

The Diseases of Exposure;  
their frequency and  
distribution in relation  
to the Seasons.

A Thesis

by

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**The Diseases of Exposure: their  
frequency and distribution in  
relation to the Seasons.**

As his experience increases the general practitioner acquires a number of general impressions with regard to the frequency of certain complaints, amongst a given class of his patients. Many such impressions were forming in my mind. It was borne in upon me that certain ailments appeared for treatment in crops, and that the varying seasons brought diseases peculiar to themselves. Such general impressions, however, are

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apt to be loosely formed, and on that account have a tendency to be fallacious. The question occurred to me was there any way of demonstrating the truth of such general ideas. On account of the multiplicity of cases that passes through his hands, the practitioner as a rule, has not, and usually does not take the time to note down the nature of the cases he is treating from day to day. In connection with a portion of my work such data have become available. Being one of the medical officers of the Glasgow Corporation Tramway Employees' Friendly Society, which presently has a membership of over 2000 some 580 of whom are attached to me for treatment, I have had, through the courtesy of Mr James Dalrymple, C.A., accountant to the Tramways Department, placed at my disposal the papers which the

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medical officers sign from week to week certifying the nature of the disease from which the patient suffers. The tables and notes herein contained are based upon 3387 distinct illnesses, and for the diagnosis and treatment of 730 of these I was personally responsible. The period treated of is one of three years: viz the years 1896, 1897, and 1898.

My first intention was to analyse and draw conclusions from the illnesses treated by myself. Finding however, that my own certificates were mixed up with those of the other 8 medical men who act in different districts of the City, I therefore extended the scope of the inquiry. To get the information which is condensed into the following tables involved the examination and arrangement of several thousands of

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schedules, which after having served their original purpose were not expected to be referred to. The illnesses here tabulated only relate to such as necessitated the patient being absent from his work for a period of not less than three days. Many of the illnesses extended into weeks, and months, and a few lasted for a year, which is the maximum time the patient is allowed the benefits of the Society.

The peculiarity of the body of men whose illnesses are here treated of, is the nature of their employment. It is one in which the great majority of them are exposed to all the variations of the weather. The tables show that certain troubles predominate. Still the ailments they

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suffer from are varied, and such as are common to the general community. I shall refer to those predominating, and which may fitly be described as the diseases of exposure. Before doing so, I shall here give the Tables which I have prepared. Tables 1, 11, and 111 contain the synopsis of the cases which came under my own observation, and which were treated by myself. Tables 1V, V, and VI refer to the work done by the other 8 medical officers. In these tables I give the number of cases of the various diseases that came on the sick list in each month of the year. It will be observed that for the month of January 1896, no cases are noted. This is due to the fact that the operation of the society's benefits did not come into effect till the middle of February of that year.

Table I.

Cases treated by myself during 1896.

	Jan	Feb	Mar	Apl	May	Jne	Jly	Aug	Sep	Oct	Nov	Dec	Ttl.
1 Injuries		3	2	2	4	3	1		3	6	6	3	33
2 Catarrh, Bronchial Catarrh & Chills			4	1	3	2		2		5	4	9	30
3 Bronchitis		1				2						2	5
4 Chron. Bronchitis		1	1	2	1					3	1	1	10
5 Pleurisy		1		1		1							3
6 Pneumonia										1	1		2
7 Phthisis		1										2	3
8 Haemoptysis					1								1
9 Rheumatism			2	1		1		2		1		3	10
10 Pleurodynia			1	1				1					3
11 Lumbago				1					1				2
12 Tonsillitis; Sore Throat			2			2			3	1	1		9
13 Glossitis										1			1
14 Conjunctivitis						1		1					2
15 Dyspepsia										1	3	1	5





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Table I. (Continued)

[illegible]

Table II.

Cases treated by myself during 1897.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Ttl.
1 Injuries	1	2	4	3	4	3	3	5	4	2	4	1	36
2 Catarrh, Bronchial Catarrh & Chills	11	8	8	2	5		1	1	5	3	7	8	59
3 Bronchitis	3	2											5
4 Chron. Bronchitis	1	1								1		2	5
5 Pleurisy					1				1				2
6 Pneumonia			1		1						2		4
7 Incipient Phthisis								2				1	3
8 Influenza	1	19	1	2								1	24
9 Rheumatism	3	1		1	1	1		1	1	1		1	11
10 Pleurodynia									1			1	2
11 Lumbago	1	1	2	2	1	1	3			1		1	13
12 Pharyngitis							1					1	2
13 Tonsillitis: Follicular & Suppurative	4	1	1	1		2		1	1		1	2	14
14 Iritis					1								1
15 Dyspepsia	2	1			1								<u>4</u>

Table II (Continued)

[illegible]

11.

Table II (Continued)

[illegible]

Table III.

Cases treated by myself during 1898.

[illegible]

Table III (Continued)

	Jan	Feb	Mar	Apl	May	Jne	Jly	Aug	Sep	Oct	Nov	Dec	Ttl.
													179
16 Pharyngitis		1			1								2
17 Follicular & Suppur- ative Tonsillitis		2		1			2		1	1	2	1	10
18 Conjunctivitis		1						1		1		2	5
19 Iritis				1									1
20 Hypermetropia												1	1
21 Sore Eye				1									1
22 Stomatitis												1	1
23 Dyspepsia									1			1	2
24 Gastric Catarrh				2	1	1	1	1	1		1	1	9
25 Gastro-Intestinal Catarrh		1	1			1		4					7
26 Diarrhoea		3				1		2	2	1	3	1	13
27 Intestinal Colic				1					1	1		3	6
28 Hepatic Congestion			1										1
29 Jaundice								1					1
30 Melaena									1				1
31 Retention of Urine		1											1
32 Albuminuria				1									<u>1</u>

[illegible]



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Table III (Continued)

[illegible]

Table IV.

