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COUNTY BOROUGH OF CORK

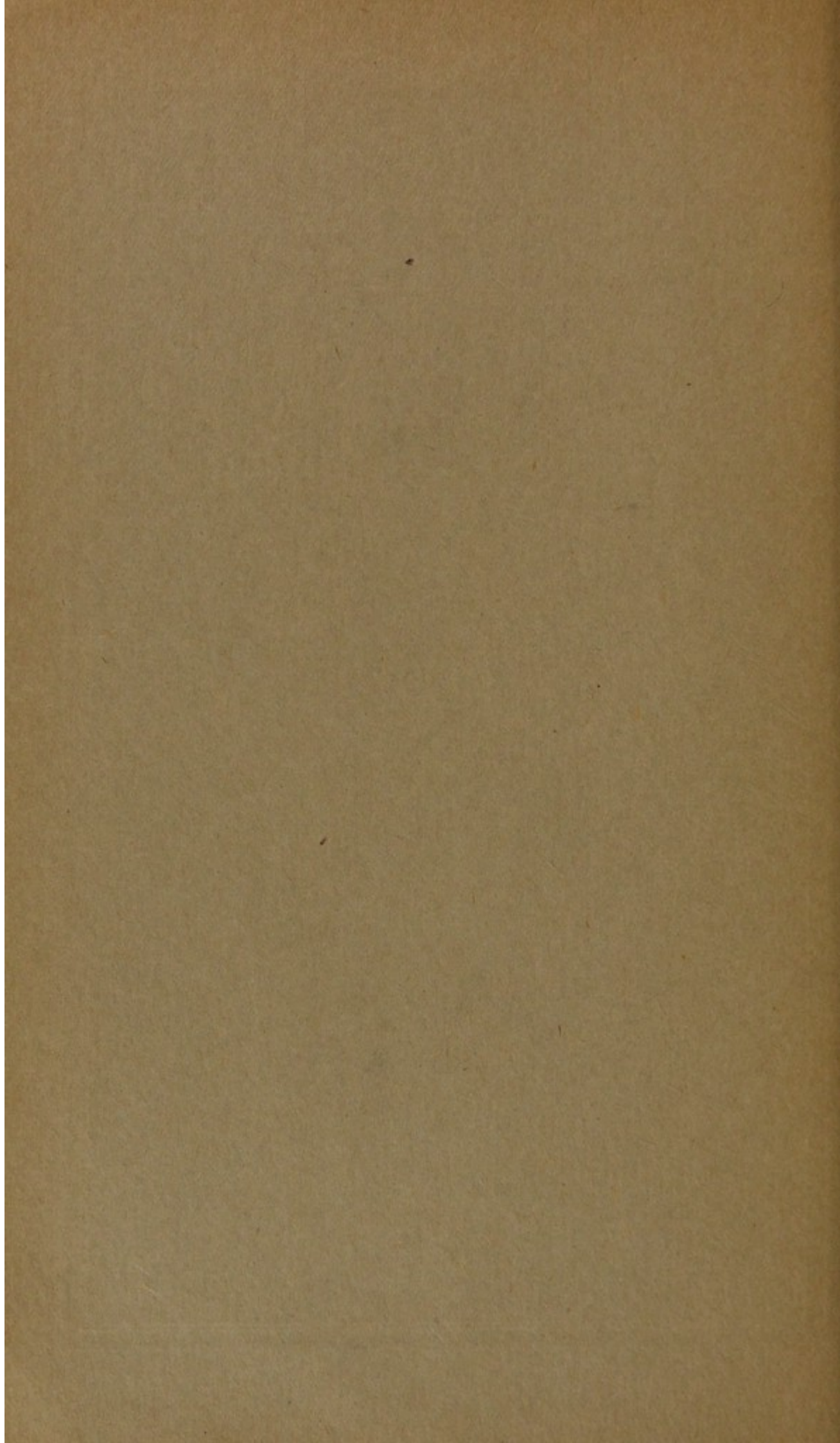
REPORT OF THE
MEDICAL OFFICER
OF HEALTH

FOR THE YEAR

1939

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COUNTY BOROUGH OF CORK



ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

AND

PORT MEDICAL OFFICER

FOR THE YEAR 1939

J. C. SAUNDERS, M.D., D.P.H.,

Medical Officer of Health.

CORK:

Guy & Co. Limited, 70 Patrick Street

1940

*To the Lord Mayor, Aldermen and Councillors
of the County Borough of Cork.*

My Lord Mayor and Gentlemen,

I beg to submit herewith my Annual Report for the year 1939, and am glad to be able to state that the satisfactory progress noted in the previous report was more than maintained during the past year. The general death rate (13.1 per 1,000 of the population) was the lowest ever recorded in the history of the City and is the lowest of the four county boroughs. The infant mortality rate (73 per 1,000) was the third lowest recorded—the rate last year was 76 per 1,000). The number of deaths from infectious disease was also substantially reduced, the actual number was three, which was the lowest for the past twenty-one years. The pulmonary tuberculosis death rate (1.06 per 1,000) was the same as the previous year, which attained a low record. The reduction in deaths from non-pulmonary tuberculosis (to which I drew attention last year) was, I am glad to say, maintained. Maternal mortality was 2.3 per 1,000, a figure which may be regarded with some degree of satisfaction. There was a slight increase in epidemic diarrhoea which is referred to in the appropriate section. The very high degree of efficiency reached in the working of the water purification plant was maintained, no less than 98 per cent of the samples examined coming up to the required standard. This may be considered a big achievement.

I have acknowledged in the text the assistance received in connection with information concerned with matters which do not come within my direct control.

I have the honour to remain,

Your obedient servant,

J. C. SAUNDERS.

PUBLIC HEALTH STAFF

Medical Officer of Health :

J. C. Saunders, M.D., D.P.H.

Assistant Medical Officer of Health :

Patrick F. Fitzpatrick, M.B., B.Ch., B.A.O., D.P.H.

School Medical Officer :

Annie M. Sullivan, M.B., B.Ch., B.A.O., D.P.H.

Public Analyst.

Daniel J. O'Sullivan, M.Sc., F.I.C.

Chief Veterinary Officer :

S. R. J. Cussen, D.V.S.M., M.R.C.V.S.

Assistant Veterinary Officer :

J. C. Brown, M.R.C.V.S.

Housing Superintendent :

G. A. Byrne, B.E., M.R.San.I., F.I.Hsg.

Sanitary Inspectors :

John O'Brien	Daniel Murphy
Timothy Newman	James V. Nerney
Thomas F. Murray	Miss N. Dunn
Thomas Wall (Temporary).	

Tuberculosis Nurse :

Miss L. Lyndon

Maternity and Child Welfare Nurses :

Miss M. Gillespie
Miss H. Neville
Miss H. A. Crowley

School Nurses :

Miss M. Lordan
Miss M. O'Sullivan
Miss N. Dillon

Clerk and Inspector to Port Sanitary Authority :

J. P. Kieran

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SUMMARY OF STATISTICS.

Area (in Acres)	2,618
Population (Census 1936)	80,765
Density of Population (persons to the acre)	30.8
Rateable Value	£238,551 8s. 0d.
Sum represented by a Penny Rate	£994
Number of Births	1,711
Birth Rate	21.1
Number of Deaths	1,060
Death Rate	13.1
Maternal Mortality Rate	2.3
Infantile Mortality	73
Zymotic Death Rate	0.5

COUNTY BOROUGH OF CORK

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FOR THE YEAR 1939

Section I.—Physical Features of the Area

The City of Cork is situated on the river Lee, fifteen miles from its mouth in Cork Harbour. On the north bank of the river there is steep rising ground almost prohibiting building development, save in the form of hillside roads and open building of large houses, with the exception of the marked break of the Blackpool valley, very full use of which has been made. Next comes the flat island comprising the centre of the City. This island is almost entirely artificial, and consists of six feet of filled-in material, with ten feet of slob below that and then gravel overlying old red sandstone. Southwards is a gently undulating tract of land about one and a half miles wide enclosed by a range of hills. There is a considerable amount of land liable to flood in the Lee Valley, west of the city, towards Carrigrohane, and the flatness of the islands on which the city is built and the height to which unusual tides ascend being nearly to the crown of the arches of the old bridges, render certain portions of the city itself also liable to flooding.

The geological formation of the city region is simple and clearly marked in its effect on the landscape. There are only two systems visible, both paleozoic rocks, the carboniferous limestone and the older underlying Devonian, representing the old red sandstone. Each of these formations is in two series; the carboniferous in a crystalline limestone and in a dark shale (with some 10 feet slate); the Devonian in the upper old red sandstone (yellowish and reddish) and in the lower, old red sandstone (red and purple). The characteristic aspect of the countryside has been caused by the crinkling of these strata into regular parallel folds. Further the limestone which should have formed the ridge of the anticlines has been denuded or dissolved away, so that the highest ground consists of old red sandstone, and even the lower series of this; the hollow folds, floored by limestone, have been subsequently protected from further denudation by a covering of boulder clay. In this immediate region there are thus three old red sandstone ridges and two limestone valleys, in the northern of which the city stands under the brow of the northern sandstone ridge. If this sandstone ridge had possessed its original limestone capping, it would probably have been at least 2,000 feet high.

Section II.—Vital Statistics

1.—Population.

According to the provisional figures issued by the Registrar-General in connection with the census of 1936 the present population of the city is 80,765, an increase of 2,301 over that revealed by the previous census taken in 1926. The population at the various census years has been as follows :—

1881	....	....	....	....	80,124
1891	....	....	....	....	75,345
1901	....	....	....	....	76,122
1911	....	....	....	....	76,673
1926	....	....	....	....	78,464
1936	....	....	....	....	80,765

Through the courtesy of the staff of the Registrar-General, it is possible to show the sex and age grouping of the population. This is seen in Table 1.

2.—Births.

According to the Annual Summary of the Registrar-General, the total number of births *registered* in Cork during 1939 was 1,559. The number of live births *notified* to the Public Health Department (in accordance with the provisions of the Notification of Births Act) was 1,711. In addition to this latter figure there were 64 still births notified, bringing the total *notified* births to 1,775 for the year. There is therefore a difference of 152 between the number of registered live births and the number of notified live births, the latter being in excess. On the basis of the Registration General's figures the birth-rate for the year was 19.3. The birth-rate in this city has preserved a remarkable steadiness of character over the past fifty-seven years as shown in Table 2. The decimal averages during this period were as follows :—

1881-90	....	....	....	26.2
1891-1900	....	....	....	27.2
1901-10	....	....	....	26.0
1911-20	....	....	....	24.7
1921-30	....	....	....	23.5
1931-36	....	....	....	24.0
1937	....	....	....	22.0
1938	....	....	....	21.1
1939	....	....	....	21.1

In calculating the birth-rate (and maternal mortality rate) for 1938, the figures for *notifications* of birth have been utilised. There is such a marked discrepancy between the number of notified births and the number of registered births that the latter would be quite unreliable. It

will be seen, for instance, that if the registered births were relied upon the birth-rate would be reduced to 19.3 per 1000 and, for the first time in the history of the city, it would have fallen below 20 per 1000. In this respect the figures stated in the Annual Summary of the Registrar General are not satisfactory for often there is an interval of months between the birth of a child and its registration, whereas all births must be notified to the Local Authority within 36 hours of the occurrence. In this area notification is carried out by the midwife, and it is practically certain that all births are duly notified and within the statutory period. From this point of view, therefore, notification is a more reliable source of statistical information than registration, at least for the purpose of a report such as this.

Table 1.—Population of City divided into age and sex groups (at census of 1936).

Age or Age-group			MALES	FEMALES
Under	1 year	.....	820	888
	1 year	.....	809	814
	2 years	.....	770	768
	3 "	.....	798	811
	4 "	.....	785	794
	5 "	.....	835	780
	6 "	.....	739	761
	7 "	.....	736	686
	8 "	.....	734	722
	9 "	.....	677	704
	10 "	.....	704	664
	11 "	.....	794	728
	12 "	.....	758	709
	13 "	.....	813	768
	14 "	.....	803	705
	15 "	.....	797	768
	16 "	.....	790	841
	17 "	.....	619	683
	18 "	.....	543	672
	19 "	.....	603	754
	20 "	.....	652	760
	21 "	.....	680	853
	22 "	.....	705	912
	23 "	.....	681	779
	24 "	.....	716	855
25-29	"	.....	3,122	3,763
30-34	"	.....	2,723	2,977
35-39	"	.....	2,567	2,898
40-44	"	.....	2,138	2,360
45-49	"	.....	1,973	2,340
50-54	"	.....	1,907	2,168
55-59	"	.....	1,724	1,852
60-64	"	.....	1,408	1,649
65-69	"	.....	1,142	1,210
70-74	"	.....	688	1,132
75-79	"	.....	372	615
80-84	"	.....	113	237
85-89	"	.....	37	74
90-94	"	.....	9	24
95-99	"	.....	1	2
100	"	.....	—	—

Table 2.—Birth Rates for Cork City and Éire from 1881.

Year	Cork	Éire	Year	Cork	Éire
1881	27.7	24.0	1911	26.0	22.8
1882	28.2	23.8	1912	24.8	22.7
1883	27.0	23.4	1913	24.2	22.6
1884	27.4	23.5	1914	24.3	22.3
1885	25.6	23.1	1915	23.2	22.0
1886	25.4	22.7	1916	22.6	21.1
1887	25.5	22.5	1917	20.2	20.0
1888	25.7	22.1	1918	20.8	19.9
1889	25.2	22.0	1919	23.8	19.9
1890	25.0	21.6	1920	28.3	21.6
1891	26.9	22.3	1921	24.6	19.7
1892	24.6	21.7	1922	24.2	19.5
1893	27.8	22.1	1923	26.2	20.5
1894	27.4	22.1	1924	25.5	21.0
1895	28.9	22.3	1925	23.8	20.8
1896	29.2	22.7	1926	21.5	20.6
1897	27.5	22.5	1927	21.7	20.3
1898	28.7	22.3	1928	21.7	20.1
1899	27.3	22.1	1929	20.9	19.8
1900	25.8	21.8	1930	25.4	19.9
1901	25.6	21.8	1931	24.4	19.4
1902	26.2	22.2	1932	23.0	19.0
1903	27.1	22.1	1933	23.7	19.3
1904	27.4	22.7	1934	24.4	19.5
1905	27.6	22.6	1935	24.8	19.6
1906	27.5	22.8	1936	23.7	19.6
1907	25.6	22.4	1937	22.3	19.1
1908	27.3	22.7	1938	21.1	19.4
1909	26.3	22.9	1939	21.1	19.1*
1910	25.8	22.8			

* From *Annual Summary* of Registrar General.

3.—Deaths.

The number of deaths recorded during the year was 1,060, equivalent to a rate of 13.1 per 1,000 population. These figures represent crude death rates based on population only. As will be seen from the accompanying table (Table 3) this is the lowest death-rate ever recorded in the history of the city. In last year's report I had occasion to comment on the fact that the death rate then recorded was the second lowest in the history of the city. It is satisfactory therefore to be able to refer to an even considerably lower rate for the present year. The previous lowest rate was in the year 1923, when the figure was 14.0 per 1,000 as compared with this year's figure of 13.1. This figure is the lowest for the four County Boroughs and for the first time is lower than the general death rate for the whole country (which is 14.2 per 1,000).

Table 3—Crude Death Rates per 1,000 living for Cork City, Éire and England and Wales, 1881-1939.

Year	Cork	Éire	E. & W.	Year	Cork	Éire	E. & W.
1881	26.8	17.1	18.9	1911	21.2	16.3	14.6
1882	24.7	16.9	19.6	1912	19.1	16.2	13.4
1883	24.9	18.6	19.6	1913	21.5	16.8	13.8
1884	26.7	17.4	19.7	1914	20.2	16.1	14.0
1885	26.2	18.0	19.2	1915	20.7	17.5	15.7
1886	22.1	17.4	19.5	1916	18.2	16.5	14.3
1887	22.4	17.9	19.1	1917	17.4	16.9	14.2
1888	24.1	17.4	18.1	1918	20.4	17.5	17.3
1889	22.3	16.9	18.2	1919	20.2	17.9	14.0
1890	22.2	17.6	19.5	1920	17.5	14.7	12.4
1891	26.9	17.6	20.2	1921	15.4	14.3	12.1
1892	26.4	18.7	19.0	1922	18.0	14.7	12.8
1893	24.5	17.3	19.2	1923	14.0	14.0	11.6
1894	24.9	17.7	16.6	1924	17.8	15.0	12.2
1895	23.9	17.7	18.7	1925	15.5	14.7	12.2
1896	22.6	15.9	17.1	1926	17.3	14.0	11.6
1897	24.7	17.8	17.4	1927	14.7	14.8	12.3
1898	23.7	17.7	17.5	1928	15.2	14.2	11.7
1899	26.3	17.0	18.2	1929	16.9	14.6	13.4
1900	24.2	19.1	18.2	1930	17.3	14.1	11.4
1901	23.0	17.1	16.9	1931	16.4	14.5	12.3
1902	21.5	17.0	16.3	1932	15.7	14.4	12.0
1903	19.4	17.0	15.5	1933	14.9	13.6	12.3
1904	21.6	17.6	16.3	1934	14.7	12.9	11.8
1905	21.7	16.4	15.3	1935	14.8	13.9	11.7
1906	20.2	16.2	15.5	1936	14.7	14.3	12.1
1907	20.6	17.0	15.1	1937	17.4	15.3	12.4
1908	22.2	17.1	14.8	1938	14.1	13.6	11.6
1909	22.1	16.8	14.6	1939	13.1	14.2	—
1910	19.3	16.6	13.5				

Table 3 shows the death rates per 1,000 persons living in Cork City, Éire and England and Wales for the 59 years ended 1939. The figures set forth do not serve as an estimate of the relative healthiness of the communities compared as they are based on crude death rates. In order to compare such conditions the figures would have to be based on standardised death rates. The Table, however, indicates that the general trend of the death rate is distinctly downward and that there has been a marked annual saving of life in recent years as compared with the earlier period.

