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County of Sutherland.

Annual Report

upon the

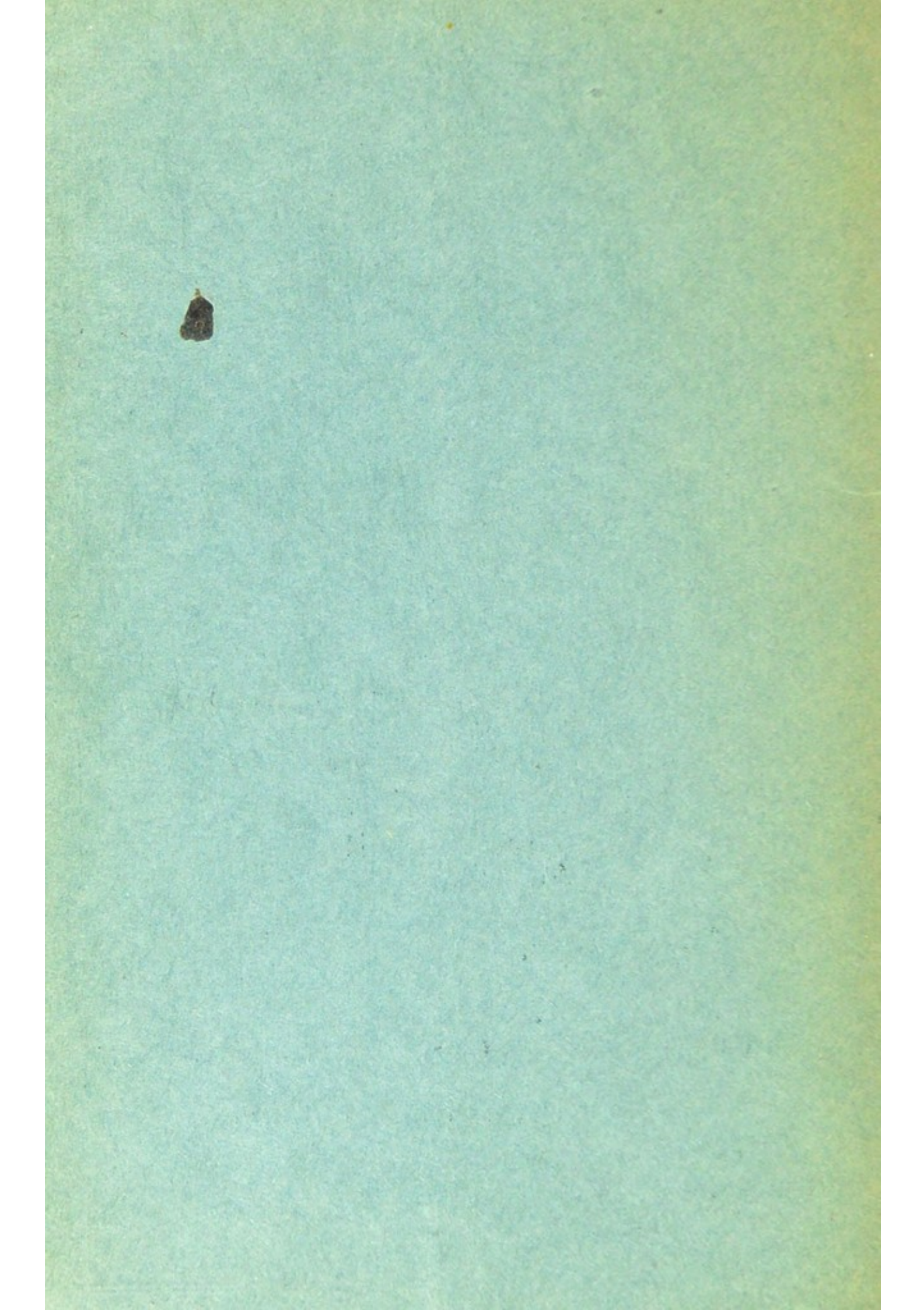
**Health and Sanitary Condition
of the County**

For the Year 1914.

By

Alexander Bremner, M.B., Ch.B. (Edin.), D.P.H. (Camb.),

County Medical Officer of Health.



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To the LOCAL AUTHORITY,
COUNTY OF SUTHERLAND.

Gentlemen,

I have the honour to submit for your consideration my Annual Report on the Health, Vital Statistics, and Sanitary Condition of the County for the year ending 31st December, 1914.

I regret the delay in the issue of the Report, which has been due to a combination of circumstances, resulting in a considerable extra pressure of work, notably the disorganisation of medical service in the County as a result of the war, and the fact that the County was without the services of a Sanitary Inspector from February to June, 1915, when the work usually performed by him fell to be done by myself.

I have the honour to be, Gentlemen,

Your obedient servant,

ALEXANDER BREMNER,

Medical Officer of Health.

Public Health Office,

DORNOCH,

August, 1915.

I.

SUBJECT MATTER OF THE REPORT.

