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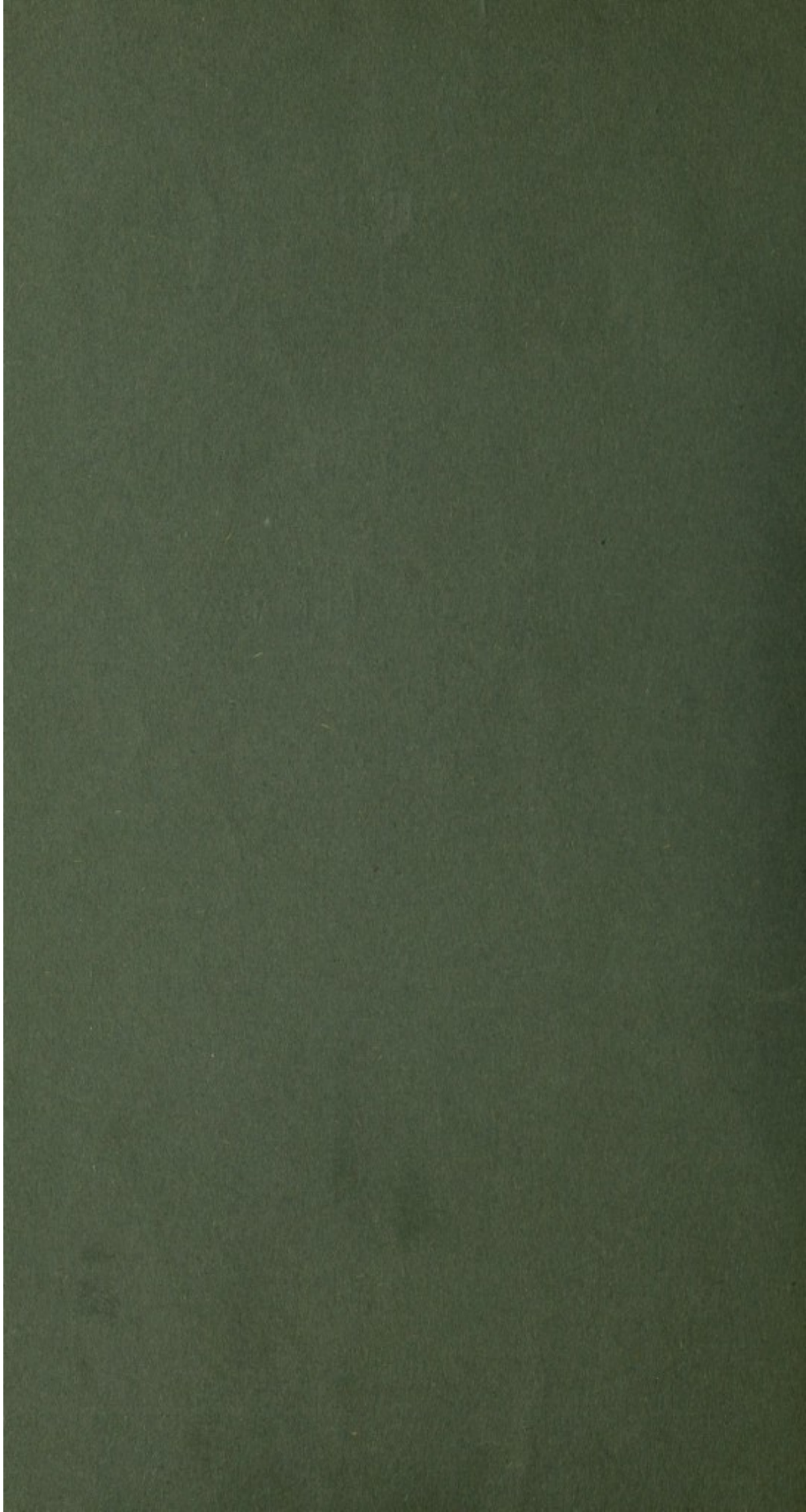
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THIRD
ANNUAL REPORT
ON THE
HEALTH AND SANITARY CONDITIONS
OF THE
COUNTY OF ABERDEEN
FOR THE YEAR
1927.

ABERDEEN:
PRINTED BY G. CORNWALL & SONS.

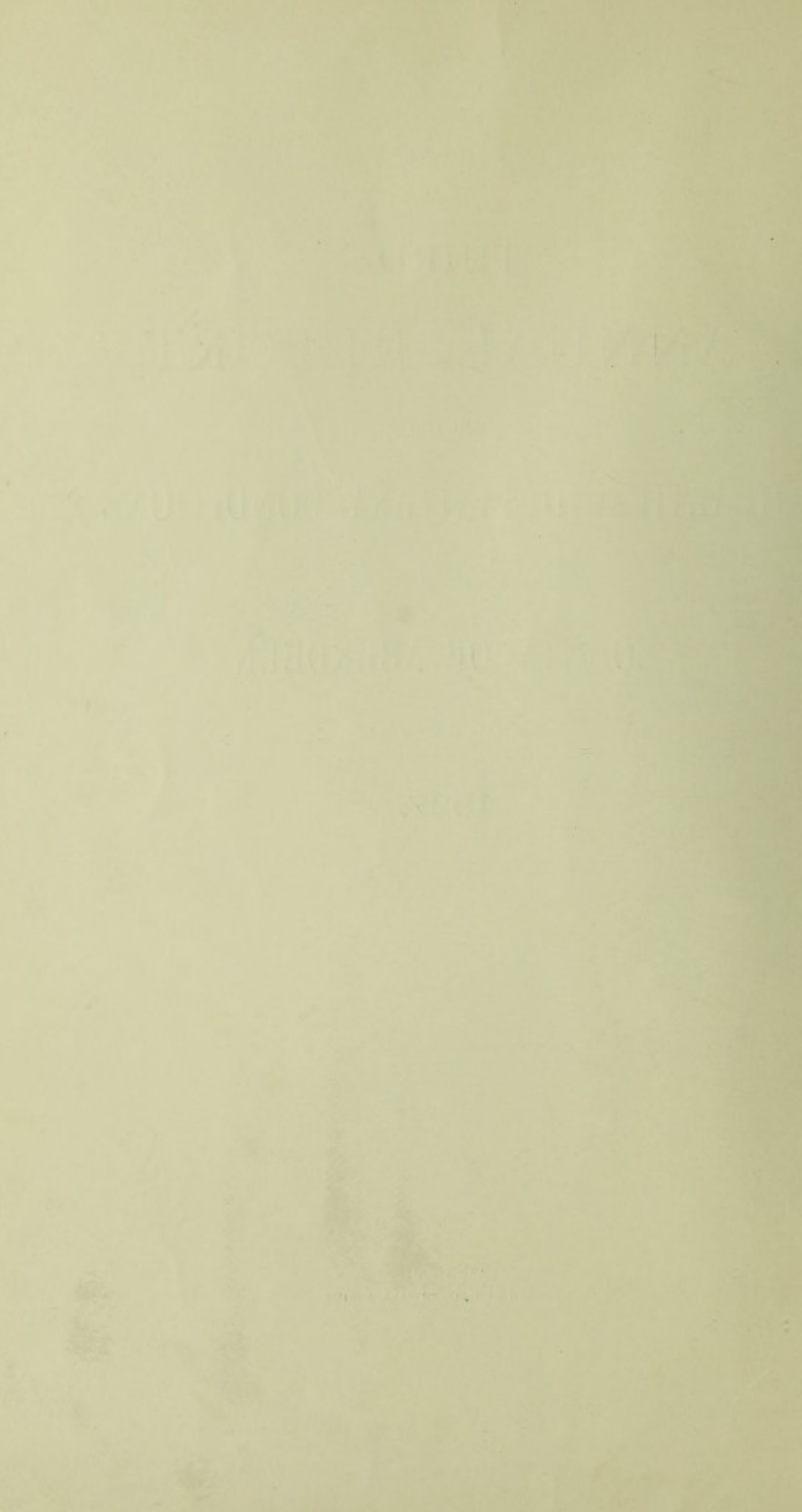
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STATISTICAL SUMMARY

(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,	107,224	...	37,957	...	145,181
(As estimated to the middle of 1927.)					
3. Density of population per acre,	.086	...	9.7	...	.115
4. Birth-rate,	21.2	...	18.5	...	20.88
(Excluding Peterhead and Fraserburgh.)					
5. Infantile Mortality,	74.3	...	67.1	...	73.5
(Excluding Peterhead and Fraserburgh.)					
6. Death-rate,	13.4	...	18.4	...	14.39
(Excluding Peterhead.)					



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4, ALBYN PLACE,
ABERDEEN, 17th April, 1928.

*To the Scottish Board of Health, to the
Members of the Joint Committee for Public
Health Services of the County of Aberdeen, and to
Members of the District Committees and Town Councils.*

MY LORDS, LADIES AND GENTLEMEN,

I herewith submit my Third Annual Report, for the year ending 31st December, 1927, on the Health and Sanitary Conditions of the County of Aberdeen. There are also incorporated Reports by the County Bacteriologist and by Mr. George Howie, County Veterinary Inspector, on the operation of the Milk and Dairies (Scotland) Act, 1914, and a synopsis of work coming more directly under the supervision of the several District Sanitary Inspectors.

The preventive work in connection with Diphtheria and Scarlet Fever was continued with vigour. In my Annual Report for 1925, an account was given of the mobilisation of the Public Health Staff and the preventive tactics adopted in the warfare against these diseases. From that date until the end of 1927, approximately one-third of the school population had been tested and those found to be susceptible to either or both of these diseases were artificially immunised. A description of the work is given in the Section dealing with Public Health.

With regard to death-rates, we find that there is a slight increase in the general death-rate and an increase in the tuberculosis death-rate; the latter is largely accounted for by the severe outbreak of Influenza which raged in the beginning of 1927. It is gratifying to note, however, that the infantile mortality rate has declined.

There is a marked fall in the number of births, a misfortune which, according to the Registrar-General, applies to all the rural areas in Scotland.

The Scheme for the Medical Inspection and Treatment of School Children has been carried out on lines similar to those of former years. The dental side of the Scheme is increasing in popularity. Parents are more and more beginning to realise the importance of their children having sound teeth, and the numbers consenting to treatment increase year by year. Much additional work has therefore been placed on the dental surgeons, especially on those employed in part-time work at Peterhead and Huntly.

The facilities for the treatment of tuberculosis were augmented in the end of the year by the admission of County patients, suffering from the non-pulmonary type of this disease, to Woodend Hospital. This did not constitute new, but rather alternative accommodation. All cases of non-pulmonary tuberculosis will ultimately be concentrated in this Institution where expert medical and nursing services are available.

The Scheme for the Co-ordination of the County Medical Services has been in operation for three years. The various services have dovetailed into one another; the machinery has run smoothly; team-work has been maintained and overlapping has thus been avoided. Perhaps one of the greatest advantages of the Scheme has been that the prevention of disease has been furthered by the closer association which has been established with the general practitioners in all matters pertaining to the health of the Community.

I have again to express my appreciation of the cordial co-operation of the members of the Staff in the execution of the manifold duties of the Department.

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 County, as estimated by the Registrar-General to the middle of 1927, was 107,224, or a decrease of 1,516 as compared with the estimated intercensal population of 1926. There has been, since 1921, an estimated decrease in all the Districts, the largest decrease being in the Deer and the smallest in the Huntly District.

The natural increase of population, that is, the increase of births over deaths during the year, was 836.

Marriages.

In 1927, there were registered 430 marriages, equivalent to a rate of 4·01 per 1,000, as compared with 452 in 1926, representing a rate of 4·1.

Births.

After correction for inward and outward transfers, there were 2,276 births, 1,163 males and 1,113 females. There were 227 fewer births in 1927 than in 1926.

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

The Scottish birth-rate for 1927 was 19·8 per 1,000, or 1·1 less than that of the previous year.

Of the 2,276 births, 365 were illegitimate. This gives an illegitimate birth-rate of 16·04 per 100 births as compared with 14·5 in 1926, and 15·3 in 1925.

Deaths.

The number of deaths, corrected for transfers, was 1,440, or a death-rate of 13·4 per 1,000 of estimated population. The number of deaths in 1926 was 1,392 and the death-rate 12·8.

The deaths registered in Scotland numbered 65,830—2,050 more than in 1926. The Scottish annual death-rate was 13·5 per 1,000 in 1927, which is 0·5 more than that of the previous year.

Causes of Death.

Of the 1,440 deaths which occurred in 1927, the following were the principal causes :—

Diseases of Heart and Blood Vessels.—Three hundred and seventy-seven deaths were attributable to diseases of the circulatory system. Heart disease was the cause of death in 219 cases. Apoplexy accounted for 135, and the greatest number occurred in persons over 65 years of age. Diseases of the arteries, as apart from apoplexy, caused 23 deaths.

Cancer.—In 1927, cancer caused 166 deaths as compared with 145 in 1926. As regards the age at death, there were only 10 deaths under 45 years, 18 in those between 45 and 55 years, 38 between 55 and 65 years, and 100 deaths in those over 65. There is a popular cry that cancer is on the increase, but available statistics do not go to prove this. The apparent increase may be due to more exact diagnosis or to the greater average age to which people now live. In the main, cancer is a disease of advanced life, but much could be done by propaganda to diminish this scourge. If detected early and treated surgically, this

disease would contribute less to the death-rate in a considerable degree. So far as the Districts of Aberdeenshire are concerned, the number of deaths, 166, representing 11·5 per cent. of the total deaths, is high.

Epidemic Diseases.—The chief epidemic diseases, tabulated below, accounted for 33 deaths or 2·3 per cent. of the total deaths. This is a remarkably low figure :—

Whooping cough,	11 deaths.
Diarrhoea and enteritis,	9 „
Scarlet fever,	8 „
Diphtheria,	2 „
Measles,	2 „
Enteric fever,	1 death.
<hr/>	
Total,	33 deaths.
<hr/>	

Cerebro-spinal Meningitis (Spotted Fever) accounted for 1 death. There were no deaths from Encephalitis Lethargica (Sleepy Sickness).

Influenza.—Influenza had a high toll of deaths. It accounted for 61 in the Districts as compared with 21 in 1926 and 35 in 1925. A description of the epidemic, which spread over the whole County, is given later in this Report.

Tuberculous Disease.—The number of deaths due to tuberculosis of the lungs was 68, and to other forms of tuberculosis 21, giving a total of 89. The total number of deaths from tuberculosis was 81 in 1926 and 104 in 1925.

Diseases of the Respiratory System.—Excluding tuberculosis and influenza, we find that 166 deaths were due to diseases of the respiratory system. Pneumonia caused 75 deaths, bronchitis 72, and other respiratory diseases 19.

Diseases of the Digestive System.—In 1927, there was twice the number of deaths under this head. Appendicitis accounted for 19 deaths, and non-cancerous conditions of the liver for 15.

Diseases of the Kidney.—Kidney disease caused 38 deaths, 10 of these occurring in the 65 to 75 age group.

Puerperal Sepsis.—Only 1 death was returned as due to this disease which affects women after confinement. This is a record. Other diseases and accidents of pregnancy and parturition accounted for 8 deaths only.

Deaths by Violence.—Fifty-one deaths were due to violence, as compared with 61 in 1926 and 52 in 1925.

2.—PREVALENCE OF INFECTIOUS DISEASES.

(a) Notifiable Infectious Diseases.

SCARLET FEVER.

The increased prevalence of scarlet fever towards the end of 1925 was followed by a considerable increase in the number of cases in 1926 as compared with 1925. In 1927, there was a decrease from the preceding year both in the Districts and in the Burghs. The decrease was small, 17 for Districts and 7 for Burghs, but it seems to show that 1926 was the crest of the periodic wave or cycle of increased prevalence. Deeside showed the greatest reduction, with 43 cases as against 107 in 1926.

It is to be noted that the numbers notified in the last two years are not strictly comparable, as a criterion of the prevalence, with numbers in previous years, inasmuch as the more thorough investigation, rendered possible by the fusion of the public health medical services, in connection with notified or suspected cases, has led to the detection of many cases that must otherwise certainly have been missed.

The case mortality has shown no alteration from last year. It is 1·5 per 100 cases. This is low. There are records of recent epidemics in other countries where the case mortality was 30 per cent. In this area the highest figure in recent years was 5·16 in 1915.

Age Incidence.—The age incidence of the cases in the Districts is shown in Table I. The majority of cases occurred amongst those of school age, but there was a slightly higher proportion than formerly of cases aged from 15 to 25 years.

TABLE I.
Age Incidence of Cases (Districts).

Districts.	Under 1 year.	1-5.	5-15.	15-25.	25-45.	45-65.	Over 65.	Total.
Deer	—	17	58	13	7	2	—	97
Ellon	—	12	29	19	4	2	—	66
Garioch	1	12	55	11	6	3	—	88
Deeside	—	6	21	9	5	1	1	43
Turriff	—	3	28	6	—	—	—	37
Aberdeen	1	13	74	24	7	1	—	120
Alford	—	2	6	1	1	—	—	10
Huntly	—	10	35	6	5	2	—	58
Totals	2	75	306	89	35	11	1	519
Percentage . .	·38	4·45	58·95	17·1	6·74	2·1	·19	—

Seasonal Prevalence.—The first and last quarters of the year provided more cases than the rest of the year; the months July to September showed the lowest incidence. But the disease was present at all times of the year and the month of lowest incidence showed more than half as many cases as the month of greatest incidence.

The monthly incidence is shown in the following Table :—

TABLE II.
SCARLET FEVER.
Monthly Incidence of Cases (Districts and Burghs).

	Districts.	Burghs.	Total.
January	52	13	65
February	34	17	51
March	33	8	41
April	35	4	39
May	36	5	41
June	60	9	69
July	42	7	49
August	41	1	42
September	42	2	44
October,	61	2	63
November	37	15	52
December	46	1	47
Total	519	84	603

Hospital Treatment.—Table III. shows the number of cases of scarlet fever treated institutionally. Of the 10 effective County Epidemic Hospitals, 5 serve both Districts and Burghs.

TABLE III.
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	98	88	3,206	87	36.8	—	—
Ellon	District and Burgh	86	86	4,958	91	54.4	1	1.16
Inverurie	District of Garioch and Burghs of Inverurie, Kintore and Oldmeldrum	113	99	5,591	114	49	—	—
Aboyne	Deeside District	43	27	1,445	39	37	—	—
Turriff	District and Burgh	37	42	1,661	50	33.2	1	2.3
Summerfield	Aberdeen District	120	114	4,132	103	40.1	2	1.9
Alford	District	10	11	296	10	29.6	—	—
Huntly	District and Burgh	80	81	3,148	82	38.4	—	—
Ballater	Burgh	—	—	—	—	—	—	—
Fraserburgh	Burgh	16	16	652	15	43.5	—	—
Braemar	—	—	—	—	—	—	—	—
Total		603	564	25,089	601	41.7	4	.71

Secondary Cases of Scarlet Fever.—Of the 564 patients removed to Hospital 43, 7.6 per cent., were followed by 46 further cases in the homes after the removal of the first cases. Not infrequently the start of the illness in a family was the practically simultaneous sickening of two or more of the members of the family, the infection having come from without. These, of course, are not included as secondary cases. No secondary cases occurred from the cases treated at home.

Return Cases.—Of the 603 cases notified during the year 29, or 4·8 per cent., were cases developing in the homes within a month following the discharge of 25 original cases from hospital.