Table 4, which is based on Abstract V. of the Registrar-General's Annual Report, is an analysis of the causes of death during the year 1939. It differs from Abstract V. in this respect that the age-groups are more extended and that the causes of death have been sub-divided in some instances. For example, under the headings "other forms of tuberculosis" and "other defined diseases" the various causes of death are more fully set out. This has been made possible by the system of weekly collection of deaths from the district Registrar's registers and the card-index system of filing which has been adopted in connection with it.

This table is compiled from the weekly returns collected by us from the local Registrars and the totals do not correspond with those of the

Registrar-General in his Summary, which are not fully corrected. The number of deaths in this table amounts to 1,052 (as compared with 1,060 in the Summary) so that the error is but slight and probably due to deaths in other places which have been allocated by the Registrar-General to this area. Once again I have to acknowledge the assistance received from the Registrar-General in the compilation of these figures.

Table 4.—Analysis of Causes of Death at different age-periods during the year 1939.

Causes of Death	Total	Sex		Un. 1 yr.	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and up
		M.	F.											
Scarlatina	1	—	1	—	—	1	—	—	—	—	—	—	—	—
Whooping Cough	6	3	3	2	4	—	—	—	—	—	—	—	—	—
Diphtheria	3	—	3	1	—	2	—	—	—	—	—	—	—	—
Influenza	2	—	2	—	—	—	—	1	—	—	1	—	—	—
Pulmonary Tuberculosis	86	53	33	—	—	3	21	10	19	22	10	1	—	—
Other Tuberculosis														
Diseases :—														
(a) Meningitis	8	5	3	—	6	—	2	—	—	—	—	—	—	—
(b) Peritonitis	2	1	1	—	2	—	—	—	—	—	—	—	—	—
(c) Other	4	3	1	1	1	—	—	1	—	2	—	—	—	—
Cancer	143	70	73	—	—	—	—	1	8	26	49	44	14	11
Diabetes	8	2	6	—	—	—	—	1	—	2	1	3	1	—
Cerebral Haemorrhage	59	22	37	—	1	—	—	—	—	9	16	24	7	23
Heart Disease	278	132	146	—	—	1	4	2	12	27	63	108	54	77
Arteric Sclerosis	7	7	—	—	—	—	—	—	—	—	3	1	2	11
Bronchitis	53	32	21	3	1	—	—	—	2	3	16	20	7	11
Pneumonia :—														
(a) Lobar	24	12	12	3	—	1	1	1	1	7	3	4	3	—
(b) Broncho	26	12	14	6	9	—	1	1	2	5	1	1	—	—
Other Respiratory Diseases	24	14	10	1	—	—	2	—	3	2	5	9	2	—
Gastric and Duodenal Ulcer	10	8	2	—	—	—	—	—	3	5	1	1	—	—
Diarrhoea and Enteritis														
(Under 2 years)	39	24	15	36	3	—	—	—	—	—	—	—	—	—
Appendicitis	4	3	1	—	—	1	1	1	—	—	—	1	—	—
Nephritis	21	8	13	—	—	1	1	1	3	8	3	4	—	—
Puerperal Sepsis	1	—	1	—	—	—	—	—	1	—	—	—	—	—
Other Puerperal Causes	3	—	3	—	—	—	1	—	2	—	—	—	—	—
Congenital Debility and Premature Birth	45	21	24	45	—	—	—	—	—	—	—	—	—	—
Violence	22	13	9	1	3	2	2	1	1	4	3	3	2	—
Other Defined Diseases :—														
(1) Gastro-Intestinal	17	10	7	1	2	1	—	—	1	5	2	4	1	—
(2) Convulsions	11	9	2	9	2	—	—	—	—	—	—	—	—	—
(3) Central Nervous Sys- tem	9	7	2	—	—	—	1	—	1	1	4	1	1	—
(4) Anaemia and Blood Diseases	8	5	3	1	—	1	1	1	—	2	2	—	—	—
(5) Genetic-Urinary	9	8	1	—	—	—	—	—	—	—	1	5	3	—
(6) Marasmus	13	7	6	13	—	—	—	—	—	—	—	—	—	—
(7) Rheumatic Diseases	4	3	1	—	—	—	—	—	—	1	1	2	—	—
(8) Meningitis	3	3	—	1	1	—	—	—	—	—	1	—	—	—
(9) Hepatic Diseases	7	2	5	—	—	—	1	—	—	2	1	2	1	—
(10) Toxic Goitre	4	1	3	—	—	—	—	1	1	1	—	1	—	—
(11) Senile Decay	63	18	45	—	—	—	—	—	—	—	—	21	33	9
(12) Miscellaneous	17	5	12	2	1	2	1	2	3	—	4	1	1	—
Ill-Defined or Unknown Causes	8	3	5	—	—	—	—	—	—	1	1	6	—	—
Total	1052	526	526	125	36	16	40	25	63	135	192	267	132	21

In connection with the eight deaths included under the designation "ill defined or unknown causes" the particulars of registration show that in each of these cases there was no medical attendant and the cause of death was stated to be "probably heart failure" or some similar designation. Only in one case was an inquest held. It would be of interest to know on what grounds the cause of death was decided to be heart failure and why, in the absence of any previous medical attendance, it was deemed unnecessary to hold inquests in these cases. In such circumstances, it would appear to some, at any rate, that not only are inquests essential, but post-mortem examinations also, to determine the exact cause of death. Any relaxation in this regard is liable to open the way to very grave abuse.

The principal causes of death were (in order of importance:—

1. Heart Diseases	....	....	278	(304)
2. Cancer	....	....	143	(106)
3. Pulmonary Tuberculosis	....	....	86	(99)
4. Senile Decay	....	....	63	(56)
5. Cerebral Haemorrhage	....	....	59	(51)
6. Bronchitis	....	....	53	(78)
7. Premature Birth	....	....	45	(38)
8. Diarrhoea and Enteritis	....	....	39	(33)
9. Broncho-Pneumonia	....	....	26	(44)
10. Lobar Pneumonia	....	....	24	(33)
11. Violence	....	....	22	(28)
12. Nephritis	....	....	21	(27)

The figures in parenthesis denote the corresponding numbers in 1938.

Cardiac Disease. As in previous years this condition accounts for the great bulk of the deaths so far as they can be classed under one definite heading. In preceding reports stress has been laid upon deaths from this cause and allusion made to the fact that probably in a considerable proportion of the cases they cannot be prevented, as they are merely representative of a gradual degenerative process. This feature is again evident in the figures as set out in Table 5 in which it will be seen that (as in previous years) the great bulk of deaths fall within the later age groups.

Table 5.—Analysis of deaths from heart disease from 1931.

Year	Under 5 years	5/15 years	15/25 years	25/35 years	35/45 years	45/55 years	55/65 years	65/75 years	75 yrs and up	Total
1931	—	6	3	5	18	31	66	87	34	250
1932	—	6	2	9	17	39	50	99	36	258
1933	—	2	4	5	15	31	58	83	42	240
1934	1	3	4	5	20	17	66	103	39	258
1935	2	3	1	7	11	29	63	93	36	245
1936	4	3	3	7	6	32	64	98	48	265
1937	—	5	6	9	16	24	72	112	64	308
1938	1	2	2	2	12	35	67	106	76	304
1939	—	1	4	2	12	27	63	108	61	278

It will be seen from this table that the feature referred to above relative to the bulking of the deaths in the later age groups has been consistently maintained in each year.

The general trend of deaths from heart disease is shewn in the following table and a comparison made with deaths from cancer and pulmonary tuberculosis.

Table 6.—Trend of mortality from the three principal causes of death in Cork City from 1931.

Year	Condition		
	Heart Disease	Cancer	Pulmonary Tuberculosis
1931	250	124	103
1932	258	98	111
1933	240	114	106
1934	258	111	107
1935	245	133	115
1936	265	121	85
1937	308	117	96
1938	304	106	99
1939	278	143	86

Cancer. The number of deaths attributable to this disease recorded by us was 143, as compared with 106 in 1938. The corresponding figures of the Registrar-General are 133 (uncorrected) and 101. The discrepancy observable here, no doubt, is due to a difference in classification, all forms of malignant disease being classed by us under this heading. For comparative purposes the Registrar-General's are the more correct figures. On the basis of 143 deaths the rate was 1.6 per 1,000 of the population, as compared with 1.3 per 1,000 last year.

Phthisis Death Rate. The deaths from pulmonary tuberculosis numbered 86, equivalent to a rate of 1.0 per 1,000 of the population. The corresponding figures for last year were 99 and 1.2 per 1,000 respectively. The figures for the years from 1911 onwards are set out in Section IV.

Infant Mortality. The number of deaths of children under one year of age was 125, which is equivalent to a rate of 73.0 per 1,000 live births. In 1938 the number of deaths was 129 and the rate 75.5 per 1,000. The contributory factors are discussed in Section V. The rate for this year is based on the number of *notified* births in conjunction with the infant deaths recorded by us. These figures are more likely to be accurate than those supplied by the Registrar-General in his annual summary, owing to the lag which occurs between notification and registration.

Maternal Mortality. There were 4 deaths from causes under this heading during the year. The maternal mortality rate was 2.3.

Infectious Disease Death Rate. The number of deaths from infectious disease was 50, equivalent to 0.5 per 1,000 of the population. In 1938 the figures were 47 and 0.6 per 1,000 respectively.

Table 7.—Deaths registered during the year 1939, for the County Borough of Cork by Registrars' Districts, with the mortality per 1,000 of the population from all causes and from the Principal Epidemic Diseases.

REGISTRARS' DISTRICTS, Etc.	Infant Mortality per 1,000 Births	Annual Rate per 1,000 Population Census 1936		Total No. of Deaths.	DEATHS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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													Principal Epidemic Diseases						Tuber- culosis.		Diseases of the Respi- ratory System.		Violence.	Other Causes	Inquest Cases.	In Public Institutions	No. of Uncertified Deaths																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
					Under 1 year.	1 year and under 2 years.	2 and under 5 years.	5 and under 15 years.	15 and under 25 years.	25 and under 45 years.	45 and under 65 years.	65 years and upwards.	Typhoid Fever, Typhus, Small Pox, Dysentery	Measles	Scarlet Fever.	Whooping Cough.	Diphtheria.	Diarrhoea and Enteritis under 2 years	Influenza	Pulmonary	Other Forms.	Cancer.						Pneumonia.	Other.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Note :—This Table is taken from the Annual Summary of the Registrar-General, the returns of which are not fully corrected.

Table 8.

Summary of Births and Deaths Registered during the Years 1878 to 1939, inclusive, in the Cork Urban Sanitary District with the number of Deaths from some of the principal causes.

YEAR	POPULATION	Rate per 1,000 persons represented by		NUMBER REGISTERED.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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		BIRTHS.	DEATHS from	BIRTHS.	TOTAL NUMBER.	Under 1 year of age.	At 6 years & upwards.	NUMBER CAUSED BY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
								Smallpox.	Measles.	Scarlet Fever.	Typhus.	Whooping Cough.	Diphtheria.	Enteric Fever.	Diarrhoea.	Influenza.	Pneumonia.	Tuberculous Disease.	Pulmonary.	Other forms.	Cancer.	Violence.	Inquest Cases.	No. in Public Institutions.	Number of Uncertified																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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* Infection incurred outside City area.

† Both were resident in Mental Hospital (outside City area) for several years.

Date		Description		Amount	
1890	Jan 1	Balance		100.00	
1890	Jan 15	Received from A. B.		50.00	
1890	Feb 1	Received from C. D.		25.00	
1890	Mar 1	Received from E. F.		75.00	
1890	Apr 1	Received from G. H.		100.00	
1890	May 1	Received from I. J.		150.00	
1890	Jun 1	Received from K. L.		200.00	
1890	Jul 1	Received from M. N.		250.00	
1890	Aug 1	Received from O. P.		300.00	
1890	Sep 1	Received from Q. R.		350.00	
1890	Oct 1	Received from S. T.		400.00	
1890	Nov 1	Received from U. V.		450.00	
1890	Dec 1	Received from W. X.		500.00	
1890	Dec 31	Total		2000.00	
1891	Jan 1	Balance		100.00	
1891	Jan 15	Received from A. B.		50.00	
1891	Feb 1	Received from C. D.		25.00	
1891	Mar 1	Received from E. F.		75.00	
1891	Apr 1	Received from G. H.		100.00	
1891	May 1	Received from I. J.		150.00	
1891	Jun 1	Received from K. L.		200.00	
1891	Jul 1	Received from M. N.		250.00	
1891	Aug 1	Received from O. P.		300.00	
1891	Sep 1	Received from Q. R.		350.00	
1891	Oct 1	Received from S. T.		400.00	
1891	Nov 1	Received from U. V.		450.00	
1891	Dec 1	Received from W. X.		500.00	
1891	Dec 31	Total		2000.00	

Table 9.—Showing the number of deaths from the principal epidemic diseases during the past ten years.

Year	Small Pox	Typhus Fever	Typhoid Fever	Simple Contd. Fever	Scarlatina	Puerperal Fever	Membranous Croup	Diphtheria	Measles	Diarrhoea	Whooping Cough
1930	—	—	—	—	6	1	1	64	—	31	4
1931	—	—	1*	—	—	1	—	24	1	34	5
1932	—	—	1*	—	1	1	—	17	1	46	18
1933	—	—	2†	—	—	2	—	14	3	45	3
1934	—	—	—	—	2	5	—	25	11	36	16
1935	—	—	—	—	—	1	—	7	7	56	1
1936	—	—	—	—	7	1	—	8	10	41	5
1937	—	—	—	—	10	—	—	17	—	52	12
1938	—	—	1*	—	3	—	—	7	—	33	3
1939	—	—	—	—	1	1	—	3	—	39	6

* Infection in these cases was incurred outside the City area.

† Both these cases had been resident many years in the Mental Hospital (outside City area).

Uncertified Deaths. Nineteen uncertified deaths were recorded during the year as compared with eighteen in 1938.

The following table shows the number of uncertified deaths each year since 1920. (Figures compiled from Annual Report of Registrar-General) :—

1920	....	59	1930	....	25
1921	....	59	1931	....	33
1922	....	67	1932	....	18
1923	....	42	1933	....	22
1924	....	40	1934	....	13
1925	....	32	1935	....	19
1926	....	37	1936	....	11
1927	....	52	1937	....	19
1928	....	34	1938	....	18
1929	....	49	1939	....	19

Deaths from Violence. In the 22 recorded instances the cause of death was as follows :—

Falls	....	....	....	5
Burns	....	....	....	5
Drowning	....	....	....	4
Motor Car Accidents	....	....	....	2
Suicide	....	....	....	1
Manslaughter	....	....	....	1
Miscellaneous	....	....	....	4

Table 10.—INFANT DEATH RATE.

Year	Births	Deaths under 1 year	Deaths per 1000 Births	Year	Births	Deaths under 1 year	Deaths per 1000 Births
1881	2167	271	124	1911	1992	277	139
1882	2212	283	127	1912	1903	204	107
1883	2161	236	109	1913	1853	253	136
1884	2199	253	110	1914	1897	226	119
1885	2054	247	120	1915	1778	235	132
1886	2037	225	110	1916	1732	182	105
1887	2042	252	123	1917	1552	169	108
1888	2058	288	139	1918	1559	189	118
1889	2023	253	125	1919	1825	183	100
1890	2005	214	106	1920	2169	173	79
1891	2024	281	138	1921	1887	144	76
1892	1978	297	150	1922	1853	173	93
1893	2092	268	132	1923	2007	133	66
1894	2063	310	150	1924	1990	175	87
1895	2179	287	131	1925	1827	136	74
1896	2144	229	106	1926	1687	220	130
1897	2073	316	152	1927	1701	148	87
1898	2160	285	131	1928	1764	135	76
1899	2060	276	133	1929	1816	156	85
1900	1944	235	120	1930	1998	155	77
1901	1942	272	139	1931	1921	138	71
1902	2031	258	127	1932	1819	168	89
1903	2066	232	112	1933	1852	165	89
1904	2089	249	118	1934	1922	139	72
1905	2099	276	131	1935	1945	162	83
1906	2094	279	133	1936	1921	154	80
1907	1946	254	139	1937	1818	187	103
1908	2084	281	134	1938	1708	129	76
1909	2000	251	125	1939	1711	125	73
1910	1965	189	96				

Section III.—Infectious Diseases

The following diseases are compulsorily notifiable in this area :—

Small Pox	Measles
Cholera	Diarrhoea
Typhus	Acute Primary Pneumonia
Typhoid (Enteric Fever)	Acute Influenzal Pneumonia
Simple Continued Fever	Malaria
Scarlatina	Dysentery
Puerperal Fever	Encephalitis Lethargica
Diphtheria	Varicella
Membranous Croup	Cerebro Spinal Meningitis
Erysipelas	Poliomyelitis

The Infectious Disease (Notification) Act, 1889, was by a resolution of the Corporation, dated 7th February, 1890, adopted in the County Borough.

The Act was subsequently made to apply to the following diseases :—

Name of Disease	Date of Resolution making Act applicable.	Period in force
Cerebro-Spinal Meningitis	13 July, 1900	Till 31st December, 1900
do.	22 February, 1907	Till revoked
Varicella or Chicken Pox	7 March, 1902	do.
Measles	26 May, 1905	do.
Diarrhoea	14 December, 1906	1 July, 1907, to 31 Oct., 1907
do.	12 February, 1909	1 July, 1909, until revoked
Poliomyelitis or Infantile Paralysis	10 November, 1916	Till revoked.

The Infectious Disease (Prevention) Act, 1890, was, by a resolution of the Corporation, dated 11th March, 1892, adopted and put into force in the County Borough.

The Public Health Acts Amendment Acts, 1907, was adopted and put into force by a resolution dated the 24th January, 1908, save as regards Sections 21, 24 to 33, 48, 66, 78 to 86, and 91 to 95.

The Public Health (Ireland) (Pneumonia, Malaria, Dysentery, etc.) Regulations, 1919 were revoked and are replaced by "The Public Health (Infectious Diseases) Regulations, 1929." Trench Fever, which was included in the 1919 Regulations, has been withdrawn in the new order.

The following Table shows the number of cases of Infectious disease notified each year for the past ten years.

Table 11.—Prevalence of Infectious Disease over a period of ten years, 1930-1939.

