Cluny, is the only open-air school in the County.

Although no formal arrangements have been made for the out-door teaching of children, yet some of the teachers hold the classes in the playground in the warm weather. The Authority have improved many of the playgrounds, but further improvement would result if they were laid in concrete or asphalt so that gymnastic exercises could also be carried out in the open.

In some of the schools, the cloak-room accommodation is inadequate. In all schools, there ought to be an arrangement for the drying of the clothes and boots of children who reside, as many do, a long distance from school.

Arrangements for Physical and Personal Hygiene.

The scope of the arrangements for the physical hygiene of children has been detailed in previous Annual Reports. Under the section entitled "Defects in our Present System," there appears a plea for the necessity of health teaching in schools.

Arrangements for Feeding of Children.

Powers are given to Education Authorities, under the Education (Scotland) Act, 1908, to provide accommodation, apparatus, equipment, and service for the preparation and supply of meals. No provision is, however, made for the supply of foods, the cost of which is usually met by voluntary contributions or by the proceeds from dances, whist drives, &c. The provision of mid-day meals is in the hands of Local Committees.

In 1927-28, the Education Authority gave statutory assistance in the case of 46 schools.

DEFECTS IN OUR PRESENT SYSTEM.

1. *Mental Health.*

For practical purposes, mentally subnormal and defective children fall into three groups:—(a) the dull and backward, (b) the mentally defective who are in some degree educable, and (c) the mentally defective who are ineducable. No hard and fast line of demarcation can be drawn between these groups. Under group (a) comes from 7 to 10 per cent. of all children attending school, whereas groups (b) and (c) constitute 1 per cent. of all school children. The common physical defects which often lead to backwardness are defective vision, deafness, adenoids, malnutrition and insufficient feeding and vagrancy. The dull and backward group provides one of our greatest social problems, for, from it are recruited most of the delinquents, criminals and unemployables. These children require special provision to be made for their education. Special classes at, say, Peterhead and Fraserburgh might be established and it would then be found that a proportion of the children would require only a short spell of special instruction to enable them to continue with an ordinary class whereas continued observation would prove that a smaller proportion were mentally of so low a standard as to require removal to a special school or institution. Two years ago, it was estimated that in Fraserburgh and Peterhead there were no fewer than 126 subnormals.

Coming to group (b), the feeble-minded, we find that, in dealing with the higher grades of mental deficiency, sparsely populated areas are at a disadvantage compared with cities. In a city, it is a comparatively simple matter to collect the educable feeble-minded children daily and transport them to and from a special school where teaching, suited to their mental level, can be given. In a county, it must usually happen that there is not a sufficient number of this grade of defective to justify the formation even of a "special class" for them. The existing institutions cannot accommodate more than a minority of those requiring this special teaching, and there is great need for the provision of other accommodation. It might be that certain counties would combine to provide and support schools for these afflicted children. These schools would of necessity be residential.

The third group includes imbeciles and idiots who are ineducable. Such children are not dealt with by the Education Authority but are referred to the Parish Councils. Most of these cases require custodial care, often in institutions. Here again, the institutional provision is totally inadequate.

2. *"Following-up."*

The complete treatment of school defects entails examination by the school medical officer, visitation by the district nurse or health visitor, and attention by the general practitioner or the medical and surgical specialists. In rural areas, the district nurse usually acts as health visitor and school nurse and the cycle cannot be perfect unless the area is covered by a complete network of nurses. In most Counties in Scotland, there is no such network, and thus, in many cases, the link between the school medical officer and the general practitioner is wanting. The health of the school child will never be conserved until the services of nurses are available for all members of the community.

3. Clinics.

Skin and other clinics in large burghal areas have been successfully established, but, in rural areas, they present almost insurmountable difficulties. Firstly, there is the paucity of cases. Then, such clinics are doomed to failure unless the general practitioner takes an active part in their conduct. Here, one is up against the problem of a general practitioner treating patients who properly belong to another general practitioner. In such difficulties, the only important point is that the patient should not suffer, and I am hopeful that the difficulty will to some degree be overcome by making a certain proportion of the general practitioners part-time assistants at the clinics.

4. Investigation and Research.

On looking over the Annual Reports of school medical officers, it is obvious that the main object of the school medical officer's examination is apparently to ascertain whether the child has any obvious disease or defect. This is the popular view of the value of medical inspection, but that it is a very imperfect view is realised when it is considered that the predominant function of the school medical officer is prevention. Obvious defects—of vision, of throat conditions and the like—usually do receive adequate attention, but what about such conditions as debility and malnutrition which require continued and persistent treatment?

There is such a mass of material available for research amongst school children that *school medical officers should be encouraged—under a co-ordinated scheme—to investigate such vital problems as nutrition, goitre, rheumatic infections, including chorea, heart disease, and respiratory infections.*

The popular view that research is synonymous with laboratory investigation is wholly wrong. There is clinical research into the signs of disease, pathological research into morbid processes and epidemiological research into the causes of outbreaks of disease. An impetus in the direction of research is assured from the Chief Medical Officer of the newly constituted Department of Health.

Milk Feeding Investigation.

During the past two years special investigations were carried out in several centres in Scotland to determine the value of milk, both whole and separated, as a definite factor in the building up of the bodies of children. The number of children involved was 1,425, and the towns concerned were, Aberdeen, Peterhead, Dundee, Edinburgh, Glasgow, Greenock and Belfast. The experiment commenced in November 1927 and concluded in June 1928. At each centre, four groups of children were selected and each group was treated separately. One group received whole milk, another separated milk, a third received biscuit of the same caloric value as the separated milk and a fourth, receiving nothing, acted as controls. The ages of the three groups selected were:—(1) 6-7 years, (2) 9-10 years, and (3) 13-14 years. The 6-7 year group received $\frac{3}{4}$ pint of milk daily, whilst the other two age groups received 1 pint daily. All the milk was given at school under supervision. The whole milk was ordinary milk pasteurised, except at Aberdeen and Peterhead where it was "certified milk," and at Greenock where it was "Grade A." The separated milk was machine-skimmed. The measurements were carried out four times during the investigation period in all centres, with the exception of Belfast where only three measurements were taken. As far as was possible, the children were taken at the same time at each measurement. The measurements were taken to the nearest $\frac{1}{8}$ inch and $\frac{1}{4}$ lb. Those children who were absent on 25 per cent. of feeds or who presented certain abnormalities were omitted from the final calculations and the total number of these was 268. Thus 1,400 children were involved, all living in ordinary working-class homes, receiving the ordinary diets of such homes and attending school in the ordinary way. The milk given them thus represents an addition to their ordinary dietary.

The conclusions, drawn by the Board from these investigations, may be thus summarised.—

1. Reviewing all the children coming within the purview of the investigation and dividing them into milk-fed and non-milk-fed groups, we find that there was an average increase in height of 23·5 per cent. and in weight of 45·37 per cent. in favour of the milk-fed groups over the non-milk-fed groups.
2. The increase in growth was accompanied by an improvement in the general condition of many of the children receiving milk as shown by improved general condition, increased mental alertness, improved condition of the skin, glossier hair and bright nails.
3. Separated milk is of very great value in promoting growth. As an augmentation of the ordinary dietary of school children, separated milk possesses practical nutritive values not much inferior to those of whole milk.
4. That the improvement was entirely due to the milk-feeding was shown by the fact that stoppage of the milk-feeding was followed by cessation of improvement.

5. *Health Teaching in Schools.*

Instruction in hygiene should be included in the curriculum of every school. It should be taught in theory or practice, or both, throughout the nine years of school life. Such instruction vitally affects education, and the health and even the life of the child. It is pleasing to record that several teachers in the County teach hygiene systematically, on their own initiative, and it is to be hoped that this good example will gradually be adopted by all teachers. The school is the obvious place to instil the principles governing health and it is in the school that habit-training should commence.

In the case of young children, say, under eleven years of age, the teaching should take the form of lecturettes, given daily and lasting for only a few minutes. These talks should deal with the value of (1) cleanliness of the hair, nails and skin, (2) fresh air and sunlight, (3) good food, taken regularly and properly masticated, (4) dry, warm and tidy clothing, (5) the use of the handkerchief to clear the air passages and prevent mouth-breathing, (6) sleep, (7) rest, (8) the individual use of pens and pencils and (9) the proper use of sanitary conveniences. Handkerchief drill should be carefully taught, for, if the handkerchief were properly used, the spread of common "colds" which interfere so much with school attendance would be largely prevented. The dangers of the filthy habit of spitting might also be emphasised.

Then, in children over 11 years of age, the formal teaching of hygiene should take a definite place in the school curriculum. Periodic talks might be given on such subjects as (1) cleanliness, (2) nutrition, (3) exercise and rest, (4) bodily and mental health, (5) how to avoid communicable diseases, (6) the care of the teeth, eyes, ears, nose and throat, and (7) nature and nurture.

To meet these requirements the Board of Education for England published in 1928 a "Handbook of Suggestions on Health Education." This booklet deals with the subject of the teaching of hygiene in a fascinating manner and is recommended for the use of teachers.

Last year, a booklet entitled "Hygiene of the Mouth and Teeth," published by the Dental Board of the United Kingdom, was distributed amongst all the head teachers in the County, and with it was sent a letter asking teachers to continue to use their influence to get as many of the parents as possible to give their consent to having the recommendations of the dentists carried out.

The systematic teaching of hygiene in all our schools would, at the first blush, appear to interfere with the ordinary school curriculum, but, if practised, it would bear fruit in the increased alertness of the pupils, in their improved physical condition and in their increased receptivity to education. The periodic

visits of the district nurses to schools has as one of its chief aims the training of children in cleanliness. The medical officers and dentists of the Health Department will do everything in their power to assist teachers in training children to adopt healthy habits.

THE FUTURE.

What is to happen when the new Local Government (Scotland) Act comes into force in May, 1930? So far as this County is concerned, it will not interfere in any way with the policy which has been in operation since 1925. The question of the health of the school child cannot be divorced from the bigger question of the health of the whole community. Any attempt to divide them is an injudicious separation.

In the past, Education Authorities have done noble work in the preservation of child life, but they must confess that the health of the school child cannot be separated from the health of the mother, from the health of the child in its pre-school life or from the health of persons over school age. *What we want, what we must have, is the wage-earner in a fit and virile state to undertake the burden of citizenship.*

The preservation of health and the prevention of disease in a population can best be obtained by one responsible body, and, indeed, there is strong support for the idea that, administratively, attempts towards the cure of all existing disease should also come within the purview of this body. Treatment and cure already come to some extent within the scope of a Local Health Authority, inasmuch as, apart from infectious fevers (including pneumonia), dental, ocular, and certain surgical treatment of school children, treatment of tuberculous patients, of ailing babies and so on are undertaken by Local Health Authorities. In any Joint Scheme, it is, of course, essential that those medical officers whose chief duties would be the supervision of school children should have had special experience in this type of work. *With co-ordinated effort, the school medical officer's functions are extended and the results of his labours rendered more fruitful.*

It is sometimes suggested that when the Local Authority steps in the human factor is lost and patients become merely "cases," but experience in the north-east of Scotland, where the public health activities are intensive, negatives this suggestion. Innumerable patients testify to the fact that the interest taken in them, apart from the purely medical aspect, does not cease or even diminish when they are treated under the Health Authority.