A great many cases of scarlet fever were extremely difficult to diagnose owing to their very mild or atypical nature. For the same reason, many cases are missed and opportunities for infection therefore multiplied. Frequent requests have been made by practitioners for members of the Staff to visit doubtful cases with a view to settling the diagnosis. It may happen that a definite finding cannot be reached for two or three days, when undoubted scarlet fever amongst contacts decides the question. When the question arises at a dairy farm it is the practice, if there is a doubt about the case, to treat it as infectious.

Scarlet fever occurred at a dairy farm in spring. A horseman, A, was sent home by his doctor to another parish, ill with sore throat. Two days later B, an inmate of the farm-house, was sent by another doctor to an Isolation Hospital. There was some doubt as to this possibly being diphtheria, but it proved to be scarlet fever. At the same time the doctor took a swab from another horseman, C, intimated the circumstances to the Public Health Department and asked that one of the medical officers might visit the farm along with him. This was done. C's swab was reported negative, and he denied having had any rash. His throat and tongue were strongly suggestive of scarlet fever. In the same room as C was a man, D, ill with scarlet fever, the rash showing. Both C and D were removed to hospital. A was next visited at his home. His condition was similar to C's, but there had been a very doubtful slight rash on him. He was removed to hospital, as he was living at a croft where milk was supplied to the public. Four days later a boy of 12, living near the farm, was notified as suffering from scarlet fever. He had been a frequent visitor to the farm. Three days later another of the same family was notified as having scarlet fever, but this was almost certainly not a genuine case. A third brother was ill with sore throat and slight temperature, no rash, no sickness. He had scarlet fever two or three years before. His throat condition was probably due to the scarlet fever germ, but he presumably had sufficient antitoxin in his system from a previous attack of scarlet fever to prevent the development of rash. He was, however, isolated at home. At the first visit to the farm, all people working about, or living at, the farm were examined. Except for those mentioned, no one showed any sign suggestive of scarlet fever, recent or present. The milk supply was not stopped. It was distributed in Aberdeen, and the City Authorities were informed of the occurrence of scarlet fever. No City case was traceable to this source.

Investigation of a single case of scarlet fever may fail to reveal the source of infection. On the other hand, it may be the means of preventing further cases. A case notified in November was visited. This was a girl who had gone home owing to her mother's illness. A brother went home from a farm in another district on 11th November, as he was suffering from "tonsillitis and influenza." On the 17th November, his mother developed a very septic throat. Her daughter arrived to nurse her on 23rd, sickened on 25th, and had a rash on 27th. No rash had been noticed on the mother, but this may have been missed. A visit showed that the brother was desquamating on fingers and forearms, and was the source of infection. Had the girl not gone home and developed a rash, several cases might have occurred, as no suspicion of scarlet fever was entertained by the people prior to the appearance of the rash. All three were taken to hospital.

One other investigation may be quoted. A child was removed to hospital on a doctor's request. He could not say definitely that it was a case of scarlet fever. He asked that a Medical Officer might visit the hospital and see the child. This was agreed to. The condition found was as follows:—

Rash had disappeared. It was said to have been blotchy and unlike the scarlet fever rash. Temperature was normal. There was slight glandular enlargement in neck. The tonsils were enlarged and angry looking, with a slimy greyish yellow deposit especially on right tonsil. A swab was taken and was negative. The child had running ears. At the child's home it was ascertained that a younger sister and a brother had also had a rash and sore throat; the brother had an impetiginous nose and was found to be desquamating on chest and legs. In a house a few hundred yards away, it was learned that there had been slight sore throat amongst the children. Examination showed scarlet rash on one of them. They were all isolated at home. The school was visited and all the pupils examined. One was found to be infectious.

DIPHTHERIA.

There is a marked diminution in the number of diphtheria cases notified in 1927. This is especially noticeable in the Districts, where 63 notifications were received, as against 113 in 1926. Since 1914, when there were 328 cases, the only year approaching the present in regard to numbers was 1918, when 72 cases were notified. The deaths from diphtheria numbered 2. Only one other year, 1924, shows so low a number of deaths from this cause, in the last 14 years.

The Burghs also show reduction though not so great as in the Districts.

Age Incidence.—The age incidence is shown in Table IV. Of 63 cases, 44, or 69·8 per cent., were in children under 15 years of age.

TABLE IV.

DIPHTHERIA.

Age Incidence of Cases (Districts).

Districts.	Under 1 Year.	1-5.	5-15.	15-25.	25-45.	45-65.	Over 65.	Total.
Deer . . .	—	5	8	—	3	—	1	17
Ellon . . .	—	—	—	4	—	—	—	4
Garioch . . .	—	1	3	1	—	—	—	5
Deeside . . .	—	—	6	5	1	—	—	12
Turriff . . .	—	1	5	1	1	—	—	8
Aberdeen . . .	—	1	12	2	—	—	—	15
Alford . . .	—	1	1	—	—	—	—	2
Huntly . . .	—	—	—	—	—	—	—	—
Totals . . .	—	9	35	13	5	—	1	63
Percentage . . .	—	14·3	55·5	20·6	7·9	—	1·6	100

Seasonal Prevalence.—The numbers notified in the Districts and Burghs during each month of the year are given in Table V. Forty-five cases, or 48 per cent. of the total, were notified in the first quarter of the year, following on an increased seasonal prevalence in the last quarter of 1926.

TABLE V.
DIPHTHERIA.
Monthly Incidence (Districts and Burghs).

Month.	Districts.		Burghs.		Total.
January	6	...	5	...	11
February	10	...	4	...	14
March	12	...	8	...	20
April	9	...	4	...	13
May	—	...	—	...	—
June	6	...	1	...	7
July	5	...	1	...	6
August	1	...	1	...	2
September	2	...	1	...	3
October	7	...	1	...	8
November	3	...	4	...	7
December	2	...	—	...	2
Total	63	...	30	...	93

Hospital Treatment.—Statistics relating to diphtheria cases treated in hospital will be found in Table VI.

TABLE VI.
DIPHTHERIA.

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	17	12	365	12	30.4	—	—
Ellon	4	4	* 74	4	18.5	—	—
Inverurie	20	20	414	21	19.7	—	—
Aboyne	12	2	34	2	17	1	50
Turriff	8	7	166	7	23.7	—	—
Summerfield	15	11	44	2	22	—	—
Alford	2	7	192	8	24	—	—
Huntly	—	—	—	—	—	—	—
Ballater	1	—	—	—	—	—	—
Fraserburgh	14	16	388	15	25.3	—	—
Braemar	—	—	—	—	—	—	—
Total	93	79	1,677	71	23.6	1	12.7

Secondary Cases.—Of the 79 cases removed to hospital, 7 were followed by 13 further cases in the homes after the removal of the first cases.

Return Cases.—Of the 93 cases notified during the year, 3, or 3·2 per cent., were cases developing in the homes within a month following the discharge of 3 original cases from hospital.

The Prevention of Scarlet Fever and Diphtheria.

From December, 1925, to the end of 1926, testing and immunisation had been carried through in 34 schools and at three other Centres.

In 1927, Schick (diphtheria) and Dick (scarlet fever) tests were made and active immunity conferred in 65 schools. In addition, re-tests were made of the children immunised in Peterhead Burgh Schools in June, 1926, and of the children immunised in Huntly Burgh Schools in February, 1926.

Fifty-three beginners in Huntly Burgh Schools were immunised without previous test. During December, 1926, and January, 1927, at the Child Welfare Clinic in Huntly, 30 children, not yet of school age, received inoculations against diphtheria and scarlet fever, and, at Inverurie Child Welfare Clinic, 6 children were similarly treated. In co-operation with the City Authorities, testing and inoculations were made at Linn Moor Convalescent Home, Culter, in December. Forty-nine children from County districts were tested. Of the 49, 30 were Schick positive and 20 Dick positive. Ten of these had been previously inoculated elsewhere by us, and 7 of these gave completely negative results both to diphtheria and to scarlet fever tests; two of them were faintly positive to diphtheria only, and one to scarlet fever, and these three were inoculated so as to obtain a complete protection. Two other children, who had had scarlet fever, gave faint positive tests and they also were inoculated.

Consents to the tests are got in 70 to over 90 per cent. of the children, except in the coastal towns and villages, where the proportion consenting is much lower.

In Huntly Burgh, over 94 per cent. of the possible consented to the re-test, or to the test in children who had been inoculated previously without prior testing.

To test, read tests, and give three inoculations necessitates six visits to each school dealt with, and it is rarely possible owing to absenteeism to complete the testing, reading, and the whole series of inoculations for all children for whom consent is given, even with an extra visit for inoculation of those who have missed one. Absence from test or reading of test in case of the younger children matters little, as there is strong probability that they are positive, and in fact they are usually given injections against both diphtheria and scarlet fever. One absence from inoculations can be overtaken at the fourth visit, but beyond this it is impracticable to go.

A comparison was made between scarlet fever toxins from two entirely different sources, one obtained in this County and one from abroad. The toxins were injected, 2 c.c. intradermally, into the same arm of two series of children at the same time. In half the number, one toxin was injected at the usual Dick test site, the other at the control site about 3 inches nearer the wrist. This was reversed in the other half. In all cases the reactions corresponded exactly.

TABLE VII.
Inoculations (Complete Series = 3)—1927.

	Schick.	Dick.	Combined.	Diphtheria.	Scarlet Fever.								
	+	+	3 2 1	3 2 1	3 2 1								
Aberdeen— 11 Schools	473	401	133	20	74	5	3	15	1	4			
Bucksburn— Extras	39	6	37	8	2	1	2	—	—	—			
Ellon— 10 Schools	827	40	786	85	758	23	26	1	3	15	1		
Garioch— 3 Schools	117	8	98	26	126	1	3	11	—	1	—		
Huntly— 16 Schools	521	36	441	124	437	54	9	49	10	1	16	1	—
Oldmeldrum— 2 Schools	193	21	155	59	181	2	2	31	—	2	8	—	1
Deeside— 23 Schools	829	105	772	186	801	18	17	68	1	1	77	3	1
Linn Moor	30	19	20	29	16	—	—	11	—	—	3	—	1
TOTAL	3,029	291	2,710	650	2,713	128	78	274	17	10	139	5	8

NOTE.—In the above table, the figures, 3, 2 and 1, refer to the inoculations received by the numbers of children shown under them. Three inoculations were required to complete the series; those receiving one or two inoculations only are therefore not immunised or only partially so.

Re-tests in Huntly Burgh and Peterhead.—The results of the re-tests have not yet been completely worked out. The protection acquired against diphtheria as judged by Schick test, however, is much higher than that acquired against scarlet fever as judged by the Dick test. It is interesting to find that children injected with both diphtheria and scarlet fever prophylactics have apparently, as a result, a higher immunity to diphtheria than have those who are inoculated with diphtheria prophylactic alone.

RESULTS.

The question will naturally be asked whether a continuance of these prophylactic measures is justified by results. Our efforts to diminish the incidence of these diseases commenced in the end of 1925, and, from that date until the end of February, 1928, 8,500 children had been tested—about one-third of the school population of the County—and roughly 7,000 who were found to be positive reactors to either or both of these diseases were actively immunised.

Take the cases of scarlet fever. Within this period, 1,333 cases were notified; of these, 21 had been tested and had received preventive inoculations but the disease appeared in 7 cases within a month of the last inoculation, so that artificial immunity could not have been established; four other cases were removed to hospital for observation and were discharged as not having suffered from scarlet fever; it therefore follows that out of 7,000 cases actively immunised against scarlet fever, 10 actually later developed the disease in mild form. In the same period, 257 cases of diphtheria were notified and only two had received preventive inoculations.

In connection with the diphtheria prophylactic, we have used for the past two years toxoid-antitoxin. This compound is innocuous; freezing may separate the toxoid from the antitoxin, but the free toxoid is absolutely harmless.

TYPHOID AND PARA-TYPHOID FEVERS.

There were 24 notifications of typhoid and para-typhoid fever, all notified from the Districts. In two cases the diagnosis was not confirmed.

The number of notifications and of deaths for the past ten years is given in the following Table:—

TABLE VIII.

Year.	Notifications.	Deaths.	Case Mortality.
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

Three of the 22 cases were typhoid fever—one from the Aberdeen District, another from the Ellon District, and the third from the Deer District. There was one death. In one of the cases, a diagnosis of pulmonary tuberculosis had been made, but further investigation showed that the primary disease was typhoid fever.

With regard to the discarded cases, one occurred in the Garioch District; all the classical symptoms of typhoid fever were present and the patient—a woman of 45 years of age—was admitted to the Aberdeen City Hospital for treatment; the diagnosis was not confirmed, either serologically or bacteriologically, and, after a period in hospital, she was sent home quite well. The other case—a boy of 7 years—appeared to be connected with the New Deer outbreak of para-typhoid fever which will be discussed later; a sample of blood was sent for serological examination to the County Laboratory and this gave a slightly positive reaction to para-typhoid B; neither the urine nor faeces were ever found to be positive; this boy's father, while serving during the Great War, had suffered from "typhoid fever."

PARA-TYPHOID FEVER.

Two outbreaks of para-typhoid fever occurred during the year. Both were in the Deer District and both were connected with milk supplies and were entirely independent of one another.

MAY OUTBREAK.

In the end of May, two cases of para-typhoid fever were notified from the Deer District and at the same time several cases occurred in the Burgh of Peterhead. Investigations were immediately set on foot, and it was soon dis-

covered that, with one exception, there was a common milk supply. It was ascertained that the milking at the dairy farm concerned was performed by the father, mother and children of one family.

Samples of blood, urine and faeces were taken from each member of this family, and, on 3rd June, it was found that the mother of the family concerned gave a positive reaction to *Para-Typhoid B* and that para-typhoid bacilli were present in her urine and faeces. At no time did this woman present any symptoms or history that would indicate an illness due to the typhoid group. The father of the family concerned was interviewed and it was pointed out to him that, in the interest of public health, his wife could not, for an indefinite period, be permitted to handle the milk and that she could not with safety be allowed to cook for any of the milkers. In these circumstances, the father stated that he would look for other employment. He voluntarily left the dairy and employment was found for him by the Road Surveyor of the Deer District.

Connected with this outbreak there were only three cases in the Deer District but the Burgh of Peterhead suffered rather severely, 32 cases being affected. It should be pointed out that several of the Peterhead para-typhoid cases were "contact" cases.

Thorough investigations in this case went to prove that in this family the milker referred to was a "carrier" and all the evidence pointed to the fact that the milk was infected on one occasion only.

An interesting development in this case was that the man applied to the Scottish Board of Health for compensation in respect of loss of employment due to the fact that his wife had been proved to be a para-typhoid carrier. The matter was considered by the Scottish Board of Health and by the Deer District Committee and the position taken up by both of these Departments was that compensation could not be legally made by the Local Authority under Section 164 of the Public Health (Scotland) Act, 1897. The case was undoubtedly one of unquestioned hardship but all that one could do was to find other employment for the man and to ensure that this employment was of a nature which would eliminate the risk of spreading infection.

NOVEMBER OUTBREAK.

A second and more extensive outbreak—so far as the County of Aberdeen was concerned—occurred in the village of New Deer.

On 5th November, a case of "enteric fever" was removed from New Deer to Strichen Infectious Diseases Hospital; on 7th November, 4 cases similarly affected were removed from the same area; on 9th November one case, and, on 19th November, two further cases were removed.

The illness was proved bacteriologically to be due to *Bacillus Paratyphosus B*.

The clinical symptoms were fever, furred tongue, lumbar pains, headache, abdominal distention in two cases; rose spots were present in a few cases; diarrhoea was absent and there was, in most cases, a tendency to constipation. Some of the cases notified subsequent to 19th November were found, on investigation, to have had sharp influenzal-like attacks, characterised by headache, three days' fever and tardy convalescence. In the course of investigation, I had blood samples taken from all those patients—occurring in the practice of the local doctor—who had had any history of malaise or previous fever; the result was that several cases were thus brought to light.

The outbreak was at once investigated and it was revealed that all these cases had one common feature, namely, they had all obtained milk from one source. In the first eight cases, this dairy was the only source of supply in five, and a partial source in other three.

Personal examination of the dairy and workers, and laboratory examinations of blood, faeces and urine failed to reveal the causal human agent—the carrier. There was no history of recent illness in any of the dairy workers.

The dairy was visited on several occasions by me, by two of the Assistant Medical Officers and by Mr. W. J. Simpson, District Sanitary Inspector. The cows were examined and the byres were inspected by Mr. G. Howie, County Veterinary Inspector.

As the actual carrier was not found, a complete list of the dairyman's customers was obtained; these were all visited by an Assistant Medical Officer and the District Sanitary Inspector and were advised to boil the milk before use.

At intervals, cases continued to be notified up to 13th December, but most of the later cases had been ill for some time before notification. No case was notified subsequent to this date.

The owner of the dairy was a man of 70 years of age. Over 30 years ago, at a farm in the neighbourhood, he had an illness which was diagnosed as "Gastric Fever." His blood, urine and faeces proved negative to agglutination and to cultural tests. Specimens were got from him at intervals for examination. He was forbidden for an indefinite period to have anything to do with the milking and the handling of the milk or of the utensils.

Owing to failure to ascertain definitely who was the carrier, the supply of milk was not stopped. The hygienic condition of the dairy and the herd was much improved as a result of official recommendations. Next spring, the County Veterinary Inspector will insist on extensive structural alterations of the premises.

It will be noted that, in many cases, a long period elapsed between the onset of illness and notification, and it seems unlikely, from consideration of the cases, that the milk continued to be a source of infection. Most of the cases were extremely mild and it is surprising, in view of this fact, that there have not been more secondary or contact cases.

The outbreak was due to a milk-borne infection and it would appear that the milk was infected on one, or, at most, on two occasions only.

There was inclination in certain quarters in New Deer to blame the school closets as being the cause of the spread of the disease, an allegation being made that they were not properly cleaned. This assertion was absolutely unwarranted. The cleaning of the school was adequate and included sweeping out of the floors with cyllin-impregnated damp saw-dust, whilst the closets were sprayed with cyllin. Flies were not present.

There is a like absence of foundation for the belief held by some that the drainage system was responsible for the outbreak. The present partial drainage of the village of New Deer is not good, and, in this connection, I would draw attention to the following extract from the District Sanitary Inspector's Report for 1926:—

"I would direct special attention to the drainage of the villages of New Pitsligo and New Deer; both villages should be formed into Special Drainage Districts for the purpose of preserving and keeping in order the drains they have. Both villages are badly situated for drainage works and the laying of a complete system for either of them would be a very expensive work, New Pitsligo being built on the side of a hill and New Deer on the ridge of a hill with the ground falling to both sides. Both villages are partly drained and these drains should be properly looked after to keep off the evil day as long as possible."

A Special Drainage District for the whole village of New Deer is, from a sanitary point of view, highly desirable, but, from its geographical situation, engineering difficulties would have to be overcome; a complete drainage system would add very considerably to the financial burden of the inhabitants. I have advised several of the inhabitants to apply to the Deer District Committee with a view to the appointment of an engineer who would give an estimate of the cost of forming the village into a Special Drainage District. I do not intend to advise the District Committee to form a Special Drainage District until it is ascertained that such a proposition is economically possible.

In connection with this outbreak of para-typhoid fever in New Deer, there were 16 definite cases and the 17th case was that of the unconfirmed case who had agglutinins in his blood to B. Para-Typhosus "B" in weak dilution, and in whom both faeces and urine gave negative results.

Of the 16 definite cases of para-typhoid, 14 were removed to hospital, and it is interesting to note that the bacilli continued to be found in the faeces of two of the cases three and a half months after their admission to hospital. Such "carriers" do not respond to any known treatment; bile, with T.A.B. vaccine, was tried with no apparent success.