The Local Government Board, in virtue of the powers conferred on them under Section 15 of the Public Health (Scotland) Act, 1897, have directed Medical Officers of Health, in a Circular dated 22nd December, 1914, to prepare a Report containing the following information :—

- a.* A general account of influences and conditions injurious or dangerous to the health of the district, and of the measures that in his opinion should be adopted for its improvement.
- b.* A statement of the general enquiries he has made during the year, and of any special enquiries as to sanitary matters.
- c.* A general statement of any matters as to which he has given advice or granted certificates, including any action as to offensive trades.
- d.* A specific account of the administration of the Factory and Workshop Act, 1901, in workshops and workplaces, in terms of Section 132 of that Act, together with a tabular statement in the form issued by the Home Office.
- e.* An account of any proceedings under the Housing of the Working Classes Acts, 1890-1909, dealing specifically with (1) the sufficiency and habitability of working-class dwellings ; (2) the action taken where instances of overcrowding have been ascertained or suspected ; and (3) the extent to which private enterprise is meeting the housing requirements of the working classes.
- f.* A statement showing whether any conditions have arisen or are expected to arise pointing to the expediency of a town-planning scheme for the proper control of further development.
- g.* An account of any action taken under the Rivers Pollution Prevention Acts.
- h.* An account of the hospital accommodation available for persons suffering from infectious disease (including the means provided for the conveyance of such persons), and of the houses of reception, with observations on the furnishing, maintenance, administration, and adequacy of such accommodation, &c.
- i.* An account of the premises with necessary apparatus and attendance available for the destruction or disinfection

of infected articles (including the means for the conveyance and return of such articles), also of other processes of disinfection in use, with observations on the adequacy of such arrangements and processes.

- j.* An account of the action taken to prevent the outbreak and spread of infectious disease.
- k.* A statement as to the causes, origin, and distribution of diseases within the district, and the extent to which the same have depended on or have been influenced by conditions capable of removal or mitigation.
- l.* A statement of the measures adopted for the administrative control of tuberculosis, with recommendations as to any further measures that might usefully be put in force by the Local Authority. (In cases where this work is being undertaken by the County Council in terms of Sec. 41 (3) of the National Insurance Act, 1913, the information under this heading should be given by the County Medical Officer.)
- m.* An account of the prevalence of infantile mortality in the district, with suggestions for the reduction thereof. In districts where the Notification of Births Act, 1907, has been adopted, the Medical Officer of Health is requested to report on the working of the Act, with an account of the measures taken and the results thereof.
- n.* An account of the arrangements made for the carrying out of the Regulations under the Public Health (Regulations as to Food) Act, 1907, with a statement of the action taken under these Regulations.
- o.* An account of the arrangements for the inspection of meat at slaughter-houses, shops, and elsewhere throughout the district.
- p.* An account of any proceedings under the Sale of Food and Drug Acts.†
- q.* An account of any proceedings under the Rag Flock Act, 1911.†
- r.* A tabular statement, in such form as the Local Government Board may from time to time direct, (1) of the cases of infectious disease notified in the district, and (2) of the infantile mortality within the district.

†Information under these headings is required only in cases where the Medical Officer of Health has been appointed Sampling Officer under these Acts.

II. VITAL STATISTICS.

(a) POPULATION.

The Statistical Department of the General Registry Office of Births, Deaths, &c., estimate the population of the County of Sutherland at the middle of 1914 at 18,087. The census population on the 1st of April, 1911, was 19,438 ; so that since then, according to the estimate of the General Registry Office, the population of the County has decreased by 1,351—an average decrease of 450 per year. It seems to me that this cannot be the case. The most marked decrease in the population of this County in former years took place in the 1881-91 decade, to the number of 147 per year. I see no reason to suppose that the decrease now amounts to 450 per year.

I had occasion last year to comment on the same subject, and it is needless to enlarge further on it this year. I only mention the matter because since 1913 National and Local Statistics are prepared by the Statistical Department of the General Registry Office, and the Medical Officers of Health are supplied annually with the statistics relating to their particular districts. Formerly each Medical Officer of Health estimated the population of his district for himself, the usual method being to compare the population at the last two censal years, and by assuming that the same rate of increase or decrease was still going on, thereby arriving at the estimated population of the year under review. The population arrived at in this way is frequently far from correct, but it seems to me that the error cannot be so great as I am inclined to think is the case with the figures furnished by the Statistical Department.

At the census of 1911 the population of the County was found to be 19,438. In 1901 the population was 20,816, a decrease of 1,378 in 10 years, or 137.8 per year. If the same rate of decrease is still going on, the population of the County at the middle of 1914 would be 18,990.

A somewhat more reliable method of estimating populations in intersensal years is based on a calculation made from the number of inhabited houses in the district. For example, in the County of Sutherland in 1911, with its population of 19,438, there were 4,686 inhabited houses, an average of 4.148 persons to each house. Here again we have to assume that the average number of persons per house remains the same in succeeding years. I find from the Valuation Roll for 1914 that there are 4,446 inhabited houses in the County. On a basis of 4.148 persons per house, the population would be 18,442. This is perhaps nearer the actual number than that estimated by the former method, but for the sake of uniformity with preceding Reports I have decided to base all statistics in this

Report on an estimated population of 18,990. I am convinced that the errors in this way will be less than by basing calculations on the figure supplied by the General Registry Office.

(b) BIRTHS AND BIRTH RATE.

The births of 335 children were registered in the County during 1914, but of these 6 were transferred to other Public Health Districts, leaving a net number of births for the County of Sutherland of 229. Of these 27, or 8.2 per cent. were illegitimate.

The Birth Rate per 1,000 of the estimated population is 17.3.

The Birth Rates for the last 10 years are shown in Table I.

TABLE I.

ANNUAL BIRTH RATES SINCE 1905.

1905	17.8
1906	19.6
1907	20.2
1908	16.9
1909	18.9
1910	16.8
1911	16.6
1912	17.7
1913	16.2
1914	17.3

It will be seen that the Birth Rate with minor fluctuations remains fairly constant.

Table II. shows the number of births registered in each Parish.

TABLE II.

NUMBER OF BIRTHS REGISTERED IN EACH PARISH.

Assynt	32
Clyne	33
Creich	35
Dornoch	43
Durness	12
Eddrachillis	25
Farr	37
Golspie	31
Kildonan	28
Lairg	17
Loth	9
Rogart	11
Tongue	22

(c) DEATHS AND DEATH RATE.