Cases treated by other medical officers during 1896.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Ttl.
1 Injuries		7	16	8	11	3	6	6	12	10	9	11	99
2 Catarrh, Bronchial Catarrh & Chills		7	19	11	8	2	3	6	11	19	25	17	128
3 Bronchitis		2	3	1	2			2	2	2	4	8	26
4 Bronchitis & Heart Disease		1											1
5 Bronchitis & Asthma										1		1	2
6 Affection of Lung & Heart												1	1
7 Pleurisy		3			1		1	1		1		1	8
8 Pneumonia				1		1	1			2			5
9 Phthisis		1	1	1						1	1	3	8
10 Incipient Phthisis								1					1
11 Congestion of Lungs					1		1						2
12 Haemoptysis		1						1					2
13 Cardiac Disease		1	1	2	1							1	6
14 Influenza		10	1	2	1			1			3	7	25
15 Rheumatism		1	7	4	2	4	1	2	2	7	6	7	43
16 Acute Rheumatism		1		1		1	1						<u>4</u>

Table IV (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.  
361

17 Pleurodynia	1	2	1			1		1	2		8	
18 Pleuritic Stitch						1					1	
19 Lumbago			1	1		5	2	3	2		14	
20 Inflamed Throat	1					1	1	2	2	3	10	
21 Tonsillitis:												
Sore Throat	1	2	1	2		1	3	5		4	7	26
22 Quinsy: Suppur-												
ating Throat		1			1						1	3
23 Hoarseness					1							1
24 Laryngitis											1	1
25 Asthma								1				1
26 Conjunctivitis		2	2		2	1			1	1	2	11
27 Ulcer of Cornea									1			1
28 Optic Neuritis					1							1
29 Dyspepsia:												
Indigestion	2	1	2	5	3	3	5	2	1	3		27
30 Gastric Catarrh:												
Gastritis			2	6	4		4	6	2	3	3	30
31 Gastro-Intestinal												
Catarrh			1				1	2				4
32 Enteritis			1									1
33 Diarrhoea			1	2	2	7	7	6	5	2	3	35

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Table IV (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.

[illegible]

Table IV (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.

												575
51 Erysipelas			1		1							2
52 Enteric Fever							1	1				2
53 Febricula				1				1				2
54 Ague										1		1
55 Scarlet Fever											1	1
56 Paralysis		1										1
57 Neuralgia		1						2				3
58 Sciatica				1	1				1			3
59 Headache			1		1				2	1		5
60 Tinnitus Aurium									1			1
61 Ear Affection										1		1
62 Insanity		1										1
63 Meningitis							1					1
64 Erythema of Skin									1			1
65 Scabies					1							1
66 Furunculi					1		1	1	4		2	9
67 Carbuncles		1	1			1		1	1			<u>5</u>

Table IV (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec.Ttl.

												615
68 Abscesses	1	2	1	2	3	2	1		1	1	4	18
69 Psoas Abscess										1		1
70 Cerebral Abscess										1		1
71 Whitlow	1							2				3
72 Suppurating Bubo							1					1
73 Urticaria		1										1
74 Cellulitis										1		1
75 Ulcers	1			2				1			3	7
76 Suppurating Fingers		1					1		1	1	1	5
77 Sore Leg		1										1
78 Inflamed Toe					1							1
79 Inflamed Arm				1								1
80 Removal of Wen					1							1
81 Ganglion on Arm					1							1
82 Inflammation of Gums									1			1
83 Parotitis								1				1
84 Orchitis							1		1			<u>2</u>

Table IV (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.

[illegible]

Table V.

Cases treated by other medical officers during 1897.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Ttl.
1. Injuries	14	11	14	10	11	14	15	6	7	16	6	15	139
2 Catarrh, Bronchial Catarrh, & Chills	23	36	19	19	17	3	8	8	14	13	17	29	206
3 Bronchitis	9	2	6	2	1		1	1	1		4	4	31
4 Pulmonary Congestion					1				1				2
5 Pleurisy	1		1						1				3
6 Pneumonia	1	3	1								1	1	7
7 Congestion of Lungs	1												1
8 Phthisis		1			1								2
9 Haemoptysis					1					1			2
10 Cardiac Affections			1				2						3
11 Aneurysm		1											1
12 Influenza	7	25	21	13	3	1	2	1	1	2	4	4	84
13 Rheumatism	7	8	10	3	4	3	3	1	6	4	7	3	59
14 Acute Rheumatism						1							1
15 Pleurodynia	1	1			1			1	2		1		7
16 Lumbago	2	2	1			2	3		1	2	3	1	<u>17</u>

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Table V (Continued)

	Jan	Feb	Mar	Apl	May	Jne	Jly	Aug	Sep	Oct	Nov	Dec	Ttl.
													565
17 Pharyngitis: In- flamed Throat	4		1		1				1			1	8
18 Tonsillitis: Sore Throat	2	3	2	3	1	3	3		7	4	4	5	37
19 Quinsy: Suppurat- ing Throat	3	2	4	2	1	1	1			2		1	17
20 Laryngitis				1	1								2
21 Asthma				1			1				1		3
22 Aphonia												1	1
23 Conjunctivitis: Catarrhal Ophthalmia	1	1		2	1	3	3	1	1	2	1	2	18
24 Granuloma of Eyelids											1		1
25 Stomatitis			1	1						1		1	4
26 Dyspepsia: Indigestion	6		2	3	6		4	2	2	3	6		34
27 Gastric Catarrh: Gastritis	6	2		2	5	1	3	1	1	3	1	3	28
28 Gastro- Intestinal Catarrh	1		1	1	1	2	1	1	1	1	1	1	12
29 Gastralgia	1	1						1					3
30 Congestion of Bowels					1								1
31 Diarrhoea	1	3	5	3	3	7	7	11	1	4	3	4	52
32 Enteritis					1							1	2
33 Intestinal Colic		1	1					2			1	1	6

Table V (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.