SMALL-POX.

There was no notified case of small-pox during the year, but one case of suspected small-pox was removed to Inverurie Infectious Diseases Hospital for observation. The history of this case is sufficiently interesting to warrant its being given in some detail.

The patient, Miss M. H. C. (aged 27) was a teacher in Dundee where small-pox existed, and came on holiday to her home near Kintore on 8th April. Two children had been diagnosed as suffering from small-pox and had been removed from the classes which she taught in Dundee, the last on 25th March, which was the latest date on which Miss C. could have been in contact with a case of small-pox and been infected. She had been vaccinated (one mark) in childhood, and, on 29th March, she was re-vaccinated, and, on the date of primary examination (15th April), the crusts of two successful vaccinations were present.

When she came home to Kintore, she felt quite well, but, on 13th April, she felt very tired and had no inclination to get out of bed; the tiredness, however, wore off and she played golf and badminton that day. On the following day, she saw a rash on face, back of hands and legs.

The family doctor was called in on 15th instant, and reported the matter to the Public Health Department. The clinical appearances were as follows:—

The rash was of the nature of a papular erythema on the face, below the level of the eyebrows. On the forearms and legs, especially in the region of the wrists and ankles, was an eruption of slightly raised pink smooth spots.

It was decided that this case should administratively be treated as if it were small-pox, and, accordingly, she was removed to Inverurie Infectious Diseases Hospital on 16th April. The case was reported to the Scottish Board of Health as being one of suspected small-pox, and, on 19th April, Dr. Dittmar, of the Board of Health, examined her at Inverurie. He gave it as his opinion that the case was not one of small-pox, basing his opinion on the fact (1) that the incubation period of small-pox is almost invariably 12 days—rarely shorter and more rarely longer, (2) that primary vaccination had been successful and that the re-vaccination seemed to have been successful, and (3) that the eruption did not look like a small-pox rash. The patient was discharged from hospital on 28th April. A large number of contacts were vaccinated or re-vaccinated.

In all probability, the rash was the result of vaccination and might be described as a post-vaccinal rash.

CHICKEN-POX.

Chicken-pox was made temporarily notifiable and will continue to be notifiable until 31st December, 1928. In 1927, 219 cases were notified, but none required institutional treatment.

ACUTE INFECTIVE JAUNDICE.

Acute infective jaundice is notifiable under the Public Health (Infective Jaundice) Regulations (Scotland), 1924. Four cases were notified in 1927. None of them received institutional treatment.

PNEUMONIA.

Acute pneumonias were made compulsorily notifiable by the provisions of the Public Health (Pneumonia, Malaria, Dysentery, &c.) Regulations (Scotland), 1919. In 1927, there were 346 notifications. Three notifications were not accepted; one case was a re-notification and in two cases the pneumonia was the sequela of other diseases. The number of cases of acute pneumonia notified in 1926 was 238. This increase of 110 must not be taken to indicate an actual increased incidence of the disease; it simply means that notification is gradually becoming more complete as the nursing and hospital facilities provided by the Public Health Department become better known.

The notified cases are classified as under:—

1. Acute primary pneumonia	184
2. Acute influenzal pneumonia	70
3. Acute primary broncho-pneumonia	56
4. Acute pneumonia (type not specified)	36
Total	<hr/> 346 <hr/>

In 1927, pneumonia was the actual or a contributory cause of death in 97 persons in the Districts and Burghs (excluding Peterhead). Of these deaths, 27 occurred in children under 1 year and 8 in children between 1 and 5 years of age.

A noticeable point in this year's notifications is the large number of cases of influenzal pneumonia, namely, 70, and the decided decrease in the number of deaths. Another point worthy of note is that 61 of the 70 notifications of acute influenzal pneumonia were made in the first quarter of the year, 6 in the second, 1 in the third and 2 in the fourth quarter.

With regard to treatment, provision is made both for hospital and for domiciliary treatment. Extensive and excellent hospital provision has been made for cases of pneumonia in Woodend Hospital. The total number of cases treated in institutions was 69.

There has been a considerable increase in institutional cases—69, as compared with 29 in 1926, and there is no doubt that the institutional treatment of cases—where either home conditions or nursing facilities are defective—is followed by excellent results. Where institutional treatment is considered advisable, provision can always be made for the reception of patients either in Special Wards of the City Hospital or in Woodend Hospital. This method is advocated because there contiguous laboratory facilities exist and the pneumococcus is straightaway "typed." Removal is recommended up to the fourth day, provided that the patient's general condition is good and that there is no cardiac embarrassment.

Many County practitioners still favour the domiciliary treatment of their pneumonia cases. In necessitous cases, nurses, specially trained in the nursing of pneumonia, are provided. Arrangements have been made with a Nursing Home in Aberdeen whereby, on demand by the practitioner, a nurse or nurses—in the case of a patient very seriously ill—may be sent to the patient's home immediately. The Joint Committee for Public Health Services meet the cost of the nurse's services and travelling expenses. As a rule the cost of the nurse's maintenance is met by the patient's relatives, as, if possible, she becomes a member of the family for the time being. On more than one occasion, however, it has been found necessary to find accommodation for the nurse in a neighbouring house or hotel on account of inadequate accommodation in the patient's home. The Joint Committee then assume financial responsibility for the nurse's maintenance.

Eight cases had the services of the special pneumonia nurses supplied through the County Public Health Department.

The Pneumonia Scheme has been in operation in the County for over three years, and the results of treatment, both institutional and domiciliary, have been very gratifying. The money expended on such treatment has been entirely justified, for many lives have thereby been saved. The great disadvantage of the domiciliary method of treatment is that the patients, who usually belong to the working classes, are apt to return to work too soon. On the other hand, we have better control over patients in institutions, and retain them in hospital usually until convalescence is complete.

From a survey of our tuberculosis statistics, it has been ascertained that, in a definite number of tuberculous cases, the onset of tuberculosis can be dated from pneumonia, inefficiently or too lightly treated.

MALARIA.

One case of malaria was notified.

DYSENTERY.

No cases of dysentery were notified in 1927.

ENCEPHALITIS LETHARGICA.

Four cases of encephalitis lethargica (sleepy sickness) were notified; three were treated in the Aberdeen City Hospital and one in the Aberdeen Royal Infirmary.

ACUTE ANTERIOR POLIO-MYELITIS.

One case of this disease (infantile paralysis) was notified.

CEREBRO-SPINAL FEVER.

No case of cerebro-spinal fever (spotted fever) was notified.

ERYSIPELAS.

Erysipelas notifications amounted to 69, as compared with 61 in 1926, 51 in 1925, and 55 in 1924. No deaths were attributable to this cause.

(b) Non-notifiable Infectious Disease.

In this group are included measles, whooping cough and mumps. A measure of the incidence of these diseases is usually only obtainable from Head Teachers. There is no definite institutional provision for such cases, but Local Authorities have to provide institutional accommodation, if required, for such infectious diseases, even if they are not notifiable. If measles breaks out at a dairy farm and if the isolation is such that the milk supply cannot be properly protected, it is then the duty of the Local Authority to provide institutional treatment. In 1927, several cases of measles were treated in the County Infectious Diseases Hospitals.

Measles accounted for 2 deaths, whereas whooping cough accounted for 11. With the development of the Maternity Service and Child Welfare Scheme, it will probably be found necessary to make institutional provision for children suffering from whooping cough.

3.—HOUSING.

In last year's Report it was shown that 124 new houses had been built in the Districts and that 69 were in course of erection at the end of the year. In 1927, the position is shown clearly in respect of each of the Districts in the following table:—

TABLE VIII.
HOUSING IN COUNTY DISTRICTS—1927.

	Deer.	Ellon.	Garioch.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Totals.
A.—Completed during 1927.									
1. With aid of Subsidy—									
(a) By Local Authority	—	—	—	—	—	18	—	—	18
(b) By private enterprise	9	2	6	5	3	25	1	1	52
2. By unassisted private enterprise	5	4	4	4	2	20	—	2	41
B.—In course of erection at 31st December, 1927.									
1. With aid of Subsidy—									
(a) By Local Authority	—	11	—	6	—	61	—	—	78
(b) By private enterprise	2	1	2	—	2	9	—	—	16
2. By unassisted private enterprise	1	—	1	5	1	4	—	1	13
Totals	17	18	13	20	8	137	1	4	218
Population	25,601	12,566	11,589	11,573	9,994	22,037	7,935	5,928	107,224
Number of new houses completed in 1927 or in course of erection, per 1,000 of population . . . . .	.7	1.4	1.1	1.7	.8	6.2	.1	.7	2.03
Number of applications lodged during 1927 under Housing (Rural Workers) Act, 1926	5	10	14	0	2	10	2	7	50

It will be seen that the greatest housing activity proportionate to population took place in the Aberdeen District, where 6·2 new houses per 1,000 of population were completed during 1927, or were in the course of erection at the end of the year. Taking it all over, the number of new houses per 1,000 of population was 2·03 in 1927. Fifty-four of the new houses were erected or were being erected by unassisted private enterprise, 68 by private individuals with assistance from state-aided schemes and 96 by Local Authorities.

At the foot of the foregoing table are given the numbers of applications for grants under the Housing (Rural Workers) Act, 1926, in each of the eight Districts. In the Garioch District, there were 14 applications for such assistance, and 10 each in the Aberdeen and Ellon Districts. It need hardly be pointed out that the extensive adoption of this Act in Districts and Burghs in the County would do more to meet housing shortage than any of the preceding Housing Acts. It is generally thought that the Housing (Rural Workers) Act affects only those who are employed in agricultural pursuits, but this is not the case. Under this Act, houses can be re-constructed or premises may be converted into dwellings for occupation by persons who, in the opinion of the Local Authority, would not ordinarily pay rent in excess of that paid by agricultural workers in the district. There is another misconception, namely, that this Act is not applicable to the Burghs, but, as it is applicable not only to dwellings of agricultural labourers but also to those persons who do not in the ordinary course pay a rent in excess of that paid by agricultural workers, it necessarily follows that schemes under this Act can be put into operation in burghal areas.

There is no doubt that, in the near future, the many advantages to be derived under the Housing (Rural Workers) Act will come to be realised.

4.—DISINFECTIONS.

The number of official disinfections carried out by the several Sanitary Inspectors are shown hereunder :—

TABLE IX.

	Deer	on.	Garioch.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Total.
After Scarlet Fever	85	67	74	31	32	98	7	50	445
„ Diphtheria	15	4	6	10	8	15	2	—	60
„ Enteric Fever	21	—	1	—	—	—	—	—	22
„ Tuberculosis	4	6	10	6	8	12	—	2	48
„ Other Infectious Diseases	—	10	12	15	1	5	—	5	48
Total	125	87	103	63	49	130	9	57	623

5.—FACTORY AND WORKSHOPS ACT, 1901.

In 1927, the register contained 852 factories and workshops. Details of the number in each District, the number of defects detected and remedied are given in the following table :—

TABLE X.

	Deer.	Ellon.	Garioch.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Total.
Number on Register	163	84	102	134	86	145	76	62	852
„ of Inspections	73	84	88	115	147	92	94	33	726
Notices served under Section 2 (3), &c.	—	1	—	2	1	5	—	—	9
Defects found	—	13	4	2	1	5	3	2	30
„ remedied	—	13	3	2	1	5	2	2	28

Section II.

GENERAL PUBLIC HEALTH OF THE BURGHS.

In the preceding Section, references have been made to Burgh statistics, but certain other details, peculiar to the nine Burghs coming within the Scheme, have also to be given.

Population.—The population of the Burghs, as estimated to the middle of 1927, and the increase or decrease in each case are given in Table I. :—

TABLE I.

Burghs.	1921 Census.	As estimated at middle of 1926.	As estimated at middle of 1927.	Increase or Decrease.
Ballater . . .	1,542	1,655	1,667	+12
Ellon	1,261	1,213	1,197	-16
Fraserburgh . .	10,514	10,307	10,204	-103
Huntly	3,752	3,445	3,368	-77
Inverurie . . .	4,455	4,327	4,279	-48
Kintore	741	689	675	-14
Oldmeldrum . .	1,015	949	930	-19
Rosehearty . . .	1,267	1,221	1,206	-15
Turriff	2,152	2,014	1,977	-37
Totals	26,699	25,820	25,503	-317

Marriages.—The number of marriages was 228 and the marriage-rate per 1,000 was 8·9. The corresponding figures in 1926 were 210 and 8·1.

Births.—The number of births—legitimate and illegitimate—and the birth-rates appear in Table II.

TABLE II.

Burghs.	Number (including Illegitimate Births).	Birth Rate (corrected).	Illegitimate Births.	Illegitimate Birth Rate per 100 Total Births.
Ballater . . .	27	16·2	—	—
Ellon	20	16·7	—	—
Fraserburgh . .	213	20·9	25	11·7
Huntly	70	20·8	16	22·9
Inverurie . . .	74	17·3	11	14·9
Kintore	16	23·7	—	—
Oldmeldrum . .	27	29·0	5	18·5
Rosehearty . . .	18	14·9	4	22·2
Turriff	31	15·7	5	16·1
Totals	496	19·4	66	13·3
Corresponding figures for 1926	547	21·2	60	10·9

INCIDENCE OF THE COMMONER INFECTIOUS DISEASES.

Diphtheria and Scarlet Fever.

Tables II. and V. in Section I. of this Report show the numbers notified as suffering from these diseases in the Burghs in 1927. There were 84 cases of scarlet fever, as against 91 in 1926. There were 30 cases of diphtheria, as compared with 37 in 1926.

Typhoid Fever.

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

HOUSING.

The progress of housing during the year is shown in the following table :—

TABLE III.
Housing in Burghs—1927.

	Ballater.	Ellon.	Fraserburgh.	Huntly.	Inverurie.	Kintore.	Oldmeldrum.	Rosebeary.	Turriff.	Total
<i>A.—Completed during 1927.</i>										
1. With aid of Subsidy—										
(a) By Local Authority	—	—	12	—	—	—	—	—	9	21
(b) By private enterprise	—	1	1	2	7	1	—	1	3	16
2. By unassisted private enterprise	—	—	—	—	2	—	—	—	1	3
<i>B.—In course of erection at 31st December, 1927.</i>										
1. With aid of Subsidy—										
(a) By Local Authority	—	—	16	16	—	8	—	—	7	47
(b) By private enterprise	—	8	—	—	2	—	—	—	2	12
2. By unassisted private enterprise	—	1	—	—	1	—	—	—	1	3
Total	—	10	29	18	12	9	0	1	23	102
Population	1,667	1,197	10,204	3,368	4,279	675	930	1,206	1,977	25,503
Number of new houses completed in 1927 or in course of erection, per 1,000 of population.	0	8.3	2.8	5.3	2.8	13.3	0	.8	11.6	4

The greatest number of new houses completed in 1927 or in course of erection at the end of the year was in the Burgh of Kintore which had 9 houses, representing 13.3 houses per 1,000 of population. The Burghs next in order were as follows :—Turriff 11.6, Ellon 8.3, Huntly 5.3 and Inverurie and Fraserburgh with 2.8 each.

The question of houses is being dealt with effectively in most of the Burghs in Aberdeenshire, but it is naturally a very serious problem to tackle, as closure of houses cannot in practice be carried out until alternative accommodation is provided for those who are ejected. It is all very well to speak of shortage of houses and overcrowding, but one must remember that in all the Burghs there are many families who pay a matter of £6 to £7 per annum and who could not on any account meet the economic rent of a new house, amounting to, say, £12 to £16. It must also be remembered that the houses, built by unassisted private enterprise, or by private enterprise with subsidy aid or by Local Authorities, cannot be rented by the poorest members of the community. The rent of such houses usually varies from £15 to £32. All that can be looked for is that slum overcrowding may be somewhat alleviated by working persons in comparatively good circumstances occupying these new houses and vacating their houses for the use of their less fortunate neighbours.

RIVERS POLLUTION PREVENTION.

A complaint was lodged by the Clerk to the Fishery Board of the River Deveron regarding the pollution of the River Bogie by the untreated sewage of the Burgh of Huntly, and investigations were carried out with a view to determining whether or not the passage of the sewage into the River Bogie was a danger to health and to fish life. As other Burghs in the County are similarly placed, it is advisable to reproduce the report in full.

Report on Pollution of River Bogie.

4, Albyn Place,
Aberdeen, 25th October, 1927.

Report on Pollution of River Bogie.

As instructed by the Joint Committee for Public Health Services at their meeting held on 17th June last, I have investigated the complaint regarding the discharge into the Bogie of the sewage of the Burgh of Huntly. On several occasions, I inspected the sewage outfall and the stretch of the river—about a mile in length—from the Bogie Bridge to the junction of the Bogie with the River Deveron. On 13th ultimo, I was accompanied by Dr. J. F. Tocher, County Analyst. On that date there were also present Provost Christie, Baillie Mitchell, Chairman of the Public Health Committee, Councillor Yule, and Mr. T. S. Hutson, Burgh Surveyor and Sanitary Inspector.

On no occasion was there any appearance to the eye of pollution of the Bogie above Huntly. Part of the flow of the Bogie is diverted above the Station Bridge into a lade for Huntly Mills. A small, square, stone culvert sewer—serving, approximately, 30 inhabitants—discharges into the Bogie on the east side just below the bridge. The main sewage from the burgh discharges lower down on the west side. The tail-race from the Huntly Mills enters the Bogie about 300 yards further down the stream than the sewer outfall. Half a mile further down, the Meadow Burn enters the Bogie.

The main sewer pipe is 18 inches in diameter, and the small sewer, already referred to, has a width of 12 inches. The quantity of sewage does not vary much; it is sometimes increased by storm water and is thus actually diluted before it reaches the Bogie. The varying amount of water in the Bogie is an important point in relation to the possibility of offence arising from the stream, as, if the stream is low and if at the same time the sewage output remains normal, there would be a greater likelihood that the Bogie would then be offensive. With this in view, I instructed Mr. Hutson, on 13th August, 1927, to take samples during a dry spell of weather, as the results would then tend to be less favourable than they would be after heavy rainfall. It was not, however, possible, for natural reasons, to have samples taken during a dry spell.

It may here be explained that the River Bogie is a fast-flowing stream and that its width at the three following points is as follows:—

(1) At sewage outfall,	45 feet.
(2) 100 yards above sewage outfall,	44 feet.
(3) 100 yards below sewage outfall,	48 feet.

POINTS AT ISSUE.

The two practical questions to be considered are:—

- (1) Public Health Aspect—Is the discharge of untreated sewage from the Burgh of Huntly into the Bogie injurious or dangerous to public health?
- (2) Fish-life Aspect—Is the discharge of the untreated sewage detrimental to fish life?

1. *Public Health Aspect.*

The population of the Burgh of Huntly, as estimated to the middle of 1926, was 3,445. It may be stated that the general mortality rate of the burgh for the past twenty years was "normal," and that, compared with towns of similar populations, there was a low incidence of zymotic diseases.

One must consider the possibility of the occurrence of water-borne diseases, for example, typhoid fever, if the Bogie, below Huntly, or the Deveron, below its reception of the Bogie, were sources of drinking water supply, but no supply is taken from them below these sites. It is unnecessary here to enter into an almost academic discussion as to the liability of a "casual" water being infected by a "typhoid carrier." There will always be drinkers of "casual" water, but these need education. It is impossible and impracticable to render potable all exposed waters in order to obviate risk to the health of casual drinkers.

No complaint of offensive effluvia connected with the Bogie has ever been made by the inhabitants of the burgh. At none of my visits could offensive effluvia be detected, even at the sewage outfall.