The deaths of 303 persons were registered in the County. Of these one was transferred to another district, and, in addition, 8 deaths occurring elsewhere were transferred to this County, so that the total corrected deaths were 310—146 males and 164 females.

The resulting death rate per 1,000 of the estimated population is 16.3.

Table III. shows the annual death rates since 1905.

TABLE III.

ANNUAL DEATH RATES SINCE 1905.

1905	15.47
1906	15.44
1907	18.36
1908	17.58
1909	16.25
1910	16.89
1911	15.94
1912	17.44
1913	15.52
1914	16.32

The deaths occurred in the following Parishes :—

TABLE IV.

DEATHS IN EACH PARISH.

Assynt	29
Clyne	19
Creich	28
Dornoch	32
Durness	11
Eddrachillis	25
Farr	44
Golspie	27
Kildonan	21
Lairg	16
Loth	8
Rogart	19
Tongue	31

The number of deaths in each age group, and the percentage of deaths occurring in each age group of the total number of deaths are shown in Table V,

TABLE V.
DEATHS IN EACH AGE GROUP.

Age	-1	1-	5-	10-	15-	25-	35-	45-	55-	65-	75-	All Ages
No.	16	11	5	3	14	17	17	20	24	62	121	310
%	5.1	3.5	1.6	.9	4.5	5.4	5.4	6.4	7.7	20.0	39.0	100

The average age at which death occurred in the County was 59.4 years. In Table VI. the Parishes are arranged in the order of the average age at death.

TABLE VI.
AVERAGE AGE AT DEATH IN EACH PARISH.

Creich	70.1
Lairg	69.5
Farr	67.9
Loth	66.3
Rogart	64.9
Eddrachillis	61.4
Kildonan	60.0
Average for the County	59.4
Golspie	57.7
Assynt	56.6
Clyne	54.0
Tongue	50.0
Durness.....	49.9
Dornoch	45.8

Seven Parishes have a higher age at death than the County as a whole and six a lower one.

Last year the average age at death for the whole County was 62.8. It is lower this year by $3\frac{1}{2}$ years.

The Parish of Dornoch again shows a much younger death age than the rest of the County. This is in part attributable to the fact that the Infantile Mortality Rate in this Parish is 93 per 1,000 births as compared with 49 for the whole County. The same fact explains the young age at death in the Parish of Tongue.

The position of Durness is anomalous. Last year the average age at death was 79. This year it is only 49.9. Of the 11 deaths in this Parish 6 were of persons over 70, but three were of children under 2 years of age.

TABLE VII.
CAUSES OF DEATH.

Disease	Male	Female	Total
Enteric Fever	1	—	1
Scarlet Fever	1	2	3
Whooping Cough	2	2	4
Diphtheria and Croup	1	—	1
Influenza	2	2	4
Erysipelas	1	—	1
Pulmonary Tuberculosis	16	12	28
Abdominal Tuberculosis	—	1	1
Other Tubercular Diseases	1	—	1
Cancer and Malignant Disease	16	8	24
Rheumatic Fever	1	—	1
Meningitis (other than Tubercular)	—	5	5
Organic Heart Disease	14	20	34
Bronchitis	3	8	11
Pneumonia	9	13	22
Other Diseases of the Respiratory Organs	2	—	2
Appendicitis	1	—	1
Nephritis and Bright's Disease	2	2	4
Puerperal Sepsis	—	1	1
Other Diseases & Accidents of Pregnancy	—	2	2
Congenital Debility and Marasmus	1	3	4
Deaths from Violence (Excluding Suicide)	5	4	9
Suicide	4	—	4
Other Defined Diseases	55	70	125
Diseases Ill-defined or Unknown	8	9	17
Total	146	164	310

It will be noticed that 30 deaths were due to Tuberculosis, only four less than the number caused by Organic Heart Disease.

Fifty-two deaths—16.7 per cent. of the total were uncertified by a doctor. Four of these were of infants under one year of age.

In Table VIII. I have contrasted the number of Births and Deaths in each Parish. Over the whole County there is a “ natural increase ” in population of 25. In the Parishes of Farr, Rogart and Tongue there is a decrease.

TABLE VIII.

BIRTHS AND DEATHS IN EACH PARISH.

Parish	Births	Deaths	Increase	Decrease
Assynt	32	29	3	
Clyne	33	19	14	
Creich	35	28	7	
Dornoch	43	32	11	
Durness	12	11	1	
Eddrachillis	25	25	—	—
Farr	37	44		7
Golspie	31	27	4	
Kildonan	28	21	7	
Lairg	17	16	1	
Loth	9	8	1	
Rogart	11	19		8
Tongue	22	31		9
Total	335	310	25	

(d) INFANTILE MORTALITY.

The deaths of 16 infants under one year of age were recorded in the County during the year. The infantile mortality rate—deaths of infants under one year of age per 1,000 births—is 48.6. This is the lowest yet recorded, as the following table of infantile mortality rates for the last ten years shows.

TABLE IX.

INFANTILE MORTALITY SINCE 1905.

1905	73.3
1906	81.8
1907	57.9
1908	72.3
1909	54.4
1910	73.0
1911	52.4
1912	70.3
1913	54.6
1914	48.6

The deaths were due to the following diseases :—

Whooping Cough	2	Convulsions	2
Bronchitis	1	Congenital Debility, &c.	4
Pneumonia	6	Unknown	1

One of the infants was less than one week old, 2 were under three weeks, 2 between one and three months, 4 between three and six months, 5 between six and nine months, and 2 between nine and twelve months.

The deaths occurred in the following Parishes :—

Tongue	4	Durness	1
Dornoch	4	Eddrachillis	1
Golspie	2	Farr	1
Clyne	1	Lairg	1
Loth	1		

(e) DEATHS FROM PHTHISIS AND OTHER TUBERCULAR DISEASES.