												794
34 Typhlitis				1								1
35 Perityphlitis	1											1
36 Peritonitis								1				1
37 Bilious Attack	1	1	1		3		6	4	2	2		20
38 Jaundice								1				1
39 Gall Stones										1		1
40 Hepatic Congestion		1			1							2
41 Nephritis				1				1				2
42 Dropsy									1			1
43 Oedema of Face							1					1
44 Haematuria		1										1
45 Anaemia	1					1		1	1			4
46 Debility		1			2	1		1		2		7
47 Mumps											1	1
48 Measles		1	1		1					1		4
49 Scarlet Fever		1		1					1			3
50 Enteric Fever			1					1				<u>2</u>

847

Table V (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.

[illegible]

984

27.

Table V (Continued)

[illegible]

Table VI.

Cases treated by other medical officers during 1898.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Ttl.
1 Injuries	7	15	11	12	12	6	7	7	9	17	12	7	122
2 Catarrh, Bronchial													
Catarrh & Chills	24	23	47	12	12	8	7	11	7	28	26	20	225
3 Bronchitis	4	2	5		1	1		2			4	4	23
4 Chron. Bronchitis			1			1							2
5 Pleurisy	2	1				1	1		1		1	1	8
6 Pneumonia		1	1		3		1	1			1	1	9
7 Congestion of Lungs								1			1		2
8 Pleuritic Stitch									1	1			2
9 Phthisis							1			1			2
10 Haemoptysis	1		1			1							3
11 Thoracic Soreness		1											1
12 Cardiac Irregu- larity						1							1
13 Cardiac Debility								1				1	2
14 Cardiac Disease	1				1					1			3
15 Influenza	11	14	32	10	8	6	7	4		4	7	3	106
16 Rheumatism	4	7	4	12	4	1	1	4	4	7	3	3	<u>54</u>

Table VI (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.

													565
17 Pleurodynia		1			1			1			3	1	7
18 Lumbago	2	2		2	1				1	1	1	1	11
19 Pharyngitis: In- flamed Throat	1	1						1			1		4
20 Tonsillitis: Sore Throat	3	4	2	2	3	3	2	1	5	6	5	5	41
21 Suppurative Ton- sillitis: Quinsy	2			1			1	2				1	7
22 Laryngitis	1	1	1									1	4
23 Asthma								1		1	1		3
24 Conjunctivitis: Catarrhal Ophthalmia		1		1	3	2	4	1		2	2	1	17
25 Dyspepsia Indigestion	2	1		3	5	6	1	2	1	2	1	6	30
26 Gastric Catarrh: Gastritis	6	3	3		2	2	3	5	3	3	1	2	33
27 Gastro-Intestinal Catarrh	2						1	3	3				9
28 Abdominal Catarrh			1										1
29 Gastric Disorder		1	1				2	2		1			7
30 Gastrodynia			1	1	1		1	1		1	1		7
31 Diarrhoea	1	3	5	2	2	5	3	6	10	2	5	3	47
32 Intestinal Colic					1			3					4
33 Constipation								1					<u>1</u>

Table VI (Continued)

Jan Feb Mar Apl May Jne Jly Aug Sep Oct Nov Dec Ttl.

798

34 Bilious Catarrh: Bilious Attack			2		1		2				1	6
35 Jaundice				1				1			1	3
36 Hepatic Congestion							1					1
37 Liver Affection								1				1
38 Sinus due to oper- ation for Gall Stone									1			1
39 Cystitis			1									1
40 Anaemia				1								1
41 Debility		1	1	1	2		1	3	1			10
42 Mumps			1							1		2
43 Measles	1	2				1						4
44 Scarlet Fever						1						1
45 Enteric Fever								2	1			3
46 Febricula				2	1			1		1		5
47 Ague									1			1
48 Neuralgia	2	1	1						1			<u>5</u>

843



Table VI (Continued)

[illegible]

Table VI (Continued)

Jan Feb Mar Apr May Jne Jly Aug Sep Oct Nov Dec Ttl.

												922
65 Suppurating Fingers		1	1	3		1			1	1		8
66 Suppurating Corn										1		1
67 Ulcers	2		1		2	2		2	4	1		14
68 Lymphangitis			1									1
69 Glandular Swelling				1								1
70 Parotitis	1											1
71 Prostatitis		1										1
72 Orchitis	2					1						3
73 Tubercular Disease of Testicle						1						1
74 Synovitis						1			1			2
75 Tubercular Arthritis: Amputation					1							1
76 Bursitis		1					1					2
77 Bunion									1			1
78 Varicose Veins	1											1
79 Haemorrhoids	1				1							2
80 Epistaxis			1									<u>1</u>

Table VI (Continued)

[illegible]

Table VII.

Average No. of Members.	No. Receiving Benefit.	Percentage of Members ill.	No. of ill- nesses.
1477.	672.	45.49.	852.
1630.	948.	58.15.	1270.
1845.	926.	50.18.	1265.

In table V11 are given the average number of the members, and consequently the average number liable to sickness. In the second column are the numbers who actually were sick, and which compared with the figures in the fourth column, which are the totals of the No. of illnesses treated as made up in the tables 1 to V1, go to show that a considerable number had more than one illness in the respective years. In the third column based on the figures of columns 1 & 2, I show the percentage of men who were ill in each of the three years. The figures demonstrate the percentage of illness necessitating absence from work in 1896, to be 45.49. In 1897 it was 58.15, being an increase of 12.66 % on the preceding year. In 1898 there was a decrease, the percentage being 50.18. The average percentage for

the three years is 51.27. While there is no means of actual comparison, it seems to me that the percentage of illness is very high, and must be in excess of what occurs in other pursuits. The frequency of sickness seems high when it is remembered the great majority of these men had to submit to medical examination before entrance to the society, and further that the average age of the men is only 30.85, years. At its institution at the beginning of 1896, all those in the service at that time had the option of joining without examination, but by 1897 the most of those who would have been eliminated by examination had, by lapse of time and otherwise, disappeared. I think the high percentage of sickness must be attributed to the exposure to which in their occupation they are subjected, and the large number of Catarrhal and Rheumatic ailments shewn on the tables, and to which

37.

I shall refer, will I think, demonstrate that proposition.

Injuries.

Although not strictly correct to refer to Injuries as diseases, still as the tables show them to bulk largely from a numerical standpoint amongst the causes laying aside men from work, I may refer to them here before passing on to diseases proper.