Section V.

TUBERCULOSIS SERVICES.

The problem of tuberculosis has been for so long prominently before the public that there is a general impression that tuberculosis has been a notifiable disease for a considerable number of years. Pulmonary tuberculosis, however, only became compulsorily notifiable throughout Scotland on 1st August, 1912, through the Public Health (Pulmonary Tuberculosis) Regulations (Scotland), 1912. The Central Department then in power was the Local Government Board who were empowered under Section 78 of the Public Health (Scotland) Act, 1897, to make regulations with a view to the treatment of persons affected with any endemic or infectious disease and to the prevention of the spread of disease. In a comparatively short time, the Local Government Board realised that the notification of pulmonary tuberculosis alone could furnish no accurate measure of the prevalence of tuberculous disease, and that it was expedient that non-pulmonary tuberculosis, although not infectious in the same degree, should also be made notifiable. They therefore revoked the regulations of 1912 and substituted the Public Health (Tuberculosis) Regulations (Scotland), 1914, whereby tuberculosis of all types became notifiable.

The history of the County Tuberculosis Scheme is sufficiently interesting to permit of a short review of its development since inauguration, especially as regards institutional treatment. Prior to the passing of the Insurance Acts, there was no organised effort for the provision of treatment for the tuberculous. It is true that, in the County, a few cases of pulmonary tuberculosis were admitted to Newhills Sanatorium, the Thomas Walker Hospital, Fraserburgh, and the Aberdeen Royal Infirmary, but the great mass of cases, however advanced the disease might be, were left at home. The family doctors did their best, but, in the light of experience of the past sixteen years, we realise that no concerted effort was being made to check the spread of infection. Then, in 1912, originating from the Insurance Acts, came the County Tuberculosis Scheme which provided treatment not only for insured persons and their dependents, but also for uninsured persons. The existing institutional accommodation was taxed to the utmost, so much so that a proposal was made to meet the residential needs of the area by the erection of a Joint Sanatorium for the Counties of Aberdeen and Kincardine and the City of Aberdeen. Differences between the Local Authorities concerned arose, chiefly on administrative questions, and the project was abandoned. Then in 1915, the Local Government Board issued instructions that no new buildings should be proceeded with during the war, and the proposed extensive institutional provision for the tuberculous was relegated to the background during that period. In 1919, the Local Government Board became defunct, its place being taken by the Scottish Board of Health. This body instructed the County Council to proceed with the erection of its contemplated sanatorium, as it was thought that much more accommodation would be necessary on account of the large numbers of discharged soldiers and sailors who were tuberculous and who would require institutional treatment. I was asked to submit a report on the situation and expressed the opinion that for the following reasons a County Sanatorium should not be built :—

1. The cost per bed would be extortionate, the minimum cost being £480 per bed, as compared with the pre-war estimated cost of £150 per bed.
2. It was doubtful whether, with a new sanatorium, greater efficiency would be obtained.
3. If a sanatorium were built, then provision would also require to be made for the treatment of non-pulmonary or "surgical" tuberculosis. A proportionately large number of beds would of necessity have had to be set aside for the treatment of non-pulmonary cases. It is an astonishing fact that only now is a measure being obtained of the vast volume

of sickness arising from non-pulmonary tuberculosis. The vision of the tuberculosis officer, and, in very many instances, his knowledge, is too often limited to pulmonary tuberculosis.

The County Council approved of the tenor of the report, and the Scottish Board of Health, after asking that the matter be reconsidered, agreed that the decision of the Council was sound. There is little doubt that the false and inflated incidence of tuberculosis amongst ex-service men was in some degree due to the fact that an appreciable number of ex-service men who had been "gassed" were dubbed tuberculous by the Ministry of Pensions, but subsequent observation and experience proved that most of those men suffering from gas poisoning did suffer from a pulmonary fibrosis which, however, was quite distinct from a tuberculous fibrosis. The sanatorium position has not changed since 1919. Then, it was considered that a new and expensive sanatorium would be a luxury institution. The same opinion holds good to-day. The institutions to which we send County patients are scattered; administration is difficult, but, in my opinion, ease of administration, associated with a centralised institution, would be counterbalanced by additional and unjustifiable expenditure. It is doubtful whether the proposal to erect a new sanatorium in Aberdeenshire will ever again be seriously considered.

At the commencement of the scheme, County patients were sent to Newhills Sanatorium, near Aberdeen; Bridge of Weir Sanatorium, Renfrewshire; Woodburn Sanatorium, Edinburgh; and Seaforth Sanatorium, Ross-shire. Hospital or advanced cases were sent to the Thomas Walker Hospital, Fraserburgh, to the Burgh Hospital, Peterhead, and to Forgue Cottage Hospital. In 1920, an arrangement was come to with Forfarshire County Council whereby 25 beds were allocated in Noranside Sanatorium for the accommodation of patients from this County for a period of seven years. This arrangement enabled us gradually to cease to send patients to the more distant institutions—Bridge of Weir, Woodburn and Seaforth Sanatoria. Then in 1920, the Peterhead Town Council erected a small Tuberculosis Annexe in the grounds of the Burgh Infectious Diseases Hospital, and this was followed in 1922 by the erection of a second annexe. Forgue Cottage Hospital, to which cases of chronic phthisis had been sent since 1915, had unfortunately to be closed temporarily in 1926 for financial and other reasons.

Thus the institutional provision became more concentrated, and, since 1926, the sanatoria available for our cases have been Newhills and Noranside, whilst a few patients, requiring special treatment, have been sent to Tor-na-Dee Sanatorium under an arrangement whereby one half of the cost of treatment is met by the Public Health Committee and the other half by the patient. These three institutions at present constitute our sanatorium provision. Cases of pulmonary tuberculosis requiring hospital treatment are sent to Peterhead Hospital; the Thomas Walker Hospital, Fraserburgh; and the Aberdeen City Hospital.

It is only lately that adequate provision has been made for cases of non-pulmonary tuberculosis. At the end of 1922, two beds were laid aside in Inch and District War Memorial Hospital for the reception of tuberculous cases of this type. Many more non-pulmonary cases were treated in the sanatoria and hospitals and it was not until the end of 1927 that a concentration of these cases was effected by the opening of Woodend Hospital.

The present institutional provision detailed above is adequate, the waiting list being practically negligible.

With regard to domiciliary or home treatment, there has, during the past sixteen years, been an all-round development. In 1913, there were 37 shelters; now there are over 60. Where the invalid requires additional foods, apart altogether from ordinary maintenance, these are granted by the Public Health Committee. Since 1921, drugs for tuberculous patients, whose names appear on the Domiciliary Register of the Medical Officer of Health, have been prescribed by the general practitioners on special prescription forms, irrespective of whether the patients are insured under the National Insurance Acts or not.

In cities, the dispensary is the hub of the anti-tuberculosis activities, but, in counties it occupies a much less important position. For the first nine years after the inauguration of the County Tuberculosis Scheme there was only one dispensary. There are now six. Details of the work performed at these dispensaries appear towards the end of this Section.

STATISTICS.

Incidence of the Disease.

The County Tuberculosis Scheme embraces the eight Districts in the County and also the ten Burghs, including Peterhead. The total number of pulmonary notifications received in 1928 was 302. In addition, there were notified 9 "transfers" that is, patients who, having been found to be suffering from tuberculosis in other areas and having been notified to the Medical Officers of Health of those areas, were again notified to the Medical Officer of Health for the County on coming to reside within the County boundary. There were also 13 re-notifications, that is, cases whose disease had been discovered in the County of Aberdeen on occasions some years ago, but who were notified by the same or different practitioners during the year under review. This brings the total number of cases for the year up to 324.

Of the 302 cases notified, 149 suffered from pulmonary tuberculosis and 153 from non-pulmonary tuberculosis. The number of cases notified in 1928, distributed in age and sex groups, is shown in the following table:—

TABLE I.
Number of Cases notified as suffering from Tuberculosis in 1928.

	Under 5	5 and under 10.	10 and under 15.	15 and under 25.	25 and under 35.	35 and under 45.	45 and under 65.	65 and upwards.	Total.
Pulmonary . . { Males	3	1	1	23	14	9	10	3	64
{ Females	1	3	5	26	26	13	10	1	85
Non-Pulmonary . . { Males	17	19	11	16	5	3	4	3	78
{ Females	15	14	9	17	10	5	5	—	75
Total	36	37	26	82	55	30	29	7	302

A record of the notifications, in quinquennial periods since 1914, when all forms of tuberculosis became notifiable, is given in Table II.

TABLE II.
Notifications during Quinquennia, 1914-1928.

QUINQUENNIAL PERIOD.	Pulmonary Tuberculosis.	Non-Pulmonary Tuberculosis.	Total.
1914-1918	1,162	417	1,579
1919-1923	1,251	560	1,811
1924-1928	964	716	1,680
Total	3,377	1,693	5,070

From year to year, the total number of notifications has not varied very much, but, during the quinquennium 1924-1928, there has been a decided fall in the number of notifications of pulmonary tuberculosis and a corresponding increase in the number notified as suffering from non-pulmonary tuberculosis. This, however, does not indicate an actual increase in the prevalence of non-pulmonary tuberculosis. It rather goes to show that there is a more complete notification of non-pulmonary cases, slight cases now being notified which, in former years, would not have been detected or notified. It is a well-known fact that the completeness of notification of any notifiable disease varies directly with the adequacy of the institutional accommodation provided by the Local Authority.

Sources of Notifications.

The sources of the notified cases were as follows:—

1. Notified by General Practitioners	280
2. „ Medical Officers of Medical and Surgical Hospitals	8
3. „ Medical Officers of Mental Institutions	6
4. „ County Medical Officer of Health	8
5. „ Medical Officers of Health of other areas (“ Transfers ”)	9
6. “ Re-notifications ”	13
Total	324

Localisation of the Disease.

The parts of the body affected in the 153 non-pulmonary cases are shown below:—

1. Glands	90
2. Bones and joints	28
3. Brain membranes	7
4. Abdomen	22
5. Other sites (including lupus)	6
Total	153

Occupational Incidence.

In some areas, occupation is a predisposing factor to the onset of tuberculosis, but in Aberdeenshire there cannot be said to be any predisposing occupational factors.