Then, again, no complaint has been received from farmers of ill health occurring amongst their stock from bad water.

2. *Fish-life Aspect.*

Coming to the question whether the passage of the untreated sewage into the Bogie has any effect on fish life, there is no apparent direct effect. So far as I am aware, no dead fish have been found. In fact, the fish in the neighbourhood of the sewage outfall are unusually large, and a good spawning bed has been detected a short distance below the outfall. There is a possibility that furunculosis may be favoured by pollution of water, but no fish have been reported to be so affected.

Salmon and sea-trout do not find the area below the Bridge of Bogie an obstacle to their passage upstream. It is impossible to gauge the indirect effect on fish life, if any. This summer has not been a very favourable one to observe the presence or absence of those ephemerals or other aquatic flies on which trout feed. There is no information as to the presence or absence of the various sub-aqueous crustaceans and other forms of life which form part of the trout's fare.

In the past far too much importance has been placed on the action of the sewage fungus on fish life. Fungus was present at both sewage outfalls, but, at 150 yards from the main outfall, no growths were detectable. Within this area, some of the stones in the bed of the stream were found to have a thin coating of ooze or fine mud, but such a coating can often be seen in the bed of a pure mountain stream. What is important is the amount of dissolved oxygen in the water.

RESULTS OF ANALYSES OF WATER SAMPLES.

In all, Dr. J. F. Tocher examined ten samples of water. The first four samples were taken on 28th August, 1927, all from the west side of the stream; two of these samples—one from the Bogie immediately above the sewer outfall and the other immediately above the Meadow Burn—were certified by him to be samples of normal river water, containing no substances injurious or dangerous to fish life.

Three samples were submitted on 13th September and another on 19th September last to ascertain the amount of dissolved oxygen, and Dr. Tocher's results are herewith appended in full:—

"I have now completed my analysis for dissolved oxygen in the samples of water drawn on the 13th instant and of the sample sent in by Mr. Thomas S. Hutson on the 19th instant from Huntly.

Sample marked 'A.'—10 yards above outlet, taken at 11 a.m.

Dissolved oxygen, 10·77 parts per million.

Sample marked 'B.'—6 yards below outlet.

Dissolved oxygen, 4·01 parts per million.

Sample marked 'C' Sewage.—11 a.m.

Dissolved oxygen, 0·46 part per million.

Sample marked 'D,' sent in by Mr. T. S. Hutson, 19th September.

Dissolved oxygen, 10·92 parts per million.

These results show that the sewage effluent is not entirely deprived of dissolved oxygen. The quantity, however, is insufficient to support fish life. It is, however, immediately diluted on entering the Bogie by the large volume of water in the Bogie. The sewage effluent on issuing from the pipe flows along the banks of the Bogie, clinging to the banks for about 12 yards. Sample 'B' was taken 6 yards below the outlet, where the water is quite turbid owing to the outflow of sewage. The water at this point, however, contained as much as 4 parts of dissolved oxygen per million. The proportion of dissolved oxygen found above the sewage outflow is the normal proportion found in river waters—about 10 parts per million. The sewage effluent has no influence on the proportion of dissolved oxygen in the River Bogie after the effluent is mixed with the volume of water. This is seen from the results of analysis of sample marked 'D,' where the proportion of oxygen dissolved is slightly, but not appreciably, greater than in the sample taken above the sewage outflow. The solid constituents of the sewage effluent contained no substances which are injurious to fish life. The results of my analyses show that neither from the proportion of solid constituents already reported upon, nor from the results of the present analysis, does the sewage effluent from Huntly affect the composition of the water of the Bogie to any appreciable extent. There is no danger to fish due to the passage of the sewage from the Burgh of Huntly into the Bogie."

All of these 8 samples were taken from the west bank of the stream, but, as already pointed out, there is a small sewer which discharges on the east side. I took two samples from the east side on 24th October, 1927, and on these Dr. Tocher reported as follows:—

"I have now completed my examination of the two samples of water received on the 25th instant from Huntly, with the undernoted results:—

Sample No. 1, marked 'E side, 6 yards above small sewer, 12 noon,
24/10/27.'

Dissolved oxygen, 10·0 parts per million.

Free ammonia, 013 parts per 100,000.

The sample was quite clear and bright and free from odour. There was a very slight deposit of organic matter on standing for 24 hours. This is a sample of normal river water containing about the average amount of dissolved oxygen found in a river water.

Sample No. 2, marked 'E side, 6 yards below small sewer, 12 noon,
24/10/27.'

Dissolved oxygen, 9·93 parts per million.

Free ammonia, 011 part per 100,000.

These proportions are practically the same proportions as were found in sample No. 1, taken 6 yards above the small sewer. The result shows that this sample is practically unaffected, as far as its oxygen content is concerned, by the sewage from small sewer. This sample gave a slight deposit on standing. After testing for dissolved oxygen and ammonia, the sample was centrifuged in order to get any suspended matter collected and examined. The deposit was found to contain the ordinary organisms found in a river water, namely, desmids, diatoms, rotifers, and algae. Traces of fungoid growths were also found in the deposit, *Crenothrix* and *Beggiatoa* being identified. The deposit was free from any trace of the sewage fungus *Leptomitum lacteus*. The

organisms above named are the organisms normally found in an untreated river water and in dilute sewage. The sample was quite free from odour.

The amount of dissolved oxygen found in these samples is the maximum proportion which can be absorbed in daylight at 60° F. The proportion of dissolved oxygen is highest during the day and lowest during the night, due to photosynthesis by fresh water plant life, which causes assimilation of carbon dioxide and the liberation of oxygen."

AUTHORITATIVE STATEMENTS.

1.—The following appears in the Annual Report of the Scottish Board of Health for 1926 (p. 28):—

"It is greatly to be regretted that so many local authorities discharge untreated sewage into streams. In many cases the principal obstacle to installing purification works is one of finance. In a few cases there is the engineering difficulty of draining an area which is low lying and level, and in the last resort this also becomes a question of finance. But in some cases purification works could be installed without imposing undue burdens on the ratepayers."

2.—The law relating to Sewage Pollutions, as contained in the Prevention of the Pollution of Rivers Act, 1876, is as follows:—

Law as to Sewage Pollutions.

"Every person who causes to fall or flow or knowingly permits to fall or flow or to be carried into any stream any solid or liquid sewage matter, shall (subject as in this Act mentioned) be deemed to have committed an offence against this Act.

Where any sewage matter falls or flows or is carried into any stream along a channel used, constructed, or in process of construction at the date of the passing of this Act for the purpose of conveying such sewage matter, the person causing or knowingly permitting the sewage matter so to fall or flow or to be carried shall not be deemed to have committed an offence against this Act if he shows to the satisfaction of the court having cognisance of the case that he is using the best practicable and available means to render harmless the sewage matter so falling or flowing or carried into the stream.

Where the Local Government Board are satisfied after local inquiry that further time ought to be granted to any sanitary authority, which at the date of the passing of this Act is discharging sewage matter into any stream, or permitting it to be so discharged, by any such channel as aforesaid, for the purpose of enabling such authority to adopt the best practicable and available means for rendering harmless such sewage matter, the Local Government Board may by Order declare that this Section shall not, so far as regards the discharge of sewage matter by such channel, be in operation until the expiration of a period to be limited in the Order.

Any Order made under this Section may be from time to time renewed by the Local Government Board, subject to such conditions, if any, as they see fit.

A person other than a sanitary authority shall not be guilty of an offence under this Section in respect of the passing of sewage matter into a stream along a drain communicating with any sewer belonging to or under the control of any sanitary authority, provided he has the sanction of the sanitary authority for so doing."

3.—The "Royal Commission on Sewage Disposal" state in their Fourth Report, 1904, Volume I., page 41:—

"The evidence we have received shows that the discharge of crude sewage or trade effluents into tidal waters may injuriously affect fish in the following ways:—

1. By reducing the oxygen in the water to such an extent as to render the water incapable of supporting fish life.
2. By the admission of poisonous matters into the water.
3. By destroying the food of fish by deposit of sewage matter.
4. By the presence of suspended solids, which clog the gills of the fish."

I do not consider that any of these four objections apply to the River Bogie.

4.—The same Commission state:—

"In considering the question of restrictions, due regard must be had in each case to the extent of the evil, to the possibility of providing a remedy, and to the cost. It is quite possible that in some cases, where there was no risk to the Public Health, the cost of providing a remedy might be altogether out of proportion to the value of the fishing interests involved."

"Where, however, after due investigation, the Rivers Boards consider that serious nuisance to the inhabitants on the banks of the tidal river, estuary, or sea-front of a town, or serious injury to public health or to fisheries are caused by the discharge of crude sewage or trade refuse into tidal waters, and they are satisfied that *by the alteration of the position of the outfall*, or by the adoption of such treatment of the sewage or trade effluent as is available and practicable under the circumstances, an efficient remedy would be provided, and might reasonably be required, those Boards should be empowered to make orders accordingly."

5.—In the *Scotsman* of 19th July, 1927, there appeared the following:—

"The Lord President of the Council (Earl of Balfour) said the Government entirely agreed that the pollution of rivers was a great and increasing evil. The population was increasing, and with it inevitably the difficulties of sewerage. The habits of the people were altering, and in a manner which, however admirable, inflicted a greater and greater strain on the water supplies of the country. They were all agreed as to the magnitude of the evil. The question was how it could be diminished. The problem had to be attacked from the point of view both of efficiency of administration and increased knowledge. It might happen in connection with the evolution of manufactures that we had to choose between destroying manufactures and maintaining the purity of the rivers, and in many cases it was quite impossible to give a decision in favour of the purity of the rivers and against the continuance of the manufactures by which the people live. It would be folly, in our endeavour to make the surroundings as cleanly and beautiful as possible, to destroy the very means by which the population lived. He agreed that more co-operation was required. What had been learned from River Board administration showed that it was well worth considering whether the system could not be extended. It had been decided that there should be set up an Advisory Committee jointly representing the Ministry of Health and the Fisheries Boards, which would deal with questions of administration and would sit under the chairmanship of Sir Horace Munro. The Committee would deal in an advisory capacity with new legislation, the setting up of new River Boards, and inducing local bodies to co-operate with each other. The worst evil, no doubt, arose in connection with sewage. For the financial year ending March 31st last, loans to the amount of five million pounds were sanctioned by the Ministry of Health for dealing with sewage, half of which was for preventing the further pollution of the rivers by sewage. Evidently one of our greatest needs was further knowledge on the scientific and research side of the problem, and he mentioned that a strong advisory Committee had been appointed and was actually at work collecting and co-ordinating a vast mass of information. The Committee was working in co-operation with the Local Authorities and various scientific authorities in the country."

CONCLUSION.

The conclusion drawn from consideration of the conditions existing at Huntly is that the expulsion of untreated sewage into the Bogie is not injurious or dangerous to health. Dr. Tocher has also given it as his opinion—and I agree with him—that it is not detrimental to fish life.

It may be argued that there is a contravention of the Rivers Pollution Prevention Act, but, in Huntly, financial and engineering difficulties exist, and the installation of a sewage purification system would not enhance the standard of public health or the amenity of the neighbourhood, nor would it lead to the better preservation of fish life.

(Signed) HARRY J. RAE,
Chief Medical Officer.

Section III.

MATERNITY AND CHILD WELFARE SERVICES.

The Districts and all the Burghs—with the exception of Peterhead and Fraserburgh—are embraced by the Maternity Service and Child Welfare Scheme. Statistics relating to these two Burghs are therefore not included in the statements that follow.

Births and Birth-rates.

The number of births registered in the Districts and Burghs was 2,559. In 1926, the number was 2,807; a decrease of 248 is thus shown.

The following Table shows in respect of each District and Burgh the total number of births, the legitimate and illegitimate births, and the birth-rates:—

TABLE I.

AREA.	Population.	BIRTHS.			Birth-Rate.	Illegitimate Birth-Rate per 100 Total Births.
		Total.	Legitimate.	Illegitimate.		
DISTRICTS—						
Deer	25,601	538	452	86	21	16
Ellon	12,566	295	246	49	23·5	16·6
Garioch . . .	11,589	252	203	49	21·7	19·4
Deeside . . .	11,573	240	209	31	20·7	12·9
Turriff . . .	9,994	248	195	53	24·8	21·4
Aberdeen . .	22,037	399	356	43	18·1	10·8
Alford . . .	7,936	151	124	27	19	17·9
Huntly . . .	5,928	153	126	27	25·8	17·6
BURGHS—						
Ballater . . .	1,667	27	27	—	16·2	—
Ellon	1,197	20	20	—	16·7	—
Huntly . . .	3,368	70	54	16	20·8	22·9
Inverurie . .	4,279	74	63	11	17·3	14·9
Kintore . . .	675	16	16	—	23·7	—
Oldmeldrum .	930	27	22	5	29	18·5
Rosehearty . .	1,206	18	14	4	14·9	22·2
Turriff . . .	1,977	31	26	5	15·7	16·1
Totals . . .	122,523	2,559	2,153	406	20·88	15·8

The birth-rate was 20·88, as compared with 22·7 in 1926. The illegitimate birth-rate was 15·8, as against 14·3 in 1926. There was thus a decrease in the total birth-rate and an increase in the illegitimate birth-rate.

By the Notification of Births (Extension) Act, 1915, the notification of births was made compulsory. The number of births notified in 1927 was 1,818, equivalent to 70·6 per cent. of the total births.

Fifteen cases were known to have been attended by midwives, and the remainder by family doctors.

The total number of still births recorded was 56.

Infantile Mortality.

The term, infantile mortality, denotes the number of deaths amongst children under one year of age, and one of the chief aims of all Maternity and Child Welfare Schemes is to reduce this mortality by trying to prevent such diseases as whooping cough, bronchitis, pneumonia and enteritis which are very fatal in children of tender years. The number of infant deaths was 188, as compared with 212 in 1926, a decrease of 24.

The infantile mortality rate, that is, the number of deaths of children under one year of age per 1,000 registered births, was 73·5, as compared with 75·5 in 1926. The rate for the whole of Scotland was, in 1927, 89.

The following Table which gives the number of deaths and the infantile mortality rate in each District and Burgh is very instructive and at the same time puzzling. There is always the risk of statistical fallacy when one is dealing with small numbers but there is a wide divergence in the infantile mortality rates of Deeside and Deer Districts, the former being only 40 and the latter 91.

TABLE II.

	Number of Deaths Under 1 Year.	Infantile Mortality Rate.
DISTRICTS—		
Deer	49	91
Ellon	21	71
Garioch	14	56
Deeside	10	42
Turriff	20	81
Aberdeen	36	90
Alford	10	66
Huntly	9	59
BURGHs—		
Ballater	3	111
Ellon	2	100
Inverurie	3	41
Kintore	1	62
Oldmeldrum	2	74
Rosehearty	1	56
Turriff	3	97
Huntly	4	57
Totals	188	73·5

The causes of the 188 deaths are tabulated below. In 1927, a greater number of children under one year of age died of whooping cough, other epidemic diseases, and pneumonia than in 1926.

TABLE III.

Causes of Death.	Districts.								Boroughs.							Total.	
	Deer.	Ellon.	Caithness.	Deeside.	Turriff.	Aberdeen.	Alford.	Huntly.	Ballater.	Ellon.	Huntly.	Inverurie.	Kintore.	Oldmeldrum.	Rosebush.		Turriff.
Scarlet Fever	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Measles	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Whooping Cough	—	—	3	—	3	2	—	1	—	—	—	1	1	—	—	—	11
Heart Disease	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Epidemic Diseases	1	1	—	—	1	1	1	—	—	—	—	—	—	—	—	—	5
Tuberculous Meningitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tuberculosis of Intestines and Peritoneum	—	1	—	—	—	—	—	1	—	—	—	1	—	—	—	—	1
Other Tuberculous Disease	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2
Bronchitis	2	3	2	—	2	—	1	—	—	—	—	—	—	—	—	—	10
Pneumonia (all forms)	9	2	1	—	3	7	—	—	1	—	1	—	—	1	—	—	25
Other Diseases of Respiratory System	—	2	—	—	—	1	—	1	—	—	—	—	—	—	—	—	5
Diarrhoea and Enteritis	4	1	2	—	—	2	—	—	—	2	—	—	—	—	—	—	11
Nephritis, Acute and Chronic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diseases of early Infancy and Malformations	27	7	5	8	8	15	4	4	2	—	2	1	—	—	1	2	86
Violent Deaths	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	2
Other defined diseases	6	4	1	2	3	6	1	2	—	—	—	—	—	1	—	1	27
Causes ill-defined or unknown	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2
Totals	49	21	14	10	20	36	10	9	3	2	4	3	1	2	1	3	188

Maternal Mortality.

In 1927, there were notified 15 cases of puerperal fever, as against 12 in 1926. In 1927, there was 1 death from this cause, as compared with 5 deaths in the previous year. Of the 15 cases, 13 were treated institutionally, 12 in the puerperal wards of the Aberdeen City Hospital, and all these recovered; the remaining institutional case, treated in one of the County Cottage Hospitals, died.

Midwives (Scotland) Act, 1915.

Five women who were registered as midwives gave intimation to the Supervising Authority—the Joint Committee for Public Health Services—of their intention to practise. Of these, one was a District Nurse. For various reasons, it seems inadvisable that District Nurses should practise as midwives, unless in sparsely populated areas where medical attendance is difficult to obtain.

No payments were made by the Supervising Authority to practitioners in respect of their being called in by midwives.

No official complaints were made against the midwives. Neither ophthalmia neonatorum nor puerperal sepsis was reported to have occurred in their practices.

Provision of Foods.

There were 4 applications for foods and milk for children and 1 for a nursing mother. When the Committee is satisfied that a case is really necessitous, milk or other food is given for a preliminary period of a month, but the grant may be continued if the domestic conditions remain unchanged. In 1927, milk, Allenbury's Food, Almata and Virol were supplied at a total cost of £25 11s. 6d. In 1926, the amount so expended was £27 4s. 2d.

Measles and Whooping Cough.

No definite institutional provision has been made for children under 5 years of age, suffering from these diseases, but special cases may be admitted to Burnside Home, which is under the control of the Aberdeen Town Council, at a moderate weekly charge.

Ophthalmia Neonatorum.

Ophthalmia neonatorum is a notifiable disease and is defined by the Scottish Board of Health as any inflammation of the eyes of an infant within 21 days of birth, provided that this inflammation is accompanied by a discharge.

The number of cases notified in 1927 was 19, and all of these were notified by general practitioners. In 1926, there were 12 notifications, and, in 1925, 11.

The distribution of the cases is shown below:—

Districts.		Burghs.	
Deer	2	Ballater	—
Ellon	2	Ellon	—
Garioch	3	Huntly	2
Deeside	3	Inverurie	—
Turriff	1	Kintore	1
Aberdeen	2	Oldmeldrum	—
Alford	1	Rosehearty	—
Huntly	2	Turriff	—
			19

Of the 19 notified cases, 7 were treated in institutions and the remaining 12 at home. In no case was vision impaired.

Of the cases treated institutionally 6 were treated in the Special Wards of the Aberdeen City Hospital and 1 in Kincardine O'Neil War Memorial Hospital. The cases treated at home received, where possible, daily attention from the District Nurses, until the inflammatory condition had subsided.

Epidemic Diarrhœa.

Diarrhœa and enteritis accounted for 9 deaths amongst children under one year of age. In 1926, the deaths from these diseases numbered 21.

Provision for Sick Children.