In 1896,	132,	or	15.49 %.
In 1897,	175,	or	13.78 %.
& in 1898,	159,	or	12.57 %

of all the illnesses were due to causes

which I have tabulated under Injuries. These Injuries were mostly of a minor character, and mostly due to external violence of one kind or another. They were certified under such headings as strains, sprains, contusions, wounds, kicks, etc. There were a few fractures; not more than 10 altogether. None of the injuries were of so severe a nature as to result fatally. As might be expected, a large proportion of them were due to the vice of horses, and consequently due to the risks which the employment involves.

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#### Catarrhs, Bronchial Catarrhs, Colds & Chills

In 1896,	158	or	18.54 %
in 1897,	265	or	20.87 %
& in 1898,	321	or	25.37 %

of all the illnesses were due to conditions



classed under this heading. These illnesses are for the most part short in duration, mostly varying from 3 to 10 days. The ordinary common cold is included here. The illness may commence with a nasal catarrh passing on to a Bronchial condition with some expectoration. The temperature may or may not be elevated. Again the illness sometimes consists of a barking cough with no expectoration, and in other cases the patient complains of headache and general stiffness of the muscles with the temperature slightly above normal. In these varying conditions we have the illnesses which of all others are really due to exposure to the climatic conditions under which these men have to work.

With a view to indicating their distribution during the year, I here give the total of all the cases for

the three years, shewing the number that occurred in each month.

Jan.	Feb.	March.	April.	May.	June.	
* 67	93	108	51	52	17	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
22	35	38	77	87	97	744.

There were during the three years 744 cases in all, and at a glance it is seen that no month gives complete exemption from such cases. June, July, August and September are the months that

\* The figures under January in this and similar tables throughout this paper only are the totals for two years. The figures under the other months are the total for 3 years.

tell least on the health in respect to these conditions, as only 15% of all the cases occur in the period covered by these 4 months. October as compared to September shews an increase of fully 50%, and this goes on increasing, until in March a maximum is attained, when 108 or 14.51 % of all the cases occur, or nearly as many as occurs in the four months already mentioned. Although I can give no meteorological data to prove it, my impression is that cold dry weather, such as when it is freezing or when there are penetrating winds, is most prolific in the production of such illnesses. Rainy weather as a rule is milder, and does not cause so much illness, although it causes more discomfort.

#### Bronchitis & Chronic Bronchitis. -----

Of Chest affections, Bronchitis and Chronic Bronchitis are the most numerous.

The numbers noted in each of the three years were 44 in 1896, 41 in 1897 and 35 in 1898. In my own cases I differentiated Acute from Chronic cases, but the other medical officers have not so differentiated them. Basing my conclusions on the proportions shewn on my own tables the greater number of these cases will have been Chronic in the proportion of almost two Chronic to one Acute. In 1896 Bronchitis accounted for 5% of all the illnesses, but in 1898 the percentage had fallen to 2.76. This is accounted for partly by two causes. A number of the worst Chronic cases have passed out of the service, and secondly from the fact that whenever the men "catch a cold" they immediately lie off work, and so escape the more severe condition. Looking ahead, however, I am of opinion, from the frequency of the Catarrhal complaints, that many of these men will in later years be subject to Bronchitis.

### 43.

The distribution of Bronchitic cases in relation to the seasons is almost identical to that demonstrated in the case of the Catarrhal conditions. The number of cases in the three years was 120, and the following table shows how they were distributed over the various months.

Jan.	Feb.	March.	April.	May.	June.	
18	13	17	5	6	4	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
1	6	4	9	15	22	120.

This shows that the greater number of cases occur in the last three and first three months of the year, the sick-list in Summer being comparatively free from Bronchitic Complaints.

Pleurisy.

Pleurisy, considering the exposure, is by no means a common disease amongst these men. The total number of cases for the three years was 26, there being 11 in 1896, 5 in 1897, and 10 in 1898. These figures shew a percentage in relation to the total illnesses of 1.29 in 1896, 0.39 in 1897, and 0.79 in 1898. One case of the 26 had a fatal ending. I think the lessened percentage of Pleurisy in 1897 and 1898 is likely to be due to the medical examination of the men on entrance to the service. With regard to the cases coming under my own observation of which there were 7, the impression left on my mind was that the greater number of them were in subjects likely to become Phthisical.

The following table shewing the months in which the cases of Pleurisy

came on the sick-list demonstrates that it is liable to occur in Summer as well as in Winter. No doubt the Winter Season shews the largest number as the 6 months from September to February, shew the occurrence of 17 cases as compared to 9 cases from March to August.

Jan.	Feb.	March.	April.	May.	June.	
3	5	1	1	2	2	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
2	1	3	1	3	2	26.

### Pneumonia.

Pneumonia, which is the cause of more deaths than any other Acute Disease, does not numerically take a very prominent place. During the three years there were a total of 28 cases, there being 7 in 1896, 11 in 1897,

and 10 in 1898. This is less than 1 per cent of all the illnesses in each year, the percentage being in 1896, 0.82, in 1897, 0.86, and in 1898 0.79.

Of the 28 cases four terminated in death, giving a fatality of 14.28 %.

Here is a table shewing the distribution of Pneumonia over the various months of the year.

Jan.	Feb.	March.	April.	May.	June.	
1	4	3	1	4	1	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
2	1	0	4	5	2	28.

Like Pleurisy it occurs in Summer as well as in Winter, but inasmuch as 19 of the 28 cases occurred in the six months from October to March, it must be concluded that the severe weather has its influence in the production of some of the cases.



Phthisis & Incipient Phthisis.