Of the 302 notified cases, 142 were males; of these 33 were farm workers, 30 were schoolboys and 8 labourers. There continues to be an appreciable decrease in the number of schoolboys notified. Two notifications were received

in respect of stonecutters. Deaths from phthisis amongst stonecutters are much less common than they used to be and this is practically wholly due to the improvement of the workshops and to Government restrictions whereby methods must be used for the rapid mechanical removal of the dust. The most dangerous kind of dust is that which arises from stones rich in silica.

With regard to female notifications, there were 160, of whom 64 were housewives, 33 were girls and 28 were domestic servants. This year, there was a very considerable increase in the number of housewives notified. The number of notifications of female children of school age continues to be remarkably low.

Mortality.

The number of cases who were notified in 1928 and who died before the end of the year was 33. The percentage of deaths to notifications within the year was 10·9, as compared with 11 in 1927, 13·5 in 1926, 14·8 in 1925 and 14 in 1924. All forms of tuberculosis in the Districts and Burghs accounted for 139 deaths. Of the 139, 102 were pulmonary and 37 were non-pulmonary deaths. The total number of deaths in 1927 was 132. In 1926, the deaths numbered only 107; in 1925, 144; in 1924, 138.

The accompanying table shows the total number of deaths in the whole County from all causes, the deaths from pulmonary and non-pulmonary tuberculosis and the deaths from all respiratory diseases, excluding phthisis. The last two columns of the table give the percentage of deaths from tuberculosis to total deaths and the percentage of deaths from all respiratory diseases, except phthisis, to total deaths.

TABLE III.

	Total Number of Deaths.	Deaths from			Percentage of Deaths from Tuberculosis to Total Deaths.	Percentage of Deaths from all Respiratory Diseases (except Phthisis) to Total Deaths
		Tuberculosis.		All Respiratory Diseases (except Phthisis).		
		Pulmonary.	Non- Pulmonary.			
COUNTY DISTRICTS—						
Deer	308	14	7	33	6·8	10·8
Ellon	172	9	4	22	7·5	12·8
Garioch	150	8	—	23	5·3	15·3
Deeside	164	14	3	10	10·4	6·1
Turriff	128	5	3	20	6·2	15·6
Aberdeen	332	29	7	27	10·8	8·1
Alford	88	1	—	17	1·1	19·3
Huntly	73	3	1	8	5·5	10·9
BURGHAL DISTRICTS—						
Ballater	16	1	1	4	12·5	25
Ellon	25	—	1	1	4	4
Fraserburgh	120	7	5	20	10	16·6
Huntly	54	3	—	7	5·5	12·9
Inverurie	53	1	2	7	5·7	13·2
Kintore	14	—	—	2	—	14·3
Oldmeldrum	25	—	—	3	—	12
Peterhead	171	3	3	17	4·5	9·9
Rosehearty	15	2	—	2	13·3	13·3
Turriff	34	2	—	2	5·8	5·8
Total	1,942	102	37	225	7·2	11·6
Corresponding figures for 1927	1,957	102	30	231	6·7	11·8

The next table gives the ages at death in five age-groups amongst cases suffering from pulmonary tuberculosis during the past four years. Under 15 years of age, the deaths for the past three years have been very few, whereas the deaths in the two age-groups between 15 and 45 years, are relatively very numerous. After 45 years of age, the number of deaths tapers off. The year 1925 was an exception as regards the number of deaths in the first fifteen years of life; in that year, the number of deaths amongst those under 15 years of age was more than six times greater than that occurring in the same age-group in any of the three subsequent years.

TABLE IV.

Age Groups.	1928.	1927.	1926.	1925.
Under 15 years.	3	5	6	36
15 years—25 years	31	20	18	28
25 „ —45 „	44	47	34	31
45 „ —65 „	21	25	19	17
Over 65 years	3	5	3	—
Total	102	102	80	112

The death-rate from tuberculosis is usually reckoned as so many deaths per 100,000. The total number of deaths from tuberculosis in the County, namely, 139, represents a death-rate of 97·07 per 100,000. The number of deaths attributable to pulmonary tuberculosis was 102 which represents a death-rate of 71·2 per 100,000.

Throughout Scotland, in 1928, deaths from all forms of tuberculosis numbered 4,722 and these equalled a death-rate of 97 per 100,000. There were 146 fewer deaths than in the previous year. Of the 4,722 deaths, 3,318 were ascribed to tuberculosis of the lungs and this number equals a death-rate of 68 per 100,000. These Scottish death-rates, both from all forms of tuberculosis and from tuberculosis of the lungs, are the lowest on record.

The conclusions to be drawn from the investigation of the tuberculosis death-rate in the County are :—(1) the death-rate in the County of Aberdeen has, until 1928, been invariably less than that for the whole of Scotland; (2) the greatest number of deaths occur between the ages of 25 and 45—the most important wage-earning period; (3) the probable cause for the increase in the deaths in 1928 is the number of relapses amongst persons suffering from chronic tuberculosis. The originating factor in many of these deaths was influenza.

TREATMENT.

1. Institutional Treatment.

During the past year there has been no outstanding feature in the sanatorium and hospital treatment of tuberculous patients. The aim of institutional treatment is both preventive and curative. Patients are taught to adopt regular and daily routine and to lead a completely open-air life. The diet is sufficient and nourishing, without being excessive. The sanatorium patients take part in carefully graduated rest and exercise, under medical supervision. In addition, endeavours have been made during the year to provide interesting occupation which is all-important in the treatment of tuberculosis. For example, at Noran-side Sanatorium, the patients undergo graduated exercises, under strict medical supervision. The exercises indulged in include gardening, wood-cutting and daily walks of prescribed distance, none of which must cause elevation of temperature. In this institution, the social side of sanatorium life is also carefully arranged, and a variety of entertainment is maintained. Every week, ambulant patients have the opportunity of seeing up-to-date cinematograph films in a spacious hall which was built some two years ago by the patients themselves. At Newhills Sanatorium exercise in several grades has been adopted, and, in addition, several of the patients have become expert in the making of elaborate walking sticks.

The great educational and preventive value of institutional treatment is to teach tuberculous patients how to take care of themselves when they return home and how to safeguard others from becoming infected.

In 1928, the method in which the notified primary cases were dealt with is shown in the following table :—

TABLE V.

	Pulmonary.			Non-pulmonary.	
A. Admitted to approved institutions .	103	—	...	73	—
B. Not admitted to approved institutions because—					
(1) Refused to go to institutions .	—	10	...	—	1
(2) Died before commencement of institutional treatment .	—	4	...	—	3
(3) Inmates of asylum, &c. .	—	6	...	—	—
(4) Inmates of voluntary hospitals	—	—	...	—	8
(5) Visitors or left area .	—	2	...	—	2
(6) Unsuitable for institutional treatment or such treatment not required .	—	24	...	—	66
(7) Awaiting institutional treatment at end of year .	—	—	...	—	—
	103	46	...	73	80
Total .	149		...	153	

The fact that there was no waiting list at the end of the year shows that the scheme is fairly complete and satisfactory.

The total number of primary 1928 cases shown to have been treated institutionally during the year was 176 but the actual number of *new* cases treated in 1928 includes not only those notified in 1928, but those who may have been notified in previous years but who, for the first time, received institutional treatment in 1928. Then again, practically none of the cases who are sent to Linn Moor Convalescent Home, Culter, have been notified. To ask practitioners to notify these pre-tuberculous children would simply mean a fictitious inflation of the numbers notified. Again, many cases have been admitted to institutions for observation and diagnostic purposes. If these patients, after prolonged observation and examination, cannot be definitely stated to be tuberculous, then they are not labelled as tuberculous. The distribution in sanatoria and hospitals of those primarily notified in 1928, of those who were notified prior to 1928 but who received treatment for the first time in that year and of observation and pre-tuberculous cases, appears on Table VI.

TABLE VI.

Institutions.	Insured.		Uninsured.		Total.
	Male.	Female.	Male.	Female.	
Sanatoria	16	5	12	13	46
Hospitals	20	13	48	67	148
Linn Moor Convalescent Home .	—	—	21	35	56
Total	36	18	81	115	250

In the foregoing table, there is a differentiation as to sex and as to whether the patients were insured persons under the National Insurance Acts or not, but, administratively, insured and uninsured persons are treated alike.

The sanatoria to which patients were admitted were Newhills and Noran-side. Five patients were under treatment at Tor-na-Dee—a private sanatorium—at the beginning of the year, but no new cases were admitted during the year.

The Joint Committee sent hospital cases to the following institutions:—Peterhead Burgh Hospital; Thomas Walker Hospital; Inch and District War Memorial Hospital; City and Woodend Hospitals.

So far as possible, early cases have been sent to sanatoria and advanced cases to hospitals but the anomaly arises that many of the so-called early cases assume activity, and, in spite of all efforts, go downhill, whereas advanced cases, when given rest and good nourishment frequently make remarkable recoveries; the lungs become fibrosed and the patients may be able to resume remunerative employment for a number of years.

Duration of Treatment.

Taking account only of those patients who completed treatment before the end of 1928, we find that the average length of stay in institutions was 276 days in the case of sanatorium patients and 153 days in hospital cases. The average duration of stay in both hospital and sanatorium cases was 205 days. The average duration of stay in institutions since 1914, when the County Tuberculosis Scheme began to function properly, is given below:—

1914	.	.	.	.	.	157 days.
1915	.	.	.	.	.	134 ..
1916	.	.	.	.	.	144 ..
1917	.	.	.	.	.	131 ..
1918	.	.	.	.	.	155 ..
1919	.	.	.	.	.	169 ..
1920	.	.	.	.	.	162 ..
1921	.	.	.	.	.	180 ..
1922	.	.	.	.	.	225 ..
1923	.	.	.	.	.	165 ..
1924	.	.	.	.	.	196 ..
1925	.	.	.	.	.	225 ..
1926	.	.	.	.	.	178 ..
1927	.	.	.	.	.	192 ..
1928	.	.	.	.	.	205 ..

Patients are beginning gradually to realise that a short stay in an institution cannot effect a cure. If arrest or cure is aimed at, prolonged institutional treatment is necessary. The only advantage that can be derived from a short stay in an institution is educational.

Seldom are patients physically fit to engage in their former occupations immediately they are discharged from institutions. There should be a tapering-off process, and help in this direction could only be obtained from a well-constituted "After-care" Committee. The need for such a Committee has been frequently pointed out. Amongst its duties would be, (1) to find suitable employment for patients fit for work, (2) to assist patients to remove to suitable houses when their home conditions are unsatisfactory, (3) to see that ex-patients are financially able to obtain the same good, wholesome food which they received in the institutions, (4) to provide beds and bedding to necessitous cases, and (5) to visit and advise tuberculous patients. Considerable funds would require to be at the disposal of the Committee and these would require to be raised by voluntary contributions. There is little doubt that After-care Committees will ultimately be set up; their work in the Burghs could easily be carried out, but, in the thinly populated rural areas, it will be far from easy.

Non-pulmonary or Surgical Tuberculosis.