Disease	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Typhus	—	—	—	—	—	—	—	—	—	—
S. Continued Fever	1	—	—	—	—	—	—	—	—	—
Scarlatina	238	98	81	181	118	52	437	454	228	158
Puerperal Fever	6	1	9	11	13	11	12	6	1	4
Membr. Croup	5	1	1	—	—	1	1	—	—	—
Diphtheria	588*	288	85	109	109	56	24	80	54	41
Erysipelas	38	19	13	24	28	24	18	26	18	31
Measles	241	3	242	49	126	300	233	88	12	3
Diarrhoea	59	85	178	189	80	178	261	246	142	197
Acute Primary Pneumonia	3	49	28	3	2	5	14	21	19	14
Acute Influenzal Pneumonia	—	41	7	2	1	2	14	45	3	1
Varicella	72	71	99	79	158	53	69	218	83	28
Encephalitis Lethargica	1	1	1	1	—	—	—	—	—	—
Cerebro-Spinal Meningitis	—	1	—	—	—	—	3	3	14	1
Poliomyelitis	—	—	1	—	—	—	—	1	—	—
Typhoid Fever	—	1	1	2	1	3	2	1	3	7

* In addition to the 588 cases of Diphtheria notified during 1930, there were 36 cases of Diphtheria and Scarlatina, two cases of Diphtheria and Measles, and one case which was notified as "Diphtheria, Scarlatina and Measles." To the 369 cases notified in 1929, must be added three cases of Scarlatina and Diphtheria, and two cases of Diphtheria and Measles.

The total number of notifications received was 485, as compared with 577 in 1938.

This is a substantial reduction and is all the more satisfactory since the figure for 1938 was in itself considerably less than that of the previous year (1937) when the total number of notifications amounted to 1217. The principal reductions are accounted for under the headings scarlatina, diphtheria, measles, varicella (chicken pox) and cerebro-spinal meningitis. There was a somewhat marked increase in the number of cases of diarrhoea associated with the warm spell experienced during August and early September and also in the number of cases of typhoid fever (seven of which were reported). Of the latter cases no less than six occurred in the one family and at the same time, due to the introduction of infection by the head of the family. This minor outbreak is referred to in detail under the appropriate heading.

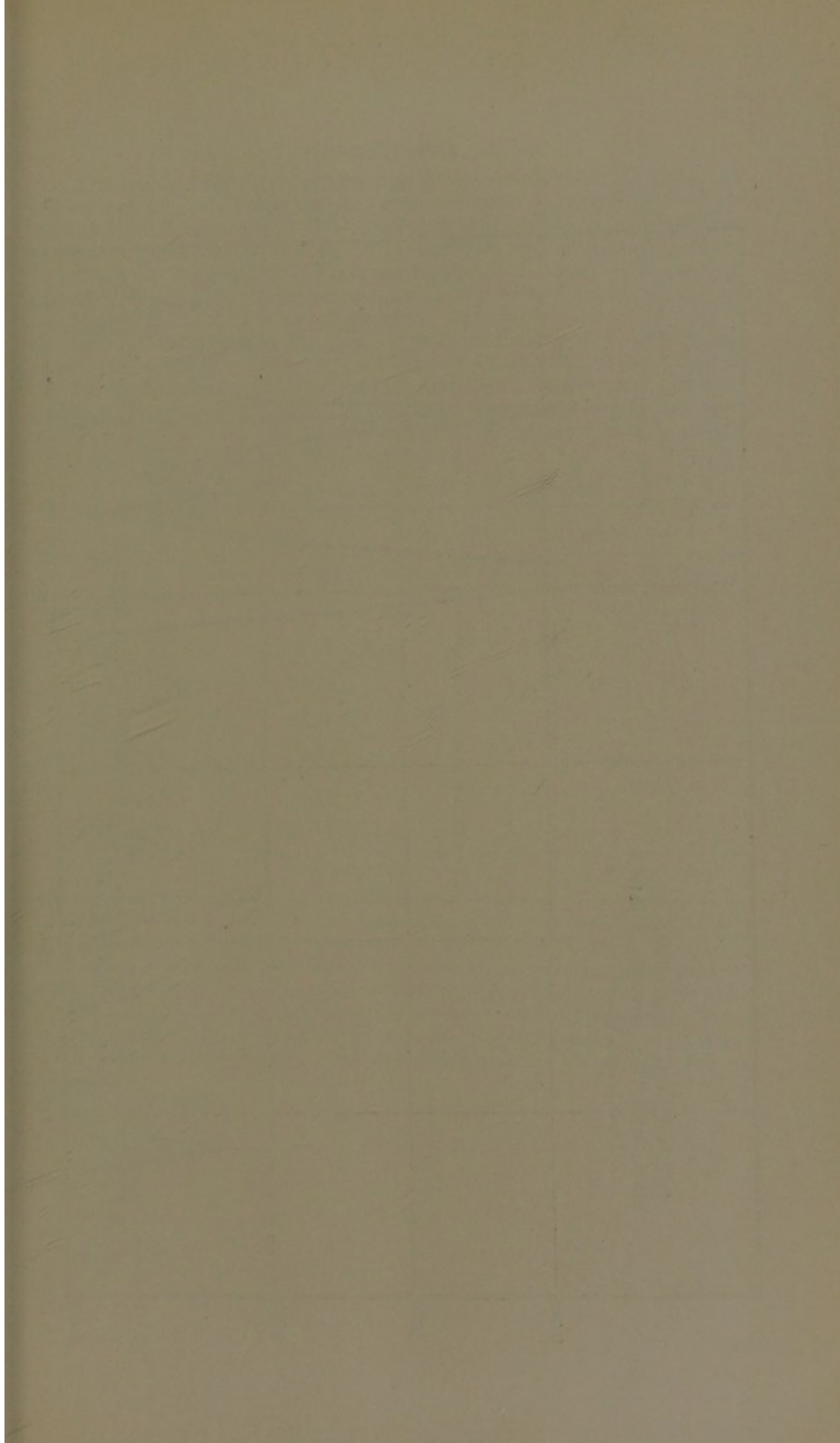
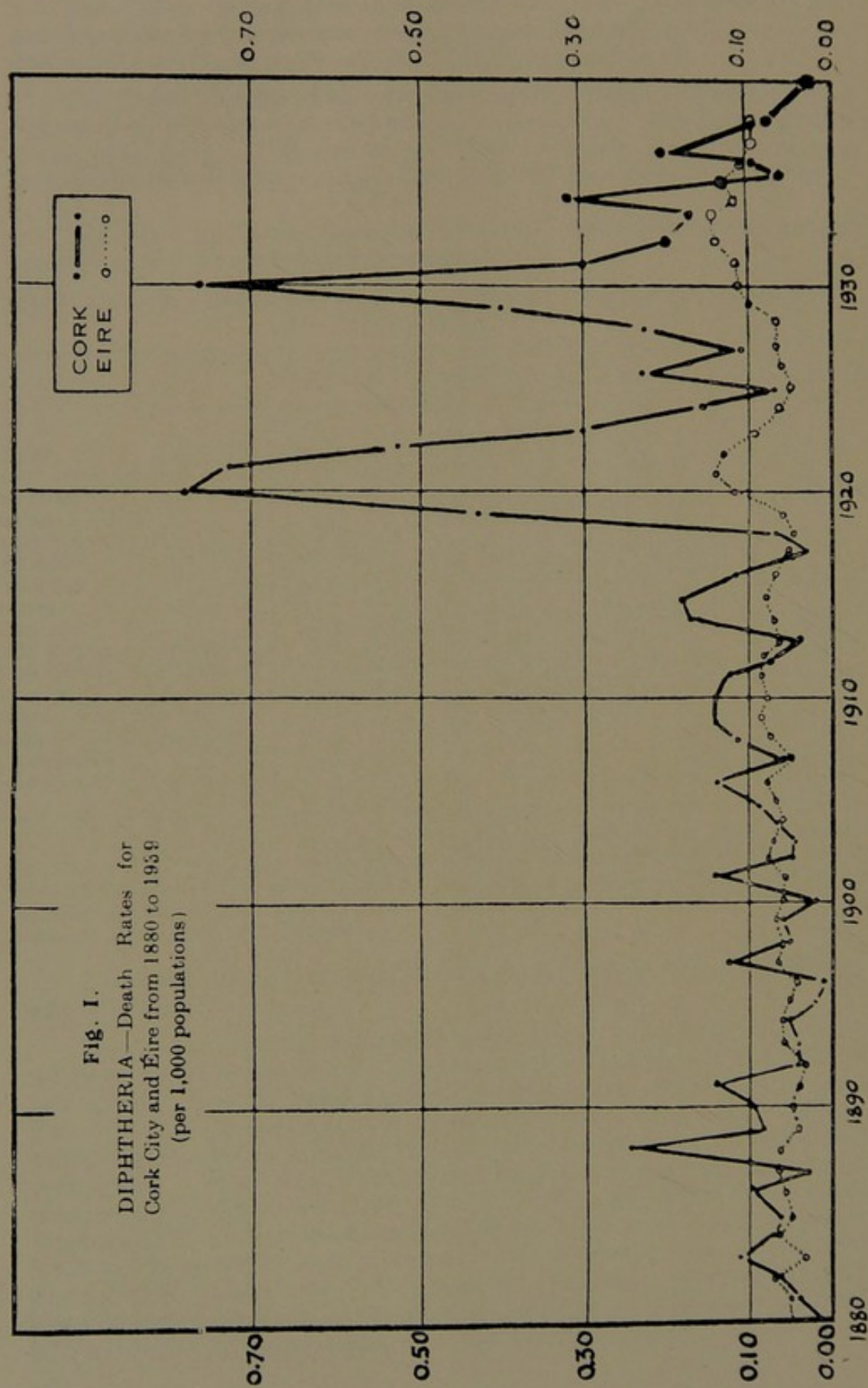


Fig. 1.
DIPHTHERIA—Death Rates for
Cork City and Éire from 1880 to 1939
(per 1,000 populations)



DIPHTHERIA.

The number of cases notified was 41 (as compared with 54 in the previous year). Three deaths were recorded, representing a case fatality of 7.4 per cent. The corresponding figures in the previous year were 7 and 12.7 per cent). In comparison with former years these figures may be regarded with some satisfaction, but it is, of course, a great reproach that we should have to refer to *deaths* from diphtheria at all considering the means at our disposal for their prevention. In each of the three recorded deaths the same lamentable history was forthcoming, which I have had to allude to year after year in these reports, that is the failure of the parents to adopt prophylactic inoculation for their children. Since the facilities for protecting against diphtheria have been available for the past ten or eleven years, the blame for such deaths must fall entirely on the parents concerned.

Table 12.—Analysis of cases and deaths.

Age Groups	CASES		DEATHS	
	Number	Proportion to Total	Number	Case Fatality
0-2 years	2	4.87 per cent.	1	50.00 per cent.
2-4 „	2	4.87 „	—	—
4-6 „	6	14.65 „	1	16.66 „
6-8 „	10	24.39 „	—	—
8-10 „	6	14.65 „	1	16.66 „
10-15 „	2	4.87 „	—	—
15 and over	13	31.70 „	—	—
Total	41	100 per cent.	3	7.46 per cent.

The incidence (per 1,000 of population) and the case-fatality rates of diphtheria from 1890 to the present year are set out in Table 13. In Figure I the *mortality* (i.e., the number of deaths per 1,000 of population) is graphically compared with that for the country generally.

In a large proportion of cases the reports received transpired not to be diphtheria. The actual number was 56 (approximately 50 per cent. of all notifications received). The age distribution of these cases was as follows :—

0-2 years	....	....	....	5 cases
2-4 „	....	....	....	7 „
4-6 „	....	....	....	7 „
6-8 „	....	....	....	6 „
8-10 „	....	....	....	2 „
10-15 „	....	....	....	4 „
15-20 „	....	....	....	10 „
Over 20 „	....	....	....	25 „
Total	....	....	....	65

Table 13.—Incidence and Case Fatality of Diphtheria
from 1890 to 1939.

Year	Cases	Rate per 1000 Population	Deaths	Fatality Rate
1890	20	0.26	8	40.00
1891	37	0.49	11	29.97
1892	11	0.14	3	27.27
1893	18	0.23	3	16.66
1894	14	0.18	4	28.57
1895	6	0.07	2	33.33
1896	7	0.09	1	14.28
1897	21	0.27	10	47.61
1898	18	0.23	4	22.22
1899	18	0.23	5	27.77
1900	23	0.30	2	0.86
1901	26	0.34	11	42.30
1902	8	0.10	4	50.00
1903	17	0.22	4	17.53
1904	29	0.38	6	20.60
1905	18	0.23	6	33.33
1906	37	0.48	11	29.73
1907	37	0.48	5	13.51
1908	40	0.56	9	22.50
1909	66	0.86	11	16.66
1910	51	0.65	11	19.20
1911	70	0.91	10	14.28
1912	52	0.67	6	11.54
1913	24	0.31	3	12.50
1914	54	0.70	13	24.07
1915	68	0.88	14	20.59
1916	43	0.55	9	20.93
1917	26	0.33	3	11.53
1918	34	0.43	6	17.64
1919	262	3.37	32	12.21
1920	428	5.50	60	14.02
1921	541	6.93	56	10.37
1922	379	4.86	42	11.08
1923	440	5.68	23	5.18
1924	217	2.85	12	5.40
1925	265	3.50	6	2.19
1926	469	6.10	18	3.75
1927	344	4.55	9	2.52
1928	385	6.37	19	4.75
1929	369	4.81	32	8.46
1930	627	7.86	59	10.00
1931	288	3.66	24	8.61
1932	85	1.08	17	20.00
1933	109	1.32	14	12.83
1934	109	1.32	25	22.10
1935	56	0.71	7	12.50
1936	25	0.31	8	32.00
1937	80	0.99	17	21.20
1938	54	0.66	7	12.77
1939	41	0.50	3	7.4

Note:—The Infectious Disease (Notification) Act, 1889, was adopted on
7th February, 1890.

DIPHTHERIA IMMUNISATION.

There was a very marked falling off in the attendances recorded during the year. In previous reports I have alluded to the tendency for such an occurrence whenever the incidence of the disease has been low (as it has been, relatively speaking, for the past few years). Apart from this there have been other factors at play too, over which we had no control, which mitigated against a good attendance during the year. The total number of children who completed the full course was 355 (compared with 708 in 1938) and the total number who attended was 511 (compared with 1019 in the previous year).

Table 14.—Attendance at Diphtheria Prevention Clinic 1929-1939.

Year	Primary Schick Negative	Completed Full Course	Total	Not Completed Course
1929	—	1,802	1,802	—
1930	154	2,857	3,011	505*
1931	324	1,777	2,101	436
1932	91	422	513	208
1933	159	592	751	61
1934	826	1,716	2,542	432
1935	173	1,118	1,291	8
1936	458	1,741	2,199	22
1937	165	960	1,125	212
1938	106	708	814	205
1939	87	355	442	69
Totals	2,543	14,048	16,591	2,158

* Includes figures for both 1929 and 1930.

The figures for primary Schick tests in this table do not, of course, represent the *total* number of such tests performed but merely the number that proved *negative*. They are stated here for the purpose of estimating the number of children who have passed through our hands and who may be regarded as presumably immune. The number of primary tests has been reduced to a minimum. It is now confined to children over seven years. The great bulk of our cases are now under this age, so that the necessity for the primary test is comparatively rare.

Table 15.—Primary Schick Tests performed during 1939.

Age Group	Number of Cases	Positive	Negative	Proportion Positive
0-5 years	2	1	1	50.0 per cent.
5-10 „	21	6	15	26.6 „
10 and over	87	16	71	18.4 „
Totals ..	110	23	87	20.9 per cent.

Table 16.—Primary Schick Tests, 1929–39. Analysis, showing proportion positive in each year.

Year	Number Tested	Positive	Negative	Proportion Positive
1929–30	1170	916	254	78.2 per cent.
1931	598	274	324	45.8 "
1932	301	210	91	69.7 "
1933	435	276	159	63.4 "
1934	1474	648	826	44.0 "
1935	309	136	173	44.0 "
1936	626	168	458	26.8 "
1937	266	101	165	38.0 "
1938	152	46	106	30.2 "
1939	110	23	87	20.9 "

Apart from record purposes this table is of little value as, obviously, the proportion of *positive* reactions will depend almost entirely on the age constitution of the groups of children tested and as this factor will fluctuate widely from year to year, so also will the results vary from one year to another. In this respect the next table is much more informative as the results in the different years have been analysed in accordance with the age groups of the children.

Table 17.—Primary Schick Tests, 1929–39. Analysis of proportion positive each year in different age groups.

Age Group	Proportion POSITIVE (expressed as percentages)									
	1929–30	1931	1932	1933	1934	1935	1936	1937	1938	1939
0–5 years	—	—	88.4	79.7	65.8	66.6	66.6	—	—	50.0
5–10 "	—	—	60.1	63.3	44.2	49.5	41.5	43.8	25.0	28.6
10 and over	—	—	37.7	28.9	27.5	30.3	15.5	33.0	35.7	18.4
Whole Group	78.2	45.8	69.7	63.4	44.0	44.0	25.2	37.9	30.2	20.9

Owing to the smallness in the number of cases tested, no results can be adduced for the figures for the years 1937, 1938 and 1939.

The number of attendances in the different age groups is shewn in the following figures.

(1) Treatment Incomplete—

0–5 years	....	....	....	48
5–10 years	....	....	....	17
10 and over	....	....	....	4
				69

(2) Treatment Complete—

0–5 years	....	....	....	280
5–10 years	....	....	....	55
10 and over	....	....	....	20
				355

Total number treated	....	....	....	424
Number negative on Primary Schick Test				87

Total 511

Table 18.—Secondary Schick Tests, 1930–1939.

Year	Total	Negative	Positive	Proportion Negative
1930	805	752	53	94.6 per cent.
1931	1166	991	175	85.2 "
1932	913	858	55	92.8 "
1933	893	801	92	89.0 "
1934	1105	1058	47	95.7 "
1935	1405	1388	17	98.8 "
1936	1272	1259	13	98.9 "
1937	732	722	10	98.6 "
1938	581	498	83	85.7 "
1939	215	205	10	95.3 "
Totals	9087	8532	555	93.8 per cent.