Pulmonary Tuberculosis was the cause of the deaths of 28 persons—16 males and 12 females. The death rate per 1,000 of the population is 1.47. The corresponding death rates for the preceeding 10 years are shown in Table X.

TABLE X.

DEATH RATES FROM PULMONARY PHTHISIS.

1905	1.60
1906	1.16
1907	1.27
1908	1.86
1909	1.71
1910	1.09
1911	.97
1912	1.34
1913	1.04
1914	1.47

It cannot be said that the death rate from this disease is falling in the County.

The deaths took place in the following Parishes :—

Assynt.....	3	Clyne	1
Creich	1	Dornoch	4
Durness	2	Eddrachillis	3
Farr	3	Golspie	1
Kildonan	5	Tongue	5

The average age at death of persons who died of phthisis was 33.6—males 35.4, and females 31.5.

The occupations were as follows :—

Crofter	3	Housewives	6
Fishermen	7	Domestic Servants	2
Labourers	1	Gamekeeper	1
Soldier.....	1	Nurse	1
Fireman	1	Others	5

Tubercular Diseases other than phthisis accounted for 2 deaths ; so that the total tubercular death rate is 1.58 per 1,000 of the population.

(f) DEATHS FROM CANCER AND OTHER MALIGNANT DISEASES.

Cancer and other malignant diseases were the cause of the death of 24 persons—16 males and 8 females—a death rate of 1.3 per 1,000 of the population. The corresponding death rates for the last ten years are shown in Table XI.

TABLE XI.

CANCER DEATH RATES.

1905	1.06
1906	1.02
1907	.87
1908	1.02
1909	1.08
1910	1.08
1911	1.02
1912	1.09
1913	1.30
1914	1.26

The death rate from Cancer in this County has always been excessively high, and it seems to be increasing. An increase in cancer mortality is more or less common all over the country, but it is especially marked in this County. As I said when commenting on the subject last year, the actual causal agent of cancer is unknown, nor are we any more enlightened as to the conditions which predispose to it. Attempts have been made to show that it is to a certain degree hereditary ; and there is gradually increasing evidence that it may be contagious. It is quite within the bounds of what we know of this dread disease that the contagion may linger in old insanitary houses, and facts have been adduced which at least show that this is probable.

No steps have been taken in this county with the view of attempting to lessen the incidence of cancer and its allied diseases ; and to this end, I would suggest in the first place that Registrars be asked to notify the Sanitary Inspector whenever a death from cancer is registered, as is already done in the case of phthisis. The house could then be disinfected and preferably lime washed. By this means, even if the incidence of the disease may not be lessened, valuable information will be gained as to former cases in each house visited and in members of each family affected.

The deaths from cancer occurred in the following Parishes :

Assynt.....	2	Clyne	4
Creich	4	Dornoch	1
Eddrachillis	2	Farr	3
Golspie	1	Kildonan	1
Lairg	2	Loth	1
Rogart	2	Tongue	1

(g) DEATHS FROM EPIDEMIC DISEASE.

The principal epidemic diseases were the cause of 9 deaths—Scarlet Fever 3, Whooping Cough 4, Diphtheria 1, and Enteric Fever 1.

The Zymotic Death Rate per 1,000 of the population is .4.

The three deaths from Scarlet Fever were all cases of a malignant type—the only malignant cases in what was otherwise an epidemic of a very mild form of the disease.

The deaths from Whooping Cough were all of very young children.

III.—INFECTIOUS DISEASE NOTIFICATION.

During the course of the year 128 cases of notifiable infectious disease came under our observation. This includes 21 cases of pulmonary tuberculosis. The annual number of cases of infectious disease under supervision by the Sanitary Authorities for the last ten years is shown in Table XII.

TABLE XII.
INFECTIOUS DISEASE.

	Year 1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Diphtheria	2	3	11	4	—	16	12	11	3	18
Scarlet Fever	27	11	6	1	4	3	5	20	75	72
Enteric Fever	6	5	10	8	6	7	14	7	5	6
Erysipelas	13	14	6	1	4	3	4	3	2	11
Puerperal Fever	2	2	—	—	1	—	—	—	—	—
Phthisis	—	—	—	—	—	—	16	28	30	21

TABLE XIII.
MONTHLY INCIDENCE OF INFECTIOUS DISEASE.

	Jan.	Feb.	Mar.	Apr.	May	J'ne	J'ly	Aug	Sep.	Oct.	Nov	Dec.
Diph- theria	1	—	1	1	—	—	—	—	—	7	2	6
Scar't Fever	1	5	5	31	2	7	2	—	7	2	6	4
Entr'e Fever	1	—	—	1	—	—	—	—	1	2	—	1
Total	3	5	6	33	2	7	2	—	8	11	8	11

DIPHThERIA.

Three isolated cases of Diphtheria were notified in the early part of the year, one from Golspie, one from Bonar Bridge, and one from Helmsdale.

No more cases occurred until October, when we were threatened with a serious outbreak in Helmsdale. The first intimation I received of this was on the 23rd of October, when three cases were simultaneously notified from the Navidale and East Helmsdale district. These cases had been ill for about a week, and had been attending school up to the time of their illness—in the infant and junior departments. Each family had its own milk supply, so milk infection could be excluded. Everything pointed to infection in school.

I visited the school on the 26th of October. The attendance was very good, and there seemed to be few signs of illness amongst the pupils. At the same time I was convinced that some of the children must be infectious, either as "carriers" or as the result of an unrecognised attack of diphtheria. I therefore took swabs from the throats of all children who had recently been absent on account of slight illness, and of others who seemed suspicious. These swabs all proved negative on bacteriological examination. I left instructions to have the school thoroughly disinfected.