In 1928, special attention was paid to the treatment of non-pulmonary or surgical tuberculosis. "Surgical" as applied to tuberculosis is a mis-nomer as the ideal to-day is to treat every possible case of non-pulmonary tuberculosis on conservative lines.

The institutions at which these patients are accommodated are Woodend Hospital, Inch and District War Memorial Hospital and the Thomas Walker Hospital, Fraserburgh. A larger number of non-pulmonary cases was treated in 1928 than in any previous year and this was mainly due to the fact that a certain number of beds was made available at Woodend Hospital for the treatment of such cases. At this hospital, there is an X-ray plant and the advice of surgeons attached to the General Hospital is available. In view of the crippling deformities that result from imperfect treatment of, say, tuberculous joint diseases, it is the duty of every Local Authority, both in the interests of the patients and of ultimate economy, to see that such cases get the best available treatment.

During the past four years, artificial sunlight treatment has been given, with much advantage, to certain types of non-pulmonary tuberculosis, and the nature, action and method of administration of ultra-violet rays were discussed fully in the Annual Report for 1925. This form of therapy has not yet been adopted in cases suffering from pulmonary tuberculosis.

For tuberculous glands of the neck and abdomen, benefit has in many cases been derived from the periodic inunction of a 25 per cent. Tuberculin Ointment.

In the current year, there were treated several cases of non-pulmonary tuberculosis which ought to have been treated years ago so that the expenditure in this direction is likely to be lessened in the future.

Linn Moor Convalescent Home, Culter.

Special reference requires to be made to the excellent work performed at this institution which, in the truest sense of the word, is a "preventorium." Table VI. shows that 56 new cases were admitted during the year, but 35 were undergoing treatment at 1st January, 1928, and thus the total number of County cases who were treated in 1928 was 91. What is the type of case admitted to this institution? The ages of the cases that may be admitted range from 3 to 13 years, and they suffer from intra-thoracic adenitis—a non-infectious form of pulmonary tuberculosis. Intra-thoracic adenitis or hilus tuberculosis consists essentially of a tuberculous infection of the intra-thoracic glands. These glands are situated in close relation to the trachea and bronchi and may be divided into three groups:—

- (1) The glands which are situated around the junction of the trachea and bronchi and are mainly in front of these structures.
- (2) Those glands which lie behind the bifurcation of the trachea.
- (3) The glands which lie along the course of the main bronchi.

These glands act as a natural barrier to the invasion of tubercle bacilli, and, when infected by these germs, characteristic symptoms ensue in children. The condition may heal, the symptoms may disappear and the child may be restored to normal health. On the other hand, the disease may lie dormant for many years and may become active later in life when the general resistance is lowered by a period of undue strain or by a severe illness.

The tissues of children, however, are very amenable to treatment and children, so affected, readily respond to healthy surroundings such as are obtainable at Linn Moor Convalescent Home.

How is a diagnosis to be arrived at in such cases? In many cases, no physical signs of the condition can be elicited by ordinary methods of physical examination of the chest or even by X-ray examination, and then the diagnosis must rest largely upon the symptoms manifested by the patient. The child shows a general falling-off in health; he does not show the increase of weight

which is normal in the healthy child or he may begin to show definite wasting; he is easily tired; the mother often notices that he is disinclined to play with other children and that he is inclined to "hang about the house"; night sweats—often profuse—are of common occurrence; there may be an evening rise of temperature; the appetite is often poor; the child "picks at his food"; in appearance, he is thin, pale and delicate; enlarged veins, due to pressure of the glands, are often seen radiating over the upper part of the chest and usually most marked on the right side; the skin is dry and harsh, and is covered with fine hair, especially on the back. Such symptoms lead one to the diagnosis of intra-thoracic adenitis.

In such case, what physical signs are usually elicited? Percussion of the chest may reveal some para-vertebral dullness at the upper part of the inter-scapular area and such dullness is usually more evident on the right side. Abnormal auscultatory sounds, such as Eustace Smith's sign may be made out. This is obtained by making the child bend back the head as far as he can; the stethoscope is then placed on the manubrium sterni, nearer its right border, and, if the sign is present, a venous hum is heard, which gradually ceases as the head resumes the normal position.

In cases of intra-thoracic adenitis, X-ray examination may reveal tracheo-bronchial opacities and an increase in size and density of the normal hilus shadow.

Such is the clinical picture of most of the young patients in Linn Moor Convalescent Home. Early treatment, on hygienic lines, holds out the best hope of preventing those children from swelling the ranks of the definitely tuberculous. There is abundant evidence to show that the majority of those who die from tuberculosis in adult life have been infected in childhood. Actual pulmonary tuberculosis is difficult to diagnose in children, and, if children are ailing or debilitated and if there is a suspicion of tuberculosis, a spell of treatment in such an institution as Linn Moor Home may prevent the onset of tuberculosis in later life.

Dental Treatment.

The services of the whole-time school dental surgeons have been utilised—outside of school hours—to give dental treatment to tuberculous patients undergoing institutional treatment. Where possible, the treatment is conservative in character and consists chiefly of scalings and fillings, extraction being performed only when a tooth is unsalvageable. There is no scheme for the provision by the Committee of artificial dentures. Dental disease often interferes with the efficacy of treatment for tuberculosis.

The number of cases treated in the several institutions is briefly summarised in the table below:—

TABLE VII.

Name of Institution.	Number of Patients who received Treatment by—			
	Extraction.	Filling.	Scaling.	Total.
Newhills Sanatorium	15	18	2	35
Noranside Sanatorium	12	17	3	32
Linn Moor Convalescent Home	4	23	—	27
Thomas Walker Hospital, Fraserburgh	5	6	1	12
Peterhead Burgh Hospital	4	5	—	9
Total	40	69	6	115

The number treated was, therefore, 115, but, in addition to these, 181 institutional patients were inspected and either required no dental treatment or were unfit to undergo treatment.

2. Domiciliary Treatment.

Domiciliary or home treatment is an indispensable link in the life of every tuberculous patient. It is in the home that contacts are exposed to massive infection and here every effort must be made to prevent the spread of infection. The problem of the eradication of tuberculosis resolves itself into a high standard of living for each member of the community and the efficient isolation of advanced and infectious cases. To attain a high standard of living, there must be good housing, good working conditions and a sufficiency of food. To isolate all advanced cases in institutions, even were compulsory segregation rendered legal, is not a sound financial proposition. A proportion of advanced cases reach the stage of pulmonary fibrosis, the sputum may be only intermittently infectious and they may live in this semi-healed condition for a considerable time and regain some degree of working capacity. It would be impossible compulsorily to segregate such patients for a number of years. Apart altogether from financial considerations, the institutions in which such patients were housed would develop into little better than a prison. The liberty of the individual would thus be unjustifiably interfered with.

We cannot, therefore, be too exacting in our supervision of domiciliary treatment. This line of treatment includes visits by the family doctors, by the tuberculosis medical officers and by the district nurses. The aim of all these visitors is to effect improvements and modifications in treatment and their advice is easily assimilated by those patients who have had a period of institutional treatment. Home visitation by nurses is essential, for their advice as to the improvement of environmental and home conditions is most likely to be followed.

An accessory measure which increases the efficiency of our anti-tuberculosis campaign is the use of shelters. Through them an attempt is made to remedy the crowding together of the healthy and the affected members of families. No new shelters were purchased during the year. Some of them have been in use for eighteen years, and, during 1928, two had to be disposed of because frequent moving from place to place had made it impossible to have them made watertight. The Committee now possess 64 shelters and are responsible for the painting and upkeep of these. Seventy-six patients—34 males and 42 females—had the use of shelters in 1928, as compared with 79 in 1927, 71 in 1926 and 83 in 1925.

Additional nourishment in the form of milk, butter, eggs, and meat was supplied to 61 patients. The expenditure for this item amounted to £400 17s. 7d. during the financial year ended 15th May, 1928, and is slightly below the annual average expenditure during the past five years.

The Joint Committee are responsible for the cost of drugs supplied to tuberculous patients. Special prescription books were prepared in 1921 and these are issued as required to the practitioners. The prescriptions are sent by the chemists to the Public Health Office from which they are sent monthly to the Central Checking Bureau, Glasgow, to be priced. The following table shows the total number of prescriptions, the average cost per prescription and the total cost of the prescriptions during each of the past five years:—

TABLE VIII.

Year.	Number of Prescriptions.	Average Cost per Prescription.	Total Cost of Prescriptions.
1924	1,753	32·5d.	£236 15 1
1925	1,619	31·4d.	215 14 9
1926	1,500	31·52d.	196 19 9
1927	1,920	31·8d.	255 1 3½
1928	2,092	36·07d.	314 8 7

3. Dispensary Treatment.

As has already been stated, the dispensary or anti-tuberculosis centre does not play in rural areas the prominent part which it does in cities where it acts as a sorting house. The chief use of the dispensary is that it is a centre for diagnosis and prevention. It is largely an education and health centre. New patients presenting themselves are referred to their own doctors and are examined by the tuberculosis officers only with the consent or at the request of the medical practitioner. It cannot be too strongly represented that the prescription of drug and other treatment by the tuberculosis officers is by no means an essential function of the dispensary.

There is one central dispensary at the Public Health Offices, 4, Albyn Place, Aberdeen, and five branch dispensaries, situated at Huntly, Inverurie, Peterhead, Fraserburgh and Bucksburn. The clinics are held fortnightly, and, with the exception of the Bucksburn Clinic, are held during the day. At the last named centre, there is a fortnightly evening session for the convenience of those tuberculous patients who are out working all day.

The number of patients who attended the dispensaries in 1928 continues to be maintained, and this, together with the total number of visits made, is given in Table IX.

TABLE IX.

Dispensary.	Number of Patients.	Total Number of Visits.
1. Central	107	218
2. Huntly	76	439
3. Inverurie	44	233
4. Peterhead	59	123
5. Fraserburgh	34	157
6. Bucksburn	29	31
Total	349	1,201

from 2/11/28 to 31/12/28

In 1927, the total number of patients who attended at the dispensaries was 315 and the total number of attendances was 1,072.

Remedial exercises continue to be given weekly by the remedial expert at the Aberdeen, Fraserburgh and Peterhead dispensaries, and also at Linn Moor Convalescent Home. In 1927, an arrangement was made with the Aberdeen Town Council whereby, in return for two weekly visits by their qualified teacher to Linn Moor Convalescent Home, the County Health Committee gave the services of their remedial expert for the treatment of tuberculous patients in the City and Woodend Hospitals. In 1928, the total number of patients treated by remedial exercises was 122 and the total number of "treatments" given was 2,013. In 1927, the number of patients dealt with was 117 and the number of "treatments" was 2,345.