Alum-precipitated toxoid (A.P.T.) and toxoid anti-toxin floecules (T.A.F.) were the prophylactics used. The former was administered by the two-dose method (0.1 c.c. followed by 0.5 c.c.) and the latter in three doses of 1 c.c. each at intervals of a fortnight or three weeks.

The ten children who yielded positive *secondary* Schick tests each received further treatment and of the number eight presented themselves for re-test, seven being now negative. The eighth case who remained positive was of some interest. This was a boy aged nine years who first presented himself on 13th September, 1938, when he received a Schick test. He was seen one week later and then a very markedly positive reaction. He received two injections (1.5 c.c.'s each) of T.A.F. and was re-tested on 10th January, 1939 and was found to be still strongly positive. On 24th January he received a further 1.5 c.c. of T.A.F. and was again tested on 20th June following, when he was found to be still strongly positive. On 24th October he again received 1.5 c.c.'s of T.A.F. He had a further Schick test on 20th February, 1940 and, once again, presented a markedly positive reaction. Thus, over a period of practically a year and a half this boy received 6 c.c.'s of T.A.F. which, in addition to the stimulating effect of four Schick tests, failed to convert his positive reaction into a negative one. On the last-mentioned date he received 0.1 c.c. of A.P.T., which was followed by 0.5 c.c. two weeks later.*

SCARLET FEVER.

A further substantial reduction was recorded in the number of cases notified. This amounted to 158 altogether (as compared with 228 in 1938 and 454 in 1937). The disease must be considered to have maintained its epidemic character which has persisted, with individual variations during each of the years since 1936. Scarlet fever has always been more or less prevalent in this area, assuming epidemic proportions fairly frequently (as shown in the following table). The characteristic mildness has been maintained. One death only was recorded (yielding a case fatality rate of 0.6 per cent). Reference to the table will illustrate the remarkable modification which has taken place in the character of this disease since notification was first introduced.

*The result of the subsequent Schick Test came to hand just before going to Press and was *Negative*.

Table 19.—Incidence and Case Fatality in Scarlet Fever *Epidemics* in Cork City.

Year	No. of Cases	No. of Deaths	Fatality Rate
1879	386	65	16.8 per cent
1880	616	202	32.7 "
1881	103	30	29.1 "
1884	158	27	17.2 "
1885	143	48	33.2 "
1894	304	15	4.9 "
1900	401	22	5.5 "
1901	288	17	5.9 "
1914	230	9	3.9 "
1915	245	12	4.9 "
1916	112	6	5.3 "
1926	278	6	2.1 "
1927	205	6	2.8 "
1928	208	4	1.9 "
1929	216	3	1.4 "
1930	238	8	3.3 "
1933	181	1	0.5 "
1934	118	2	1.5 "
1936	437	7	1.6 "
1937	454	10	2.2 "
1938	228	3	1.3 "
1939	158	1	0.6 "

In general, practitioners have been encouraged to treat cases of scarlet fever at home whenever the circumstances justify it. This policy was first adopted in 1936 and has fully justified itself in the intervening years. The main consideration has been whether the patient will have a room for his sole use and if one member of the household can be told off for the duty of nursing him. It can be said that the experience in regard to the occurrence of secondary cases has been such as to give every encouragement for the continuance of this arrangement. Recent advances in the knowledge of the epidemiology and, particularly, of the bacteriology of scarlet fever have made it clear that many of the measures adopted in the past were not only uncalled for but useless in the prevention of the disease. It is not the patient suffering from scarlet fever who is mostly responsible for its spread but the healthy carrier, adult or child, harbouring haemolytic streptococci in the throat or elsewhere. In consequence, it is no longer regarded as necessary to isolate every case of scarlet fever and, provided the circumstances are suitable, home treatment is regarded as being the best from every point of view. In the table which follows are analysed the cases which occurred during the year.

Table 20.—1939.—Age and sex distribution of Scarlet Fever.

Age Group	Males	Females	Total
0-5 years	28	37	65
5-10 "	23	44	67
10-15 "	4	10	14
15-20 "	—	5	5
20 and over	2	5	7
Total	57	101	158

It will be noted that there was a very marked preponderance of females over males. A similar disparity was noted in 1936, while in 1937 there was only a relatively slight excess of female cases.

TYPHOID FEVER.

Seven cases were reported during the year. For a city of such a size this is not an excessive number, but it is considerably in excess of that recorded in each of the previous years for some considerable time. In actual fact the average number of such notifications during the previous years was only two. Of the seven notifications this year one was an isolated case which occurred early in the year while the remaining six cases all occurred in the one family and more or less about the same time (late in April and early in May). Particulars of the facts elicited on investigation are referred to below. The first case reported was a female, aged eighteen, and all lines of investigation yielded negative results so far as tracing the source of infection was concerned. There were no absences from home, no previous history of suspicious illness in the home or among companions and no suspicion could be centred in the source of the milk supply and other foods used by the patient. There was but one dubious factor in the case—the patient's employment, which was that of a fowl-plucker in a city establishment, but here the history of any suggestive illness among the other workers was entirely negative. At one stage the question of fowl typhoid was raised but was not confirmed by the biological tests performed. The source of infection in this case must be regarded as being untraced and one is forced to the conclusion that there must have been a chance contact with some carrier which resulted in the development of the disease.

Family Outbreak.

This outbreak is of some considerable interest inasmuch as the source of infection (or rather its mode of introduction into the family) must be regarded as being of an unusual character. One whole family was affected, not a single member escaped and none other outside it was infected. The family consisted of father, mother and six children. The parents ages were 31 and 29 years respectively, while the ages of the children ranged from 8 years to 2 years. Owing to the way in which the disease developed and the nature of the symptoms in the early cases the cause was not first suspected. It may, perhaps, be best to take in chronological order the history of the disease as it developed among the various members of the family, the events which led to the suspicion of typhoid, the confirmation of the same and the investigations which followed as well as the light which the latter threw upon the possible source of infection. It must be borne in mind, however, that it was not until some considerable time after the cases actually occurred that they were investigated so that, in consequence, the dates of onset must be regarded as only approximate. Even in the cases of the father and mother, the illness had been well established before medical aid was sought, both being under the impression that they were suffering

from influenza. In the cases of the children, it was not, indeed, until the suspicion of typhoid in the parents had been aroused that attention was called to them, three of them being already in hospital at this stage under observation without any definite diagnosis having been reached, apart from gastro-enteritis.

The first to fall ill was a child (T.M.) aged 4 years. This was about the 6th April (more or less). He complained of diarrhoea and abdominal pains and was transferred to hospital. The mother next was taken ill and gave the date as approximately 22nd April (investigation did not take place until some twenty days later when she had been admitted to hospital). A child (N.M.) 7 years, fell ill on the same day. The father (aged 31) seven days later (29th April); a third child (L.M.)—8 years on the 11th May, and the last child (J.M.)—2 years of age on the same date. Up to 12th May no medical practitioner had been called in to see any of the patients, with the exception of the first child (T.M.), who was already in hospital suffering from "gastro-enteritis." On 12th May the Dispensary M.O. was called to the house and found the father, mother and one child (N.M.) then seriously ill—it will be recalled that up to this stage the parents were under the impression that they had "flu" and did not bother to send for a doctor. Actually it transpired that the mother had endeavoured, as best she could, to carry on her ordinary domestic duties until compelled to take to her bed. When Dr. Shinkwin saw the cases his suspicions were aroused and he had the three patients transferred to hospital as well as conveying his suspicions to the staff of the South District Hospital (to which the first patient, the child T.M., had been previously sent). It was at this stage (12th May) that the cases were first notified and it was then found that the two remaining children had already been taken ill and had been transferred to the South District Hospital (11th May). Particulars in regard to dates of onset, nature of symptoms, etc., were obtained from the mother (whose intellect remained quite clear throughout) at this stage. With the exception of the first child it would seem that there were practically no symptoms of intestinal irritation (he was the only one who suffered from diarrhoea). Severe headache, general body pains and prostration were the principal manifestations and it was these which led the parents to believe that the trouble was influenza.

In the accompanying table (21) an attempt has been made to correlate some of the data obtained, to set out in chronological order the occurrence of the cases, to show the times at which the various biological tests (diagnostic and otherwise) were carried out and the results obtained. The first and most important feature to note is *that all the preliminary Widal tests proved positive*, except in the case of the youngest child. The intensity of the reaction being more or less in proportion to the time which elapsed between the presumed date of onset and the date of the test. In the case of the child (T.M.), the first case to occur, the interval was supposedly thirty-nine days and a dilution of 1 : 2500 yielded positive agglutination. The mother (C.M.)—interval twenty-three days—dilution 1 : 1000 positive. In the case of N.M. (interval 23 days) the dilution stated is only 1 : 250 but this was the highest dilution used and it is probable that if carried further positive results

Table 21.—Familial Outbreak of Typhoid Fever. Particulars of Biological Tests and Examinations.

Identity	Age	Date of onset of illness	WIDAL REACTION					DIAZO REACTION		FAECES		URINE	
			Date of Test	H	O	Para A	Para B	Date of Test	Result	Date of Exam.	Result	Date of Exam.	Result
T.M.	4	6/4/39	15/5/39	1 : 2500	Nil	Nil	Nil			22/6/39 29/6/39 6/7/39	Neg. Neg. Neg.	22/6/39 29/6/39 6/7/39	Neg. Neg. Neg.
C.M.	29	22/4/39	15/5/39	1 : 1000	Nil	Nil	Nil			6/7/39 10/7/39 12/7/39	Neg. Neg. Neg.	6/7/39 10/7/39 12/7/39	Neg. Neg. Neg.
N.M.	7	22/4/39	15/5/39	1 : 250	1 : 250	Nil	Nil	13/5/39	Pos.	17/5/39 22/6/39 29/6/39 6/7/39	Neg. Neg. Neg. Neg.	17/5/39 22/6/39 29/6/39 6/7/39	Neg. Neg. Neg. Neg.
W.M.	31	29/4/39	15/5/39	1 : 50	1 : 25	Nil	Nil			6/7/39 10/7/39 12/7/39	Neg. Neg. Neg.	6/7/39 10/7/39 12/7/39	Neg. Neg. Neg.
L.M.	8	11/5/39 (?)	15/5/39	1 : 1250	Nil	Nil	Nil	13/5/39	Pos.	18/5/39 22/6/39 29/6/39 6/7/39	Neg. Neg. Neg. Neg.	18/5/39 22/6/39 29/6/39 6/7/39	Neg. Neg. Neg. Neg.
J.M.	2	11/5/39	15/5/39 26/5/39	Neg. 1 : 125	Neg. Neg.	Nil Nil	Nil Nil	16/5/39	Neg.	19/5/39 22/6/39 29/6/39 6/7/39	Neg. Neg. Neg. Neg.	19/5/39 22/6/39 29/6/39 6/7/39	Neg. Neg. Neg. Neg.

would have been obtained with the higher dilutions. In the case of L.M. (8 years) it will be noted that the interval is stated to be only four days whereas the serum was positive to the Widal test in a dilution of 1 : 1250 so that it is certain that the actual date of infection must have been much earlier than that stated. In the case of the father, the interval is estimated as about sixteen days and a dilution 1 : 50 was positive, while in the case of the last child a putative interval of only four days elapsed before the date of the first test. This was *negative*, while a further test carried out eleven days later was *positive* in a dilution of 1 : 125.

At this stage the position of affairs was the interesting one that there was a whole family affected with typhoid fever, including the somewhat unusual feature of a child so young as two years. So far as can be gathered, the second and third cases developed sixteen days after the first, the fourth case seven days later (*i.e.*, twenty-three days after the *first*). The two last cases developed the disease, in relation to the other cases as follows : twelve days after the fourth case ; nineteen days after the second and third cases, and thirty-five days after the *first* case. Why is there this uneven distribution of development if there was a common source of infection introduced from outside on the one occasion or was this infection introduced at different times and, if so, what was its source ? Then why was the infection confined to this family and how did the numerous people with whom they made contact daily escape ? These children were attending school and their parents went about their business as long as they possibly could and as is the case with all such communities, the open door was maintained so far as their neighbours were concerned, although it was established that the only regular visitors were the immediate relatives. In view of these facts it is somewhat remarkable that infection was limited to the one family.

Topographical Investigation.

This was commenced at once when the cases were notified. The home is a small cottage in a fairly densely populated locality and situated at the point where a narrow laneway joins a fairly wide street. It was known that a sewer ran along the laneway close to the house. The junction of this sewer with the main sewer was sealed and a smoke test applied. Smoke was soon found to be entering the house at several points, due apparently, to connections made with rat runs. This circumstance would appear to provide a possible explanation straightaway but for the fact that the tributary sewer had not been used for several years and had been cut off from the main sewer and the house. It should be borne in mind, however, as a possible source of introduction of the disease through rats making their way into the house and infecting food. A sample of water was taken in the infected house and in four other houses in the neighbourhood as well as from the laboratory tap. In each case the result was satisfactory and ruled out this source as a possible infecting agent. (*B. Coli* were absent in all fractions and the maximum number of organisms growing on agar was 3 per cubic centimetre. In one instance the sample proved sterile). Possible sources of infection at the premises of the milk supplies were ruled out,

this end of the investigation being carried out by the County Health Department. Enquiries as to illness among associates of the family were entirely negative.

During the preliminary enquiries it was elicited that the father, who was a builder's labourer, had been working on a job in a local hospital and that part of his work consisted in breaking up an old drain and relaying with new pipes. An interview with his employer confirmed this and while exact times were not available, the dates on which he worked at the drain would correspond approximately with the date of infection of the first child to fall ill. It transpired also that if infection were present in the drain he would have been likely to transmit it through his person. It is likely therefore that the father was the individual who introduced the infection to the household and that he probably did so on his hands. The subsequent order of events is consistent with such a theory, though it is by no means clear how transmission actually took place and in what order the other members of the family contracted the disease from him if, indeed, they contracted it directly from him and not from the child (T.M.) who was first taken ill. If we assume that the father infected some cooking utensil or other vessel used in common, we would expect that the cases would develop more rapidly, or at least, with shorter intervals from case to case. It is more likely that, in the first instance, the child (T.M.) was the only one infected. It will be recalled that he suffered from diarrhoea and would be more likely to infect a number of others than the father (who is assumed to have been carrying bacteria, very likely on his hands). Probably this child was the only one to be infected in the first instance and that even the father himself escaped. Subsequent events would favour this view under which it can be assumed that the later cases were all secondary ones receiving infection from the first child or from one another. The second, third and fourth cases could certainly be explained by infection from T.M. but that the last two cases (L.M. and J.M.) were so infected is unlikely, since their illness did not declare itself until some thirty-five days after the presumed date of commencement of the first child's illness. It is more likely that infection in these cases was incurred from one of the secondary cases.

All known contacts were kept under observation for a period of three weeks. Surveillance was maintained by the district sanitary officer and the school medical service. In the latter case the schools at which the affected children attended were visited daily and any absentees were followed up. There were no further cases, nor were any further cases of typhoid reported during the year. The outbreak is of interest inasmuch as it illustrates one of the unexpected ways in which the disease may be introduced to a community, notwithstanding the precautions taken to the contrary. This city certainly has been very free from typhoid for, as already stated, the average number of cases for the past ten years has only been two per year and, although the circumstances of this case must be regarded as most unusual, they serve as a warning that there are ways and means of introducing disease which cannot be foreseen.

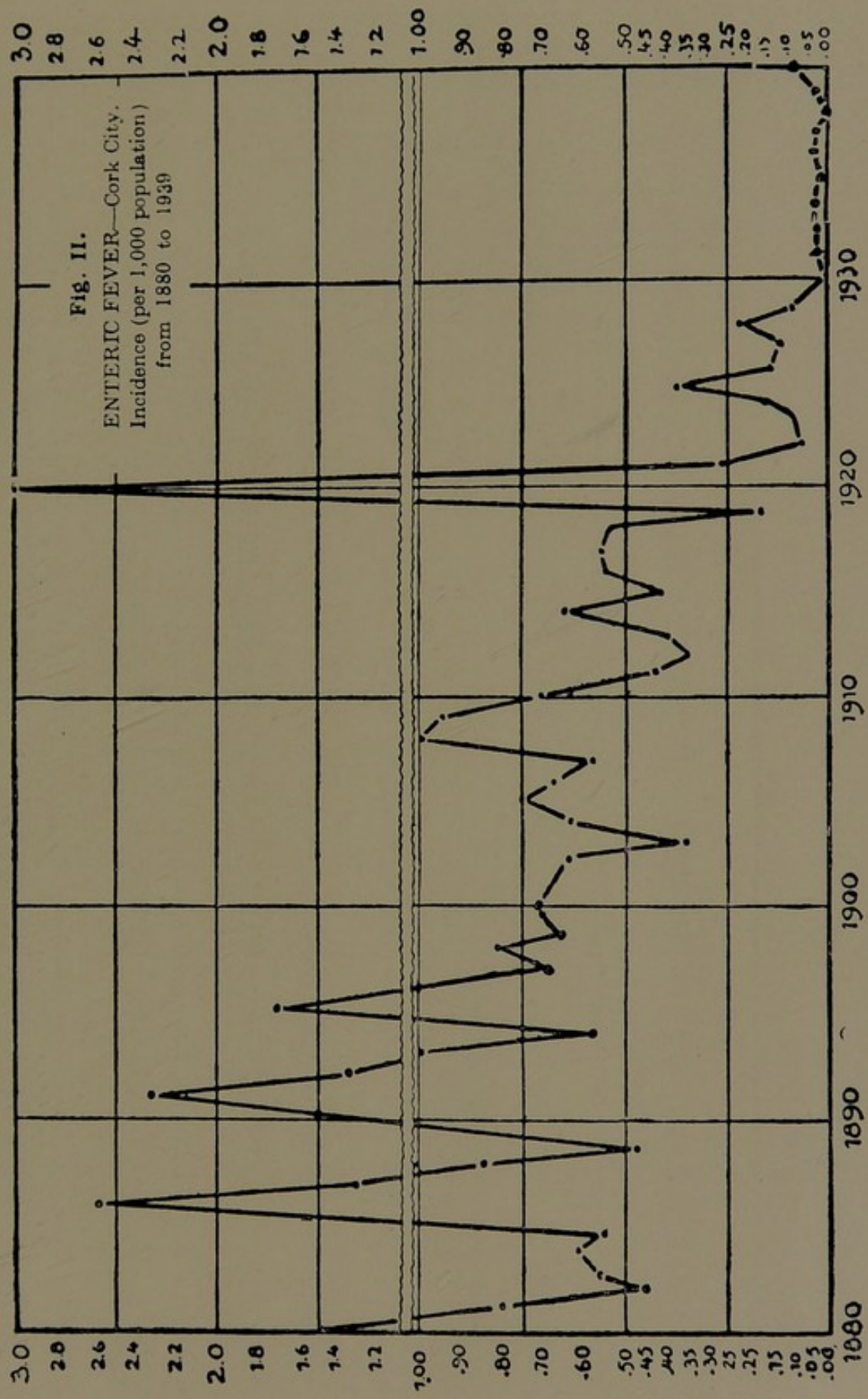
In Table 22 is set out statistical information in relation to typhoid fever from 1881 to the present year. All the cases reported during the current year recovered.