Children may be treated at the Aberdeen Royal Hospital for Sick Children—a voluntary institution. By arrangement with the City Authorities, ailing

children may be admitted to one or other of the institutions controlled by the Aberdeen Town Council.

Then, at Linn Moor Convalescent Home, there is provision for ambulant ailing children of from three to five years of age.

Work of the District Nurses.

There are 37 District Nurses, employed by 36 District Nursing Associations. Stoneywood District Nursing Association employs two nurses, one stationed at Dyce and the other at Bucksburn. In 1927, one new Nursing Association was formed for Culter and surrounding area.

In return for the services of the nurse for maternity and child welfare work, each District Nursing Association receives annually the sum of £40. The duties of the District Nurses under the Maternity Service and Child Welfare Scheme have been given in detail in previous Annual Reports and need not again be enumerated. All the District Nurses are enthusiastic over this branch of their statutory work, but a few have complained of the time taken to fill up record cards after visits. If the secretarial work is not allowed to accumulate, it does not become tedious and harassing.

The number of hours spent by the District Nurses on general work and on the three statutory schemes is given in Table V.

TABLE V.

	All Services.	Maternity Work.	School Work.	Tuberculosis Work.	Work other than under Three Schemes.
Number of Hours on Duty .	94,170½	24,581½	4,189	3,217	62,182½
Percentages	100	26.1	4.5	3.4	66
Corresponding Percentages for 1926	100	28.8	3.7	5.2	62.3

As already stated, each District Nursing Association receives £40 for the nurse's work under this scheme. Each Association also receives £20 for school and £20 for tuberculosis work. These grants are stereotyped, irrespective of the amount of work performed by individual nurses. Although a re-adjustment of these grants may be necessary in the future, it would be unwise meantime to endeavour to change them because the harmonious relationship which exists between the County Nursing Association, the several District Nursing Associations and the Public Health Department might be disturbed. It would be better to gain experience for another year or two in order to gauge more accurately the distribution of the nurses' working hours.

Home-helps.

During the year, three home-helps were employed at the cost of the Committee. In one case, the home-help was engaged in attending to a family of six children, the mother having been removed to the Asylum suffering from puerperal insanity. Another home-help was employed to look after a family of young children whilst the mother was receiving treatment in the Aberdeen Maternity Hospital. In the third case, a home-help was supplied to attend to the family whilst the mother was being treated in the Aberdeen City Hospital for puerperal fever.

Maternity Hospital and Ante-Natal Annexe.

Expectant mothers, towards the end of pregnancy, are sent to the above-named institution, by arrangement with the Managers of the Maternity Hospital. Cases of abnormal pregnancy are admitted; admission is also granted to those whose confinements cannot satisfactorily be carried out at home.

The weekly payment per patient is 30s. During the year ending 15th November, 1927, the sum paid by the Joint Committee for Public Health Services—after deduction of contributions made by patients—amounted to £141 10s. 9d. The total number of patients treated was 99, 64 in the Maternity Hospital and 35 in the Ante-natal Annexe.

Educational Measures.

Once a fortnight, a medical member of the staff visits the Clinics at Inverurie and Huntly. The Inverurie Clinic used to be held in rooms belonging to the Town Council, but, as the accommodation proved to be inadequate, the Railway Works Hall was rented. During the year 95 mothers and 120 children attended this Clinic. The total number of visits of mothers and children was 1,587. Once a month, a lecturer, interested in child welfare work, comes from Aberdeen to address the mothers.

The Huntly Clinic is held in the Brander Library. This Clinic is also well patronised, the total number of mothers and children who visited the Clinic being 69 and 65 respectively; the total number of visits made was 668.

Voluntary workers attend at each of these Clinics and much praise is due to them for their zeal and for the good work that they do.

Within the next year, a Joint Clinic will be established at Bucksburn, under the auspices of the Stoneywood District Nursing Association. A Clinic in this thickly populated industrial area will almost certainly be successful.

Section IV.

SCHOOL MEDICAL SERVICES.

The School Medical Services constitute one of our strongest means of defence against disease, for during school life the tissues of the young react readily to hygienic influences. The prevention of disease or the preservation of health is a far more desirable aim than the cure of the disease. But prevention and cure cannot be entirely dissociated. Thus, the removal of enlarged tonsils and adenoids may be the deciding factor in preventing a child from developing tuberculosis. Again, the greater the amount of efficient dental treatment school children obtain, the less likelihood there is of various diseases supervening. Resistance to disease varies with the nutrition of the child; the nutrition is very dependent on the condition of the teeth; but this is fortunately now fairly well known and need not be laboured.

The co-operation of head and class teachers with the medical and dental staff has been whole-hearted. Without their aid the work would have been hampered. Thanks are also due to the Education Authority's officials for their generous assistance in the carrying out of the school work.

Number of Schools and Pupils.

The number of schools in the area is 239. This is one more than in the previous year, the increase being due to the re-opening of Balloch P. School. The number of children on the register as at 31st July, 1927, was 26,598. The percentage of attendance was 91.2, as compared with 90.4 in the previous session.

Number of Visits to Schools.

The number of visits by the Medical Officers to schools for routine or systematic examination was 426. The number of special visits, that is, visits other than for purposes of systematic examination, was 652. The corresponding figures for 1925-26 were 419 routine and 638 special examinations.

Sanitary Condition of Schools.

While in school, children should be in as good a hygienic environment as possible. Lighting, heating and ventilation should all be carefully attended to, for not only can children then profit more from the teaching provided but they also unconsciously learn that fresh air and sunlight are desirable things. By frequent visits to schools, the Medical Officers are able to secure a higher standard of air purity than might otherwise be obtained. Stuffiness in the atmosphere of a room may be quite unnoticed by those in the room, but is at once sensed by one entering the room from the outer air.

It may seem a small matter to insist that soap and clean towels should be provided in every school—and, of course, a water supply—but, unless facilities for securing personal cleanliness exist in school, much of the instruction in matters of hygiene given by teachers must be futile.

The question of dry closets is continually being brought forward in those schools where such are still in use. It is true that many of those closets are dark and not well ventilated, but, if kept clean, they are not a menace to health. In this connection, the Education Authority are steadily overtaking the work of alteration, but it will be many years before wet closets *can* be installed in all of the 239 County schools. In some instances, the difficulties of water supply and sewage disposal will never be overcome.

In the schools, mats or scrapers are provided, and, in consequence, dust is reduced and the task of cleaning the floors is rendered less irksome. Once again, however, one must repeat that dry-dusting is useless and should, in every case, give way to damp-dusting which removes the dust instead of merely re-distributing it. Especially in the case of school halls and gymnasias are dustless floors to be desired. It is held that dustlessness can be secured by the use of dust-binding oils or certain hygroscopic oil-less materials. The oily preparations darken the floor and after a time necessitate washing the floors with soda before re-oiling. The oil-less material has not this objection, and, when used, obviates all need of floor washing. It is claimed that it is cheaper than washing, and it is worth considering whether or not a trial should be made of it.

ORGANISATION AND ADMINISTRATION.

The system of medical inspection was fully described in the two preceding Annual Reports. During the session under review, there were no changes in the Medical Staff. All the Medical Officers take a share in the school work.

Every school in the County was visited once during the year, most of them were visited twice and many three times.

The same groups of children were examined at the routine visits, viz. :—

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

In addition to those four groups submitted for full systematic examination, the important group of "Specials" comes before the Inspecting Officer during the routine visit. This class includes children, not in any of the four routine groups, who are chosen, either by the teacher or by the Medical Officer, for examination for some obvious or suspected defect.

School Nurses.

There are no whole-time School Nurses. The District Nurses, 37 in number, act as part-time School Nurses, and in respect of their work in connection with school children, the Education Authority pay £20 per annum to each District Nursing Association. A separate annual grant of £40 is made by the Education Authority to Peterhead Town Council for the services of their Health Visitor for school work within the Burgh.

Arrangements for "Following Up."

These arrangements were fully detailed in the Reports for 1924-25 and 1925-26. The District Nurses "follow-up" defective cases with the view to ascertaining whether the treatment recommended has been adopted, and, if it has not, it is their function to point out to parents that it is their moral and legal duty to see that the physical defects of their children are attended to. The nurses "follow-up" cases with general bodily ailments, with defective eyesight and with dental caries.

The most unsavoury duty falling to the District Nurses is the visitation of the parents of verminous children. It is undoubtedly unpleasant work, but, as the Medical Staff are concentrating on the cleanliness of the school child, it falls to the nurses to supplement the efforts of the Medical Officers.

A number of cases of persistent neglect were reported to the Inspectors of the Royal Scottish Society for the Prevention of Cruelty to Children and the help of these Inspectors in such cases was invaluable.

Supervision of Infectious Diseases in Schools.

Apart from influenza, the number of cases suffering from infectious diseases was comparatively small. No schools were closed on account of the occurrence of

infectious disease, but one, Inverey R. C. School, was closed for three days to enable thorough disinfection to be carried out after scarlet fever.

The best method of disinfecting schools has been given in previous Reports. It is only necessary to state that effective disinfection can best be performed by intensive cleansing of floors, walls, desks and writing utensils and free aeration of the rooms. It must be acknowledged that the more expensive and less effective way—smoking or spraying—tends to give the public a greater feeling of security, but either of these methods, if unaccompanied by thorough scrubbing, is absolutely futile.

(a) Notifiable Infectious Diseases.

1. SCARLET FEVER.

Amongst the school population 424 cases of scarlet fever were notified as compared with 346 in 1925-26.

2. DIPHTHERIA.

This disease was not present in epidemic form. In all, 92 cases were notified and these were scattered geographically. In the previous session, there were 71 notifications.

3. CHICKEN-POX.

One hundred and seventy-six cases of chicken-pox were notified during the session ended 31st July, 1927.

(b) Non-notifiable Infectious Diseases.

1. INFLUENZA.

In February, 1927, the Scottish Board of Health requested weekly reports as to the prevalence of influenza in the County. Although acute influenzal pneumonia is a notifiable disease, influenza is not, and thus it is extremely difficult to get an exact measure of its incidence. An investigation was carried out amongst school children and the results are interesting.

Start of Epidemic.—During November and December, 1926, a very few schools reported influenza occurring amongst the pupils but in no case did the disease appear in epidemic form then. In January, 1927, however, many schools were affected and the loss of attendance was very much greater than it had been in the case of the few schools affected in the end of the year. January, in fact, may be taken as the start of influenza in epidemic form amongst the school population. Medical practitioners in the Districts confirmed this; many of them gave the date of commencement as the second week of January. Most of the information available to us referred to the prevalence of influenza amongst school children.

Height of Epidemic.—Alford District, in the west of Aberdeenshire, had 18 schools, out of 19 reported on, seriously affected in attendance by influenza in January; in the remaining school, influenza appeared in March. The total percentage who suffered from the malady was 39.6.

Deeside District and Huntly District reached the acme of intensity next in time to Alford, which lies between them. Huntly showed the highest percentage of sufferers of all the Districts, with a total of 54 per cent.

Garioch District came next in time, then Aberdeen and Turriff Districts, followed by Ellon District, and lastly the most populous and most easterly District—Deer—which had the lowest percentage of children absent on account of influenza of the eight Districts, namely, 17.6 per cent.

The two largest Burghs in the County—Peterhead and Fraserburgh—are on the coast of Deer District; they were affected only slightly in comparison with the rest of the County. Only 11 schools reported the start of the epidemic in March.

Decline.—Returns obtained from doctors showed a marked decrease in the number of cases attended by them in March. From 636 new cases in the first week of March, the number dropped to 150 in the third week and to 2 a week later.

Within the County the general trend of the illness was eastward or north-eastward, and by the time it had reached the last District (Deer), its infectivity had apparently become greatly reduced, either relatively or absolutely.

Many of the school reports showed that infants were first affected.

Reports from schools with a total roll of 24,621 children showed that 7,784 suffered from influenza.

Mortality.—The deaths directly or indirectly attributable to influenza in the first quarter of the year numbered 45 out of a population of 134,560. This represents a mortality rate of '33 per 1,000 of population. The Burgh of Peterhead is not included in these figures.

Age Distribution of Deaths.

—5 years.	5-15.	15-25.	25-35.	35-45.	45-65.	65 and over						
5	...	1	...	3	...	1	...	2	...	9	...	24

Clinical Types.—In children, the onset was frequently accompanied by vomiting and high fever; in adults, very severe frontal headache, pains in back and limbs and elevated temperature, often from 103° to 105°, were the chief features.

Bronchitis was mentioned by some doctors as occurring in most of their cases, and convalescence, they remarked, was slow. In old people, the bronchitis was of a very serious and toxic type.

In a small number of cases, there was a secondary rise of temperature about the fifth day of the illness.

The symptoms were described by one medical practitioner in a rural area as follows:—

“Frontal headache and pain behind the eyes; aching in arms and legs. In practically every case dull aching pain over the sacro-iliac region. Tenderness in the calf muscles in many cases. Epistaxis was common at the early stage, especially in children. Paroxysmal cough—hard and dry—no expectoration, with sense of rawness and tenderness behind sternum. Temperature raised—variable. Throat injected, apparently due to severe cough. Marked malaise. Loss of appetite, and taste perverted. Furred tongue and constipation. Cough extremely resistant to treatment.

In children, headache not so marked as in adults; aching in limbs. Average duration of fever four days. Lassitude and loss of appetite more marked.”

Many remarked on the intractable nature of the cough. While the commonest type was the respiratory, a “gastric” type was not infrequent, with vomiting and diarrhoea as the prominent symptoms. When untreated, the fever lasted for a fortnight.

Some note a milder tonsillar type in the later stages of the epidemic.

Complications.—Pneumonia; bronchitis; tonsillitis; persistent pain over one or both frontal sinuses; otorrhoea, occurring late, was noted in a few cases.

Sixty-three cases of influenzal pneumonia occurred in the first three months of the year. Of these 11 occurred in January, 30 in February, and 22 in March. The age distribution of these was:—

—5 years.	5-15.	15-25.	25-35.	35-45.	45-65.	65 and over.						
10	...	5	...	10	...	5	...	9	...	14	...	10

During April, other 4 cases of influenzal pneumonia were notified.

Once it appeared in a school the malady spread rapidly. In no case was school closure considered advisable as a preventive measure.

2. MEASLES.

One hundred and sixty-two cases of measles were brought to the notice of the Public Health Department. In Turriff area, the greatest number of schools, namely 3, was affected.

3. WHOOPING COUGH.

Ninety-nine cases of whooping cough were reported by the teachers. Three schools were affected in each of the Huntly and Aboyne areas.

Co-ordination of Medical Services.

Under the Joint Scheme for the co-ordination of Medical Services, which has been in operation for the past three years, there is complete co-ordination as regards the several Public Health Schemes. Each Assistant Medical Officer is an Assistant Medical Officer of Health, and, in this capacity, has power of entry into the homes of the pupils. No Medical Officer is confined simply to one branch of the public health work; each takes part in the schemes dealing with school children, expectant mothers and children under five years of age, tuberculosis, and general public health.

Presence of Parents at Inspection.

Parents are notified of the date of routine examinations, but, except for the parents of entrants, few avail themselves of the opportunity to be present. In the session under review, 11 per cent. of parents were present.

Special Visits.

During the year, special visits were made to schools for the following reasons:—

1. Enquiry into the condition of mentally and physically invalid children.
2. Re-examination of verminous children.
3. Investigation of outbreaks of infectious diseases.
4. Examination of students in preliminary training at Fraserburgh, Peterhead, Huntly, Inverurie and Turriff.

THE PHYSICAL CONDITION OF THE SCHOOL CHILDREN.

Not much variation in the physical condition of the school children is recorded from year to year. In the tabular statements, "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.

A. Total Number of Children Examined—

(a) Systematic Examination—

Beginners	3,123
Nine-year-olds	2,208
Twelve-year-olds	2,600
Sixteen-year-olds	180
	<hr/>
	8,111
(b) Special Cases examined at special visits and re-examinations,	5,960
	<hr/>
Total	14,071
	<hr/>

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

1,174 or 14·4%

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

2,081

C. Number of Children Receiving Attention—

Out of 2,133 defects in children requiring treatment, 1,689, or 79·1 per cent., received attention during the year. This number, 2,133, does not include children notified to the Nurses by the School Dentists but does include 161 recommended by the Medical Officers for dental treatment. Out of the 161, only 46, or 28·5 per cent., were treated.

In the following statements, 8,111 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 4,988.

D. Clothing—

It is gratifying to be able to record that the great majority of the children were very well clad. Clothing was found to be insufficient, dirty or in bad repair in only 39, or ·4 per cent. Six special cases were found to be unsatisfactory in this respect.

E. Footgear—

The remarks about the clothing of the children apply also to their footgear which was found to be unsatisfactory in 25, or ·3 per cent. In three special cases the footgear was found to be unsatisfactory.

In nearly all these cases, an element of neglect was present. Investigation showed that the parents were of the careless and spend-thrift type.

F. Average Heights and Weights of Children—

BOYS.					
No. of Children.		Average Age in years.		Average Height in inches.	Average Weight in lbs.
140	.....	4 $\frac{6}{12}$	.....	39·6	38·8
864	.....	5 $\frac{6}{12}$	.....	42·5	42·8
543	.....	6 $\frac{3}{12}$	.....	44·6	45·3
109	.....	7 $\frac{4}{12}$	.....	45·3	47·2
560	.....	8 $\frac{6}{12}$	.....	47·4	51·9
468	.....	9 $\frac{2}{12}$	.....	49·6	55·9
721	.....	11 $\frac{7}{12}$	.....	52·7	68·9
605	.....	12 $\frac{3}{12}$	.....	55·6	71·9
46	.....	15 $\frac{6}{12}$	.....	65·1	125·1
42	.....	16 $\frac{4}{12}$	.....	65·6	126·3
GIRLS.					
No. of Children.		Average Age in years.		Average Height in inches.	Average Weight in lbs.
136	.....	4 $\frac{4}{12}$	.....	39·5	38·9
889	.....	5 $\frac{5}{12}$	.....	42·7	42·9
551	.....	6 $\frac{4}{12}$	.....	44·5	44·1
91	.....	7 $\frac{5}{12}$	.....	45·5	47·3
474	.....	8 $\frac{4}{12}$	.....	47·9	50·8
508	.....	9 $\frac{5}{12}$	.....	51·1	57·9
710	.....	11 $\frac{6}{12}$	.....	53·9	69·8
564	.....	12 $\frac{5}{12}$	.....	55·9	77·4
42	.....	15 $\frac{7}{12}$	.....	61·5	107·1
50	.....	16 $\frac{5}{12}$	.....	62·5	116·4

It will be noticed that girls of 12 years are heavier and rather taller than boys of 12, but, at 15 and 16, the boys are considerably ahead of the girls both in height and in weight. It is well known to students of growth that boys are rather heavier than girls in the earlier years but are overtaken by the girls at age 12 to 14; thereafter the boys gain on, and overtake, the girls.

G. Cleanliness of Head and Body—

(a) Head—	
Dirty or Nits	1,138 or 14·0%
Verminous	135 or 1·6%
Special cases,	108
(b) Body—	
Dirty	61 or 7%
Verminous	58 or 7%
Special cases	54

The machinery for dealing with verminous children is slow-moving. Could it be speeded up, a reduction in the numbers appearing under this heading could be looked for with confidence. It happens, on occasion, that too much sympathy is shown towards parents whose children are found to be verminous, but it must be remembered that it is only the persistently verminous who are reported to the Authority for further action. The parents of these children (and the principal parent concerned is usually the mother) are grossly apathetic, and it requires a strong external stimulus to evoke sufficiently energetic action on their part to remedy the condition. Too often, a little improvement is made and the condition drags on. One visit of an official may reveal an exceedingly verminous condition; at the second visit, the presence of pediculi may not be detected, but the following visit possibly shows the condition to be as bad as ever, and the whole procedure has to be gone through again. A visit by one of the Inspectors of the R.S.S.P.C.C. with a threat of prosecution, however, often works wonders. In this connection, Inspector Cockburn, Aberdeen, and Inspector Currie, Peterhead, have given very useful and willing help.