The distribution of the cases so treated was as under:—

Central Dispensary	13 patients.
Peterhead „	17 „
Fraserburgh „	14 „
Linn Moor Convalescent Home	78 „
Total	<hr/> 122 <hr/>

OBSERVATIONS ON THE ANTI-TUBERCULOSIS WORK IN THE COUNTY IN 1928.

1. Aids to Diagnosis.

The principal aids to diagnosis in cases suspected to be suffering from pulmonary tuberculosis are four in number:—

1. A period of observation in a well-equipped institution.
2. Repeated examination of the sputum.
3. Continued observation of the "suspect" while he follows his ordinary occupation.
4. X-ray examination.

In 1928, several doubtful cases were admitted to institutions for purposes of observation. In an institution, careful record can be kept of temperature and pulse. Repeated physical examination can be made, under the best conditions, and all the facilities for diagnosis, such as are available only in an institution, can be brought into action.

In many cases, the presence of tubercle bacilli in the sputum leads to notification of the case. It is too often forgotten that a negative sputum does not eliminate the possibility of tuberculosis. Just as typhoid "carriers" only intermittently exhibit typhoid bacilli in the excreta, so the sputum of a patient may have to be repeatedly examined before one positive result is obtained. In one case coming within our purview, the sputum was examined on eight occasions with negative results, and, only on the ninth examination, were tubercle bacilli found.

The County Tuberculosis Scheme deals mainly with the working classes, and, when the symptoms are vague, with few, if any, physical signs, one does not feel justified in putting a working-man off work. Such a patient visits one of the Tuberculosis Dispensaries at frequent intervals, and supplementary assistance in diagnosis may be obtained from X-rays. In the estimation of lung involvement, a radiogram may be of the greatest assistance, but, on the other hand, in some early cases, though the lung may be already involved, there may be no radiographic evidence. In the more advanced cases, the abnormalities shown in the radiogram are usually fairly obvious. As a general rule, a radiogram is of great assistance in diagnosing an early case of pulmonary tuberculosis, but it must be emphasised that the radiogram must be interpreted in conjunction with the symptoms of the patient and the results of careful physical examination. In the diagnosis of tuberculosis, we cannot depend on radiography alone. In 1928, there were taken 223 radiograms of the chest and 72 of other parts of the body. The following table shows the number of radiograms taken of pulmonary and non-pulmonary cases and also the residence of the patients at the time at which the radiograms were taken:—

TABLE X.

Site of Disease.	Number of—		Total.
	Indoor Patients.	Outdoor Patients.	
Pulmonary . . .	101	122	223
Non-pulmonary . . .	53	19	72
Total . . .	154	141	295

Radiography is essential when artificial pneumothorax, or collapse of the lung, is induced. Artificial pneumothorax, as a method of treatment, was employed in only three cases during the year.

2. Housing and Tuberculosis.

The housing problem is perhaps the most outstanding difficulty associated with the eradication of tuberculosis. The problem of slumdom is associated partly with the house and partly with the habits of the tenant.

All over Aberdeenshire, in the Burghs and in most of the villages, state-aided houses have been erected, but the ordinary tuberculous patient cannot pay the economic rental demanded. One is often asked why this is so. The answer is obvious. A wage-earner who has suffered from definite tuberculosis and who has been treated, apparently with success, in an institution returns home; it is practically impossible for him to obtain part-time work at a remunerative wage and he has thus to engage in his former occupation under the ordinary conditions of life; he is invariably permanently handicapped, his wage-earning capacity is diminished and he has often to gravitate to a house with a smaller rental. The cheapest annual rental of a house erected by Local Authorities in Aberdeenshire is £13, but this is always beyond the means of the post-institutional tuberculous working-man.

In 1928, only 2 notified cases were living in one-roomed houses. In the rural districts, shelters can be provided for the segregation and welfare of the patient, but, in the Burghs, shelters can seldom be erected owing to lack either of privacy or of space.

The housing conditions of the cases notified in 1928 were practically similar to those of the 1927 notifications, but it is gratifying to note that the number of "box-beds" in use diminishes year by year. As a matter of fact, it is comparatively seldom that one now encounters a real "box-bed" and their justifiable abolition is largely due to the progressive work which is being performed by the Sanitary Inspectors.

An attempt is always made to ensure that a tuberculous patient, with infectious sputum, should have a bed to himself, and, if possible, a room to himself. Such provisions sometimes entail overcrowding of the other members of the household, but overcrowding ceases to be a menace to health if there is free ventilation of the sleeping apartment. It is disappointing to have to state that several patients, even after receiving prolonged treatment in an institution, did not seem to realise the value of fresh air, for, when the patients were visited after discharge, the windows were found to be tightly closed. In the housing of the poor, open windows *at night* are essential for the well-being of the occupants. It matters little if the windows are shut during the day, provided they are widely opened at night.

3. Tuberculosis and Milk Supply.

There is a definite relationship between the incidence of tuberculosis of the non-pulmonary type and tuberculous milk. The methods employed which tend

towards a pure milk supply are :—(1) the detection of infected milk, and (2) the detection of cows with tuberculous udders and the eradication of these from dairy herds.

The detection of tuberculous milk is, in this area, carried out in the City at the principal milk distributing centres. Samples are taken by the City Veterinary Inspector from individual supplies before mixing. Thereafter, guinea pig inoculation is carried out at the City Hospital and the reports of these investigations, if positive, are sent to the County Veterinary Inspector. The latter then attempts to trace the offending cow. In 1928, three positive cases were thus referred to the County Veterinary Inspector; in one instance, the cow giving tuberculous milk was found and destroyed, but, in the other two cases, the animals had been disposed of before the visit of the Veterinary Inspector took place.

In his routine inspection of dairies and of other farms, the County Veterinary Inspector takes samples from all cows showing any abnormality of the mammary gland, that cannot be accounted for by catarrhal or other non-tuberculous types of mastitis. When cows are suspected by the Veterinary Inspector to have tuberculous udders, the use of the milk is stopped until a definite diagnosis in respect of the individual cows is arrived at by laboratory methods. The examination of such milk samples is made by direct microscopic methods and usually a fairly reliable result can be obtained well within a week. If the primary microscopic examination is negative, biological methods of diagnosis are then employed.

In 1928, the County Veterinary Inspector discovered 21 cows with tuberculous mastitis; these were destroyed and the owners were compensated in terms of the Tuberculosis Order, 1925.

By intensive work in the direction of freeing milk supplies from tubercle bacilli, it may confidently be expected that the incidence of non-pulmonary tuberculosis amongst children will gradually and appreciably diminish.

In three cases of non-pulmonary tuberculosis notified in 1928, the evidence that the milk supplies of particular dairies were involved was so strong that the circumstances were reported by the Medical Officer of Health to the County Veterinary Inspector who, in due course, visited the dairies and it was found that milk had been supplied to two of these patients over a prolonged period from farms at which were found cows suffering from tuberculous mastitis.

In the future, it is hoped that co-operation in this direction will be strengthened. The ideal method would be to report to the County Veterinary Inspector the milk supply in every notified case of non-pulmonary tuberculosis. The great difficulty in such a procedure is that bovine tuberculosis in the human being is usually insidious in its onset, and, before the Veterinary Inspector could examine the suspected herds, the diseased animals would probably have been disposed of.

4. Health Education.

The scheme for dealing with tuberculosis in the County is broad and comprehensive, but it would be found sadly wanting if health education did not occupy a place. The public must be instructed, in simple language, in all matters pertaining to tuberculosis. The housewives, especially, should be taught what conditions are inimical to health, how tuberculosis is acquired, how it is spread and how it can be prevented; they should be educated to appreciate to the full extent the value of fresh air, sunshine, and good food in combating this dread disease, and, by co-ordinated efforts, mothers will instinctively do everything in their power to preserve the health of the family.

Lectures on the various aspects of tuberculosis were given in 1928 at the several clinics by family doctors and by members of the Public Health Staff. Lectures and demonstrations were also given at several Women's Rural Institutes and at meetings of District Nursing Associations. As time goes on, the family doctors must take an increasing part in health propaganda, and many general practitioners are now anxious to undertake this work.

In September, 1928, Dr. Harley Williams, Assistant Commissioner to the National Association for the Prevention of Tuberculosis, gave a series of lectures, illustrated by cinematograph films, at Peterhead, Fraserburgh, Strichen, Huntly, Inverurie, Tarland and Udney. In the afternoons, the lectures and demonstrations were given to school children, and, in the evenings, to adults. In those centres which had electrical supplies, the films showed up clearly and were very instructive. All the expenses, except the cost of the hire of the halls, were met by the National Association.

With the help of the general practitioners of the area, it is hoped soon to inaugurate an organised series of lectures on health topics.

Section VI.

THE WORK OF THE DISTRICT NURSES ... ..	76

The Growth of the Nursing Services in Aberdeenshire.

In the end of 1913, it was suggested at a Conference between representatives of the Public Health Sub-Committee of the County Council, the County Insurance Sanatorium Benefit Sub-Committee and the existing District Nursing Associations, that a County Nursing Association should be formed, consisting of representatives of several public bodies which would be empowered to negotiate with the County Council, the Secondary Education Committee, the Insurance Committee and the Parish Councils regarding—(1) the formation of new District Nursing Associations, (2) the appointment of nurses in those areas where no nursing facilities existed, and (3) the amount of financial assistance which should be given by the several bodies mentioned to the District Nursing Associations.

Owing to the War, the formation of the County Nursing Association was deferred, but, in 1921, the County Nursing Association was instituted. In that year, there were 24 District Nursing Associations each employing one nurse, and these associations became affiliated with the newly formed County Nursing Association. To-day there are 38 District Nursing Associations affiliated with the County Nursing Association and employing 39 nurses. Thus, in a matter of 8 years, 14 additional District Nursing Associations have been formed in Aberdeenshire, but, even with this number, there still remains to be covered an appreciable portion of the County.

During 1928, a large number of District Nursing Associations changed their nurses. There were 13 changes during the year and new nurses were provided by the Queen's Institute of District Nursing. All the new nurses were Jubilee Nurses and their appointments were approved by the Department of Health. This somewhat alarming change in the nursing personnel cannot be viewed with favour, for it usually takes a District Nurse a year or more before she establishes herself in the confidence of the people in her district. The Queen's Institute should encourage their nurses to stay in the same place as long as possible.

During the year, two new Nursing Associations were formed, namely, the Mid-Strathdon District Nursing Association covering the parishes of Kildrummy and Towie and a portion of the parishes of Leochel Cushnie and Glenbuchat, and the Rhynie, Auchindoir and Clatt District Nursing Association embracing these three parishes.

The Official Duties of the District Nurses.