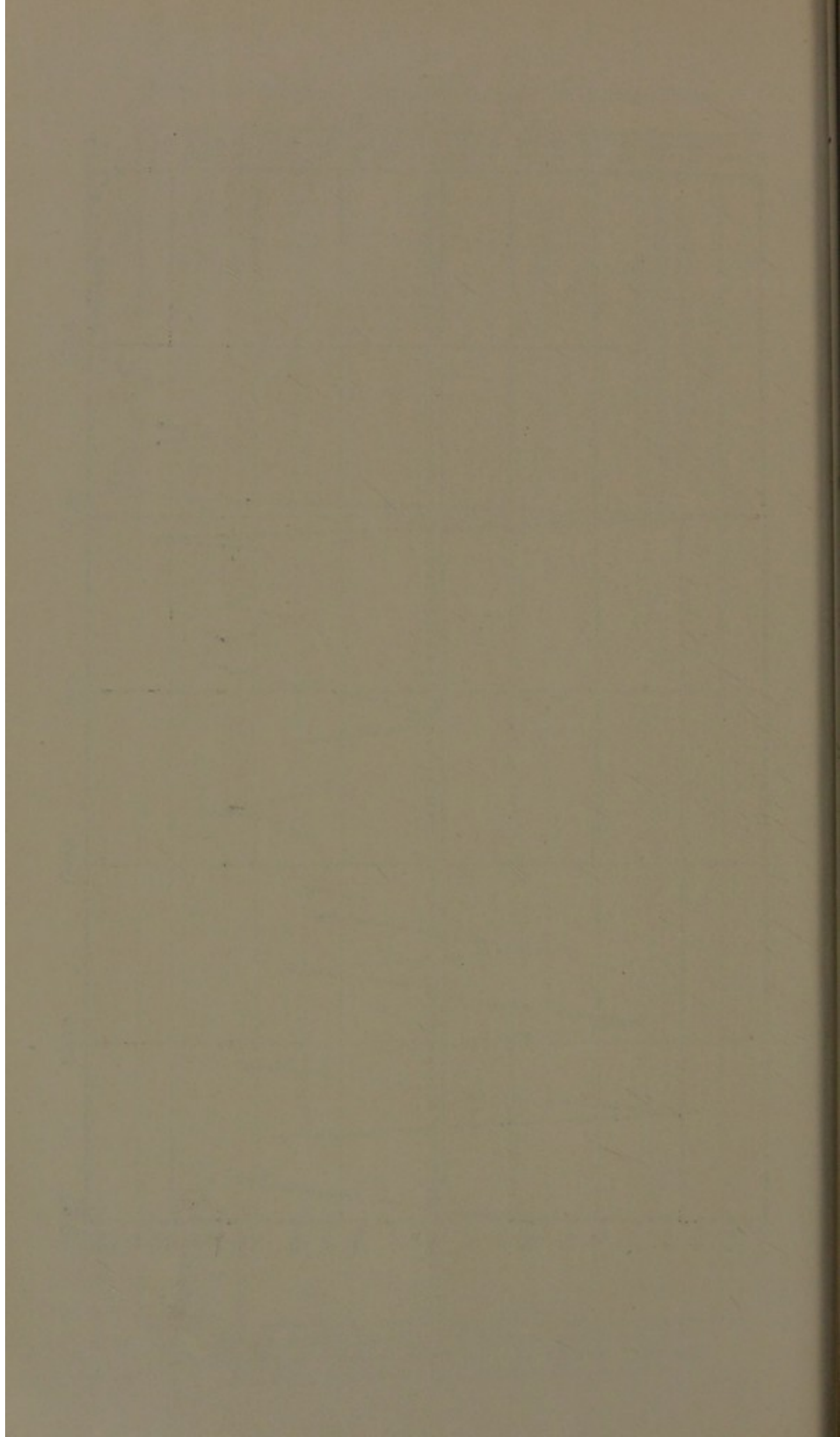
Table 22.—Incidence and Case Fatality of Enteric Fever in Cork City from 1881.

Year	Cases	Incidence per 1,000	Deaths	Fatality Rate
1881	66	0.82	4	6.5
1882	37	0.46	4	10.8
1883	45	0.56	11	24.4
1884	48	0.61	13	27.0
1885	43	0.55	9	20.9
1886	180	2.57	42	23.3
1887	100	1.30	20	20.0
1888	66	0.86	9	13.6
1889	37	0.48	9	24.3
1890	113	1.50	12	10.6
1891	165	2.33	17	10.3
1892	104	1.37	17	18.3
1893	78	1.03	14	17.9
1894	43	0.57	13	30.2
1895	132	1.74	16	12.1
1896	94	1.00	24	25.5
1897	51	0.70	9	17.6
1898	62	0.81	13	20.9
1899	47	0.62	8	17.0
1900	50	0.70	5	10.0
1901	51	0.67	5	9.8
1902	49	0.64	5	10.2
1903	27	0.35	5	18.5
1904	50	0.64	8	16.0
1905	58	0.76	8	13.8
1906	48	0.66	5	10.4
1907	44	0.57	4	9.1
1908	88	1.02	16	18.2
1909	74	0.95	15	20.2
1910	54	0.70	13	24.0
1911	32	0.41	5	15.6
1912	26	0.33	6	23.0
1913	29	0.38	6	20.7
1914	50	0.64	4	8.0
1915	32	0.41	5	15.6
1916	42	0.54	6	14.3
1917	43	0.55	3	6.9
1918	42	0.54	8	19.0
1919	12	0.15	1	8.3
1920	244	3.13	13	5.3
1921	21	0.26	4	19.0
1922	6	0.07	2	33.3
1923	7	0.09	1	14.2
1924	11	0.14	2	18.1
1925	27	0.34	5	18.5
1926	11	0.14	2	18.2
1927	10	0.12	2	20.0
1928	17	0.21	2	11.7
1929	6	0.08	1	16.6
1930	0	....	....	....
1931	1 (a)	0.01	1	100.0
1932	1 (a)	0.01	1	100.0
1933	2 (a)	0.02	....	(b)
1934	1	0.01	....	....
1935	3	0.03	....	....
1936	2	0.02	....	....
1937	1	0.01	....	....
1938	3 (a)	0.03	1	33.3
1939	7	0.08	....	....

(a) Infection in all these cases was incurred outside the City.

(b) Two deaths were recorded in Cork Mental Hospital (Co. Area) of inmates who formerly resided in the City.





TYPHUS.

For the tenth year in succession there has been no case. As a matter of interest the table relative to this disease, first published in 1935, is reproduced in this report.

Table 23.—Incidence and Case Fatality of Typhus Fever in Cork City from 1881.

Year	Cases	Incidence per 1,000	Deaths	Fatality Rate
1881	1406	17.42	88	6.2
1882	683	8.57	54	7.9
1883	844	10.66	46	5.4
1884	456	5.65	37	8.1
1885	159	2.03	21	3.2
1886	83	1.06	17	18.0
1887	67	0.86	12	17.9
1888	72	0.93	21	27.7
1889	48	0.63	5	10.4
1890	54	0.71	7	12.9
1891	24	0.30	5	20.8
1892	162	2.28	23	14.1
1893	92	1.20	7	7.6
1894	25	0.33	2	8.0
1895	29	0.38	8	31.0
1896	22	0.29	7	31.8
1897	30	0.39	3	10.0
1898	61	0.80	11	18.0
1899	9	0.10	6	66.6
1900	28	0.36	4	14.3
1901	13	0.17	2	15.38
1902	6	0.07	....	....
1903	7	0.09	....	....
1904	11	0.14	1	9.1
1905	9	0.11	2	22.2
1906	6	0.07	4	66.6
1907	10	0.13	6	60.0
1908	23	0.30	6	26.1
1909	18	0.24	5	27.7
1910	8	0.10	3	37.5
1911	10	0.13	....	....
1912	1	0.01	....	....
1913	5	0.06	2	40.0
1914	1	0.01	1	100.0
1915	....	....	....	....
1916	1	0.01	1	100.0
1917	3	0.04	1	33.3
1918	1	0.01	1	100.0
1919	15	0.19	3	20.0
1920	2	0.03	....	....
1921	1	0.01	1	100.0
1922	....	....	....	....
1923	1	0.01	1	100.0
1924	1	0.01	....	....
1925	....	....	....	....
1926	3	0.04	1	33.3
1927	4	0.05	....	....
1928	1	0.01	....	....
1929	1	0.01	1	100.0

There has been no case since 1929.

EPIDEMIC DIARRHOEA.

197 cases were notified and 39 deaths recorded, equivalent to a fatality rate of 19.8 per cent. This disease continues to be one of the main causes of infant mortality and the principal contributing factor was (as in every year since investigation has taken place) the substitution of artificial feeding for breast feeding. This point has been emphasised time and again in previous reports and therefore need not be stressed now. The following table sets out the particulars and speaks for itself in regard to the baneful effects of bottle-feeding.

Year	Number of Cases according to Manner of Feeding			Cases Untraced	Total
	Breast	Cow's Milk	Dried Milk		
1935	18	128	6	26	178
1936	7	198	5	51	261
1937	18	204	8	16	246
1938	14	108	5	15	142
1939	9	148	13	27	197
Totals	66	786	37	135	1024

Of the 148 cases fed on cows' milk, 74 were *under* one year and 74 *over* one year, all the other cases were under one year. Of the cases *traced and investigated* (170 in number) it will be noted that 87.0 per cent. were artificially fed. This compares with 88.9 per cent. in 1938. It would appear that there is far too much readiness to recommend and resort to artificial feeding on the part of midwives and professional attendants. The results can only be said to be disastrous.

The epidemiological features of the disease have been somewhat different to those of the immediately preceding years inasmuch as there was a definite epidemic increase during the month of September and, to a lesser extent, in October. It will be recalled that the last three weeks of August and the greater part of September were characterised by particularly dry and warm weather—a condition favouring the increase of epidemic enteritis. For some years past the cases have been more evenly distributed throughout the year and were, obviously, more due to dietetic error consequent on the adoption of artificial feeding than upon actual contamination of the milk. This year, however, there is definite evidence that the milk itself was, at least, partly at fault. The warm conditions prevalent favoured the growth of micro-organisms and consequent rapid fermentation and this no doubt was a factor in the setting up of enteritis. When one considers the enormous risks to which bottle-fed babies are exposed it is impossible to have patience with those who advocate it so readily and, so often, without any real justification. The total number of deaths recorded as due to gastro-enteritis was 39, but the seasonal distribution of these deaths did not correspond with that of the cases which, as stated, were most numerous during the months of September and October.

Five deaths occurred during each of these two months, but there were three in February, seven in March and five in December. It is apparent therefore that so far as *deaths* are concerned that climatic conditions were not a preponderant influence and that the real factor at play was the unsuitable nature of the diet. The number of notifications received during each monthly period was as follows :—

January	....	4 cases	July	....	25 cases
February	....	5 „	August	....	13 „
March	....	5 „	September	....	82 „
April	....	6 „	October	....	22 „
May	....	5 „	November	....	11 „
June	....	10 „	December	....	9 „

The *quarterly* distribution of the cases was as follows :—

1st Quarter	....	14 cases
2nd „	....	21 „
3rd „	....	120 „
4th „	....	42 „
Total		.... 197 „

Classification of *deaths* according to time of occurrence :—

January	....	1	July	....	2
February	....	3	August	....	4
March	....	7	September	....	5
April	....	1	October	....	5
May	....	1	November	....	1
June	....	1	December	....	5

In the following table are shewn the numbers of cases and deaths from diarrhoea which have occurred in the City since 1907, the year in which the disease was first made notifiable here. The *morbidity* rate is based on the number of cases notified in proportion to the population, the *mortality* rate on the number of deaths per 1,000 of the population while the *case fatality* rate represents the deaths registered per 100 cases notified.

Table 24.—Epidemic Diarrhoea. Return of Cases notified and Deaths registered, together with the Mortality, Morbidity and Case-fatality Rates arising therefrom.

Year	No. of Cases	Rate per 1000 Population	DEATHS		
			Number Recorded	Mortality Rate	Case Fatality Rate*
1907	413	5.42	48	0.63	11.1
1908	524	6.85	79	1.03	15.07
1909	514	6.72	54	0.71	10.31
1910	159	2.07	34	0.44	21.3
1911	352	4.56	78	1.01	22.1
1912	71	0.92	18	0.23	25.3
1913	320	4.13	114	1.48	35.6
1914	188	2.43	67	0.86	35.6
1915	177	2.29	49	0.63	27.6
1916	139	1.79	35	0.45	25.1
1917	83	1.07	34	0.43	40.9
1918	121	1.55	40	0.51	33.05
1919	85	1.09	40	0.51	47.05
1920	54	0.69	22	0.28	40.7
1921	105	1.35	1	0.01	0.94
1922	19	0.24	—	—	—
1923	35	0.44	24	0.30	68.5
1924	30	0.38	10	0.12	33.3
1925	142	1.81	45	0.58	31.6
1926	108	1.37	53	0.67	49.07
1927	76	0.96	24	0.30	31.5
1928	79	1.00	28	0.35	35.4
1929	78	0.98	25	0.31	32.05
1930	59	0.74	37	0.46	62.7
1931	85	1.06	34	0.42	40.0
1932	178	2.22	46	0.57	27.8
1933	189	2.35	45	0.56	23.8
1934	80	0.99	36	0.44	45.0
1935	178	2.21	56	0.69	31.4
1936	261	3.23	41	0.50	15.7
1937	246	3.04	52	0.64	21.1
1938	142	1.76	33	0.41	23.2
1939	197	2.44	39	0.48	19.8

*It is obvious that the *fatality rates* in this table must be read with extreme caution. The fluctuation from year to year is so extreme that it is apparent that notification must have been very defective in the years with abnormally high rates. It is obvious, nevertheless, that this is a most fatal disease of early childhood and the figures lend point to the remarks which have been made above in regard to the prime contributory cause.

OTHER INFECTIOUS DISEASES.

Notifications in regard to other infectious diseases during the year were as follows :—

Erysipelas	....	....	....	....	31
Measles	....	....	....	....	3
Acute Primary Pneumonia	....	....	....	....	14
Acute Influenzal Pneumonia	....	....	....	....	1
Varicella	....	....	....	....	28
Puerperal Fever	....	....	....	....	4

Table 25.—Showing the number of Articles Disinfected during the year 1939.

	Bed Ticks	Mat- tresses	Articles of Bedding	Articles of Wearing Apparel	Miscel- laneous Articles	Total No. of Articles
January	7	30	210	49	24	320
February	2	22	132	32	23	211
March	6	58	289	24	27	404
April	0	20	105	9	19	153
May	11	47	329	31	36	454
June	1	27	154	5	5	192
July	3	30	158	55	13	259
August	14	44	260	44	16	378
September	7	40	236	80	45	408
October	8	38	246	18	35	345
November	12	35	296	39	29	411
December	5	31	235	19	31	321
	76	422	2650	405	303	3856

Table 26.—Yearly Summary of Infectious Diseases from 1879

Year	Small Pox	Typhus	Typhoid or Enteric Fever	Simple Continued Fever	Scarlatina	Puerperal Fever	Membranous Group	Diphtheria	Erysipelas	Measles	Diarrhoea	Chicken Pox	Cerebro-Spinal Meningitis	Polio-myelitis	Encephalitis Lethargica	Pneumonia	
																Acute Primary	Acute Influenza
1879		337	91	335	386			2	30	269	107						
1880		756	117	420	616			9	37	282	48						
1881		1406	66	364	103				31	240	5						
1882		683	37	239	25			3	11	146	3						
1883		844	45	164	105			6		109	1						
1884		456	48	221	158			2	14	106	3						
1885	1	159	43	94	143			2	17	35							
1886		83	180	70	86			1	14	24							
1887		67	100	46	17			4	25	182	1						
1888		72	66	40	55			7	25	232							
1889		48	37	24	90			9	12								
1890		54	113	36	128	5	3	20	27	3	2						
1891	1	24	165	46	64	3	3	37	27	2							
1892	1	162	104	53	19		3	11	45	74	1						
1893		92	78	26	91	3		18	70	4	2						
1894		25	43	29	301	5	6	14	65	11	2						
1895		29	132	23	53	3	1	6	45	2							
1896		22	94	29	69	6		7	54	3	2						
1897		30	51	23	34	7	4	21	35	9							
1898		61	62	30	30	6	7	18	20	2							
1899		9	47	14	22	2	10	18	60	23							
1900		28	50	27	401	2	2	23	36				8				
1901		13	51	29	288	3	12	26	38				8				
1902		6	49	16	119	4	1	8	49	8		7	3				
1903	3	7	27	16	51	2	6	17	58	5		49	1				
1904	1	11	50	33	29	4	3	29	43	2		39	4				
1905	1	9	58	47	35	7	8	18	50	7		33	4				
1906		6	48	31	23	10	1	37	48	8		49	3				
1907		10	44	44	50	6	4	37	42	4	413	63	8				
1908		23	88	55	114	4	6	40	26	379	524	14	1				
1909		18	74	42	119	10	4	66	25	44	514	21					
1910		8	54	24	38	4	6	51	26	14	159	16					
1911		10	32	22	39	4	13	70	31	433	352	1	1				
1912		1	26	17	93	6	5	52	29	53	71	7					
1913		5	29	13	81	4	10	24	28	254	320	2					
1914		1	50	12	230	11	15	54	38	161	188	8					
1915			32	4	245	2	8	68	44	160	177	10	6				
1916		1	42	9	112	8	11	43	41	86	139	13	6	1			
1917		3	43	6	46	1	9	26	24	28	83	8	3				
1918		1	42	10	21	2	18	34	16	750	121	19	4				
1919		15	12	3	16	4	21	262	18	3	85	26	2				37
1920		2	244	8	70	6	3	428	18	9	54	30					
1921			21	1	14	4	8	541	17	2	105	28					
1922			6		29	1	5	379	14	324	19	29					
1923		1	7	1	44	1	4	440	45	10	35	30					
1924		1	12		41	3	3	217	30	5	30	54					
1925			27		81	4	9	265	35	94	142	117			1		5
1926		4	11	2	278	4	11	469	34	534	108	59			1		
1927		4	10	1	205	14	11	344	25	7	76	76	1	1	3		
1928		1	17		208	7	15	385	24	6	79	64	1				12
1929		1	6		216	6	4	569	24	226	78	80			2		7
1930				1	238	6	5	588	38	241	59	72			1		3
1931			1		98	1	1	288	19	3	85	71	1		1	49	41
1932			1		80	9	1	85	13	242	178	99			2	28	7
1933			2		181	9		109	24	49	189	79			1	3	2
1934			1		118	10		109	28	126	80	158				2	1
1935			3		52	11	1	56	24	300	178	53				5	2
1936			2		437	12	1	24	18	233	261	69	3			14	14
1937			1		454	6		79	26	88	246	218	5	1		21	45
1938			3		228	1		54	18	12	142	83	14			19	3
1939			7		158	4		41	31	3	197	28	1			14	1