A morning inspection of the face, neck and hands by the teacher, and a march-out to the wash-basin of those found wanting in cleanliness, together with a short lecture on the importance of personal cleanliness, would impress on children the inestimable value to health of soap and water. I am aware that a great many of the County teachers follow this line of action, but it would be well if it were universally adopted.

H. Condition of Skin—

(a) Head —	
Ringworm	4 or 0·4%
Impetigo	59 or 7%
Favus	—
Other diseases	6 or 0·7%
Special cases	23
(b) Body—	
Ringworm	1 or 0·1%
Impetigo	2 or 0·2%
Scabies	16 or 1%
Other diseases	2 or 0·2%
Special cases	9

I. Nutrition—

Above average	506 or 6·2%
Average	7,206 or 88·8%
Below average	398 or 4·9%
Very bad	1 or 0·1%
Special cases	9

J. Teeth—

Sound	1,446 or 17·8%
1-4 Decayed	5,378 or 66·3%
5 or more decayed	1,276 or 15·7%
Oral sepsis	11 or 1%
Special cases	116

K. (a) Nose—

Catarrh	290 or 3.5%
Obstruction	8 or .09%
Other diseases	15 or .18%
Special cases	15

*(b) Throat—**Tonsils—*

Slightly enlarged	1,114 or 13.7%
Markedly enlarged	211 or 2.6%

Adenoids—

Probably present	136 or 1.6%
Present	26 or .3%
Other diseases	81 or .9%
Special cases	170

*(c) Lymphatic Glands—**1. Submaxillary—*

Palpably enlarged	1,805 or 22.2%
Markedly enlarged	21 or .2%
Suppurating	1 or .01%
Cicatrices	44 or .5%

2. Cervical—

Palpably enlarged	671 or 8.2%
Markedly enlarged	12 or .1%
Suppurating	1 or .01%
Cicatrices	33 or .4%
Special cases	33

L. External Eye Diseases—

Blepharitis	135 or 1.6%
Conjunctivitis	48 or .59%
Corneal opacities	2 or .02%
Squint	197 or 2.4%
Other diseases	51 or .6%
Special cases	38

M. Visual Acuity (number examined, 4,988)—

Fair vision	461 or 9.2%
Bad vision	244 or 4.9%
Special cases	70

(The vision of Entrants is not tested.)

It is not uncommon to find that short-sight is alone recognised as a defect of vision calling for treatment. It is not generally recognised that so-called far-sight may cause much more discomfort, especially when near work is called for. This condition requires constant effort for clear vision even at a distance. Far-sight, with or without astigmatism, was found in about 70 per cent. of the children with refractive error. Short-sight, with or without astigmatism, was present in 22 per cent. The remaining 8 per cent. were cases of mixed astigmatism.

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

N. Ears—

Otorrhoea	37 or .4%
Wax	41 or .5%
Other diseases	5 or .06%

O. Hearing—

Slightly deaf	34 or	4%
Markedly deaf	6 or	07%
Special cases	12	

P. Speech—

Defective articulation	56 or	68%
Stammering	8 or	09%
Special cases	31	

Q. Mental Condition—

Backward	75 or	9%
Mentally defective	8 or	09%
Special cases	31	

R. Heart and Circulation—

Acquired organic disease	48 or	59%
Congenital organic disease	8 or	09%
Functional disease	105 or	12%
Anaemia	119 or	14%
Special cases	22	

S. Lungs—

Chronic bronchitis	23 or	2%
Tuberculosis	6 or	07%
Suspected tuberculosis	53 or	6%
Other diseases	103 or	12%
Special cases	16	

Last year, only 8 cases of suspected tuberculosis were brought forward, but this year no fewer than 53 cases were referred to the Assistant Medical Officer of Health (Tuberculosis) for special examination.

T. Nervous System.

Epilepsy	3 or	03%
Chorea (St. Vitus Dance)	8 or	09%
Paralysis	17 or	2%
Other diseases	7 or	08%
Special cases	5	

U. Tuberculosis (Non-pulmonary)—

Glandular	21 or	2%
Bones and joints	13 or	16%
Abdominal	4 or	04%
Skin	1 or	01%
Other forms	—	—
Special cases	2	

In 1925-26, 31 cases of non-pulmonary or surgical tuberculosis were discovered. In the year under review, the number was 41.

V. Rickets—

Slight rickets	57 or	7%
Marked rickets	—	
Special cases	1	

W. Deformities—

Congenital	59 or	7%
Acquired	21 or	2%
Special cases	6	

X. Infectious and Contagious Diseases

Special cases	71 or	87%
	33	

<i>Y. Other Diseases and Defects</i>	292 or 3.6%
Special cases	47

Mentally Defective Children.

During the year, 11 cases were certified by the Medical Staff within the meaning of the Mental Deficiency and Lunacy (Scotland) Act, 1913. They were classified as follows:—

1. Feeble-minded and educable	2
2. Imbecile and ineducable	9

Of the first group, arrangements were made for their admission to Baldovan Institution, Dundee. Those in the second group were notified to the General Board of Control and the respective Parish Councils. In all, 5 cases were resident during the year in Baldovan Institution.

Physically Defective Children.

Five physically defective children came under review. Arrangements were made for their treatment in Voluntary Hospitals and necessary appliances were supplied.

Blind Children.

Two children received treatment in the Royal Blind Asylum and School, Edinburgh.

Deaf-Mute Children.

These are taught at Westburn Road Special School, Aberdeen. Six boys and 4 girls were accommodated in this Institution.

Special Schools and Classes.

There are no special schools or classes in the County. The Education Authority hope to institute special classes at Peterhead and Fraserburgh for the education of mentally subnormal children.

Open-air Schools.

There is one convertible open-air school, viz., Millbank Public School, Cluny.

Arrangements for Physical and Personal Hygiene of Children.

The scope of the arrangements for the physical and personal hygiene of the children have been fully described in previous Annual Reports.

Arrangements for Feeding of Children.

The arrangements for the feeding of school children remain as in previous years.

Nutrition—Special Investigation.

The Scottish Board of Health set agoing towards the end of 1926 an investigation into the nutrition value of milk for school children. The scheme originally provided for four centres but actually the tests were made at seven centres.

At each centre four groups of children were taken, each from 40 to 50 according to the size of the classes in the school. One group received whole milk, a second separated milk, and a third a biscuit of the same energy yielding value as the separated milk. The fourth group, which acted as control, received no supplementary feeding. The test began at the end of November and finished at the end of June, 1927. It was, however, restarted later.

Peterhead North School was chosen as one of the schools in which the test was to be made; the remaining centres were in the areas of other Authorities throughout Scotland. The children at Peterhead were between 5 and 6 years of age. Three-quarters of a pint of milk each per school day at school was the amount given. Records of the height and weight were taken periodically.

A report issued in October, 1927, gives details of the inquiry. It is noted that there is a distinct difference between the groups receiving milk, whether

In addition, the whole-time dentists carried out inspections and treatment of tuberculous patients at Noranside and Newhills Sanatoria, and at Peterhead and Fraserburgh Hospitals. They also gave dental treatment to the pre-tuberculous children, of school age, at Linn Moor Convalescent Home, Culter. This work amongst the tuberculous was performed during the school holidays and on Saturdays and thus, in no way, interfered with their ordinary school duties.

Defective Vision.

Dr. A. R. Galloway examined 759 cases at 16 centres. The numbers examined in 1925-26 were 841, and in 1924-25 917.

Centres.	Number of Cases.
Aberdeen	32
Aboyne	48
Ballater	24
Kildrummy and Strathdon	12
Huntly	81
Oldmeldrum	13
Insch	30
Ellon	38
Strichen	26
Maud	19
Fraserburgh	125
Inverurie	42
Turriff	77
Kemnay	32
Peterhead	137
Alford	23
Total	759

Spectacles were prescribed in 608 cases, and in 134 cases the children's own spectacles were satisfactory or spectacles were unnecessary. There were 6 cases of blepharitis and 5 of corneal nebulae. There was one case each of conjunctivitis, lamellar cataract, strumous ophthalmia, dacryo-cystitis, adherent leucoma and retinitis pigmentosa.

In conclusion, Dr. Galloway makes the following statement:—

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

Hypermetropia	309—50·82%
Do. astigmatism	110—18·11%
Myopia	83—13·65%
Myopic astigmatism	53—8·74%
Mixed do.	53—8·74%

Convergent strabismus occurred in 21 per cent. of the cases of hypermetropia and in 1·2 per cent. of the cases of hypermetropic astigmatism.

Among the refraction cases there occurred the following affections:—

Lamellar cataract, partial albinism and nystagmus, retinitis pigmentosa, double aphakia (after needling), partial optic atrophy.

Special reports were given in the more seriously affected cases, and also in the case of a pupil wishing to enter the Training Centre for Teachers."

Section V.

TUBERCULOSIS SERVICES.

The scheme for the prevention, detection and treatment of tuberculosis embraces all the Districts and Burghs in the County. During the year, the only extension of the scheme was the organised admission of County patients to the Aberdeen City Hospital and to Woodend Hospital, both of which institutions belong to the Town Council of Aberdeen; the extent to which these supplementary services have been utilised by the County Public Health Department will be described when the question of institutional treatment is discussed.

Notifications.

There were 290 primary notifications of tuberculosis; but, in addition, there were 18 cases to be regarded as "transfers," that is, patients who were found to be suffering from tuberculosis in other areas and were notified to the Medical Officers of Health of those areas, or "re-notifications" of patients who, whilst resident in other areas of Aberdeenshire, had been notified to this Department in previous years.

The number of pulmonary and non-pulmonary cases notified, in age-groups, is given hereunder:—

TABLE I.
Number of Cases notified as suffering from Tuberculosis in 1927.

	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 . . .	1	4	4	25	23	11	15	5	88
{ Females . . .	2	5	3	27	18	15	12	2	84
Non-Pulmonary . . { Males . . .	10	12	6	15	2	1	—	1	47
{ Females . . .	7	12	10	28	10	1	3	—	71
Total	20	33	23	95	53	28	30	8	290

Three pulmonary and 17 non-pulmonary cases were notified under 5 years of age. In both pulmonary and non-pulmonary cases, the greatest number was notified in the age group 15 to 25 years, 52 of the former and 43 of the latter being in this group.

There follows a record of the number of cases notified since 1918 :—

TABLE II.
Notifications during years 1918-1927.

YEAR.	Pulmonary Tuberculosis.	Non-Pulmonary Tuberculosis.	Total.
1918	235	79	314
1919	242	100	342
1920	266	101	367
1921	263	90	353
1922	244	124	368
1923	236	145	381
1924	213	162	375
1925	219	146	365
1926	211	137	348
1927	172	118	290

It will thus be seen that the notifications are fewer than in any of the past ten years, and this decline, if continued, must be reflected in admissions to institutions and consequently in the annual expenditure in connection with tuberculosis. Various factors, may, however, have helped to account for this decline; for instance, there are in Linn Moor Convalescent Home, Culter, on a weekly average, 30 ailing children suffering from a tuberculous taint or from enlarged glands at the roots of the lungs; in the case of these, notification by the family doctor is not now encouraged unless a definite diagnosis of tuberculosis can be made, and children who are considered in the slightest degree infectious are not sent to that institution. The only safe criterion as to the decline of tuberculosis in any area is a continued diminution in the death-rate from that disease.

Sources of Notification.

The sources of the notifications were as follows :—

1. Notified by General Practitioners	259
2. „ Medical Officers of Medical and Surgical Hospitals	9
3. „ Medical Officers of Mental Institutions	6
4. „ County Medical Officer of Health	16
5. „ Medical Officers of Health of other areas ("Transfers")	13
6. "Re-notifications"	5
Total	308

Localisation of the Disease.

As already stated, of the 290 notified cases, 172 suffered from lung disease; in the other 118 cases, the parts of the body affected were as follows:—

1. Glands	71
2. Bones and joints	22
3. Brain membranes	10
4. Abdomen	6
5. Other sites	9
	<hr/>
	118
	<hr/>

Occupational Incidence.

The inhalation of irritating dusts has been proved to be an important factor in the incidence of tuberculosis. The inhaled dust irritates the lungs and renders them an easy prey to attack by the tubercle bacillus. Tuberculosis is very common amongst those engaged in dusty trades, but the inhalation of soft dust particles is not so damaging. Coal dust is composed of soft particles, and statistics show that the death-rate amongst coal-miners is below the average. On the other hand, the dust particles inhaled by tin-miners, gold-miners, lead-miners, stone-cutters and by grinders, cutlers and potters are very injurious because they are hard and gritty; the phthisis death-rate amongst tin-miners is five times greater than that amongst agricultural workers, whilst the phthisis death-rate in file-makers, potters and cutlers is three or four times greater than that obtaining amongst agricultural workers.

Practically none of these predisposing occupational factors exist in Aberdeenshire. Here no occupation can be said to furnish an unduly large proportion of cases. Taking the male cases which number 135, we find that 23 were farm servants, 26 schoolboys and 8 labourers; the corresponding numbers in 1926 were 26, 43 and 12 respectively. There was thus a large decrease in the number of schoolboys notified. Three stone-cutters were notified; in 1926, there was 1; in stone-cutting, the greatest danger exists where the stone is rich in silica and the particles are hard and gritty; stone-cutting workshops are under Government supervision and provision must be made for the rapid mechanical removal of the dust.

With regard to the female notifications, there were 43 housewives, 28 schoolgirls and 26 domestic servants; the numbers in 1926 were 46, 41 and 24 respectively. Here also, there was a marked diminution in the number of notifications of female children of school age.

Mortality.

The number who were notified in 1927 and who died before the end of the year was 32. The percentage of deaths in 1927 to notifications in that year was 11, as compared with 13·5 in 1926, 14·8 in 1925 and 14 in 1924.

All forms of tuberculosis accounted for 132 deaths in 1927. There were 102 pulmonary and 30 non-pulmonary deaths. This is a considerable increase over 1926 when the deaths numbered 107. In 1925 there were 144 tuberculosis deaths, in 1924—138, and in 1923—142. The subjoined table is interesting, giving as it does the total number of deaths from all causes in each of the Districts and Burghs, the deaths from pulmonary and non-pulmonary tuberculosis, the deaths from all other respiratory diseases excluding phthisis, and relative percentages.

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	372	14	8	46	5.9	12.4
Ellon	158	11	2	23	8.2	14.5
Garioch	159	7	2	22	5.7	13.8
Deeside	148	7	2	10	6.1	6.8
Turriff	126	8	3	13	8.7	10.3
Aberdeen	309	14	2	32	5.2	10.3
Alford	99	4	1	7	5.05	7.07
Huntly	69	3	1	3	5.8	4.3
BURGHAL DISTRICTS—						
Ballater	19	1	1	3	10.5	15.8
Ellon	21	1	—	4	4.8	19
Fraserburgh	123	9	1	14	8.1	11.4
Huntly	74	4	1	15	6.7	20.3
Inverurie	63	4	2	4	9.5	6.3
Kintore	16	—	1	1	6.3	6.3
Oldmeldrum	19	—	—	2	—	10.5
Peterhead	131	11	13	15	18.3	11.4
Rosehearty	12	—	—	3	—	25
Turriff	39	4	—	4	10.3	10.3
Totals	1,957	102	30	231	6.7	11.8
Corresponding figures for 1926	1,897	80	27	233	5.6	12.2

The increase in the number of deaths from tuberculosis in 1927 would, at first sight, seem to be a distinct set-back to our anti-tuberculosis campaign, but several factors have to be taken into account. The chief of these is the widespread incidence of influenza in the first three months of the year. Even in the normal individual, influenza—if accompanied by chest symptoms—is a grave condition, but, if the lungs are already weakened by tuberculosis, the chances of recovery are not great.

It is interesting to note the ages at death amongst pulmonary tuberculous cases in age-groups in the years 1927, 1926 and 1925.

TABLE IV.

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

The death-rate from tuberculosis throughout Scotland was, in 1927, 99 per 100,000; of these deaths, the number attributable to pulmonary tuberculosis represented a death-rate of 71 per 100,000. In 1926, the death-rate from all forms of tuberculosis was also 99 per 100,000, and, from pulmonary tuberculosis, 69 per 100,000. Thus, the former of these two rates is the same in 1926 and 1927, and is lower than in all preceding years.

Looking at the problem broadly, we may confidently state that our efforts at eradicating tuberculosis are not in vain. Institutional treatment has undoubtedly helped to diminish the toll exacted by this dread disease, but institutional treatment—with our present knowledge of the methods of treatment—will never eradicate tuberculosis. Many imagine that an apparently successful course of institutional treatment solves the problem. But tuberculosis starts in the home, and, in the majority of cases, ends in the home, and thus the institutional life of a patient—expensive so far as the Local Authority is concerned—is a relatively short period in the patient's life. Tuberculosis is a social problem, intimately related to heredity, to wage-earning capacity, to social and to housing conditions. The main function of the institution is not to cure the patient—cure can only be said to take place when the disease remains quiescent for a number of years—but to teach him how to live, how to regain some degree of working capacity and how to avoid a recrudescence of the disease. It is alleged that the new Housing Schemes which are being adopted all over the country will appreciably diminish the incidence of tuberculosis. This is open to grave doubt. The houses which are being built by Local Authorities are not obtainable by the ordinary tuberculous patient whose wage-earning capacity may be said in every case to be impaired. It may be alleged that extensive Housing Schemes enable socially superior tenants to occupy such houses and thus the tuberculous patients get, as it were, a "step-up," by acquiring the houses vacated by those tenants. Here, however, we must face bald facts. The habits of the tenant are as important as the condition of the house. If ventilation is efficient, overcrowding may be, for practical purposes, disregarded as a cause of the dissemination of tuberculosis. These statements will be regarded by many as heterodox, but we must recognise that the houses, at present being built by Local Authorities cannot, in the majority of cases, be tenanted by working-class tuberculous patients whose incomes are always limited.

The number of cases in the County, where actual overcrowding exists coincident with tuberculosis, is remarkably few. Overcrowding is not a menace to health if all available means of ventilation are utilised. The popular cry that tuberculosis is fostered by bad housing conditions may hold in the larger cities and burghs of the country, but it certainly does not apply to Aberdeenshire where institutional treatment is provided on a most generous scale and where every post-institutional case is offered the use of a County shelter which can always be erected in rural areas, and, by arrangement, in some of the smaller burghs.

Since 1913, Aberdeenshire has been in the van in its endeavour to diminish the incidence of, and death-rate from, tuberculosis, and a considerable degree of success has attended these efforts. This happy result has been largely due to the sound and sympathetic advice given first to the County Council, and, later to the Joint Committee for Public Health Services, by the County Clerk, Dr. William Murison.

TREATMENT.

1. Institutional Treatment.

The whole aspect of the County Scheme has naturally undergone gradual evolution during the past three years. In 1924, Linn Moor Convalescent Home was made available for the reception of County children, from 3 to 13 years of age, suffering from what—owing to the want of a better name—is termed intrathoracic adenitis, from non-infectious pulmonary tuberculosis or from pre-tuber-

culous conditions. This was a very necessary line of progress; it is by treating children before the disease has become firmly implanted that the best hopes exist of preventing definite disease in adult life, for none of the so-called specific cures has so far proved to be of any avail.