The District Nurses in Aberdeenshire not only visit the sick in their area, but perform all necessary visitation under the three statutory schemes, the Maternity Service and Child Welfare Scheme, the Scheme for the Medical Inspection and Treatment of School Children and the Tuberculosis Scheme. Much controversy has recently raged as to the advisability of employing District Nurses to perform such statutory duties which, as is often contended, should be performed by Health Visitors. In many areas, there are full-time Health Visitors, full-time Tuberculosis Nurses, and full-time School Nurses, but experience has proved that the policy adopted in Aberdeenshire best meets the needs of the County. In their ordinary duties, the District Nurses are already visiting the sick in their homes, and, if they are properly qualified, they are the ideal Health Visitors. Some of the advantages of the District Nurse engaging in health nursing are—

- (1) By one nurse doing the manifold duties required, the work is centralised, there is economy both in time and in money, and, what is most important, overlapping and friction are avoided.

- (2) The District Nurse already knows the mothers and can obtain their sympathy more readily than can a full-time Health Visitor.
- (3) If the District Nurse is the only nurse visiting the home, then there is no undue encroachment on the privacy of the home.
- (4) The visitation of the home by the District Nurse, Health Visitor, Tuberculosis Nurse and School Nurse in different persons must lead to confusion of advice, with the result that the advice given will probably be ignored.

There is no doubt that in rural areas the District Nurse should undertake not only the general nursing of the sick, but also health visitation, and it would appear that the same policy holds good in towns.

The official duties of the District Nurses in the County have been fully detailed in previous Annual Reports. Their chief statutory duties are connected with work under the Maternity Service and Child Welfare Scheme. In rural areas, comparatively little ante-natal work is done, but they attend women at confinement, in almost all cases along with the family doctor, and, generally speaking, supervise children until they attain the age of 5 years. They also are present at the Child Welfare Centres when the Clinics are held.

The nurses perform valuable work in connection with school children. They are present at the routine examination carried out by the School Medical Officers. They visit physically defective children in their homes. All children requiring treatment are referred to the family doctors and it is one of the nurses' duties to continue to visit the homes and to urge parents to call in the family doctors; if they fail in their endeavours, they report accordingly to the Chief Medical Officer. This "following up" of defective school children is most important. The nurses also visit the schools in their area at frequent and irregular intervals and make surprise inspections of children suspected to be in a verminous condition. This is perhaps the most unpleasant part of their school duties. They attend at the school when the school oculist and school dentists make their official visits.

With regard to tuberculosis, the District Nurses visit tuberculous patients periodically with a view to encouraging and assisting them to carry out the practice of sanatorium principles in their homes. The number of cases of tuberculosis being nursed in the final stages of the disease at home are comparatively few, but, when these do occur, they entail frequent visitation by the nurse.

Financial Arrangements.

A grant of £80 per annum is made to each District Nursing Association in respect of the statutory services of the District Nurse. This sum is made up of three grants—one of £40 for work under the Maternity Service and Child Welfare Scheme and two of £20 each under the Scheme for the Medical Inspection and Treatment of School Children and the Tuberculosis Scheme. About two years ago, the Central Department suggested that, instead of giving each District Nursing Association a stereotyped sum, the amount given should vary with the existing financial condition of the Association. The work has run on extremely smooth lines in the past and it is considered that the time is inopportune for such a financial re-arrangement. In addition to these payments, the Education Authority make an annual payment of £40 to Peterhead Town Council for the services of their Health Visitor in connection with school work. The Joint Committee for Public Health Services also give £20 annually to the Peterhead Hector Sick Nursing Institute in return for visitation by the nurse employed by them on the tuberculous domiciliary patients in the burgh.

Comparison of Work Performed by Individual Nurses.

In the following table, there appears a record of the work performed by each District Nursing Association in respect of general nursing and nursing under the three statutory schemes :—

DISTRICT NURSING ASSOCIATIONS.	HOURS SPENT ON				TOTAL.
	Maternity and Child Welfare.	Tuberculosis.	School.	All other duty.	
Aboyne,	1,082½	51½	47¾	811¾	1,993½
Alford,	196	44	131	1,266	1,637
Ballater,	1,234	54	35½	1,395¾	2,719
Banchory,	144	29	26½	1,978	2,177½
Braemar,	311	80½	43¾	1,781½	2,216½
Cairnie,	267	45	126½	360	798½
Central Garioch,	839½	59½	116	1,251½	2,266½
Crathie,	512	208½	300	1,128½	2,149
Cromar,	777½	23	34¾	313½	1,148½
Cruden,	711	41	45½	1,295	2,092½
Culter,	1,844½	119	196	1,580½	3,739½
Cults,	633½	56¾	48½	1,165½	1,904
Drumblade,	284	51½	187	1,831½	2,354
Echt,	247	8	110	2,014½	2,379½
Ellon,	944	8½	97½	1,562½	2,612½
Finzean,	232½	32½	53¾	774¾	1,093½
Fyvie,	580	101½	90½	607½	1,379
Glass,	138	...	241½	1,739½	2,119
Glenbuchat, . . . . .	...	...	10	210	220
Huntly,	316¾	104¾	280¾	1,099½	1,801½
Insch,	738½	30	71	1,905¾	2,745½
Inverurie,	403½	105	332½	905½	1,746½
Kemnay,	771	49½	95½	860	1,775½
Kintore,	474½	40½	120½	1,416¾	2,051½
Maud,	228	148½	165½	2,532	3,073½
Methlick,	474	91½	64	1,523¾	2,153½
Monquhitter,	1,007½	41	154½	1,181	2,384½
Newmachar,	706½	15	217½	1,460	2,399
Old Machar,	342	20	42	840½	1,244½
Rhynie,	240	29	42½	402¾	714½
Stoneywood(Bucksburn)	172½	30	107½	1,744½	2,054½
Stoneywood (Dyce),	622½	124½	110	853	1,710
Strathdon,	1,413	190	79	1,025	2,707
Strichen,	1,204	48	92½	947½	2,292
Tarves,	808½	39	55	670½	1,573
Turriff,	693½	68	262	1,277¾	2,301
Tyrie,	60	38	281	589	968
Udny,	1,332¾	178½	93½	1,007½	2,612½
Totals,	22,986½	2,403¾	4,607¾	45,308½	75,306½

The proportion of time spent in the three statutory services and in other nursing work to the total hours of duty, expressed as a percentage, shows that 30·5 per cent. of the time was devoted to Maternity and Child Welfare work, 3·2 per cent. to tuberculosis work, 6·1 per cent. to school work and 60·2 per cent. to general nursing duties. The figures for Glenbuchat cover only the latter part of the year.

The Future of District Nursing in Aberdeenshire.

We have not yet a comprehensive nursing service in the County and this will never be the case until there is a complete network of nurses. With our 38 District Nursing Associations, the area at present covered is slightly over three-quarters of the whole County, and, to have a complete service, about other 10 District Nurses would be required. As an alternative to this large number of additional nurses, one should consider the possibility of meeting the nursing needs of the County by providing more suitable means of transport for the nurses as thus the District Nursing Associations would find it possible to extend their boundaries. Compared with other rural areas, Aberdeenshire is well equipped as regards its nursing services. An extension of these services can only take place gradually and must proceed side by side with the general growth of the public health services.

Section VII.

THE TREATMENT OF VENEREAL DISEASES ... ..	79

During 1928, the arrangements for the treatment of venereal diseases were similar to those described in previous Reports. Under the Public Health (Venereal Diseases) Regulations (Scotland), 1916, Local Authorities were empowered to frame schemes for the prevention, diagnosis and treatment of venereal diseases. A combined scheme, embracing the City of Aberdeen and the North-Eastern Counties, was put into operation in May, 1919, and, in 1922, the Counties of Zetland and Orkney became contributors in this Joint Scheme. Although the scheme is definitely framed to include prevention, the only side likely to prove effective is that relating to treatment, and the patient ought, in the public interest, to continue treatment until free from infection, and, in his or her own interest, until cure is effected. There is at present no adequate control of venereal diseases, although endeavours were made in 1924 by several Local Authorities to have venereal diseases made compulsorily notifiable in virtue of powers conferred by Section 78 of the Public Health Act.

The principal Treatment Centre of the Joint Scheme functions at the Aberdeen Royal Infirmary.

Number of New Cases.—The number of new cases attending for treatment since 1925 was as follows:—

1925	.	.	.	.	.	94 new cases.
1926	.	.	.	.	.	96 „
1927	.	.	.	.	.	98 „
1928	.	.	.	.	.	108 „

Of the 108 new cases treated in 1928, 33 suffered from syphilis, 58 from gonorrhœa, 1 from soft chancre and 16 from conditions other than venereal. Seventy were males and 38 females. Theoretically, as many women should apply for treatment as men, but the County figures show that almost twice as many men apply for treatment at the clinics. In 1927, the total number of new cases treated was 98, of whom 29 suffered from syphilis, and 43 from gonorrhœa.

Number of New Cases Treated in Institution.—Thirty-one cases were admitted to the Special Wards of the Aberdeen Royal Infirmary. Of these, 20 were men and 11 were women. Eight suffered from syphilis, 22 from gonorrhœa and 1 from a condition other than venereal. The relative number of new cases treated institutionally during the past four years was:—

1925	.	.	.	.	.	16 cases.
1926	.	.	.	.	.	15 „
1927	.	.	.	.	.	20 „
1928	.	.	.	.	.	31 „

In 1928, there was a marked increase both in the number of new cases treated and in the number receiving indoor treatment.

Number of Attendances of Outdoor Cases at Treatment Centre.—In the year under review, the total number of attendances at the Treatment Centre was 3,061, as compared with 3,361 in 1927, 2,231 in 1926, and 2,590 in 1925.

Supply of Special Drugs for Syphilis.—In 1928, 62 doses of anti-syphilitic drugs were supplied to 3 institutions and 120 doses to 21 practitioners. The figures relating to the past four years are shown hereafter:—

YEAR.	INSTITUTIONS.		PRIVATE PRACTITIONERS.	
	Number of Institutions.	Number of Doses.	Number of Practitioners.	Number of Doses.
1925	—	—	10	46
1926	—	—	36	288
1927	—	—	13	92
1928	3	62	21	120

Laboratory Examinations.—The total number of laboratory examinations performed since 1925 in connection with the Venereal Diseases Scheme was, so far as the County is concerned, as follows :—

1925	850 examinations.
1926	1,014 „
1927	1,130 „
1928	1,207 „

In 1928, the Wassermann Reaction was performed in 743 cases, of whom 297 were positive. The exudate was examined in 7 cases and of these 4 were positive. Examination for the gonococcus was made in 457 instances and in 50 positive results were obtained.

Of the 1,207 specimens examined, 63 were sent by private practitioners.

“Incomplete Cases.”—A proportion of cases always fail to complete treatment, and, unfortunately, owing to lack of legislative control, patients may avail themselves of treatment but may discontinue it at will, irrespective of the degree of infectiousness or of the occupation. Some patients imagine that the disease is cured whenever the evident physical symptoms disappear, but in this they are absolutely wrong, for cases imperfectly treated may ultimately develop such diseases as general paralysis of the insane or locomotor ataxia. The great defect in all Venereal Diseases Schemes is that there is no power to facilitate continuity of treatment until the patients are free from infection or are cured.