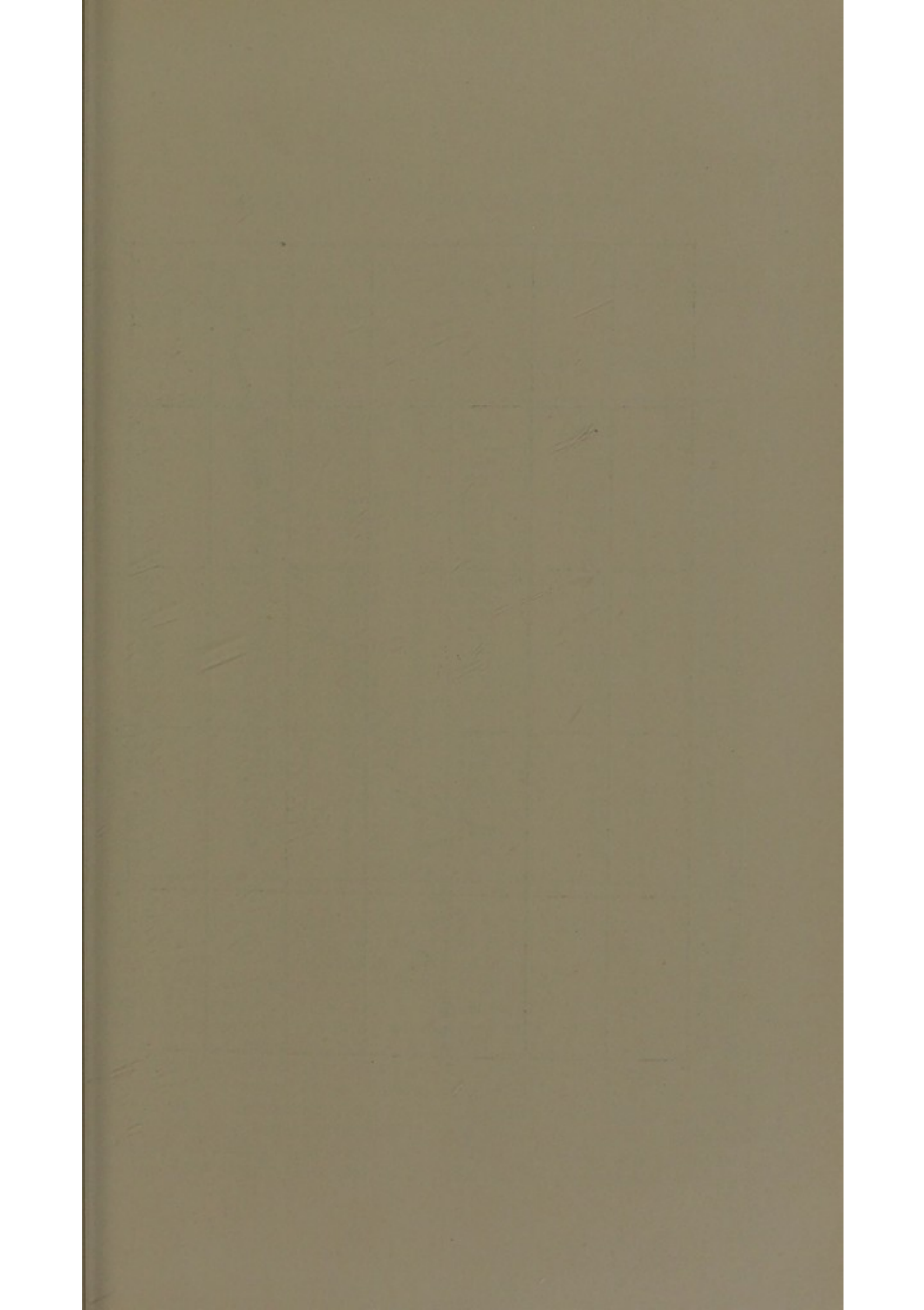
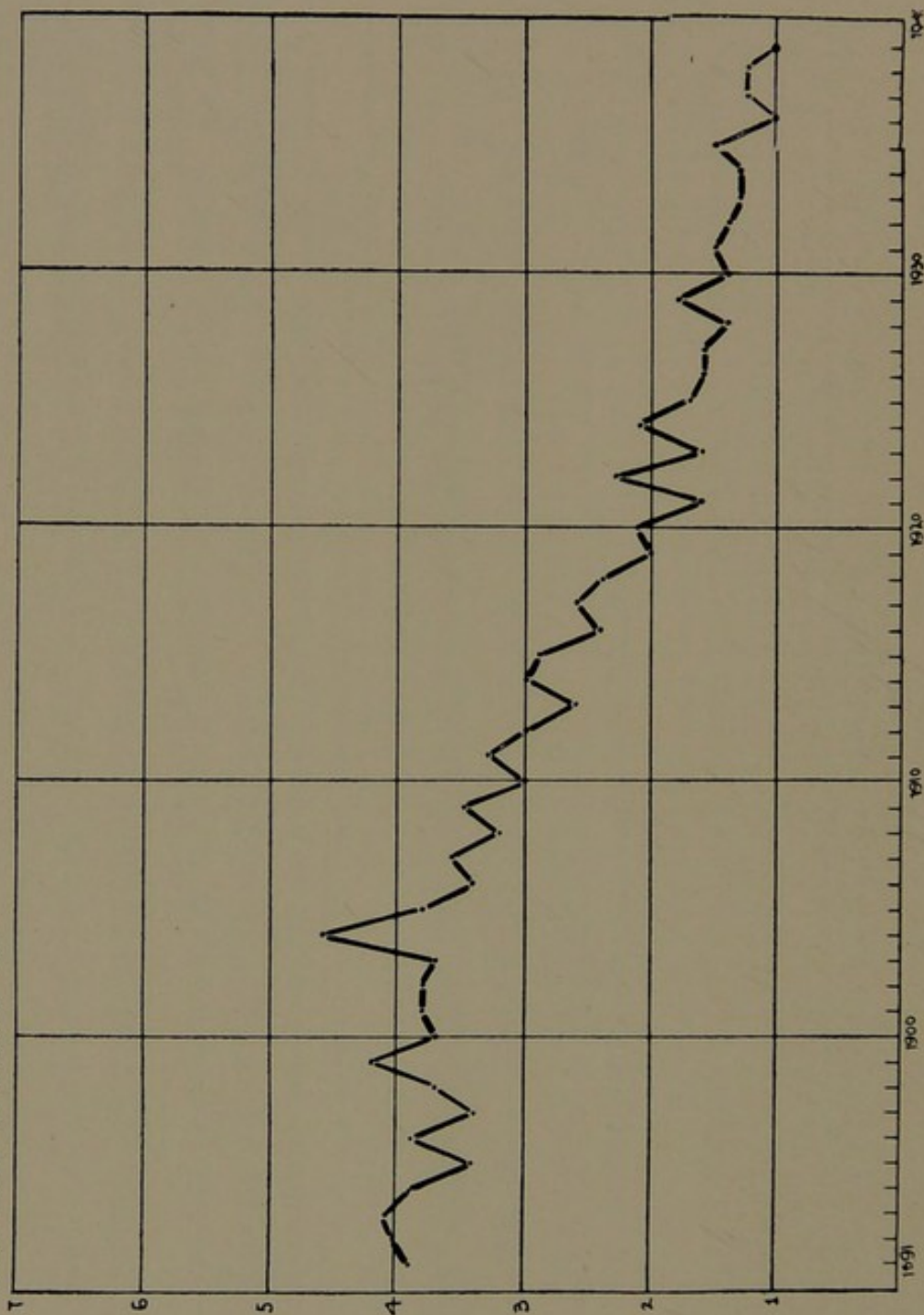


Fig. III.

PULMONARY TUBERCULOSIS. DEATH RATES PER 1,000 POPULATION

FROM 1891 TO PRESENT TIME



Section IV.—Tuberculosis

The death rate from pulmonary tuberculosis for the year was 1.0 per 1,000 of the population. The following table shows the death-rates each year from 1891 to 1939.

Table 27.—Deaths and Death Rates Pulmonary Tuberculosis.

Year	No. of Deaths	Rate per 1,000 pop.	Year	No. of Deaths	Rate per 1,000 pop.
1891	295	3.93	1916	189	2.46
1892	303	4.04	1917	202	2.63
1893	314	4.18	1918	187	2.43
1894	296	3.94	1919	156	2.04
1895	261	3.48	1920	159	2.07
1896	299	3.98	1921	125	1.64
1897	260	3.46	1922	176	2.30
1898	283	3.77	1923	130	1.64
1899	320	4.26	1924	164	2.09
1900	281	3.74	1925	134	1.71
1901	289	3.80	1926	126	1.60
1902	287	3.79	1927	129	1.60
1903	279	3.67	1928	109	1.39
1904	352	4.63	1929	141	1.79
1905	294	3.86	1930	114	1.45
1906	261	3.43	1931	124	1.56
1907	278	3.65	1932	111	1.40
1908	245	3.22	1933	106	1.35
1909	264	3.47	1934	104	1.34
1910	233	3.06	1935	115	1.46
1911	252	3.29	1936	85	1.06
1912	231	3.01	1937	96	1.20
1913	202	2.62	1938	99	1.21
1914	231	3.01	1939	86	1.06
1915	211	2.88			

It will be noted that the death-rate is the same as that recorded for the year 1936 and that the figure for these two years is the lowest ever recorded. The deaths recorded this year are 13 less than last year, quite an appreciable reduction. While the figures shewn in Table 27 are instructive in illustrating the steady decline in pulmonary tuberculosis over the past forty-seven years, they afford no information as to the age-groups at which mortality is heaviest and how it is distributed between the sexes at the various age-groups. Such information is instructive as it helps us to visualise some of the factors which play a determining part in the mortality from tuberculosis and in the following table particulars are supplied in which the deaths are grouped according to sex and ages. This table was first published in the 1938 Report and was made possible by the assistance of the

Registrar General who supplied the necessary particulars from the year 1923. It is not possible to go further back than 1923, as prior to that year deaths were not distributed according to the area of residence of the diseased.

Table 28.—Cork City. Deaths from Pulmonary Tuberculosis.

Year	Sex	All Ages	Under 1 year	1-5	5-15	15-25	25-35	35-45	45-55	55-65	65 and over
1923	M	70	—	2	4	16	12	17	14	4	1
	F	66	—	2	4	13	19	14	8	4	2
1924	M	80	—	2	1	13	16	20	16	9	3
	F	73	—	—	2	17	23	16	7	5	3
1925	M	59	1	3	2	10	17	15	8	3	—
	F	77	1	2	5	23	20	13	6	4	3
1926	M	65	1	2	4	14	14	16	7	5	2
	F	60	—	—	5	11	19	12	9	2	2
1927	M	62	1	1	1	1	15	22	10	4	1
	F	72	—	4	3	16	18	16	10	4	1
1928	M	49	—	1	1	11	10	11	10	4	1
	F	67	—	1	4	15	21	12	7	7	—
1929	M	65	—	2	—	16	14	16	11	2	4
	F	80	—	—	2	24	24	17	7	2	4
1930	M	58	—	—	1	16	16	14	9	2	—
	F	46	—	1	2	9	14	10	5	3	2
1931	M	62	—	1	—	12	16	11	13	8	1
	F	61	—	1	4	15	17	14	6	3	1
1932	M	58	—	—	1	7	22	15	8	4	1
	F	54	—	1	3	14	21	5	7	3	—
1933	M	52	—	—	—	8	17	14	11	1	1
	F	53	—	—	—	18	12	10	9	3	1
1934	M	53	—	—	2	6	13	16	12	3	1
	F	50	—	—	1	14	12	16	3	3	1
1935	M	58	1	1	—	10	9	20	13	4	—
	F	54	—	—	2	11	18	9	11	3	—
1936	M	38	—	—	2	7	11	15	8	5	—
	F	34	—	1	—	6	8	7	5	6	1
1937	M	56	—	—	—	9	10	13	13	8	2
	F	40	—	—	2	10	9	10	4	5	—
1938	M	61	—	—	—	12	12	13	17	4	3
	F	38	—	—	—	4	15	10	7	2	—
1939	M	53	—	—	1	10	6	13	16	6	1
	F	33	—	—	2	11	4	6	6	4	—

In Table 29 is set out a record of the deaths due to non-pulmonary tuberculosis from 1906 to the present time, together with the rates per 1,000 of the population. It will be noted that the period covered by this table dates only from 1906, in contradistinction to Table 27 which covers deaths from pulmonary tuberculosis from the year 1891. Non-pulmonary deaths are not available for the years prior to 1906.

Table 29.—Deaths and Death Rates from Non-pulmonary Tuberculosis.

Year	No. of Deaths	Rate per 1,000 pop.	Year	No. of Deaths	Rate per 1,000 pop.
1906	81	1.06	1923	32	0.40
1907	84	1.10	1924	32	0.40
1908	93	1.08	1925	31	0.39
1909	78	1.02	1926	46	0.58
1910	75	0.97	1927	35	0.44
1911	73	0.95	1928	29	0.36
1912	71	0.92	1929	17	0.21
1913	79	1.02	1930	25	0.31
1914	79	1.02	1931	46	0.57
1915	72	0.93	1932	45	0.56
1916	69	0.89	1933	19	0.24
1917	78	1.00	1934	21	0.25
1918	75	0.96	1935	29	0.36
1919	58	0.74	1936	20	0.25
1920	46	0.59	1937	24	0.29
1921	34	0.43	1938	13	0.16
1922	39	0.50	1939	14	0.17

It will be noted that there has been a steady decline in the number of deaths recorded over the whole period for which figures are available, both in the pulmonary and the non-pulmonary forms of the disease. In the case of the former, the reduction has been three-fold but it has been even more pronounced in the case of deaths from non-pulmonary tuberculosis in which a six-fold reduction has been achieved. In last year's report I drew attention to the remarkable fall in the deaths recorded in the latter case and remarked that since it was so sharp it would be unwise to expect any further material reduction for some years to come. In such circumstances one usually expects an increase in deaths for a number of years. It is satisfactory therefore to note that this year there has been no material increase in the number recorded as compared with last year (14 and 13 respectively). In the next table particulars are given of the combined deaths and death rates. These three tables are of interest in illustrating the slow but steady conquest which has been made against this disease.

Table 30.—Combined Deaths and Death-rates from Pulmonary and Non-pulmonary Tuberculosis.

Year	Pulmonary Deaths	Non-pulmonary Deaths	Total	Rate per 1,000 pop.
1906	261	81	342	4.49
1907	278	84	362	4.74
1908	245	93	338	4.42
1909	264	78	342	4.47
1910	233	75	308	4.01
1911	252	73	325	4.23
1912	231	71	302	3.92
1913	202	79	281	3.64
1914	231	79	310	4.02
1915	211	72	283	3.66
1916	189	69	258	3.33
1917	202	78	280	3.61
1918	187	75	262	3.37
1919	156	58	214	2.75
1920	159	46	205	2.64
1921	125	34	159	2.03
1922	176	39	215	2.75
1923	130	32	162	2.05
1924	164	32	196	2.50
1925	134	31	165	2.10
1926	126	46	172	2.18
1927	129	35	164	2.08
1928	108	29	138	1.74
1929	141	17	158	2.00
1930	117	25	142	1.78
1931	124	46	170	2.13
1932	111	45	156	1.95
1933	106	19	125	1.56
1934	107	21	128	1.59
1935	115	29	144	1.78
1936	85	20	105	1.29
1937	96	24	120	1.48
1938	99	13	112	1.38
1939	86	14	100	1.23

The number of new patients examined at the Tuberculosis Dispensary during the year amounted to 251, of whom 116 were adults and 135 children. 68 of the adults and 9 of the children were found to be suffering from tuberculosis in one form or another and appropriate treatment was afforded.

As in former years the new cases dealt with at the Tuberculosis Dispensary who presented signs of advanced disease was disproportionately high. 60 per cent. of such were found to be in Stage III. and 32 per cent. in Stage II. ; in other words, no less than 92 per cent. of the new cases were suffering from definitely established disease recognisable by ordinary clinical methods. These figures are similar to those of former years and must be regarded with considerable dissatisfaction, as little or nothing can be done in regard to the treatment of such advanced cases apart from palliative methods. The main factor in the production of this state of affairs appears to be the failure of patients to seek treatment sufficiently early.

Table 31.—Showing the proportion of early, moderately advanced and advanced cases attending the Tuberculosis Clinic for the first time (1930 to 1939).