On the 26th of October another case was notified from Old Helmsdale. This was a boy in the senior department of the school, but, being a cousin of one of the first cases notified, he had probably been infected from him.

On the 30th I was informed by wire of a case of diphtheria in Kinbrace. I went to Kinbrace on the 31st, and found that the case was a boy attending school in Helmsdale, who had been ill in lodgings there since the 26th. This boy was seriously ill, and with our defective ambulance facilities, could not safely be removed to hospital. Accordingly he had to be isolated at home, nursed by his mother, the father and daughter, the only other inmates of the house, being kept separate. The mother of this patient developed Diphtheria on the 7th of November.

On the 3rd of November another case was notified from the village of Helmsdale. The patient had been ill for about a fortnight, and was probably infected in school about the same time as the first cases notified.

No further cases occurred until a teacher in the junior department of the school became ill of diphtheria on the 11th of December; and on the 15th I was informed by wire that a son of the headmaster had developed the disease. I immediately went to Helmsdale, and found that the boy had shown the first symptoms on the evening of the 14th. Milk is very scarce in Helmsdale, and

for a considerable time condensed milk only had been used in the headmaster's house. The boy was attending school, so it was again evidently a case of school infection. I found that on Saturday, 12th December, he had been assisting his father in clearing out books, jotters, &c., from the room occupied by the teacher who had developed diphtheria on the 11th, and there is no doubt he then acquired the infection.

I am not prepared to say whether this teacher became infected in the school or not. Five weeks had elapsed since the last previous case was notified, and nearly seven weeks since the last case was in school. But since other cases were infected there the possibility cannot be excluded. At the same time, however, she lodged in the same house as the boy who developed diphtheria in Kinbrace; and further, owing to the fact that one of the infected houses had been prematurely disinfected without my knowledge, and before the patient was bacteriologically free from infection, she had visited this house and had been, I believe, in contact with the patient.

On the 16th I swabbed the throat of a boy who looked suspiciously ill, gave instructions for his isolation until I could have the swab examined. Examination showed a positive result. This boy had been attending school, and I was informed that he had had diphtheria before. If so, he must have remained a "carrier" or had developed a new attack. If he was a "carrier," he might quite well have accounted for the occurrence of the other cases.

To prevent the further spread of the disease I immediately dismissed the school, and ordered the children to leave all books, jotters, satchels, &c., behind. The Sanitary Inspector was then instructed to see that the whole school was thoroughly disinfected, and the floors, walls and furniture carefully washed with disinfectant solution. To eliminate the risk of infection lingering in school books, I also considered it necessary to advise the burning of all jotters and exercise books left in the school, as well as the most dilapidated and dirty of the ordinary reading books. All other books were to be disinfected as well as possible.

The school was kept closed for three weeks. Within the first week after closure other three cases occurred. This was practically the last of the epidemic.

On the 3rd of October a case of Membranous Croup was notified from the village of Embo. The child died immediately after notification, and no bacteriological confirmation of the infectious nature of the disease could be got.

SCARLET FEVER.

During the first three months of the year 11 cases of scarlet fever were notified—1 in January from Golspie, 4 in February from the Parish of Creich, and 1 from Strath Halladale, and 4 in March from the Bettyhill District, and one from the village of Bonar Bridge. There was no further spread of the disease from any of these cases, with the exception of those at Bettyhill, where there seemed to be some risk of an epidemic. I found that in the months of February and March there had been numerous cases of "sore throat" in this district. I visited as many of the families who had been affected as possible, but saw no signs of desquamation such as one would expect had the sore throats been scarletinal in origin. I also examined all the children in school with negative results. Since, however, these sore throats were somewhat suspicious, and since there was a possibility that infection had been introduced to the school, I considered it desirable that the school should be closed for a week. Other two cases occurred in the same locality in May, one household being affected, but no more cases were reported.

The large number of cases notified in the month of April was the result of a very extensive epidemic of a mild type in Melness in the Parish of Tongue. Towards the end of March the local doctor wired for me as he suspected Scarlet Fever in Melness. The first house visited was in Midtown and I found three cases desquamating after an attack of Scarlet Fever. The first case became ill on the 13th of March, the second a fortnight later, and the third about the first of April. On enquiring into the possible sources of infection, I was informed that there had been similar cases in Melness since January! I therefore made a house-to-house visitation in Midtown and Skinnet, and found that the disease had been, or was at the time of my visit, in eight houses. In the first house there was one case who had developed a sore throat and rash about the end of February. In the next house there were three cases who had all become ill on the 18th or 19th of March. In the third house there were four cases who had been infected about the first week of March. In another house there was one case whose hands were desquamating when I saw her. In a fifth house there were three cases, in a sixth and seventh two each, and in the eighth one case.

Towards the end of December, 1913, there was an outbreak of scarlet fever in a house in Braetongue, Tongue, the infection having been brought north from Edinburgh by a girl who had the disease there. It struck me as probable that this family might have been the means of introducing the disease to Melness. The Tongue cases were notified on the 3rd of January, 1914, and I visited the house on the 4th. I found that the illness had been in the house since the 19th of December, two weeks before notification. On enquiring in Melness I found that the mother of this family had gone to Mel-

ness on 26th December on the occasion of the death of her father, staying in Melness till the 1st of January, and while in Melness, she, of course, came in contact with a number of people, amongst whom was a married woman from Skinnet. This woman gave birth to a child on the 31st of December, and during the first week of the puerperium she developed a sore throat, with a rash, and desquamated afterwards, according to the information of the nurse in attendance. Towards the end of January a niece of this woman became ill with a sore throat and she also had a rash. This girl was in school.