In 1928, only 7 patients failed to complete treatment—6 females suffering from syphilis and 1 male suffering from gonorrhœa. The number who failed to accept full treatment was remarkably low compared with the three previous years in which the numbers who did not complete treatment were :—1927—14; 1926—20; 1925—24.

Section VIII.

BACTERIOLOGICAL SERVICES.

Report on Bacteriological Work performed in the County Bacteriological Laboratory during the year ending 31st December, 1928, by Dr. J. F. Tocher, Director of the County Bacteriological Laboratory.

I beg to report on the work performed in the Bacteriological Laboratory for the year ending 31st December, 1928. The total number of specimens received during the year was 3,602, of which 3,032 were received from Public Health sources while 570 specimens were received under the Tuberculosis Scheme for the County.

Examinations for B. Diphtheria.

1,951 swabs were received for examination, 516 being received from general practitioners, 468 from the County Medical Officer, and 967 from the hospitals in the County.

From the 516 swabs examined for general practitioners, 67 positive results were obtained, 57 throat swabs and 10 nasal swabs. Twenty-three positive results were obtained from the swabs examined for the County Medical Officer, 11 being throat swabs and 12 being nasal swabs.

The 967 hospital swabs gave 86 positive throat swabs and 63 positive nose swabs.

The following table (Table I.) shows the number of swabs received and the results of the examinations:—

TABLE I.

Swabs.	Positive.	Negative.	Throat.	Nose.	Total.
General Practitioners, County	46	389	39	7	435
„ Peterhead	21	60	18	3	81
	67	449	57	10	516
County Medical Officer	23	445	11	12	468
Hospitals—					
Peterhead . . .	31	176	19	12	207
Fraserburgh . . .	27	161	8	19	188
Strichen . . .	42	194	25	17	236
Summerfield . . .	12	64	4	8	76
Inverurie . . .	8	59	6	2	67
Ellon . . .	18	116	16	2	134
Turriff . . .	6	34	5	1	40
Aboyne . . .	5	11	3	2	16
Huntly . . .	—	3	—	—	3
	149	818	86	63	967
General Practitioners	67	449	57	10	516
County Medical Officer	23	445	11	12	468
Hospitals	149	818	86	63	967
	239	1,712	154	85	1,951

Examinations for Organisms of the "Enterica" Group.

652 specimens were received for examination for *B. typhosus* and allied organisms. 337 specimens of faeces, 250 urines and 65 bloods were examined.

From hospitals in the County 205 faeces and 200 urines were examined, and of these 59 faeces were positive for *B. paratyphosus* B and 10 urines.

From general practitioners 128 specimens of faeces were examined, 5 of which were positive for *B. paratyphosus* B and 3 were positive for *B. dysenteriae* "Sonne." 46 urines were examined for general practitioners, one of which was positive for *B. paratyphosus* B. Of 61 samples of blood examined for the Widal reaction 25 were found to agglutinate *B. paratyphosus* B.

From the County Medical Officer 4 faeces, 4 urines and 4 bloods were examined, all with negative results. The following table (Table II.) shows the source and nature of specimens examined for organisms of the "enterica" group:—

TABLE II.

	Faeces.			Urines.			Widals.	
	Pos.	Neg.		Pos.	Neg.		Pos.	Neg.
Strichen Hospital . .	53	113	...	8	156	...	—	—
Peterhead Hospital . .	6	32	...	2	34	...	—	—
Turriff Hospital . .	—	1	...	—	—	...	—	—
General Practitioners .	7	116	...	1	45	...	17	28
„ Peterhead	1	4	...	—	—	...	8	8
County Medical Officer .	—	4	...	—	4	...	—	4
	67	270	...	11	239	...	25	40 = 652

Miscellaneous Examinations.

Urines.—143 urines were submitted for bacteriological or chemical examinations. 48 urines showed the presence of *B. coli*, 2 urines contained albumen and 5 urines showed the presence of glucose.

Faeces.—20 specimens of faeces were examined for organisms other than the "enterica" group, or for the presence of blood. Occult blood was detected in 2 specimens.

Blood Films.—67 blood films were examined for anæmia and allied conditions. 47 films gave positive results.

Pus.—51 specimens of pus were examined for causal organisms. In 12 specimens the gonococcus was present.

Pleural Effusions.—In 9 effusions examined pneumococci were present in 7 cases.

Cerebro-Spinal Fluid.—In 3 specimens of spinal fluid examined a Gram positive diplococcus was present.

Waters.—10 samples of water were submitted for bacteriological examination. 6 were of satisfactory quality, while 4 were of a poor standard.

Tumours.—4 tumours were examined, 3 of which were of a malignant character.

Vaccines.—20 autogenous vaccines were prepared from pus, urine, faeces, &c.

Milks.—41 samples of milk were examined for the presence of *B. tuberculosis*. 7 samples of milk gave positive results while 34 samples were negative. Bacterial counts were made in 39 samples of milk, all of which were of a satisfactory standard.

Anthrax.—6 blood smears and 8 blood films were submitted for examination for *B. anthracis*. From 1 smear and in 1 film positive results were obtained.

Sheep Scab.—8 specimens of wool were examined for sheep scab, 6 of which gave positive results.

Examinations under the Tuberculosis Scheme.

570 specimens were examined under the scheme, of which 460 were sputa.

Sputa.—143 sputa were received from Newhills Sanatorium, of which 89 were positive.

General practitioners had 245 sputa examined, of which 39 were positive.

From County hospitals 22 sputa were received, of which 7 were positive.

The County Medical Officer had 50 sputa examined, with 16 positive results.

Urines.—24 urines were examined for *B. tuberculosis*, 2 being positive.

Pleural Effusions.—7 pleural effusions gave negative results for T.B.

Pus.—7 specimens of pus were examined, 2 showing T.B. present.

Cerebro-Spinal Fluids.—2 fluids were examined, both of which were negative.

Fæces.—3 specimens of fæces gave negative results.

Vaccines.—67 autogenous vaccines from sputa were prepared during the year.

The following table (Table III.) shows the nature and source of the examinations made under the Tuberculosis Scheme :—

TABLE III.

Sputa—	Positive.	Negative.	Total.
Newhills Sanatorium	89	54	143
General Practitioners	39	206	245
County Medical Officer	16	34	50
Hospitals	7	15	22
Urines	2	22	24
Pleural Effusions	—	7	7
Pus	2	5	7
Cerebro-spinal Fluids	—	2	2
Fæces	—	3	3
Autogenous Vaccines	—	—	67
Total			570

The following table (Table IV.) shows the number of specimens examined during the year 1928 :—

TABLE IV.

	Positive.	Negative.	Total.
Swabs <i>B. diphtheriæ</i>	239	1,712	1,951
Fæces <i>B. typhosus</i> , &c.	67	270	337
Urines „	11	239	250
Bloods „	25	40	65
Milks T.B.	7	34	41
Miscellaneous	—	—	388
Sputa T.B.	151	309	460
Other specimens T.B.	4	39	43
Autogenous Vaccines	—	—	67
Total			3,602

Aberdeen, *March*, 1929.

Section IX.

REPORT

BY

COUNTY VETERINARY INSPECTOR

ON THE OPERATION OF THE

MILK AND DAIRIES (SCOTLAND) ACT, 1914.

When reviewing the work done in carrying out the requirements under the above Act during the year 1928, there is little of general interest which distinguishes it from any previous year. It is, however, becoming more and more evident that the inspection of dairies cannot be properly beneficial until it is possible more frequently to visit premises from which milk is sent. One visit of inspection to a dairy farm per annum is not enough to ensure that all cows used in the production of milk are in a healthy condition during that period. This fact must be quite evident to anyone who is aware of the methods generally employed in keeping up the milk yield in a dairy herd. The most popular method adopted in Aberdeenshire consists in buying cows about to calf, or newly calved, and either selling them fat or disposing of them when their milk yield renders their retention in the herd uneconomic. Some of the cows which have been found to be heavy milkers are retained in the herd for a number of years, but whatever method of disposal is adopted, many cows which are not examined enter and leave a herd during the course of a year, and although the cows seen on inspection may be healthy, those bought in after the visit of the inspector may not be in a like condition.

Owing to the close co-operation existing between the County Veterinary Inspector and the Veterinary Inspector for the Burgh of Aberdeen, many unreported diseased cows from dairy herds are found. The affected animals are usually sent direct from the farm to the slaughter-house and all such cases are reported to the County Inspector by the Burgh Inspector. The adoption of this method of co-operation helps to a certain extent in giving an indication which of the dairy herds should be most frequently inspected, but there must be many cows disposed of in a similar fashion outside the Burgh or County of Aberdeen which do not come to the notice of the Inspectors. Co-operation between the Burgh and County Inspector should also help to accelerate the earlier notification of the diseased cow as the dairy farmer will in time realise that his delinquencies are known, even though his diseased cows are not reported as they should be.

The *post-mortem* evidence obtained by the slaughter of diseased cows is not the only indication one can have that there are or have been tuberculous animals on dairy premises, as it has been found that carcasses of pigs affected with tuberculosis bring to light the fact that cows suffering from tuberculosis are, or have been, on the premises, when the farm from which the pigs have been consigned are visited. The milk from the affected cows is given to the pigs instead of being used for human consumption. In a like manner tuberculous cows could be traced by the evidence obtained after the slaughter of diseased calves, but this avenue of information is closed, as very few calves are slaughtered in Aberdeen.

In order to ensure that the dairy herds are reasonably clear of disease it would be necessary to visit all the dairy farms at least twice annually, but owing to the limitation of the period when it is possible thoroughly to examine dairy herds, viz., from October to April, the present staff is unable to examine all the herds more than once a year.

The County of Aberdeen is a very large and widespread one and the areas in which the dairy herds are situated are so far apart that much time is occupied in travelling alone. Most of the visits have been done by car, and this entails heavy travelling expenses, but unless the visits are made by car so much time would be lost by any other method that it would be impossible to visit the dairies even once annually.

Inspection of Non-registered Dairies.

As it is difficult adequately even to inspect the registered dairy farms it has been impossible to visit and inspect cows in byres which are exempt from registration. All cows are examined on any farm which has to be visited for the purpose of carrying out the requirements of the Tuberculosis Order of 1925, but, apart from the cows examined during such visits, no systematic examination of non-registered herds has been made. Before such a scheme of inspection could be initiated a considerably augmented staff would be required, as it would be unfair to the farmers to examine some and leave out others.

Apart from the inability to examine all the dairy herds more than once annually there have been no difficulties in administering the Milk and Dairies Order.

Number of cows examined ^a (in milk)	. . . . .	9,651
„ „ (dry)	. . . . .	1,793
Total	. . . . .	<u>11,444</u>
Number of visits	. . . . .	880

General Condition and Cleanliness of Cows.