During the three years under consideration, 17 illnesses were due to Phthisis, and 5 were certified as due to Incipient Phthisis. In 1896, 12 of these occurred, and 5 in each of the years 1897 and 1898. This is to say 1.41 % of all the illnesses in 1896 were due to Phthisical conditions, whilst in 1897 and 1898 the percentage to the gross illness was only 0.39 %. The reason of the greater number of such cases occurring in 1896 is of course due to the fact that there was no medical examination to begin with. The lessened number in 1897 and 1898 is likely to be maintained, for on account of the examination now in force, those susceptible to Tubercular diseases are not so liable to get into the service, and again the open-air nature of the employment has not, so far as I have observed, tended to that condition in those who are untainted before

being exposed to the cold and damp so characteristic of Glasgow Winters.

These Phthisical illnesses are amongst the most protracted of those coming under treatment. Six of them died within a year of their being laid up. One or two got financial aid to transfer them to other climates. Others, where the illness was protracted beyond a year, may have succumbed since.

Fifteen of these 22 cases came on the list in the 6 months from October to March. It being a constitutional affection, it is not suggested that the exposure **causes** the disease, but I mention that as indicating that exposure to severe climatic conditions influences the time when the patient has to relinquish work.

#### Haemoptysis.

There were 11 illnesses in the three years due to Haemoptysis. Here there is nothing but a symptom indicated, but of the

four cases which occurred under by observation, from the general aspect of the patients, although not supported by other signs or symptoms, one would almost have been justified in looking upon them as incipient cases of Phthisis. Still my experience as to the after health of one or two patients who have more than once put up large quantities of blood, is that they have not wasted, but have gained in flesh, and been able to continue at work with no indications of a grave prognosis.

### Influenza.

As might be expected this affection was responsible for a large number of illnesses.

in 1896,	25	or 2.94 %.
in 1897,	108	or 8.5 %.

and in 1898, 110 or 8.7 % of the total illnesses were certified as due to Influenza. These figures shew that this disease was epidemic in Glasgow in each of these years, but taking this large body of men as representing the general community, the epidemic of 1896 was a small one as compared to that of 1897 or 1898. What impressed me most when treating my share of these cases of Influenza, was the absence of fatal results amongst these men. Whilst the general death rate in Glasgow at the time of its prevalence had actually doubled, I find of the 248 cases occurring, only one had a fatal ending, and that one death was in March, 1896. My explanation of this absence of fatality is this. These men as soon as attacked immediately lay off work, took to bed, and called in medical aid. Unlike the business or professional man, whose very existence often depends on his personal

attention to his work, they have nothing particular at stake and nothing to lose. Subsidised as it is by the Corporation, the Society pays them 15/ per week, and their medical attendance and medicine means no additional expenditure. This early taking of shelter, and getting medical aid is the only explanation I can give as to the freedom from fatal results or of serious sequelae.

The following table shews the distribution of the cases of Influenza in each of the 3 years.

Table Shewing Distribution of Influenza.  
-----

	Jan.	Feb.	March.	April.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Ttls.
'96. -	10	1	2	1	1	1	1	1	3	7	25.		
'97. 8	44	22	15	3	3	1	2	1	1	2	4	5	108: 52
'98.11	14	35	10	9	9	6	7	4	-	4	7	3	110. --- 243.

### 53.

This table shows that although slight, the epidemic of 1896 was at its height in February. Commencing again in November of 1896, the affection again became prevalent, and had its acme in February of 1897, but large numbers of cases were also recorded in March and April. Odd cases are noted during the whole of 1897. In the Spring of 1898 it had again become epidemic, the largest number of cases being recorded in March, with a good number of cases still occurring well into the Summer. Although not coming within the scope of the period I am specially writing about, the disease was again epidemic in the early part of 1899, February and March bearing the brunt of the attack.

### Rheumatism.

Rheumatism is responsible for no inconsiderable number of illnesses as is demonstrated by the tables which shew that

54.

in 1896, 57 or 6.7 %.

in 1897, 71 or 5.59 %.

& in 1898, 64 or 5.06 %.

of all the illnesses were due to this disease. I have not been able to make out from the Certificates how many of these cases were Acute, Subacute or Chronic, and on the other hand as to how many of the cases were purely articular as distinct from muscular. The manifestations of Rheumatism are varied. There is the severe acute Rheumatism with high temperature, sour smelling perspiration, many joints inflamed and painful, and associated with a suspicious condition of the endocardium. Such cases are usually protracted, but judging from the 31 cases that came under my own observation, they are fortunately by no means the most common. A great number of the cases are characterised by pain in one or more joints flitting about from



one to the other, and accompanied by slight elevation of the temperature. Again there are cases where there is a good deal of pain which may be confined to one joint, and where the temperature is not disturbed. A goodly number of the cases are certified as muscular Rheumatism. Cases of Chronic Rheumatism amongst these men are rare. This is due to the youth of the persons concerned.

No deaths occurred from Rheumatism during the three years.

This is a table of the cases, 192 in all, shewing their distribution.

Jan.	Feb.	March.	April.	May.	June.	
16	18	24	22	11	12	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
7	11	13	20	16	22	192.

This, as was to be expected, shews a

preponderance of cases in the seasons when the weather is severe. Still a considerable proportion of the cases occur in the summer time, and this is in accordance with an impression I had formed, that it was more frequent then than is commonly thought. In my own experience, some of the most acute cases occurred during the summer months.

#### Lumbago.

The particular form of Rheumatism called Lumbago, shews during the three years a total of 67 cases, there being

in 1896,	16	or 1.87 %.
in 1897,	30	or 2.36 %.
& in 1898,	21	or 1.66 %.

of all the illnesses in each of the three years. The cases of Lumbago as a rule are not of long duration. The 67 cases

## 57.

were well distributed over the various months of the year, and even more than the cases referred to under Rheumatism, shew that it is by no means a disease only of the Winter and Spring Months. The following table shews a good proportion of the cases recorded as occurring in the Summer and early Autumn.

Jan.	Feb.	March.	April.	May.	June.	
5	8	3	7	4	3	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
8	5	5	9	7	3	67.