It is evident that the disease was brought to Melness by this woman from Braetongue, before the illness in her house was notified as scarlet fever. She infected the woman in Skinnet, who was confined of a baby at the same time, which seems to have lulled suspicion as to the real nature of her illness. From this woman the infection spread to her neice, and from her to the school. Thereafter it became widespread throughout the district. Some of the cases were seen by the doctor, who does not seem to have suspected the real nature of the trouble at first. The school was closed for a considerable period, but the infection was so widespread that the progress of the epidemic could not be checked. It lingered on more or less all summer, due chiefly to the fact that it was of so mild a type that no precautions were taken by the inhabitants of the district either to escape infection or to prevent its spread.

About the beginning of May I discovered several children in Tongue Public School desquamating after scarlet fever, and on enquiring in the district I found that there had been numerous cases of mild sore throat since the beginning of the year. No cases were notified, but the houses of all cases discovered were disinfected.

In June I discovered accidentally that Scarlet Fever was extensively prevalent in the district of Scourie. I found three families affected, but I could trace the disease back to December, 1913, when it was introduced by a family returning from the Yarmouth fishing. The cases were of a very mild type, and after the school was closed for two weeks no more cases occurred.

In the last four months of the year 19 cases came under observation. In no instance did these assume the form of an epidemic. One case occurred in Golspie on September 9th, another in Helmsdale on September 12th. In neither case could the infection be traced. In the same month two cases were notified from Eriboll, infected from Melness.

On September 16th I was asked by Dr. MacLachlan to see a suspicious case of illness at Little Ferry. It was a case of scarlet fever. There were other two children in the house, and, as both showed signs of commencing illness, the three were removed to hospital. At this time four Boy Scouts were stationed at the Ferry, and they had been in the habit of taking their meals in the

ferryman's house, and playing with the children. They were accordingly kept in quarantine for a week, and the house was ordered to be disinfected. None of the scouts showed any signs of having contracted the disease at the time, but infection must have been introduced since one of the scouts at Strath Steven developed scarlet fever towards the end of the month, and another at Little Ferry on the 26th of October. At the time it was very difficult to point to the source of infection of the ferryman's children, but on October 26th I accidentally discovered a school-boy in Golspie desquamating. He had suffered from a sore throat six weeks before just about the time the ferryman's children became ill, one of whom was also in school.

In November one case of scarlet fever occurred in Brora. I could not trace the origin of the infection.

On November 24th a case of scarlet fever was notified from Over Skibo in the Parish of Dornoch. When I visited the house I found other three children desquamating, having suffered from sore throats two weeks before. The doctor was only called in when one of the cases became seriously ill. A member of this family had been with the Boy Scouts at Strath Steven, but I cannot tell whether he had the disease or not. He showed no signs of peeling, and he denied having had a sore throat. He had been sleeping, however, with the case which had occurred there in October, and must have carried the infection home. Sore throats became apparent amongst his brothers and sisters during the first week of his return. Altogether seven members of this family contracted the disease.

On the 3rd of December two cases were notified from the same house at Golspie. Neither of the patients were at school. The milk supply was perfectly safe, and the infection must have been accidently acquired from some mild, unknown case in the village.

ENTERIC FEVER.

Notifications of six cases of enteric fever were received during the year, one more than last year and one less than the year before.

The first case was notified from Golspie on the 15th of January. He was a native of Lairg and had been home about Christmas, when he had become infected probably from impure water.

The next case was notified in April, but as the patient died of phthisis a few months later, the diagnosis is open to doubt.

The other cases were all isolated ones in such widely separated districts as Melness, Kildonan and Lairg.

Enteric fever in Sutherland is generally of one type—sporadic cases cropping up at different seasons and in widely separated districts. The cause is to be found without doubt in impure drinking water—generally from surface wells unprotected from contamination.

IV.—ADMINISTRATIVE CONTROL OF TUBERCULOSIS.

During 1914 21 cases of pulmonary tuberculosis were notified. This shows a considerable decrease since last year, when 30 cases were notified. Notifications became very few after the outbreak of the war, but whether this is accidental or due to the derangement of medical service which followed, I am unable to say.

The cases occurred in the following districts:—

Assynt.....	1	Clyne	4
Creich	1	Dornoch	3
Durness	1	Eddrachillis	1
Farr	3	Golspie	2
Kildonan	3	Lairg	1
Rogart	1		

Of the 21 cases under observation 13 were males and 8 females. Thirteen of those notified during 1914 died before the end of the year.

The housing conditions of 14 of the patients were more or less unsatisfactory, the chief defects being dampness, want of ventilation and general uncleanness.

By Order of the Local Government Board all forms of Tuberculosis became notifiable after July 1st. From that date to the end of the year seven cases of tuberculosis other than pulmonary were notified. In 4 cases the spine was the seat of the disease, in the other three the hip joint, knee joint, and cervical glands respectively.

No complete scheme for the treatment of tuberculosis has yet been adopted by the Local Authority. The only attempts at administrative treatment are by the provision of open air shelters and general supervision. One case was sent to a sanatorium by the Local Authority.

Thirteen cases were in occupation of shelters during 1914. Of these eight are now dead, three are presumably cured, one shows considerable improvement, and one slight improvement. The patients who died were in a hopeless condition before the shelters were provided. The three cases which are presumably cured are still making use of the shelters. One has had a shelter for three and a half years, one for nine months, and one for eight months. Of the cases which show improvement both have been living in shelters for upwards of two years.

In considering any scheme for the treatment of tuberculosis four objects have to be kept in view :—

1. Treatment of early cases with a view to cure.
2. Isolation of all cases to prevent infection of contacts.
3. Suitable treatment and nursing of advanced cases.
4. Supervision of contacts and susceptible cases so as to detect the earliest signs of the onset of disease.

In a County such as Sutherland, wide in area and sparse of population, many difficulties have to be confronted. Dispensary treatment in the literal sense of the term, which has been adopted so successfully in some of the larger cities, is impossible of realisation.