There has been no falling-off in the condition of the cows, either as regards their cleanliness or their physical state. In only three instances was it necessary to order, by official letter, the owner of dirty cows to improve the condition of his animals. Better results can, as a rule, be gained if the owner is requested to improve matters when the inspection is being made.

A great improvement in the grooming of cows has been noted on many farms and the majority of the dairy farmers are very willing to adopt any helpful suggestion which will enable them to keep their cows in a better state of cleanliness.

A very small proportion of the dairymen have as yet adopted the regular clipping of the flanks and udders of their cows, but it is hoped that in time all may do so when the benefit to be derived from such a procedure is properly brought home to them.

Methods of Feeding.

There has been no change in the methods of feeding as far as can be seen, but the methods in vogue seem to be quite adequate and suit the type of farming in Aberdeenshire.

Methods of Dealing with Diseased Cows.

The procedure adopted in dealing with cows found to be suffering from disease was similar to that outlined in previous Reports.

Number of Diseased Cows.		
Mastitis	. . . . .	90
Atrophy	. . . . .	83
Eruptions	. . . . .	6
Suspected Tuberculous Mastitis	. . . . .	41
Positive „ „	. . . . .	11
Tuberculous Emaciation	. . . . .	9
Tuberculosis with Chronic Cough	. . . . .	21
Total	. . . . .	<u>261</u>

As will be seen from this list, it was found that the dairy herds remain comparatively free from disease of any kind. The dairymen are also more readily reporting any cow suspected to be suffering from any disease which might be capable of contaminating the milk.

Milk Samples.

During the year, 41 samples of milk were taken from cows suspected to be suffering from tuberculous mastitis, and examined microscopically and biologically. Seven samples were found positive, and the cows were immediately slaughtered. All seven cases were diagnosed by microscope and found positive on *post-mortem* examination, acid-fast bacilli being demonstrated from the lesions in the mammary glands.

Inspection of Cowsheds.

The condition of the cowsheds is becoming more satisfactory as the necessary alterations are being completed, but even apart from the better conditions obtained on account of the alterations, more trouble is being taken to keep the byres in a condition of cleanliness. The improvements to the standings, &c., cause the cows to be so much more easily cleaned that it leaves more time for the cleaning of the byres and their surroundings.

Improvements to Cowsheds.

Not all alterations are yet completed and it will take some time to get all the byres fit for registration. There are many factors that prevent the rapid fulfilment of all the conditions laid down in the bye-laws, such as the inability of the landlord to help, and the unwillingness of the tenant to do anything at his own expense on account of a short lease. In many cases there is an actual lack of capital, and time must therefore be given before any alteration can be carried out. Each case must be judged on its own merits, but there has been no definite refusal to have the alterations carried out.

The alterations in some districts are further ahead than others. Deeside District has all alterations completed with one exception. There are not so many dairies in this District, but it is very satisfactory to see the necessary alterations completed so quickly. Most of the dairies in the Turriff Burgh and District have also been satisfactorily altered.

In the Deer District alterations have been very satisfactory, except in Peterhead Parish where there is a reluctance to do anything to improve conditions—a contrast to the enthusiasm which prevails in Fraserburgh Burgh and Parish, but it is hoped conditions will be improved in 1929.

In the districts where the cowsheds are not under the supervision of the Veterinary Inspector, alterations are also being completed satisfactorily, and it has been noted that the cowbeds are now being made considerably shorter and in consequence the condition of the cows as regards cleanliness is considerably improved.

Methods of Handling Milk.

The high standard of the cleanliness of the Aberdeenshire milk has been well maintained and the methods of handling have been considerably improved.

A score card system of marking has now been adopted and when it has been in force for some time it should prove to be very useful in giving an indication of the districts which require more care or cleanliness in the methods adopted in handling the milk.

Summary of Visits of Inspections in the Districts and Burghs.

DISTRICTS AND BURGHS.	Number of Visits.	Cows in Milk.	Cows (dry).	TOTAL.
Aberdeen District . . .	325	4,043	678	4,721
Deer " . . .	147	1,369	267	1,636
Ellon " . . .	77	1,142	221	1,363
Garioch " . . .	51	670	154	824
Deeside " . . .	65	600	129	729
Turriff " . . .	61	704	146	850
Huntly " . . .	36	443	84	527
Alford " . . .	18	103	22	125
Fraserburgh Burgh . . .	45	279	45	324
Peterhead " . . .	6	100	14	114
Roseheart " . . .	25	72	16	88
Huntly " . . .	8	50	8	58
Turriff " . . .	12	44	2	46
Oldmeldrum " . . .	2	16	4	20
Kintore " . . .	2	16	3	19
Total	880	9,651	1,793	11,444

Section X.

SYNOPSIS OF WORK OF THE DISTRICT SANITARY INSPECTORS.

It was usual to append in full the Reports of the several District Sanitary Inspectors to that of the County Medical Officer of Health, but, in 1927, it was considered sufficient to give a summary of their activities, and the same procedure has been adopted as to their work in 1928. Details are given below of outstanding features in the Water Supplies, Drainage, Scavenging, Housing and Dairies in the Districts.

Water Supplies.

Kemnay and Rhynie have sufficient water supply at the source, but the carrying capacities of the main pipes were inadequate.

Kemnay has a reservoir four miles distant, and there is, at that point, enough water to supply 100 gallons per head of the population per day of 24 hours. The main pipe is 4 inches in diameter. Over 20 houses in the higher parts of the village experienced a shortage during the forenoons of at least 3 days a week practically all the year round. During the year, 14 houses were provided with modern sanitary conveniences; 40 sets of premises, comprising about 90 separate dwelling-houses, were reported to require at least 56 water-closets. The ample supply of water necessary for these would, reports the Sanitary Inspector, have been assured by extending the existing 4-inch main from where it enters the village to a new distributing reservoir to be erected within the Special District and by connecting the existing distributing pipes to one of adequate size from that reservoir. Opposition to this scheme by a section of ratepayers prevented its being carried out during the year.

Rhynie also experienced a shortage of water in some of the higher houses. The main water pipe cannot keep all the distributing pipes fully charged during a heavy demand.

The financial difficulty of forming Ruthven, in the Parish of Cairnie, into a Special Water District may be overcome by the raising of funds by voluntary efforts.

The higher houses in Hatton, in the Ellon District, suffer a decided shortage of water during the day. This is due to the insufficient capacity of the main pipes from the reservoir to the village.

In the Deeside District a shortage was experienced in the Tarland Special District, complaints having been received from occupiers of several of the higher-placed houses in Tarland as to the want of pressure at certain periods throughout the day. The matter was remitted to the Committee's engineers, who have submitted a preliminary report detailing two schemes. The first, an improvement scheme, would involve the installation of a larger inlet tank, a larger filter bed and an overhauling of the existing pipes, &c. The estimated cost would be £600. The other scheme entails the installation of a gravitation supply and a larger reservoir capable of holding 30,000 gallons, or 2-3 days' supply. This would mean an expenditure of practically £2,500. In view of the dissatisfaction that has been experienced in Tarland for many years, it would seem advisable for the Committee to adopt the more complete, though more expensive, scheme.

In Cuminestown, the upper part of the village had its water supply restricted to an hour in the morning for three months.

Owing to the dilapidated condition of the pumping plant, Garmond was without a supply of water for days at a time.

Kirktown of Skene has now a gravitation supply introduced in place of the pre-existing unsatisfactory pump supply.

In Dyce Special District, a new 6-inch main was laid from the reservoir in place of the old 3-inch and 2-inch mains.

The augmentation of the Alford water supply was taken in hand.

Drainage.

The requisition to form a Special Drainage District for the village of New Pitsligo has not made any progress. In the case of New Deer, little has been done to remedy the complaints made in previous Reports.

In the Aberdeen District, new drainage systems were laid down for 126 houses, 102 of these being new houses.

The sewers from Alford village discharge into burns and ditches on the east side of the village; no attempt at purification is made. The question of forming the village into a Special Drainage District requires urgent consideration.

Complaint was made as to the condition of the burn into which the drainage from Meikle Wartle discharges. The formation of a Special District and the construction of a proper sewer appear to be the remedy.

In the case of the village of Oyne, there is need for the provision of a public sewer to catch up the several drain outfalls which discharge into the River Gaudie.

Scavenging.

The Mannofield Special Water and Drainage District was formed into a Special Scavenging and Lighting District.

Newmachar is the only Special District in the Aberdeen District that has not got Special Scavenging.

Housing.

The decision of the Department of Health to extend the time limit within which assistance may be given towards the cost of building houses by private enterprise to 30th September, 1929, has led to numerous fresh applications being received.

In the Aberdeen District, under the Housing Acts of 1919, 1923 and 1924, the Committee will have built, when the houses under construction during the year are completed, 206 houses in all, mostly within the Special Districts. The needs of these areas will then, if the applications received are a true criterion, be fairly well supplied, with the exception of Waterton District, where the demand is as acute as ever, though by far the greatest number of houses were erected there. Several cottages in Cairnfield Place and Stoneywood Road are completely done, but Closing Orders cannot be applied as alternative accommodation cannot meantime be provided.

It is proposed that Building Bye-laws, drawn up some time ago by the Aberdeen District Committee, but thought to be rather drastic for the more rural parts of the District, should be adopted, but restricted to the Special Districts of Mannofield, Cults, Culter, Waterton, Dyce and Newmachar.

In Garioch and Huntly Districts, of houses improved under the Housing (Rural Workers) Act, 12 were provided with water-closets and 30 with water supplies and sinks inside the houses.

There is an insistent call for systematic and more frequent inspection of all houses in rural areas.

It is often advisable to make a Closing Order for houses that are incapable without reconstruction of being made fit for human habitation, even though there may be no immediate prospect of its application. The tenancy frequently changes and the Local Authority can step in at such a time without inconvenience to any one.

Dairies.

The publicity given to the importance of a clean milk supply has resulted in awakened interest on the part of both producers and customers. Better methods of marketing milk have attracted to the industry many of the best farmers. The Northern Co-operative Society, Aberdeen, completed a station for receiving, pasteurising and distributing milk, and the Scottish Milk Agency established a branch of their business in the City. The prospect of a steady market is reflected in very marked improvement in byres and dairy premises generally.

An eagerness is noticeable on the part of most dairy farmers to adopt the best methods. Healthy competition is evident amongst the workers who, in clean overalls and caps, and convinced of the excellence of their methods, challenge the inspector to come and carry out a sediment test, which shows in a visible and convincing way the cleanliness of the milking and quickly leads to the location of any fault.

Cleanliness is the most important thing in connection with a pure milk supply; and, as in many other lines of business, there are always a few that the trade would be better without. Three undesirables in the Aberdeen District gave up dairying during the year and one other is to remove at the Whitsunday term; the latter was reported to the Committee for inattention to cleanliness and to necessary structural improvements.