### Throat Affections.

During the period I am treating of, no fewer than 190 of the illnesses were certified under one or other of the following names:- Pharyngitis, Inflamed Throat, Tonsillitis, Follicular Tonsillitis,

Sore Throat, Suppurative Tonsillitis,  
Quinsy. Of these cases there occurred

in 1896,	48	or	5.63 %.
in 1897,	78	or	6.14 %.
& in 1898,	64	or	5.05 %.

of all the illnesses in these years. In these varying conditions we have illnesses, the exciting cause of which is exposure to cold. Judging from the 37 cases which came under my own treatment, the great majority of them were due to Follicular Tonsillitis, where both tonsils are swollen and spotted. The cases of Suppurative Tonsillitis or Quinsy are much less frequent. They are usually only unilateral. I have, however, seen a case where both tonsils suppurated. Both these conditions - Follicular Tonsillitis and Suppurative Tonsillitis - cause a good deal of suffering and distress to the patients. They are usually accompanied

## 59.

by considerable elevation of the temperature, associated with severe headache. The average length of the illness in such cases is from 7 - 10 days. The cases of Pharyngitis are less severe in every respect, but still they cause sufficient illness to incapacitate men from work. Here is their distribution in the various months.

Jan.	Feb.	March.	April.	May.	June.
19	16	15	11	9	12.

July.	Aug.	Sept.	Oct.	Nov.	Dec.	
11	9	24	16	20	28.	190.

This demonstrates that from September to March, throat affections are common ailments. Still the Summer months shew no scarcity of cases. No doubt cold is the most frequent exciting cause of these conditions. I have,

however, noticed that Tonsillitis sometimes occurs in dry dusty weather which suggests the possibility of germs carried from the atmosphere to the tonsils giving rise to the condition. There is no doubt, too, that there are many of these men predisposed to throat troubles, as whenever they get exposed to cold, it is the tonsils that become affected.

### Conjunctivitis.

Conjunctivitis or Catarrhal Ophthalmia was responsible for 53 cases of illness.

There were in 1896, 13 or 1.52 %.

in 1897, 18 or 1.41 %.

in 1898, 22 or 1.73 %.

of all the illnesses.

Here we have a disease which undoubtedly in most cases is due to cold and exposure to draughts; but here also as

in throat affections the irritant setting up the inflammatory condition, is, I think, sometimes carried in the dust of the atmosphere, for a great number of the cases occur in the summer time when the weather is fine. This is shewn by the following table giving the distribution of the cases.

Jan.	Feb.	March.	April.	May.	June.	
1	3	2	5	4	8.	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
7	5	1	6	4	7.	53.

This demonstrates that 24 or 45.28 % of the 53 cases occurred in the four months from May to August.

### Dyspepsia.

In these three years 102 cases of illness were certified as due to

Dyspepsia or Indigestion, there being			
in 1896,	32	or	3.75 %.
in 1897,	38	or	2.99 %.
& in 1898,	32	or	2.52 %.

of the total illnesses. Whilst these figures are considerable, still they by no means indicate the number of these men who suffer from difficulties of digestion. Indeed, Dyspepsia is one of the most common complaints met with in general practice, but amongst the particular class of whom I am writing it is an exceedingly common complaint. The great majority of those who suffer from it are treated while they continue at work. It cannot be described as a disease due to exposure. In these men I consider it due, in a great measure, to the irregularity of their meal hours. The majority of them do not have the same meal hours two days consecutively. Then again, quantity rather than quality largely influences



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their dietary. The cooking too, is defective, and strongly brewed tea, in a great many cases, forms a part of every meal. The symptoms cause a good deal of distress and annoyance, but these illnesses, as a rule, do not necessitate long absence from work. A few days' rest with correction and limiting of the dietary, and medicine to alleviate the symptoms, soon enables the patient to resume work.

The following table shewing the distribution of these cases does not indicate that it is a disease of any particular season.

Jan.	Feb.	March.	April.	May.	June.	
10	4	3	8	17	9.	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
8	9	6	7	13	8	102.

Gastric Catarrh.

Gastric Catarrh is shewn by the tables to be the cause of 111 cases of illness, there being

in 1896, 35 or 4.1 %.

in 1897, 34 or 2.67 %.

& in 1898, 42 or 3.32 %.

of all the illnesses. This, as the figures shew, is a fairly common ailment. The illness is usually of short duration and consists mainly in the patient being nauseated and sick, accompanied by persistent vomiting or retching. Some of the cases are very acute, and are usually of sudden onset. Most of the cases are due to some error of dietary either in eating or drinking, but there are cases, especially those that occur in the Winter time, that no other cause than exposure to cold can well account for. This con-

## 65.

dition is found at all Seasons of the year. The following table shewing their distribution, demonstrates that there are a preponderance of cases in the Summer Season.

Jan.	Feb.	March.	April.	May.	June.	
12	5	4	6	17	11	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
8	12	12	9	6	9	111.

### Diarrhoea.

This ailment was responsible for no fewer than 162 of the illnesses, there being in 1896, 39 or 4.57 %.  
in 1897, 63 or 4.96 %.  
& in 1898, 60 or 4.75 %.  
of the total cases in these years.

The cases noted under this heading refer to illnesses in which the

## 66.

Diarrhoea, although only a symptom, forms the whole of the disease. The illnesses are of short duration, lasting only from 3 to 6 days.

The following table shews the distribution of the cases over the various months.

Jan.	Feb.	March.	April.	May.	June.	
5	9	11	7	9	15	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
17	29	22	12	14	12.	162.

This shews that it is prevalent all through the year, but there is a considerable preponderance of cases in the Summer and Autumn months, August being the month having the largest number. Errors of dietary alone, and combined with hot weather, are no doubt the causative factors in a great many of the cases. On the

other hand exposure to cold appears to me to be responsible in causing a goodly number of these cases.

### Gastro-Intestinal Catarrh.

Under this heading there were certified 38 cases, there being

in 1896,	7	or	0.82 %.
in 1897,	15	or	1.18 %.
& in 1898,	16	or	1.26 %.

of all the illnesses in the respective years.

This ailment is closely allied to that just referred to. The causation is similar, and the distribution of the illnesses over the various months is in a like proportion to the cases of Diarrhoea as is shewn by this table.

68.