Then, in the latter half of 1926 facilities were provided by the Aberdeen Town Council for the reception of special pulmonary cases into the tuberculosis wards of the Aberdeen City Hospital and for surgical or non-pulmonary tuberculosis into Woodend Hospital. Since the inauguration of the County Tuberculosis Scheme, certain cases of pulmonary tuberculosis have been sent to the City Hospital, but the throwing open of Woodend Hospital to cases of surgical tuberculosis has marked the biggest advance towards the intensive and efficient treatment of this crippling form of tuberculosis. Surgical tuberculosis calls, in the majority of cases, for prolonged residence, for artificial light treatment, for orthopædic treatment and for expert attention from doctors and nurses specially trained in this kind of work. By providing proper treatment, at an early stage, crippling deformities may be prevented and the sufferers may ultimately become useful members of the community. Again, it seems reasonable that, if for nursing reasons only, pulmonary and non-pulmonary cases should not be treated side by side. Woodend Hospital is admirably equipped for this special work by reason of its staff, medical and nursing, and its appliances which include X-rays for diagnosis and ultra-violet rays for treatment.

Fully seven years ago, an arrangement was made with Forfar County Council whereby 25 beds were guaranteed to be occupied weekly by patients from this County for a period of 7 years. There has been no difficulty in the past in fulfilling this requirement, but, as the arrangement expires in September, 1928, the Joint Committee for Public Health Services will require to consider if they are to enter into another agreement on similar lines. This—Noranside—is the only institution, in connection with which any definite arrangement has been made, and in view of the future uncertainty of the institutional distribution of County patients, it would not be wise for the Committee to tie its hands.

In 1927, County tuberculous patients were sent to the following institutions:—

Sanatoria.—Noranside Sanatorium, Forfar; Newhills Sanatorium, Bucksburn; and Tor-na-Dee Sanatorium, Murtle (for special cases only).

Hospitals.—Aberdeen City and Woodend Hospitals; Thomas Walker Hospital, Fraserburgh; Burgh Hospital, Peterhead; Inch and District War Memorial Hospital, Inch, and Kincardine O'Neil War Memorial Hospital, Torphins.

Each case of tuberculosis must be dealt with according to the existing physical state and home conditions, and, if institutional treatment is considered essential, the patient must be sent by the County Medical Staff to that institution in which will be given the best medical attendance, special treatment and nursing that will be likely to restore him most quickly to the ranks of the wage-earners. It is impossible to deal administratively with tuberculous patients *en bloc*, and, in view of the decrease in the number of notified cases, with the consequent decline in the numbers requiring institutional treatment, and of the varying types of the disease, it would be impossible to guarantee to have a definite weekly number of cases in each of these institutions.

The following table, which shows the number of cases who received treatment in Tuberculosis Institutions during 1927, includes patients who were undergoing institutional treatment at the beginning of the year:—

TABLE V.

Institutions.	Insured.		Uninsured.		Total.
	Male.	Female.	Male.	Female.	
SANATORIA—					
Noranside	38	24	13	17	92
Newhills	23	14	16	14	67
Tor-na-Dee	—	2	4	7	13
Nordrach-on-Dee	—	—	—	1	1
HOSPITALS—					
Aberdeen City	7	4	13	19	43
Thomas Walker	18	3	12	13	46
Peterhead	10	8	7	17	42
Insch War Memorial	2	—	5	8	15
Kincardine O'Neil	—	1	1	—	2
Woodend	3	2	14	11	30
HOME—					
Linn Moor Convalescent	—	—	39	37	76
Totals	101	58	124	144	427

With regard to new cases, 230 were admitted to institutions in 1927, whilst 38 who had received residential treatment in previous years were re-admitted. The number which remained under treatment at 31st December was 154. There were discharged from institutions 213 patients; 22 patients died in institutions. In 1926, 254 new cases received institutional treatment and there were 31 re-admissions.

Duration of Treatment.

The average duration of institutional stay in sanatorium cases was 255 days, and in hospital cases 152 days. The average duration of stay in both hospital and sanatorium cases was 192 days. The average duration of treatment in each year since 1914 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 „

Non-pulmonary or Surgical Tuberculosis.

In 1926, 112 cases of surgical tuberculosis were treated institutionally under the Committee's Scheme. In 1927, a concentration of patients suffering from this type of the disease was made possible by the opening of the Special Surgical Tuberculosis Wards at Woodend Hospital.

The numbers of these cases treated in institutions approved by the Scottish Board of Health for the purposes of treatment were as follows:—

Woodend Hospital	16
Aberdeen City Hospital	20
Newhills Sanatorium	11
Noranside Sanatorium	3
Linn Moor Home	8
Thomas Walker Hospital	14
Burgh Hospital, Peterhead	3
Insch War Memorial Hospital	11
Kincardine O'Neil War Memorial Hospital, Torphins	2
Tor-na-Dee Sanatorium, Murtle	1
Total	89

As time goes on, all cases of surgical tuberculosis will be sent to Woodend Hospital where there are up-to-date X-ray apparatus and excellent ultra-violet ray plant and where specialised nursing and medical attention are provided.

2. Domiciliary Treatment.

During 1927, domiciliary treatment was provided on the same lines as formerly. Patients who have been treated at home throughout their illness have been considerably handicapped because institutional treatment alone can instil the necessity of practising those principles which will restore them to comparative good health.

Cases treated at home are allowed special foods, through the Public Health Department, provided that the Medical Staff consider that they form an essential part of treatment. During the financial year ending 15th May, 1927, 74 patients received special foods at a total cost of £343 15s. 6½d. The expenditure in this connection is £128 less than in the previous financial year.

Drugs are also supplied through the medical attendants to tuberculous patients—both insured under the National Insurance Acts and uninsured—provided that they are considered to be medically necessary for treatment of the tuberculous condition or of sequelæ arising from tuberculosis. In the following table there appear the number of prescriptions, the average cost per prescription and the total cost of the prescriptions during each of the past four years:—

TABLE VI.

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

An important asset in our domiciliary treatment is the provision of shelters of which the Joint Committee for Public Health Services possess 66. No new

shelters were built during the year; one was sold because it was too dilapidated to be transferred to another site. Seventy-nine patients—32 male and 47 female—had the use of shelters, as compared with 71 in 1926 and 83 in 1925. Eleven of the 79 patients, or 14 per cent., had previously had a course of institutional treatment. Six patients had occupied their shelters for over 10 years, and 4 of these had occupied them for 13 years.

3. Dispensary Treatment.

There are 5 dispensaries, the central dispensary being at the County Public Health Office, 4, Albyn Place, Aberdeen, and 4 branch dispensaries or clinics situated at Huntly, Inverurie, Peterhead and Fraserburgh. The last four are periodically visited by the County Medical Staff. The number of patients who visited these dispensaries in 1927 and the total number of visits made by them are shown below:—

TABLE VII.

Dispensary.	Number of Patients.	Total Number of Visits.
1. Central	118	213
2. Huntly	69	392
3. Inverurie	41	216
4. Peterhead	56	137
5. Fraserburgh	31	114
Total	315	1,072

Remedial exercises and massage are carried out weekly by the Remedial Expert, under medical supervision, at the central dispensary and at Fraserburgh and Peterhead. Linn Moor Home is visited twice weekly and this special work has been of great advantage to the patients. An arrangement was made with the Aberdeen Town Council whereby the services of the Remedial Expert were put at the disposal of the City and County tuberculous patients in the City and Woodend Hospitals on two days in the week in return for the services of a qualified teacher—employed by the Town Council—for a similar period for the education of County patients in Linn Moor Convalescent Home.

In 1927, 117 patients were treated and the total number of "treatments" was 2,345. The number of patients treated at each institution or clinic is given hereunder:—

1. Linn Moor Convalescent Home, Culter	75 patients.
2. Thomas Walker Hospital, Fraserburgh	15 ..
3. Peterhead Clinic	14 ..
4. Central Dispensary	13 ..
Total	117 ..

SPECIAL METHODS OF DIAGNOSIS AND TREATMENT.

1. Diagnosis.

(a) *X-rays*.—In 1927, 38 out-patients were X-rayed at the Aberdeen City Hospital. Of these, 30 suffered from pulmonary disease and 8 from non-pulmonary tuberculosis. Radiograms were also taken of 27 patients receiving in-door treatment in the Aberdeen City Hospital; in 14, radiograms were taken of the chest, and, in 13, of other parts of the body. Many of these radiograms were necessary for diagnostic purposes.

The X-ray examination of a patient suspected to be suffering from tuberculosis is of great value both in diagnosis and also in estimating the extent of the disease. One must not depend upon the result of an X-ray examination alone,

but, when taken in conjunction with the symptoms and the physical examination of the patient, it is of the greatest assistance both in pulmonary and non-pulmonary cases. It is of course highly important to diagnose tuberculosis at the earliest possible stage. There are many cases where the symptoms are suggestive of pulmonary tuberculosis but where no physical signs diagnostic of pulmonary tuberculosis can be elicited and where there are no tubercle bacilli in the sputum.

In such cases, if no ancillary methods of diagnosis were available, one would have to treat the case as being one of tuberculosis and thus a patient might undergo expensive treatment unnecessarily; the only alternative would be the undesirable one of waiting till more definite evidence of tuberculosis was forthcoming. We may, however, see on the radiogram evidence of an early infection of the lung undetectable by ordinary physical examination and the diagnosis is put beyond doubt.

If, on the other hand, there is no evidence in the radiogram of tuberculous infection, one may reasonably incline to the diagnosis that it is not a case of tuberculosis but one would keep the patient for a period under observation. A not uncommon type of pulmonary tuberculosis is that in which the disease starts at the "root" or hilus of the lung; such a case, though showing some of the usual symptoms of tuberculosis, often gives very little or no evidence on physical examination of tuberculous infection, owing to the deep-seated nature of the lesion; an X-ray examination in this type of case shows certain shadows at the region of the hilus indicating tuberculous disease.

X-rays are also useful in estimating the extent of the disease. A patient may show definite physical signs of a tuberculous infection of one of the lungs and a diagnosis is easily made, but an X-ray examination may show an unsuspected lesion in the other lung and a more guarded prognosis must then be given. Again, X-rays often reveal changes in the other intra-thoracic viscera, which might otherwise escape detection, such as, enlarged bronchial glands, pleural adhesions, interlobar effusions and displacements of the viscera.

X-rays are essential in the treating of a case by artificial pneumothorax. Artificial pneumothorax is especially useful in certain cases where the disease is unilateral and where there are frequent hæmoptyses. Hæmoptysis is a distressing symptom and often has an unduly alarming and depressing effect upon the patient. Artificial pneumothorax, by causing a collapse of the diseased lung, may stop this hæmorrhage and hasten a healing fibrotic change in the lung. It is obvious that before treating a case by this method one must be certain that one of the lungs is in a sufficiently healthy condition to stand additional strain and it is only by a careful X-ray examination that the presence of some deep seated infection in the lung that is apparently healthy on physical examination can be detected. It is essential also, in order that the progress of the treatment may be ascertained, that X-ray examinations be periodically made during the course of this treatment.

In non-pulmonary or surgical tuberculosis, X-ray examination is very useful in diagnosis and in ascertaining what progress the patient is making. As in pulmonary cases, so also in non-pulmonary cases, we may have a patient in the early stages of the disease showing symptoms suggestive of a tuberculous infection of a bone or joint but with no confirmatory evidence from the X-ray examination. Such cases must be kept under careful observation; but, in most cases, the evidence given by an X-ray examination enables one to come to a diagnosis. There are many conditions for instance which simulate very closely tuberculous disease of the hip joint, *e.g.*, coxa vara, congenital dislocation, osteo-arthritis, and here the X-rays give very valuable help in the differential diagnosis. X-rays help us to estimate the extent of the disease in the affected part, the amount of the bony or other structures destroyed, and, when the patient is recovering, the extent of the healing process. In an X-ray examination of bones and joints it is very important to have a lateral as well as an antero-posterior view. Unless a radiogram is taken of both aspects a lesion may escape detection as in some cases a tuberculous infection may not show in the radiogram if the patient is

exposed only in one plane. It should be emphasised again that the diagnosis in a case of suspected tuberculosis should be made by weighing up all the evidence and not upon the findings of the X-ray examination alone or of physical examination alone.

(b) *Lumbar Puncture, &c.*—Where contiguous laboratory facilities exist, doubtful cases may with advantage be admitted for observation purposes. Such facilities are available at the Aberdeen City and Woodend Hospitals where such additional aids as lumbar puncture and blood examination can be carried out.

2. Treatment.

The reliable methods of treatment of tuberculosis are rest, fresh air, sunlight and good food. When pulmonary cases are becoming quiescent, graduated labour—under strict medical supervision—is a useful adjunct. In non-pulmonary cases, artificial light treatment, gentle movement and massage may be helpful. There are certain special methods of treatment, each of which may be summarised in a few words.

(a) *Tuberculin Ointment.*—Many County cases, suffering from tuberculous glands, chiefly cervical, have benefited from weekly gentle inunction over the affected site of a 25 per cent. Tuberculin Ointment, consisting of one part of Koch's Old Tuberculin to four parts of Anhydrous Lanoline.

(b) *Artificial Light.*—Treatment by artificial light—ultra-violet radiation—is most useful in the treatment of surgical tuberculosis, but, so far as our experience goes, it should not generally be adopted in cases suffering from pulmonary tuberculosis.

(c) *Autogenous Vaccines.*—These are often employed with advantage, especially in pulmonary tuberculosis with evidence in the sputum of gross mixed infection.

(d) *Gold Treatment, &c.*—The injection of gold compounds, of antimony and of sodium morrhuate is experimental, and their general use cannot yet be said to be justified. Practically nothing is known in this country as to whether or not treatment by Spahlinger's Serum is of any value.

(e) *Artificial Pneumothorax.*—This is a surgical operation that is indicated when there are recurrent and severe attacks of hæmoptysis and where active disease is confined mainly to one lung. Air is pumped into the pleural cavity on the affected side and the diseased lung is thus put out of action. This method of treatment was successfully employed in a few County Cases in 1927.

(f) *Division of the Phrenic Nerve.*—Evulsion of the phrenic nerve, with subsequent division, has been comparatively recently employed as an accessory line of treatment in selected cases. It is useful where the disease is mostly confined to one lung, and especially where the lower lobe is affected and has cavity formation. The result of the operation is that the diaphragm rises and causes collapse of the diseased area. It is also employed as a preliminary to thoracoplasty and also to assist in the successful induction of artificial pneumothorax when this is rendered incomplete owing to the existence of basal adhesions.

Once more, one must emphasise the great importance, both from the patient's point of view and from the administrative outlook, of early diagnosis in phthisis. It must be confessed that it is often exceedingly difficult to arrive at a definite diagnosis in early cases by ordinary physical examination. Cases with signs suspicious of tuberculosis should be brought to the immediate notice of the Public Health Department so that all possible steps may be taken to arrive at a definite diagnosis. The policy of "drift" is dangerous. In tuberculosis, "Safety First" is a sound slogan.

Section VI.

VENEREAL DISEASES SERVICES ... ..	62

The eight Districts and ten Burghs within the County form part of a comprehensive Joint Scheme which embraces the City of Aberdeen and the North-eastern Counties. The Venereal Diseases Treatment Centre is at the Aberdeen Royal Infirmary where clinics are held on five days of the week.

Number of New Cases.—In 1927, the total number of new cases was 98, as compared with 96 in 1926 and 94 in 1924. Of the 98 new cases, 29 suffered from syphilis and 43 from gonorrhœa; 55 were males and 17 were females.

Total Number of New Indoor Cases.—Twenty cases were admitted to the Special Wards in the Aberdeen Royal Infirmary; of these 13 were men and 7 were women. Ten suffered from syphilis and 7 from gonorrhœa. The number of in-patients in 1926 was 15, and, in 1925, 16.

Number of Attendances of Outdoor Cases at Treatment Centre.—This year there was an increase in the number of attendances at the Treatment Centre. The total number of attendances was 3,301 in 1927, 2,231 in 1926, and 2,590 in 1925.

Supply of Special Drugs for Syphilis.—On request, practitioners are supplied with anti-syphilitic drugs from the Treatment Centre. In 1927, 13 practitioners were supplied with 92 doses of these drugs. In 1926, 36 practitioners were provided with 288 doses.

Laboratory Examinations.—The total number of laboratory examinations carried out during the past three years is as follows:—

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

Of the 1,130 specimens examined in 1927, 55 were sent by private practitioners.

“Incomplete Cases.”—Every year, a certain number of patients discontinue attendance at the Treatment Centre before their course of treatment is complete. These cases are “followed up,” but it is very difficult to persuade them to re-commence treatment as they imagine that they are cured whenever the visible signs of the disease have disappeared. In 1927, there were 14 “incomplete” cases—9 suffering from syphilis, 4 from gonorrhœa, and 1 from a mixed infection. In 1926, the number who failed to complete treatment was 20, and, in 1925, 24.

It will only be possible efficiently to cope with the “incomplete” case when venereal diseases are added to the list of notifiable diseases. Undoubtedly this will ultimately come to pass, but probably not for several years.

Section VII.

REPORT

BY

CHIEF COUNTY VETERINARY INSPECTOR

ON THE OPERATION OF THE

MILK AND DAIRIES (SCOTLAND) ACT, 1914.

On reviewing the work accomplished in carrying out the requirements specified in the Milk and Dairies (Scotland) Act, 1914, very little of outstanding general interest has appeared during the period under review, viz., January 1st to December 31st, 1927.

As much ground as possible has been covered and all the known dairy farms from which milk is sold either wholesale or retail have been visited. It will be some years, however, before all the premises from which milk is sold in quantity have been located as some dairymen, mostly in the vicinity of small country villages, have failed to apply for registration and it is only by inquiry locally that their activities come to light. It is only just to state that in most cases they are not actuated by a wilful desire to evade registration, but are merely in ignorance of the law governing the activities of dairymen. In most cases when their premises have been inspected the quality of the cows and the cleanliness observed in the handling of the milk, &c., were generally quite satisfactory, but the cowsheds were in the great majority in need of considerable alterations before they could even approach the standard laid down in the bye-laws.

These small retailers of milk in the country districts are in a somewhat difficult position. They are not very well to do, being mostly small crofters or labourers, and are quite unable to pay for the alterations necessary to their cowsheds but at the same time their means of livelihood is partly dependent on the sale of milk and it would mean considerable hardship if this addition to their income was stopped. It might be much better if every village was supplied by one or two larger and better equipped dairies than many small ones, but the milk requirements of small hamlets fluctuates so much that it would not pay a big producer because these small crofters would still retain their cow and produce their own milk and only buy from the dairyman when the cow was dry. For these reasons and the ones specified in the 1926 Report it has been considered injudicious to insist on too strict an adherence to the bye-laws in these cases and so long as the floors are in a suitable condition, cowbeds the proper dimensions, and cleanliness of cows and milking utensils maintained, other items such as specific requirements for cubic space, lighting, &c., can be modified to some degree.

There have been no administration difficulties of any kind, everyone in the milk trade has been most willing to do all in their power to make the Milk and Dairies Act work smoothly.