TYPE	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Stage I. (Early)	15%	8%	9%	6%	14%	13%	6%	9%	5%	8%
Stage II. (Moderately Advanced)	36%	50%	38%	39%	28%	30%	43%	38%	33%	32%
Stage III. (Advanced)	49%	42%	53%	55%	58%	57%	51%	53%	62%	60%

The number of cases admitted to sanatorium during the year was as follows :—

	Males	Females	Total
Insured	16	7	23
Uninsured	4	2	6
Children	—	—	—
Total	20	9	29

The number of patients discharged from sanatorium during the year was as follows :—

	Males	Females	Total
Insured	16	8	24
Uninsured	5	2	7
Children	—	—	—
Total	21	10	31

Advanced cases who are not likely to derive benefit from sanatorium treatment who cannot receive adequate treatment in their own homes are admitted to St. Patrick's Hospital. The following cases were admitted during the year :—

	Males	Females	Total
Insured	30	10	40
Uninsured	6	13	19
Total	36	23	59

The following cases died or were discharged from the Institution :

	Males	Females	Total
Insured	26	8	34
Uninsured	6	12	18
Total	32	20	52

One male child was admitted to Cappagh Open-air Hospital, Dublin. During the same period four males was discharged. These were all cases of joint tuberculosis requiring prolonged treatment under open-air conditions for which there are no facilities in the city at present. The need of such an institution to serve the city and the south of Ireland generally is great, and it is to be hoped that suitable premises for this purpose may be acquired in the near future. Such a hospital could also serve as a convalescent home for delicate and pre-tuberculosis children, for which there is also a great need.

SPUTUM EXAMINATIONS.

Examinations of specimens of sputum is carried out in the laboratory attached to the Tuberculosis Clinic. 228 such specimens were examined during the past year, of which 51 were found to contain tubercle bacilli while 177 were negative. Of the 228 specimens examined 58 were submitted by medical practitioners. The following table shows the number of specimens examined, and the results obtained during the past nine years.

Year	Total	Positive	Negative
1931	375	90	285
1932	440	94	346
1933	502	118	384
1934	519	121	398
1935	512	94	418
1936	467	93	374
1937	511	73	438
1938	336	49	287
1939	228	51	177
Totals	3890	783	3107

In all cases attending the clinic, sputum examination is a routine procedure, and pocket flasks are issued to all those who are found to be positive. A register is kept of such cases and attention in regard to prevention is concentrated on them. Fifty-six flasks were issued during the year.

The number of notifications received during the year was 128. Prior to 1930 such notifications were for the period from the 1st April to 31st March following. Notifications for previous years were as follows:—

1925-26	110	1933	164
1926-27	108	1934	112
1927-28	73	1935	154
1928-29	116	1936	154
1929-30	179	1937	166
1930 (April-Dec.)	133	1938	147
1931	196	1939	128
1932	136		

In the following table notifications, from the year 1930, have been analysed as to age and sex distribution.

Table 32.—Notifications of Tuberculosis distributed according to Sex and Age.

Year	Total	Sex	All Ages	Under 5 yrs	5-15	15-45	45-60	60 and up
1930	133	M	77	4	11	50	11	1
		F	56	5	11	37	2	1
1931	196	M	114	9	24	64	15	2
		F	82	7	19	53	3	—
1932	136	M	71	5	11	42	11	2
		F	65	1	6	48	7	3
1933	159	M	89	5	10	59	14	1
		F	70	5	8	48	8	1
1934	112	M	43	1	6	26	9	1
		F	69	4	10	41	9	5
1935	154	M	83	7	14	43	14	5
		F	71	5	15	40	7	4
1936	154	M	76	9	10	33	16	8
		F	78	3	12	55	6	2
1937	166	M	91	5	10	47	25	4
		F	75	2	10	52	5	6
1938	147	M	78	4	6	52	15	1
		F	69	4	10	49	5	1
1939	128	M	60	5	9	33	10	3
		F	68	3	3	54	6	2

The number of home visits made by the Tuberculosis Nurse was 700.

X-RAY EXAMINATION.

Ninety-six X-Ray examinations were carried out during the year. This form of examination is utilised for the most part in connection with cases presenting doubtful diagnostic features. All cases of bone and joint disease are subjected to X-Ray examination as routine. The method is also availed of very largely in connection with artificial pneumothorax treatment not only for the purpose of estimating, in the first instance, whether cases are suitable or not but, at a later stage, to judge the progress which they are making.

ARTIFICIAL PNEUMOTHORAX.

Three new cases received artificial pneumothorax treatment during the year. Two of these cases had their induction carried out at Heatherside Sanatorium by the R.M.S. The other induction took place at St. Joseph's Hospital and was carried out by the Tuberculosis Officer. Four cases are having refills and management at the Tuberculosis Clinic. Routine X-Ray examinations are made at the North Infirmary by arrangement with Dr. J. Fielding, Radiologist. The number of cases treated during the year was six. Seventy-four refills were given and twenty X-Ray examinations were made in connection with the treatment.

INSTITUTIONAL TREATMENT.

In the tables which follow statistical details are given of the various institutions which have been utilised for the treatment of our cases during the past year. Early and moderately early cases of pulmonary disease have, almost all, been referred to the Cork Sanatorium at Heatherside. A few cases were referred to Peamount Sanatorium with a view to ultimate transfer to the training colony if found suitable.

HEATHERSIDE SANATORIUM.

The Sanatorium, which has 110 beds for the treatment of early or moderately early cases of pulmonary tuberculosis, is situated at the foot of the southern slopes of the Ballyhoura Hills. The grounds are approximately 140 acres in extent and of the light loam type of surface. They are nicely wooded with pine trees. Very suitable and pleasant walks are thus available for the use of patients and no doubt play a considerable part in helping to dispel that introspection, to which the tuberculous patient is naturally enough rather prone.

The Sanatorium is intended primarily for the benefit of patients from Cork City and Cork County but cases are also admitted from neighbouring counties. During the year 1939, 25 cases were admitted from Cork City. On admission, all cases are fully investigated, including examination by means of X-Ray and fluoroscopic screen.

The treatment carried out is similar to that practised in all modern Sanatoria, the basis of which is rest, "grading" and graduated exercise. Collapse therapy in the form of Artificial Pneumothorax controlled by X-Ray and fluoroscopic screen is carried out and for cases complicated by tubercular adenitis or lupus Ultra Violet Light therapy is employed.

Sanatorium regime and treatment will cure pulmonary tuberculosis if the patient submits to it in the early stages of the disease. In a somewhat more advanced state the disease can be rendered quiescent,

while still more advanced cases can be improved according to the extent of the disease. The type of cases presenting themselves for treatment at the Sanatorium suggests that a considerable proportion of patients postpone consulting a doctor until the urgency of their symptoms compels them to do so, and thus valuable time is lost.

Another function performed by the Sanatorium is that of teaching the tuberculosis person the mode of life he should follow subsequent to his discharge and thus minimise the risk of recrudescences. He also learns the precautions that are necessary for him to take to avoid the spread of infection to other members of his family and the public.

Table 33.—Showing particulars of patients who received sanatorium treatment during the year.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec. 1939	No. of Cases treated during the year
Insured Males	2	16	16	2	18
" Females	2	7	8	1	9
Uninsured Males	2	4	5	1	6
" Females	1	2	2	1	3
Ex-Service men	—	—	—	—	—
Male children	—	—	—	—	—
Female children	—	—	—	—	—
Totals	7	29	31	5	36

Table 34.—Particulars of cases treated at Cork District Hospital.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Male Adults	9	17	22	4	26
Female Adults	7	14	18	3	21
Male Children	1	4	4	1	5
Female Children	2	2	3	1	4
Totals	19	37	47	9	56

Table 35.—Particulars of patients treated in St. Patrick's Hospital during 1939.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Insured Males	5	30	26	9	35
" Females	—	10	8	2	10
Uninsured Males	2	6	6	2	8
" Females	1	13	12	2	14
Ex-Servicemen	1	4	5	—	5
Male children	1	—	1	—	1
Female children	—	—	—	—	—
Totals	10	63	58	15	73

Table 36.—Particulars of cases treated in the North Infirmary during 1939.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Male children	—	1	1	—	1
" adults	—	2	2	—	2
Female children	—	4	4	—	4
" adults	—	3	3	—	3
Totals	—	10	10	—	10

Table 37.—Particulars of cases treated in the South Infirmary during 1939.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Male children	1	—	—	1	1
" adults	—	1	1	—	1
Female children	1	—	1	—	1
" adults	1	1	2	—	2
Totals	3	2	4	1	5

Table 38.—Particulars of cases treated in St. Mary's Open-Air Hospital Cappagh, Co. Dublin.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Female children	1	2	—	3	3
Male children	3	1	4	—	4
Totals	4	3	4	3	7

Table 39.—Particulars of cases treated in Victoria Hospital during 1939.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Male children	1	—	1	—	1
Female children	3	—	3	—	3
Totals	4	—	4	—	4

Table 40.—Particulars of cases treated at St. Joseph's Hospital, Mount Desert, during 1939.

	Under treatment on 1st Jan. 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Insured Males	10	22	23	9	32
" Females	1	8	5	4	9
Uninsured Males	2	6	6	2	8
" Females	2	14	13	3	16
Male children	—	—	—	—	—
Female children	—	—	—	—	—
Totals	15	50	47	18	65

Table 41.—Particulars of cases treated at Coole Open-Air Hospital, Co. Westmeath.

	Under treatment on 1st Jan., 1939	New cases admitted during the year	Cases discharged during the year	Under treatment on 31st Dec., 1939	No. of Cases treated during the year
Male Children	3	3	—	6	6
Total	3	3	—	6	6

Table 42.—Return of number of patients treated under the Tuberculosis Scheme, during the year ended 31st December, 1939.

	Pulmonary Tuberculosis			Non-Pulmonary Tuberculosis			Total
	Children under 15 years	Other Persons		Children under 15 years	Other Persons		
		Males	Females		Males	Females	
1.—Insured Patients :							
(i) No. remaining under treatment							
(a) On 1st. Jan., 1939	—	96	31	—	5	4	136
(b) On 31st Dec., 1939	—	66	38	—	3	—	107
(ii) No. of new patients treated during year	—	22	15	—	1	—	38
(iii) No. of cases under observation at close of year 1939	—	2	4	—	—	—	6
2.—Other Patients :							
(i) No. remaining under treatment							
(a) On 1st Jan., 1939	2	30	52	74	4	6	168
(b) on 31st Dec., 1939	—	25	40	47	5	14	131
(ii) No. of new patients treated during year	1	15	25	15	5	9	70
(iii) No. of cases under observation at close of year 1939	6	3	8	4	—	—	21

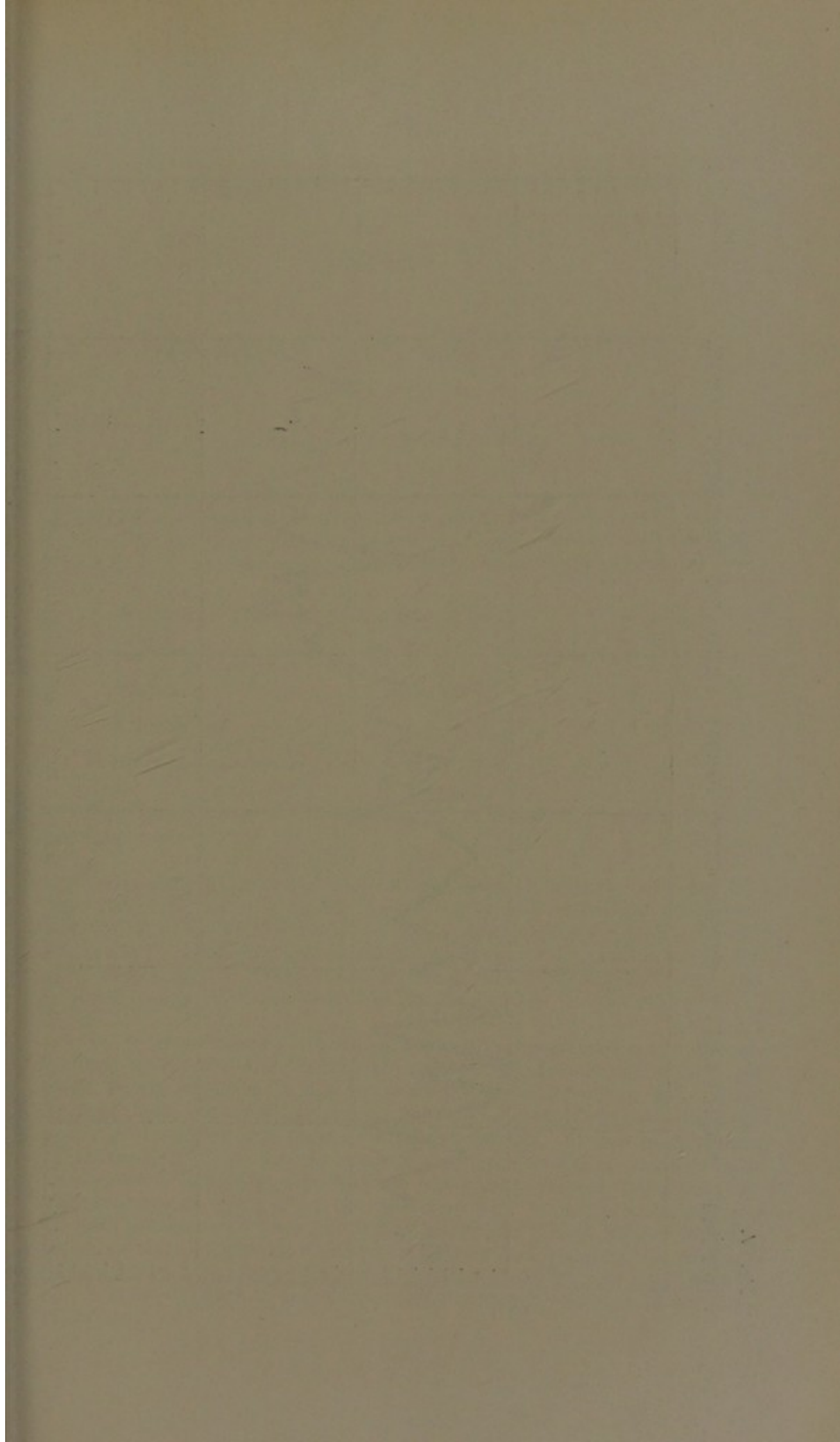
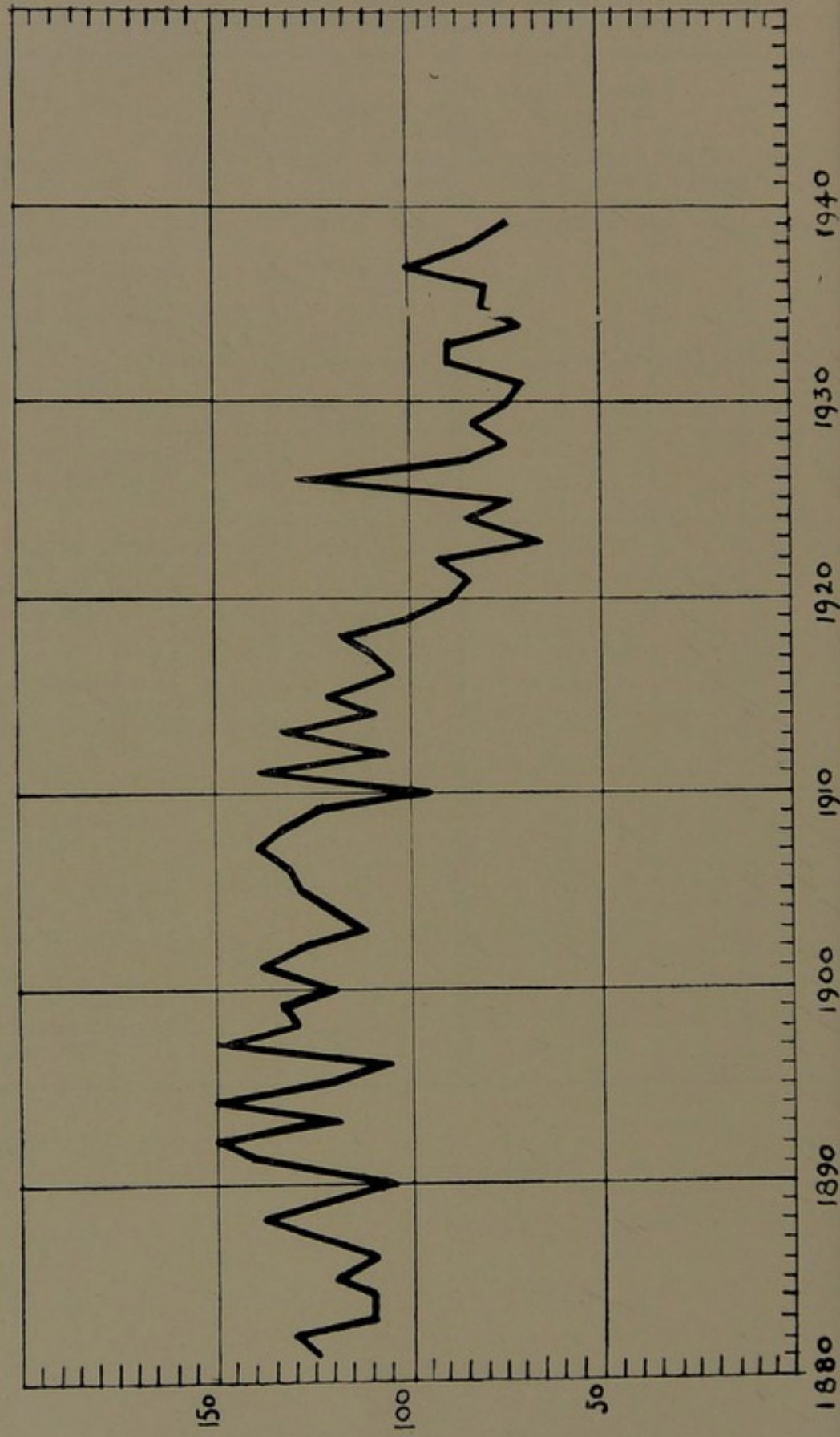


Fig. IV.

INFANT MORTALITY—CORK CITY FROM 1880 TO PRESENT TIME.



Section V.

Maternity and Child Welfare.