Jan.	Feb.	March.	April.	May.	June.	
4	1	1	2	2	3	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
4	9	6	3	1	2	38.

### Other Intestinal Affections.

The only other affections of the digestive tract that numerically call for notice are those of Intestinal Colic, and the condition certified as Biliousness or Bilous Catarrh. Of Colic, there were in the three years 26 cases distributed in the various months as follows:-

Jan.	Feb.	March.	April.	May.	June.	
-	1	2	2	2	2	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
1	6	2	2	1	5	26.

Biliousness or Bilous Catarrh was the cause of 34 illnesses, their distribution as shewn on this table indicating that the

bulk of the cases occur in the late Summer and Autumn.

Jan.	Feb.	March.	April.	May.	June.	
1	1	4	-	1	4	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
2	7	5	4	4	1.	34.

-----

Appendicitis, Typhlitis, Perityphlitis and Peritonitis are fortunately diseases of rare occurrence. In 1896 there was one case of Appendicitis and one of Peritonitis. In 1897 there was one each of Typhlitis, Perityphlitis and Peritonitis. This last case of Peritonitis ended fatally.

Considering the great frequency of other intestinal affections, it is almost surprising that there are so few cases of Appendicitis, especially as a great proportion of these men are at an age when such affections are said to prevail.

Hepatic Affections.

Diseases of the Liver are by no means common. Only 18 illnesses during the three years have direct relation to that organ.

Jaundice was the cause of 6 cases. 1 in 1896, 1 in 1897 and 4 in 1898. None of these cases, so far as results shew, were due to malignant disease. Hepatic Congestion was responsible for 5 cases; 1 in 1896, 2 in 1897, and 2 in 1898. Liver Affection (undefined) had four illnesses to its credit, 3 cases being in 1896 and 1 in 1898. Of Torpid Liver there was one case in 1896. Gall Stones were the cause of two illnesses; one in 1896 and one in 1897.

Kidney Affections.

Contrary to what might be expected from the amount of exposure to cold, Kidney



disease is a rare complaint.

During the three years only 12 cases of illness were due to Kidney mischief. There were 7 cases of Acute Nephritis, 2 of Cirrhosis of the Kidney and 1 each of Albuminuria, Haematuria and Renal Colic.

### Heart Affections.

Diseases of the Heart and the large vessels are also of rare occurrence. There were 17 illnesses during the three years, 15 of them were due to Heart mischief, and 2 to Aneurysms. Three of the Heart and one of the Aneurysm cases ended fatally. The second Aneurysm case also had a fatal ending in 1899.

Most of the cases of Heart disease were amongst men who were in the service at the beginning of the Society. On account of the examination now in

force, Heart cases are not likely ever to be numerically prominent, as the occupation Per. se. does not tend to cause them.

### The Exanthemata.

The Infectious diseases were the cause of 38 illnesses during the 3 years.

They were as follows:-

	1896.	1897.	1898.	
German Measles.	1.			1.
Measles.	-	8	4	12.
Scarlet Fever.	2	5	1	8.
Enteric Fever.	2	6	4	12.
Erysipelas.	3	2	-	5.
	<hr/>			
	8	21	9	38.

The Infectious diseases thus caused in 1896; 0.93 %, in 1897, 1.65 %, and in 1898, 0.71 %, of the total illnesses.

These 12 cases of Measles all occurred in adults. Those that came under my own observation were in young Irishmen who had come from out-lying districts, where measles were said to be uncommon. Contrary to popular belief, I have not found measles in the adult to be more severe than they are in children. Indeed, those I have seen were very simple cases with no chest complications.

Of the 12 cases of Enteric Fever, one proved fatal. The months in which they occurred bears out that it is a disease of the Spring or Autumn. This table shews that three of the cases occurred in the Spring, and 9 in the later season of the year.

Jan.	Feb.	March.	April.	May.	June.
-	1	1	1	-	-
July.	Aug.	Sept.	Oct.	Nov.	Dec.
-	1	5	2	1	-
					12.

### Nervous Affections.

Diseases of the nervous system amongst these men are numerically unimportant.

Neuralgia was however the cause of 29 illnesses during the three years, there being 4 in 1896, 18 in 1897, and 7 in 1898. The painful parts in these cases are usually the face and head, it being one or more of the branches of the Fifth Nerve that are affected. Exposure to cold is no doubt in most of these cases the exciting cause. There is, however, in many of them a predisposing cause in the form of decayed teeth.

The distribution of these 29 cases shews that the winter months have a greater proportion of the cases to their credit, although it is prevalent all through the year.

Jan.	Feb.	March.	April.	May.	June.	
5	3	2	1	2	2.	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
3	2	2	3	4	-	29.

Sciatica caused 19 illnesses in the 3 years, there being 5 in 1896, 8 in 1897, and 6 in 1898. Judging from the 10 cases that came under my own observation, exposure to cold was the most important factor in their etiology. In addition there appeared, in most of the cases, to be Rheumatic tendencies in those subject to this affection.

The following table shewing their distribution, demonstrates that, as in Rheumatism, a good proportion of the cases occurs during the summer months.

Jan.	Feb.	March.	April.	May.	June.	
1	1	3	-	2	2	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
3	1	-	3	2	1	19.

-----

There were during the three years 7 illnesses originating in the Brain or its meningeal coverings. There were 3 such cases in each of the years 1896 and 1897 and 1 in 1898. Five of these were certified under one or other of the following names:- Cerebral Haemorrhage, Hemiplegia, Paralysis, Apoplexy. One was attributed to Meningitis, and another to Tubercular Meningitis complicated with Pneumonia. Six of these cases proved fatal within the period treated of, and the seventh case which was one of two under my own observation, ended fatally during 1899. I shall refer to all the deaths later, but these results shew that, although the number of cases is small, these severe

nervous affections are the most fatal of all the diseases the practitioner has to deal with.

#### Miscellaneous Diseases.

The other diseases from which these men suffer as the tables shew are numerically unimportant; and their occurrence is so rare, that in being tabulated, they are only of interest as shewing the great variety of cases the general practitioner has to deal with. They are in no way the product of the exposed employment, and no particular conclusions can be drawn from them. There are, however, two other conditions more of a surgical nature, which cause a considerable number of illnesses, and to these I shall refer.