The first method that naturally falls to be considered is treatment in a sanatorium. While still recognising the many undoubted advantages of sanatoria, my views as to the importance of sanatorium treatment in a complete scheme have undergone considerable modification within the last two years, so far, at any rate, as it applies to the County of Sutherland.

Of cases from this County treated in sanatoria during the last three years, all are now dead with the exception of two. One is more or less in the same condition as when he first came under observation, the other still alive came home looking very well, but is now retrogressing.

I cannot help looking on this method of treatment—so far as our experience of it goes in this County—in the light as the hot-house treatment of plants. A delicate plant ceases to thrive in the house. It is removed to a more suitable environment in the hot-house and begins to revive. If left in the congenial atmosphere of the hot-house it continues to thrive, but if taken back into the house, the unhealthy symptoms return. Our experience here justifies this analogy. The cases of phthisis removed from this County for treatment in sanatoria in the south were all selected cases. With one exception they were all in the first stage of the disease. The majority were sent home, after varying periods of treatment, greatly improved or apparently cured. But, after a longer or shorter period at home, the disease in every case again became manifest and progressed, if anything, more rapidly than before. It must be kept in mind that this is not the fault of the method of treatment. If these patients could be allowed to remain in the sanatorium, I have no doubt they would continue well.

The defect lies in the fact that these poor patients have to return to the same unhealthy environment, which, if not actually the cause of the disease, predisposes to it and lessens the patients' resisting powers.

It is this experience that has alienated me, in the meantime at least, from my advocacy of sanatoria. We have had much better results here from treatment in open air shelters erected at the patients' own homes. These fulfil two main purposes. They are both a means of cure and isolation. I have in mind several cases worthy of serious thought. The first was well advanced in the second stage of the disease, with hectic temperature, profuse expectoration, progressive emaciation and tubercle bacilli could be demonstrated in his sputum. The house was over crowded, damp, ill ventilated, and badly lit. A shelter was erected in the back garden, and he immediately began to improve. He still sleeps in the shelter, has lost all signs of the disease, and is now performing his usual work and looks the picture of health. Another case developed acute pneumonia, which ended in what looked like acute phthisis—swinging temperature, incessant cough, profuse expectoration, and blood spitting. He also had tubercle bacilli in his sputum. He was provided with a shelter, and his recovery, though slow, was very perceptible, until now, still living in the shelter, he appears quite well and has resumed his usual work.

Still another case, this time an early one, was removed from the Lawson Memorial Hospital to his own home, where he was given a shelter. This was a year ago, and now he has no signs or symptoms of disease. He also still has the shelter.

Another case of tubercular bone disease showed signs of lung involvement. He got a shelter three years ago, and the lung symptoms have disappeared.

Of course, one cannot draw general conclusions from a consideration of the comparatively few cases we have had under supervision during the last three years in this County. But Sutherland is notorious for its high death rate from phthisis, and I think we are justified in forming our own conclusions from the data experience has given us. These are that open air shelters give better results than sanatoria in the treatment of phthisis in this County.

The chief defect in open air shelter treatment lies in the want of skilled nursing. If such nursing could be provided, it would be an invaluable adjunct.

The question of the adequate supervision of contacts is somewhat difficult; but there is no part of the County that I do not visit at least twice a year, and in this way some form of supervision at least can be kept up.

V.—NON-NOTIFIABLE INFECTIOUS DISEASE.

Whooping Cough prevailed very extensively throughout the County during 1914. It over-ran the parishes of Golspie, Clyne, Kildonan, Farr, Tongue, and Durness. The epidemic was of a mild type, but there were several deaths amongst infants.

Several outbreaks of Chicken Pox also came to my notice during the war, but they did not require any special action.

VI.—HOUSING.

I have entered pretty fully into this question in a Special Report, and I need not refer further to the matter at present.

VII.—WATER SUPPLIES.

During the year the water supply for Lairg District has been augmented by the laying down of a new main of larger bore.

The improvement of the Brora supply has now been completed, and the area of the Water District enlarged so as to include Badnellan,, East Clyne, Achrimsdale, Greenhill, and Dalchalm.

The condition of the Embo supply remains as it was last year. The improvement of this water supply so as to make it an adequate one during the summer months is a very serious problem, chiefly on account of the expense necessary to make the supply satisfactory and the small rateable value of the Water District. It is still possible that springs may be found which can be utilised to augment the supply, and, I am afraid that it is on these lines only that improvement can, in the meantime, be looked for. This possibility is engaging the attention of the Water Committee.

There was a failure of the water supply for Bonar Bridge during the year. This district is supplied from two sources. The main supply is impounded in a dam above Migdale, and consists largely of surface water of a very peaty nature. A subsidiary supply is derived from springs situated above the east end of the village, and for a considerable time this was practically the only water available. It is manifestly insufficient, the distributing tank only being capable of holding about half a day's supply, and this takes about 12 hours to collect. In a dry season a source of supply depending mainly on surface water must necessarily fail. During part of August no water entered the dam above Migdale. It is difficult to suggest a satisfactory plan by which this supply can be augmented. No springs seem to be available, and new sources of supply present grave obstacles, chiefly on account of expense. In the meantime the matter will have to lie over.

Considerable improvement has been apparent in the filtration of the Bonar Bridge water, which was formerly very unsatisfactory.

VIII.—DRAINAGE.

I have nothing to add to my former reports on the special drainage areas of the County. Helmsdale has given less trouble than usual, and the other drainage systems are well maintained and giving every satisfaction.

IX.—SLAUGHTER HOUSES.