Mention was made in the 1926 Report that there was some difficulty in knowing how to apply the requirements of the Act in the case of farmers supplying milk to Huntly Creamery. The milk is supplied in varying amounts and at certain periods of the year only, in the interim, calves are reared on the surplus milk. The procedure adopted at present is to examine the cows and premises, and so long as there is no evidence of lack of care in the production and handling of the milk, the farmer is allowed to continue to send milk to the Creamery without carrying out structural alterations to the byres.

Examination of Cows.

An endeavour was made to examine all the dairy cows in the country during 1927 and with the exception of a few outlying farms all were inspected once, and many herds several times, the number of inspections made at any particular farm depending on the state of the herd on inspection.

It should be realised however, that the bulk of the inspection of cows must of necessity be carried out between the months of October and April because, during the season when the cows are at grass, they are only in the byre for milking and it would be impossible to examine more than one or two herds a day. During the grazing season it is therefore useless to try to carry out routine inspection and the expense would not be justifiable for the number of herds one would be able to visit. The time for wholesale examination of herds may sometimes be even still more limited if fine weather be experienced at the end of the year or if there is an early spring.

It might be suggested that the herds be brought in from the fields for examination but apart from the fact that farmers have no time for that practice it is almost useless to examine a herd of cows for evidence of udder complaints unless the mammary gland is comparatively empty.

Number of visits	844
Number of cows examined (in milk)	8,894
" " (dry)	1,508
Total	<u>10,402</u>

Inspection of Unregistered Dairies.

No definite action has yet been taken to carry out a routine inspection of unregistered cowsheds and further assistance would be required before anything satisfactory could be accomplished. The same applies to farms from which small quantities of butter are sold. Cows on unregistered farms were only inspected when a visit was being made to examine an animal reported under the Tuberculosis Order, 1925.

General Condition and Cleanliness of the Cows.

The standard of cleanliness and general condition of the cows has been well maintained in all Districts and there has been a marked improvement on some farms, which were not up to the standard required in 1926.

Taken as a whole the Aberdeenshire dairy farmer conscientiously endeavours to maintain a very high standard in the quality, condition, and cleanliness of his cows.

Methods of Feeding.

There has been no appreciable change in the methods of feeding dairy cows since the previous report. Several more progressive dairy farmers have adopted modern methods of rationing and it is hoped that more may emulate their example when the alterations to the byres have been completed and the full benefits to be derived from proper rationing are more widely realised.

Methods of Dealing with Diseased Cows.

The procedure adopted when dealing with cows found to be suffering from disease was exactly similar to that outlined in the previous report.

Number of Diseased Cows.

Mastitis	106	Use of milk discontinued until after recovery.
Atrophy	73	„ „ „
Eruptions	7	„ „ „
Suspected tuberculous mastitis	68	Milk not used until examined.
Positive „ „ . . .	19	Slaughtered.
Tuberculous emaciation . . .	20	„
Tuberculosis with chronic cough	30	„
Total	323	

As will be seen from the above list the dairy herds are very free from clinically evident tuberculosis. Of the 10,402 cows examined, 69 were found affected, giving a percentage of '66 cows capable of transmitting tuberculosis to human beings.

All the cows were diagnosed primarily by clinical examination, and in the cases where milk samples were taken the microscopic and biological tests were employed.

The Tuberculin Test was not employed, as it does not assist in the diagnosis of cases within the scope of the Tuberculosis Order.

It has been found that no dairyman is anxious to retain any cow suspected to be affected with tuberculosis in his herd. Unfortunately, many are not yet aware that all suspected cases of tuberculosis should be reported, and, in consequence, some cows which should have been slaughtered find their way into another herd without the inspector being aware that such a move has taken place. The suspected cows are, however, rarely transferred to a second dairy herd, they are, as a rule, usually utilised for the purpose of calf rearing—a very unsound practice if only farmers would realise it, as it helps in the spreading of the disease to young stock.

Milk Samples.

During the year 68 milk samples were taken from cows suspected to be suffering from tuberculous mastitis. Ten were found positive and the cows were immediately slaughtered.

It is worth noting that out of the 10 cases of tuberculous mastitis found by examination of the milk, 8 were diagnosed by microscope alone and only 2 required the more exact biological test. Diagnosis by microscope hastens the slaughter of the affected cow and thus shortens the risk of infection by the diseased animal. Every case diagnosed by the microscope was found to be positive on post-mortem examination and acid fast bacilli were demonstrated from the lesion in the mammary gland. In three cases diagnosed by the primary examination, no lesion of tuberculosis was found except that localised in the mammary gland.

An indication of the extent of the disease generally found in cows suffering from tuberculosis of the udder is reflected in the post-mortem :—

Cows totally condemned	5
Cows passed fit for food	5

Inspection of Cowsheds.

In the Districts and Burghs where the Veterinary Inspector is responsible for the inspection of the cowsheds the inspections were carried out at the same time as the cows were examined, but until all the necessary alterations are completed more visits will have to be made than would otherwise be the case, in order to see that the requirements specified in the bye-laws are satisfactorily carried out.

About 50 per cent. of the cowsheds have been altered to the satisfaction of the Local Authority and it is hoped that all cowsheds will be ready for registration before the end of 1928.

It is unfortunate that no definite measurements of cowsheds and grips were specified in the bye-laws, as it has been noticed that the length of the cowsheds and width and depth of the grips differ in various Districts in the County. Some of the cowbeds are, in my opinion, being made so long that no great benefit is being derived from the alteration.

The reason for altering cowbeds and grips was primarily to enable the dairyman to keep his cows clean with less trouble than formerly. This object can only be accomplished by so shortening the cowbeds that the liquid and solid excreta fall in the grips and unless they be so shortened to attain this requirement little benefit can be gained.

Improvements to Cowsheds.

The way most of the dairy farmers have carried out the alterations to their byres has been very gratifying. Many, especially in the Deer District, have gone beyond what was required of them. Where it was possible to obtain a good water supply individual drinking bowls have been furnished to the cows and this precaution will amply repay the farmer for his trouble, for where no drinking bowls are supplied the cows consistently receive too little water and this re-acts on the system of the cow and the milk yield thereby suffers.

The dairy farmers were at first difficult to convince that any benefit could be obtained from the shortening of the cowbeds and deepening of the grips, but not one regrets the innovation now and some are even copying the method for their "feeding" cattle as it is obvious that much time is saved in cleaning the byre and the quantity of straw required for bedding is almost halved.

The provision of drinking bowls also makes it possible for the dairyman to adopt modern methods of rationing dairy cows.

The Methods of Handling Milk.

The handling of milk at the farm leaves something to be desired, but until alterations to the dairies have been completed nothing much can be done. The method now in vogue might be considered crude and not in line with modern hygienic dairying, but as a whole the dairy farmer in Aberdeenshire is very cleanly and, in spite of his out of date methods, the result of the examination of milk samples in the City of Aberdeen show that there is very little contamination.

A score card system of marking is to be initiated soon and better results may then be obtained if a spirit of rivalry can be brought about.

Summary of Visits of Inspections in the Districts and Burghs.

DISTRICTS AND BURGHS.	Number of Visits.	Cows in Milk.	Cows (dry).	TOTAL.
Aberdeen District . . .	272	3,265	420	3,685
Deer " . . .	172	1,578	304	1,882
Ellon " . . .	60	1,243	230	1,473
Garioch " . . .	93	1,313	251	1,564
Deeside " . . .	35	346	60	406
Turriff " . . .	25	311	57	368
Huntly " . . .	44	244	74	318
Alford " . . .	25	121	48	169
Fraserburgh Burgh . . .	33	217	21	238
Peterhead " . . .	6	100	16	116
Roseheartly " . . .	21	72	6	78
Huntly " . . .	43	49	13	62
Turriff " . . .	12	22	5	27
Oldmeldrum " . . .	3	13	3	16
Total	844	8,894	1,508	10,402

Section VIII.

REPORT ON BACTERIOLOGICAL WORK

Performed in the County Bacteriological Laboratory during the year ending
31st December, 1927, 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, 1927. The total number of specimens received for examination during the year was 3,514, of which 2,919 were from Public Health sources and 595 specimens were examined under the Tuberculosis Scheme for the County.

Examinations for B. Diphtheriæ.—1,593 swabs were examined during the year, of which 781 were received from the County hospitals, 511 from general practitioners and 301 from the County Medical Staff.

From hospitals, 53 positive results were obtained, while 728 swabs were negative. Of the 511 swabs received from general practitioners, 34 were positive, and from the swabs examined for the County Medical Staff 19 were positive.

TABLE I.

Examinations for B. Diphtheriæ.

	Pos.	Neg.	Throat.	Nose.	Total
Hospitals	53	728	36	17	781
General Practitioners .	34	477	29	5	511
County Medical Staff .	19	282	8	11	301
	106	1,487	73	33	1,593

Examinations for B. Typhosus and Allied Organisms.—Owing to two outbreaks due to *B. paratyphosus B.*, there was a very considerable increase in the number of specimens examined during the year for organisms of the "enterica" group. The number of specimens received for examination was 859 and consisted of 389 specimens of faeces, 346 urines, 117 bloods for the Widal reaction, and 7 blood cultures. The following table (Table II.) shows the sources of the specimens and results of the examinations:—

TABLE II.

	Faeces for <i>B. Paratyphosus</i> , &c.		Urines.		Widals.		Blood Cultures.		Total.
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
Hospitals	125	164	32	254	1	—	—	—	576
General Practitioners	13	67	—	41	45	58	—	7	231
County Medical Officer	3	17	1	18	2	11	—	—	52
	141	248	33	313	48	69	—	7	859

With the exception of 2 specimens of fæces which contained *B. dysenteriae* Sonne, all the positive results obtained were for *B. paratyphosus* B. All 7 bloods which were cultured gave negative results for organisms of the "enterica" group although a streptococcus was isolated from one sample.

Miscellaneous Examinations.—467 specimens were received for examination other than specimens under the diphtheria and typhoid groups.

Pus.—28 specimens of pus were examined for gonococci of which 11 were positive. In addition 42 specimens were examined for the causal organisms other than gonococci.

Urines.—*B. coli* was found in 32 of the 83 urines examined for that organism and 49 urines were examined for albumen, sugar and general contents.

Blood Films for Anæmia.—46 blood films were examined for anæmia, 6 of which were from cases of pernicious anæmia, and 2 from a case of lymphatic leukaemia. The remaining films showed a simple chlorotic condition.

Fæces for Blood.—Of 10 samples examined for blood only a single sample showed blood to be present.

Pleural Effusions.—In 3 specimens examined, 2 were caused by streptococci and the remaining case was due to the pneumococcus.

Cerebro-spinal Fluids.—2 samples were examined and in both cases the pneumococcus was the causal organism.

Tinea Capitis.—In 11 specimens of hair examined this parasite was present in all the samples.

Waters.—14 waters were examined for their bacterial purity, 12 of which were found to be satisfactory.

Milks.—Milk counts for bacterial cleanliness were performed on 76 samples of milk. All were of good quality with the exception of 2 samples.

Milks for T.B.—During the year 64 samples of milk were examined for the presence of *B. tuberculosis* in the milk. Positive results were obtained in 11 samples.

Other Examinations.—4 fæces were examined for threadworms, with negative results, 4 specimens of gastric contents were examined for free hydrochloric acid and 9 tumours for malignancy.

A specimen of wool was examined for the parasite of sheep scab, with negative results.

B. Anthracis.—3 blood films were examined for anthrax, of which 2 contained an organism morphologically *B. anthracis*. Five cultures were made from blood of suspected cases of anthrax and from 3 specimens *B. anthracis* was isolated.

Vaccines.—13 autogenous vaccines were prepared from pus and other material for the treatment of boils, &c.

The following table (Table III.) shows the total number of examinations made from Public Health sources :—

TABLE III.

	Positive.	Negative.	Throat.	Nose.	Total.
Swabs B. diphtheriæ . . .	106	1,487	73	33	1,593
Fæces Typhoid . . .	141	248	—	—	389
Urine Typhoid . . .	33	313	—	—	346
Widals Typhoid . . .	48	69	—	—	117
Blood Cultures Typhoid . . .	—	7	—	—	7
Pus Gonococci . . .	11	17	—	—	28
Pus other Organisms . . .	—	—	—	—	42
Urine B. coli . . .	32	51	—	—	83
Urine Chemical . . .	—	—	—	—	49
Blood Films Anæmia . . .	—	—	—	—	46
Fæces Blood . . .	1	9	—	—	10
Pleural Effusions . . .	—	—	—	—	3
Cerebro-spinal Fluids . . .	—	—	—	—	2
Tinea Capitis . . .	11	—	—	—	11
Waters . . .	—	—	—	—	14
Milk Counts . . .	—	—	—	—	76
Milks T.B. . . .	11	53	—	—	64
Vaccines . . .	—	—	—	—	13
Miscellaneous . . .	—	—	—	—	26
					2,919

Examinations under the Tuberculosis Scheme.—For the year 1927, 595 specimens were examined, chiefly sputa for the presence of tubercle bacilli. The number of sputa examined was 487, of which 140 sputa were received from Newhills Sanatorium, 260 sputa from general practitioners, 36 sputa from hospitals in the County and 51 from the Medical Officer of Health.

In the sputa from Newhills Sanatorium 103 were found to give positive results while 37 were negative. Of the 260 sputa received from general practitioners 43 were positive and 217 negative.

Positive results were obtained in 18 sputa out of the 51 sputa examined for the Medical Officer of Health and 14 positive sputa were obtained from the hospitals.

The following table (Table IV.) shows the number of sputa examined and their sources :—

TABLE IV.

	Positive.	Negative	Total
Newhills Sanatorium . . .	103	37	140
General Practitioners . . .	43	217	260
Medical Officer of Health . . .	18	33	51
Hospitals . . .	14	22	36
	178	309	487

Examinations other than Sputa.—Forty-one samples of urine were examined for tubercle bacilli and in 7 urines positive results were obtained.

Negative results were found in 7 pleural effusions which were examined, and 7 specimens of pus were also negative.

No tubercle bacilli were found in 5 samples of fæces and 2 cerebro-spinal fluids.

Autogenous Vaccines.—During the year 46 autogenous vaccines were prepared from the sputa of various pulmonary conditions. The following table (Table V.) shows the total number of specimens received for examination under the County Tuberculosis Scheme :—

TABLE V.

	Positive.	Negative.	Total.
Sputa	178	309	487
Urines	7	34	41
Pleural Effusions	—	7	7
Pus	—	7	7
Fæces	—	5	5
Cerebro-spinal Fluid	—	2	2
Autogenous Vaccines	—	—	46
			<hr/> 595 <hr/>

Antitoxins, Sera, Vaccines.—During the year there were distributed to hospitals, practitioners, &c. :—

- 645,000 units Diphtheria antitoxin concentrated.
- 598,000 units Diphtheria antitoxin ordinary.
- 63 phials Anti-streptococcal serum Scarlet Fever.
- 12 phials Anti-streptococcal serum Erysipelas.
- 28 phials Anti-streptococcal serum Puerperal Fever.
- 7 phials Anti-streptococcal serum Polyvalent.
- 36 phials Tetanus Antitoxin.
- 20 phials T.A.B. Vaccine.

Aberdeen, *March*, 1928.

Section IX.

SYNOPSIS OF WORK OF SANITARY INSPECTORS.

In previous years it has been the custom to append the Reports of the several District Sanitary Inspectors to that of the Medical Officer of Health. This year, however, it may be considered sufficient if only the summary is given of the activities of the Sanitary Inspectors as regards Water Supplies, Drainage, Scavenging, Housing, and Dairies.

Water Supplies.

Further extension of the 4-inch main at Aboyne is under consideration. Serious leakage from the mains in Braemar was found; remedy of this defect has removed cause of complaint of low pressure. In Torphins, a 3-inch main has taken the place of the old 2-inch main.

At Newburgh, a larger diameter main pipe from the reservoir is required. To cope with the increased demand for water due to the erection of new houses at Tarves, an oil engine is to be installed.

The appeal against the formation of a Special Water Supply District for Stuartfield and Quartalehouse was sustained by the Sheriff after a poll of the ratepayers.

The scheme for augmenting the water supply of Cuminstown was not agreed to by the Committee owing to the expense involved. The need for more water here is urgent and the question should be dealt with promptly.

Generally, owing to the wet season, there was no shortage of water.

Drainage.

Subsidence caused trouble with the 9-inch sewer in Blairgowrie Road, Braemar; the section affected was lifted and relaid. At Tarland, a new sewer, 206 yards long, was laid; this has enabled four householders to instal baths and water-closets.

A requisition has been given to the Local Authority to have the village of New Pitsligo formed into a Special Drainage District. Improved drainage is also required in New Deer village; the drainage from the lower part of the village ultimately reaches a 6-inch pipe which is at times of insufficient calibre, and flooding occurs on the lowest feu.

In New Byth, it will be necessary to relay certain sections.

The Cuminstown feuars, by a big majority, decided against forming the village into a Special Drainage District, at any rate until the water supply was augmented.

In four of the six Special Drainage Districts of Aberdeen District, extensions to the sewers were made. New drainage systems were laid down for 75 houses. The laying of the sewers in the newly formed Special District of Mannofield was finished early in the year.

Scavenging.

It is suggested that a bi-weekly or tri-weekly collection from ash-bins provided by each occupier in Kemnay and Rhynie should be considered though provision of water-closets at the majority of the houses is essential to the success of the scheme.

Housing.

Under the Housing (Rural Workers) Act, 1926, ten applications for assistance in Aberdeen District were received and granted. In Ellon, thirteen houses were dealt with under this Act.

Assistance was given towards reconstruction of occupied houses, reconditioning of derelict houses, or conversion of buildings to render them fit for human habitation.

If the advantages of this Act were more widely known, many would be more than pleased to avail themselves of the assistance offered.

The Ellon District Committee decided to erect six more houses at Tarves and four at Hatton of Cruden. These houses will be let at an annual rental of £13.

Dairies.

Copies of the new Dairy Bye-laws were distributed to registered dairymen. It was frequently said that, by putting the Bye-laws into operation, half the dairymen would be driven out of the trade owing to the extensive improvements that would be required and the extra labour involved. This has not been borne out in fact. Not a single registered dairyman has as yet given up the trade for reasons of having to carry out improvements.

It will be some considerable time before all dairies are brought up to the required standard but the work goes steadily and smoothly on. Tact and ability are required rather than insistence on strict compliance with the letter of the law in the administration of the legislation on this subject.

The two commonest defects in byres are bad ventilation and bad lighting. Another common fault found during inspections is dirty milk stools. It will be readily understood that if all precautionary measures have been adopted, including washing of milkers' hands previous to milking, the lifting of a stool contaminated with dried faeces will undo the whole of the good work. The workers' hands will be a little damp after washing, and, if a wet milker, probably not dried at all; thus gross impurities will gain access to the milk and be responsible for a high bacterial count.

Clean milk production depends on strict attention to detail with regard to the cows, utensils and bedding. The cows should be washed at least once a month and groomed daily. The udder should be wiped, before milking, with a damp cloth soaked in chlorinated water ($\frac{1}{2}$ oz. calcium chloride in half a pail of water). This removes the dirt and also prevents the hair from falling into the milk pail. The clipping of the long hair on the flanks and udders assists greatly in keeping the cows clean. Inquiries show that this does not affect the health of the cows; there is no evidence that it makes them more susceptible to colds.

It is found that where the lighting is good, the premises are usually well kept.

The use of the score-card system is found very beneficial; it is educational; it teaches the points of the most importance and the producer learns from his score the factors that he must emphasise in bettering his supply.

The Inspectors who attended the special course in clean milk production arranged by the Board of Health and held at the Dairy School, Kilmarnock, report that they found much of interest and of benefit in the course.