#### Furunculi & Carbuncles.

During the 3 years, there were 72 illnesses

78.

due to Boils and Carbuncles, there being 54 due to the former and 18 to the latter. There were

in 1896,	19	or	2.23 %.
in 1897,	32	or	2.52 %.
& in 1898,	21	or	1.66 %.

of all the illnesses. These conditions are fairly numerous. It is difficult to assign a cause for their frequency. They appear often in men who are well nourished, and otherwise in good condition. The hygienic surroundings may account for some, insufficient attention being given to the cleanliness of the skin. Of 11 of these cases that were under my own treatment, to only one did I apply the term Carbuncle. It was in an elderly man, and it was situated in the nape of the neck. I made a crucial incision into it, and for several weeks considerable pieces of sloughing cellular tissue came from it.



There was no sugar in the urine. The other cases only necessitated a few days absence from work.

The following table shewing the distribution of the 72 cases gives no particular indication that the season of the year influences the etiology.

Jan.	Feb.	March.	April.	May.	June.
3	7	6	3	4	6

July.	Aug.	Sept.	Oct.	Nov.	Dec.	
4	6	6	9	6	12	72.

-----

### Abscesses.

There were no fewer than 102 illnesses in the 3 years that were due to Abscesses, there being,

in 1896,	23	or	2.7 %.
in 1897,	36	or	2.83 %.
& in 1898,	43	or	3.39 %.

of the total illnesses. These 102 cases were certified under one or other of the following names:- Abscess, Alveolar Abscess, or Gumboil. I have not been able to distinguish so as to state definitely how many of these cases were due to Alveolar Abscess as distinct from Abscesses in other parts of the body, as some of the medical men simply used the term Abscess, never using that of Alveolar Abscess or Gumboil. I think, however, that something over 60 % of these 102 illnesses would be due to Alveolar Abscess, which is a comparatively common complaint, and one in which in many cases exposure to cold acts as an etiological factor. There are also present other conditions without which the exposure would not cause an abscess. Some of the teeth are usually decayed, and I have no doubt the pyogenic organism, to which the pus is due, is also present, and probably asserts itself on account of the vitality of the part being lessened by the

influence of the cold. As to Abscesses in other parts, the causes are varied, and sometimes not very evident. These illnesses are usually short, lasting as a rule only a few days, the patients quickly recovering when the pus is evacuated.

I here give a table shewing the distribution of these cases of Abscess. It shews that such cases occur in all seasons of the year.

Jan.	Feb.	March.	April.	May.	June.	
6	5	7	11	6	9	
July.	Aug.	Sept.	Oct.	Nov.	Dec.	
8	9	5	11	9	16	102.

There were other two cases of Abscess not included in the above figures. Both came on the sick-list in November, 1896. One was a case of Psoas Abscess; the other that of Cerebral Abscess. Both

are fortunately rare conditions.  
Both had fatal results.

### The Deaths and their Causes.

In the 3 years under consideration there were 28 deaths amongst these men, there being 11 in 1896, 12 in 1897, and 5 in 1898. I here give a table shewing the relation the number of deaths bears to the number of members as well as to the number of illnesses.

Tables shewing death-rate.  
-----

	Average No. of Members.	No. of ill- nesses.	No. of Deaths.	Percentage of	
				Deaths to Members.	Deaths to Illnesses.
'96.	1477.	852.	11	0.74.	1.29.
'97.	1630.	1270.	12.	0.73.	0.94.
'98.	1845.	1265.	5	0.27	0.39.

This table shews that in 1898 the percentage of fatal results as compared to the previous two years was much less, being little more than one third of what it was in 1896 and 1897. This is to be accounted for by the circumstance that many of the deaths were of men who, had a medical examination been enforced at the institution of the Society, would have been eliminated as unfit for Membership.

Causes of Death.

	1896.	1897.	1898.
1. Influenza.	1.		
2. Heart Disease.	3.		
3. Aneurysm.		1.	
4. Phthisis.	3.	1.	2.
5. Pleurisy.	1.		
6. Chron. Bronchitis.		1.	
7. Pneumonia.		3.	1.
8. Meningitis.	1.		
9. Meningitis : Pneumonia.			1.
10. Cerebral Haemorrhage.	1.		
11. Paralysis.		1.	
12. Apoplexy.		2.	
13. Cerebral Abscess.	1.		
14. Enteric Fever.		1.	
15. Psoas Abscess:			
Caries of Spine.		1.	
16. Peritonitis.		1.	
17. Prostatitis.			1.
Totals.	11.	12.	5.

This table shews that Tubercular diseases were responsible for the greatest number, as 7 at least of the deaths can be assigned to it, there being 6 due to Phthisis, and 1 to Caries of the Spine. This represents 25 % of all the cases.

Diseases of the Nervous System caused 6 or 21.42 per cent of the total, 4 of the cases being due to Paralysis, Apoplexy or Cerebral Haemorrhage, and 2 to Meningitis.

Heart Disease and Aneurysm caused 4 deaths, being thus responsible for 14.28 per cent of all the fatal cases.

Pneumonia had also 4 to its credit, and of it, it may be said that of Acute diseases it is responsible for more deaths in robust, healthy constitutions, than any other affection.

The other 7 deaths were due to various conditions, and no conclusions can be deduced from their occurrence.

The prominent feature of this list of



causation of death is that it demonstrates that it is the rare and numerically unimportant illnesses that result fatally. Apart from the 4 fatal cases of Pneumonia, there are hardly any of the deaths due to diseases that could be attributed to exposure. As a result of this investigation, I think there is little doubt but the exposed occupation of these men causes a much greater proportion of illnesses than in other employments of a more sheltered character. But on the other hand, the death-roll shews that the prevalent illnesses are not of a fatal character, and that in most cases other factors, such as constitutional tendencies and advancing life, with its concomitant decay of the organs, have to come into play before death ensues.