Speaking generally the licensed slaughter houses in the County give no serious cause for complaint. They are supervised and visited as frequently as possible by the Sanitary Inspector and myself. Structure and general cleanliness are, as a rule satisfactory, but one defect is fairly common. Refuse is allowed to remain too long on the premises, thereby creating occasionally grave nuisance. This has been pointed out to all parties concerned, and I hope to see an improvement in this respect in the future.

One slaughter house in Helmsdale has been condemned on account of structural defects and close proximity to dwelling houses.

Complaints were received regarding a slaughter house in Bonar Bridge. The slaughter house is comparatively new, exceedingly well kept, and I could find little cause for complaint. I suggested to the proprietor, however, that some improvement could be effected by paving a yard in front of the premises with concrete. He willingly agreed to this, and it was immediately carried out.

X.—DAIRIES.

The two licensed dairies in the County continue to be well kept and give every satisfaction.

XI.—ISOLATION HOSPITAL.

During 1914 17 cases of infectious disease were removed to the County Isolation Hospital—13 cases of scarlet fever and 2 each of enteric and diphtheria. This is a comparatively small proportion of the cases notified, but I have already commented in former reports on the difficulties we have to encounter in the removal of cases to hospital, and our defective ambulance facilities.

XII.—PUBLIC HEALTH LABORATORY.

The following examinations of morbid products were made by myself for medical practitioners in the County during 1914 :—

	Positive	Negative	Total
Sputum (for Tubercle)	15	8	23
Throat Swabs (for Diphtheria) ...	17	15	32
Blood (for Enteric)	2	—	2
Other Material	6		6
Total			63

XIII.—FOOD AND DRUGS ACTS.

The Sanitary Inspector is Sampling Officer under the various Food and Drugs Acts and Regulations. The samples taken by him during the year were all found to be of good quality with one exception.

No diseased or unsound meat was discovered in shops or slaughter houses.

A complaint of food poisoning was made by an inhabitant of Brora in March. I investigated the complaint, and the following is a summary of the information I gathered and the conclusions arrived at :—

NATURE OF ILLNESS.—Vomiting, Diarrhoea, and, in all cases, temperature up to 103.

DURATION.—Average of three weeks, but one case only convalescent after six weeks.

NUMBER AFFECTED.—Five, all in one household.

DATE AND HOUR OF ONSET OF ILLNESS :—

No. 1—January 30, at 12 midnight.

No. 2—February 4, 1 a.m.

No. 3— „ 4, 7 a.m.

No. 4— „ 4, 5-30 p.m.

No. 5— „ 5, 4 a.m.

FOOD PARTAKEN OF IN HOUSE DURING 48 HOURS PREVIOUS TO ONSET OF ILLNESS IN FIRST CASE :—

BREAKFAST.—(1) Tea, Bread and Butter. (2) Tea, Bread and Butter.

DINNER.—(1) Stewed Beef and Potatoes. (2) Soup, Beef and Potatoes.

TEA.—(1) Tea, Bread and Butter. (2) Tea, Bread and Butter.

On January 30th the dietary was similar, with the exception that white puddings were eaten for dinner. These puddings were blamed for the illness. They were partaken of by all members of the family, who became ill, but not by the mother and one little girl, who both remained well.

The puddings were purchased in a shop in Brora at 12-45 p.m. on January 29th. They were cooked on a plate in the oven, no fat being used, and were eaten on January 30th at 1 p.m.

Complainant alleges that the puddings appeared to be covered with green mould.

The Sanitary Inspector reported on the sanitary condition of the shop as follows :—

“ This is a country store of soft goods, leather goods, and general grocery and provisions. It is not over tidy, but at the time of visit the place was fairly passable. The premises are too small (14 feet by 16½) for the amount of goods packed in this little shop.”

The puddings complained of were part of a consignment from Aberdeen, supplies being received weekly.

The shopkeeper could not remember all the people to whom puddings from this consignment had been sold, but he had some himself, and two families at Clyneleish. The shopkeeper himself felt no unusual symptoms.

Inquiries in the case of the other two families showed that they had purchased puddings on January 29th and 30th respectively. They appeared to be perfectly fresh, and no ill effects were experienced.

Such is all the information I could gather regarding the illness and the food.

The first question to be determined was : " Was the illness from which this family suffered Ptomaine or Bacterial poisoning ? " The symptoms were certainly those associated with the ingestion of unsound food. The first child, aged two years, became ill 12 hours after eating white puddings—feverishness, vomiting, and profuse diarrhoea. The second child did not become ill till the fifth day afterwards, on which day all the remaining four were affected between the hours of 4 a.m. and 5 p.m. The time of the onset of symptoms in the first case agrees with what we would expect if the illness were due to unsound food partaken of at 1 p.m. ; but it is not possible that the symptoms of the others, coming on as they did, on the fifth day following, could be due to the same cause. Poisoning by unsound food is of two kinds, due in the one case to ptomaines and in the other to bacteria in the food. Symptoms of ptomaine poisoning appear very rapidly after eating of the food, but in bacterial poisoning the symptoms are usually delayed, though not longer than 48 hours. The illness was a gastro-enteritis, and the history suggests that the first case infected the others. This is quite compatible with bacterial poisoning. At the late date of investigation it was impossible to identify definitely the source of contamination.

A point which must not be lost sight of is the fact that of all the other people who ate white puddings, which formed part of the same consignment as that complained of, no one became ill.

Why therefore should one family be affected ? There are two alternatives : (1) The illness was not food poisoning due to unsound puddings ; or (2) if it was food poisoning the probable conclusion is that the food became contaminated during the 24 hours which intervened between the time of purchase and consumption.

XIV.—FACTORY AND WORKSHOPS ACT.

On account of the death of the Sanitary Inspector in February I am unable to give a detailed account of inspections and investigations under the above Act. So far as I saw personally the provisions of the Act were well observed.