(A) INFANT MORTALITY.

The number of deaths of infants under one year of age amounted to 125, which is equivalent to an infant mortality rate of 73.0 per 1,000 live births. The corresponding figures last year were 129 and 75.5 per 1,000 respectively. The principal contributory causes were as follows:—

Premature birth and congenital debility	45 (38)
Diarrhoea and enteritis	36 (30)
Marasms	13 (6)
Convulsions	9 (8)
Broncho-pneumonia	6 (18)

The figures in brackets represent the corresponding numbers in the previous year.

As in former years the main single factor in infant mortality has been the combination of conditions embraced under the title premature birth and congenital debility. This factor remains more or less stationary. There has been a slight reduction in the number of deaths from diarrhoea, the main cause of which has, undoubtedly, been the substitution of bottle-feeding for breast-feeding.

In previous reports I have deplored the general decline in breast-feeding, which has been taking place for a number of years past and have drawn attention to the uncontrovertible facts which have come to light from our investigations as to the association of gastro-enteritis and high infant mortality with artificial feeding. It has been clearly established that in the vast majority of cases the prime cause of such conditions is artificial feeding, the secondary factors being lack of cleanliness and hygiene in the home as well as unhygienic methods of milk production. The only safe method of feeding infants and the only one independent of weather conditions and parental ignorance is that devised by nature. This question has been further dealt with in the section devoted to infectious disease under the subject of epidemic diarrhoea.

**INFANT MORTALITY—
DECENNIAL AVERAGES FROM 1891**

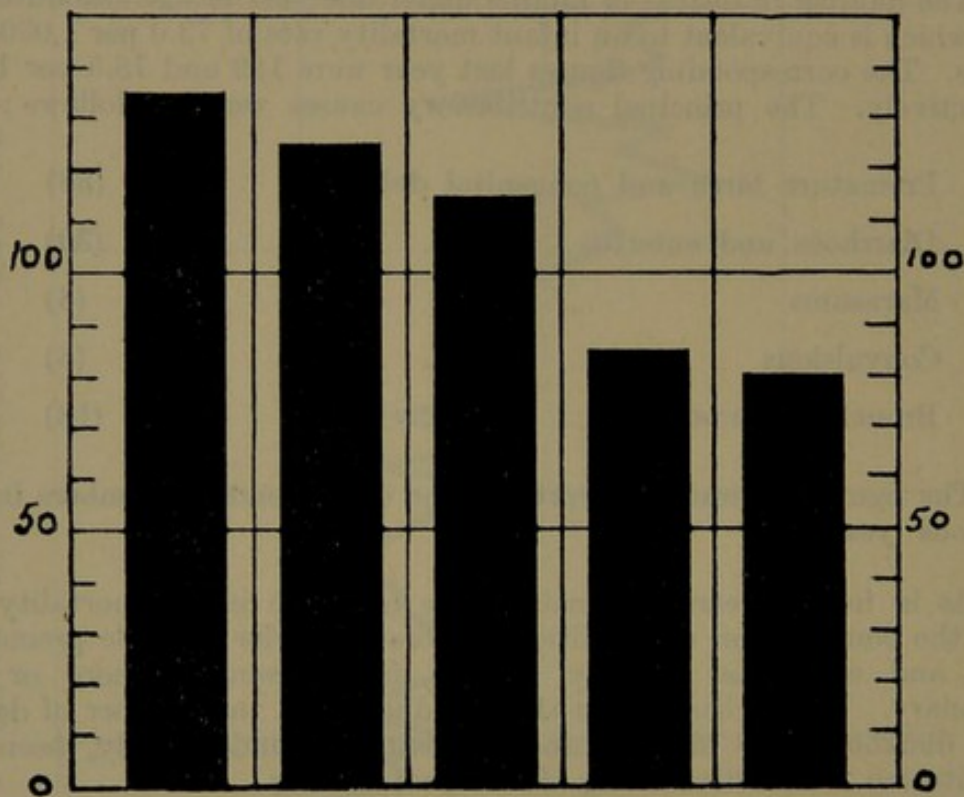


Table 43.—Infant Mortality, Cork City, Éire, and England and Wales from 1881 to 1939.

Year	Cork	Éire	E. & W.	Year	Cork	Éire	E. & W.
1881	124	89.4	139	1911	139	91.3	130
1882	127	94.9		1912	107	82.1	95
1883	109	95.0		1913	136	93.1	108
1884	110	91.9		1914	119	81.0	105
1885	120	91.3		1915	132	85.2	110
1886	110	93.9	145	1916	105	81.3	91
1887	123	93.6		1917	108	84.0	96
1888	139	96.0		1918	118	80.2	97
1889	125	92.0	144	1919	100	84.4	89
1890	106	91.6	151	1920	79	77.5	80
1891	138	91.4	149	1921	76	72.6	83
1892	150	99.9	148	1922	93	68.9	77
1893	132	99.8	159	1923	66	66.4	69
1894	150	97.4	137	1924	87	71.6	75
1895	131	98.0	161	1925	74	67.9	75
1896	106	91.0	148	1926	130	74.4	70
1897	152	104.0	156	1927	87	70.8	70
1898	131	105.2	160	1928	76	67.9	65
1899	133	103.2	163	1929	81	70.4	74
1900	120	105.3	154	1930	77	68	60
1901	139	95.5	151	1931	71	69	66
1902	127	95.2	133	1932	89	71	65
1903	112	92.2	132	1933	89	65	64
1904	118	95.8	145	1934	72	63	59
1905	131	90.2	128	1935	84	67	57
1906	133	88.0	132	1936	80	74	59
1907	139	88.5	118	1937	103	73	58
1908	134	91.2	120	1938	75	66	53
1909	125	87.3	109	1939	73	65	
1910	96	89.1	105				

In Table 44 is set out a comparative statement of infant mortality in Cork, Dublin, Belfast, Limerick and Waterford from 1920 to 1939.

Table 44.—Infant mortality in Cork and other Irish Cities from 1920 to 1939 inclusive.

Year	Cork	Dublin*	Belfast†	Limerick*	Waterford*
1920	79	152	132	109	96
1921	76	143	115	113	102
1922	93	120	94	108	94
1923	66	117	101	128	78
1924	87	119	107	90	93
1925	74	117	104	91	106
1926	130	127	112	146	114
1927	87	123	101	102	83
1928	76	102	103	117	105
1929	81	106	112	118	110
1930	77	97	78	114	91
1931	71	94	90	120	92
1932	89	100	111	91	132
1933	89	83	102	126	103
1934	72	80	80	76	92
1935	84	94	112	106	126
1936	80	114	102	95	90
1937	102	102	94	68	97
1938	75	96	96	70	99
1939	73	90	86	59	73

* Figures for current year obtained from Annual Summary of Registrar General. Those for previous years have been corrected from figures in the Annual Reports of the Registrar General for the appropriate years.

† Figures obtained from Superintendent Medical Officer of Health.

(B) NOTIFICATIONS OF BIRTHS.

The Acts bearing on this subject are the Notification of Births Acts, 1907, which was adopted by the Corporation in September, 1922, and the Notification of Births (Extension) Act, 1915. These Acts place an obligation on certain individuals to notify to the Medical Officer of Health within thirty-six hours, births which have occurred in the area. The object of the Acts is to enable the Local Authority to afford advice and assistance to parents on the care and upbringing of children.

The general procedure in connection with the notification of births was outlined in my Report for the year 1932. The total number of such notifications received in 1939 amounted to 1,711. The number of births registered during the same period, according to the Annual Summary of the Registrar-General was 1,559.

(C) MATERNAL MORTALITY.

There were 4 deaths under this heading during the year.

The ante-natal clinic is held on Wednesday mornings. Routine urine examinations and blood-pressure readings are made and pelvimetry is carried out in cases of primiparae. Cases where it is expected that confinement will not be normal are referred to hospital. The provision of milk at reduced rates to expectant mothers has helped the attendances and serves in general to popularise ante-natal supervision as well as providing an addition to the dietary of the expectant mother of considerable value to the growing foetus.

Table 45.—The number of deaths of women directly attributable to or associated with pregnancy or childbirth during each of the years 1924–39, together with the rate per 1,000 births during each of these years, for the City of Cork. (Corrected for Births and Deaths in public institutions).

Year	Deaths from Puerperal Septic Diseases		Deaths from accidents of Pregnancy or Childbirth		Total Deaths from Puerperal Septic Diseases and accidents of Pregnancy or Childbirth		Deaths from causes associated with Pregnancy or Childbirth (not included in foregoing)		Total Deaths caused by, or associated with Pregnancy or Childbirth	
	No.	Rate per 1000 Births	No.	Rate per 1000 Births	No.	Rate per 1000 Births	No.	Rate per 1000 Births	No.	Rate per 1000 Births
1924....	5	2.55	6	3.05	11	5.60	1	0.51	12	6.11
1925....	5	2.54	5	2.54	10	5.08	1	0.51	11	5.59
1926....	3	1.66	8	4.42	11	6.08	—	—	11	6.08
1927....	5	2.74	6	3.28	11	6.02	—	—	11	6.02
1928....	3	1.64	9	4.92	12	6.56	1	0.55	13	7.11
1929....	—	—	4	2.24	4	2.24	—	—	4	2.24
1930....	1	0.46	3	1.37	4	1.83	—	—	4	1.83
1931....	1	0.52	7	3.63	8	4.10	—	—	8	4.10
1932....	1	0.55	8	4.28	9	4.95	—	—	9	4.95
1933....	1	0.54	8	4.32	9	4.85	1	0.54	10	5.40
1934....	5	2.60	2	0.52	7	3.60	—	—	7	3.60
1935....	1	0.51	5	2.56	6	3.08	—	—	6	3.08
1936....	1	0.52	4	2.08	5	2.60	—	—	5	2.60
1937....	—	—	—	—	—	—	—	—	—	—
1938....	—	—	6	3.51	6	3.51	—	—	6	3.51
1939....	1	0.58	3	1.75	4	2.3	—	—	4	2.3

In Table 46 (overleaf) is set out the comparative maternal mortality for Cork, Dublin, Belfast, Limerick and Waterford County Boroughs, and for the whole country.

Table 46.—Maternal Mortality in different areas from 1920 to 1939 inclusive.

Year	Whole Country		Cork City		City of Dublin		Belfast		Limerick County Borough		Waterford County Borough	
	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births
1920	326	4.8	13	5.8	55	6.0	95	7.7	3	2.9	2	2.7
1921	336	5.5	8	4.0	53	6.5	53	4.7	1	1.0	3	5.1
1922	370	6.3	7	3.6	61	7.1	55	5.1	12	11.8	—	—
1923	328	5.3	4	1.9	46	5.5	58	5.3	16	5.6	3	4.9
1924	330	5.2	12	6.1	46	5.0	46	4.4	1	0.9	4	5.9
1925	312	5.0	11	5.6	42	4.9	29	2.8	3	2.8	4	6.4
1926	329	5.4	11	6.1	31	3.5	57	5.5	5	4.8	—	—
1927	291	4.8	11	6.0	23	2.8	36	3.7	5	4.8	3	4.7
1928	318	5.4	13	7.1	31	3.5	43	4.6	5	4.5	2	3.0
1929	283	4.9	4	2.2	30	3.4	43	4.8	7	6.2	1	1.6
1930	294	5.0	4	1.8	43	4.1	44	4.6	4	3.7	3	4.6
1931	272	4.7	8	4.1	29	2.1	54	5.7	4	3.5	3	4.5
1932	235	4.9	9	4.9	33	3.1	49	5.5	8	4.0	6	8.6
1933	255	4.4	10	5.4	22	2.1	42	5.2	7	7.1	2	2.8
1934	304	5.2	7	3.6	41	3.7	57	6.3	2	1.9	—	—
1935	272	4.6	6	3.0	38	3.3	54	6.0	6	5.5	4	4.0
1936	273	4.7	5	2.6	42	3.5	57	6.2	2	2.0	3	4.5
1937	204	3.39	—	—	33	2.8	56	6.1	3	2.9	4	5.8
1938	204	3.6	6	3.5	29	2.5	48	5.2	4	4.0	3	4.8
1939	150	2.7	4	2.3	23	2.0	—	4.4	1	1.0	1	1.6

The above figures were obtained from the Annual Reports of the Registrar-General with the exception of those for the year 1939 (which were taken from the Annual Summary for that year) and those for Belfast, from 1922 onwards, which were kindly supplied by Dr. C. S. Thompson, Superintendent Medical Officer of Health. All figures include deaths from sepsis arising from abortion and miscarriage.

(D) SUPERVISION OF MIDWIVES.

1. Number of Midwives in Practice :—				
Certificate of C.M.B.	....	....	....	55
Other recognised certificates	....	....	....	37
Total	....	....	....	92
2. Number of midwives according to type of practice :—				
Attached to public institutions	....	....	....	8
Conducting only private maternity or nursing homes	....	....	....	9
Dealing with less than five cases per year	....	....	....	15
Monthly nurses	....	....	....	26
Others	....	....	....	32
Total	....	....	....	90
3. Number of visits of inspection of midwives	....	....	....	266
4. Disinfection of appliances	....	....	....	5
5. Reasons for summoning Medical help :—				
Abnormal presentation	....	....	....	12
Obstructed and delayed Labour	....	....	....	66
Post partum haemorrhage	....	....	....	2
Ante partum haemorrhage	....	....	....	5
Rise of Temperature	....	....	....	3
Discharge from baby's eyes	....	....	....	2
Thrombosis	....	....	....	4
Retained and adherent placenta	....	....	....	6
Ruptured perineum	....	....	....	10
6. Notification of still births	....	....	....	66
7. Notifications of artificial feeding	....	....	....	66
8. Notifications of having laid-out dead bodies	....	....	....	2
9. Suspensions for twenty-four hours on account of contact with cases of infectious disease	....	....	....	5
10. Notification of liability to be a source of infection....	....	....	....	3
11. Notifications of deaths	....	....	....	53

Four cases of puerperal fever were notified during the year. These cases are reviewed under the section for infectious diseases, and it is unnecessary to refer to them further here.

It was unnecessary to undertake any legal proceedings against midwives during the year.

(E) WORK OF THE MATERNITY AND CHILD WELFARE SCHEME.

The following is a summary of the work carried out during the year by the staff of the Centre. (The figures in brackets represent the corresponding attendances during 1938)—

Attendances of children under one year :—

(a) New Cases	....	....	2567	(2490)
(b) Old Cases	....	....	3609	(3418)

Attendances of Mothers with Children 9487 (8662)

Cases seen by the Medical Officer :—

(A) Under one year				
(1) New Cases	....	....	1146	(1082)
(2) Old Cases	....	....	2394	(2426)
(B) One to two years				
(1) New Cases	....	....	836	(816)
(2) Old Cases	....	....	703	(692)
(C) Two to five years				
(1) New Cases	....	....	438	(430)
(2) Old Cases	....	....	412	(406)
(D) Expectant Mothers				
(1) New Cases	....	....	502	(481)
(2) Old Cases	....	....	520	(511)

Analysis of cases dealt with by the Medical Officer :—

Consultations on infant feeding	943	(931)
Diseases of respiratory system	254	(272)
„ new born	2	(2)
„ reproductive system	1	(1)
„ urinary system	18	(15)
„ nervous system	5	(4)
„ circulatory system	7	(3)
„ alimentary system	871	(782)
„ skin	174	(189)
„ ears	46	(43)
„ eyes	31	(23)
Exanthemata	23	(35)
Mental defects	2	(3)
Congenital defects	2	(2)
Orthopœdic defects	9	(7)
Rickets	4	(2)
Avitaminosis	28	(14)
Number of cases dealt with	2420	(2328)
Number of attendances	5929	(5852)

Ante-natal work—

Number of cases dealt with	....	502	(481)
Number of attendances	....	1022	(992)

Return of Health Visitors' work—

(A) Under one year			
(1) Primary visits	....	1522	(1562)
(2) Secondary visits	....	3426	(3518)

(B) One to two years

(1) Primary visits	....	....	1324	(1297)
(2) Secondary visits	....	....	1382	(1452)

(C) Two to five years

(1) Primary visits	....	....	953	(942)
(2) Secondary visits	....	....	2751	(2798)

(D) Expectant Mothers

(1) Primary visits	....	....	732	(624)
(2) Secondary visits	....	....	642	(702)

The attendances at the clinic continue to steadily increase and are now assuming embarrassing proportions, calling for all the energy and tact of the nurses and voluntary workers to deal with them, and in this connection we will have to consider the establishment of outlying centres in the near future to deal with the growing districts now springing up on the outskirts of the City.

The following cases were dealt with at the artificial sunlight clinic during the year :—

Avitaminosis	....	....	....	48
Debility	....	....	....	17
Rickets	....	....	....	5
Non-Pulmonary Tuberculosis	....	....	....	14
Anaemia	....	....	....	7
Number of cases treated	....	....	....	91
Number of exposures	....	....	....	856

Section VI.—Control of Food Supplies

The following report has been contributed by Mr. S. R. J. Cussen, Chief Veterinary Officer :—

(A) SUPERVISION OF MILK.

The Milk and Dairies Act, 1935, came into force on the 1st of January, 1937, with the exception of certain sections dealing with the sale of milk under Special Designations, which came into operation on the 1st of April, 1939.

As a result of the operation of the Act and Regulations during the past three years the quality of the milk, in so far as its dirt content is concerned, has shown an improvement. An examination of Table 50 will verify this. The fact that there is an improvement in this direction, goes to show that greater precautions are being taken at the source to keep the dirt out of the milk. It seems, however, that the use of the strainer is more concerned than clean methods of milking. Even though there is an improvement in this direction, yet, on the whole, the results are disappointing. This seems to be due to the fact that the Act and Regulations are not fully enforced by the producing authorities. Table 58 shows that out of 37 samples of milk examined by the authorised Bacteriologist, 4 or 10.81% contained more than 500,000 bacteria per c.c. The samples were taken within three hours of production. It is obvious that milk containing such a high bacterial content in so short a time after milking, must be produced without due observance of the provisions of the Milk and Dairies Regulations relating to the production of Milk.

Table 54 shows that 4 out of 48 samples of *market* milk examined by means of the Biological Test were found *positive for Tubercle Bacilli*. This is a rather serious matter, because parents of children who cannot afford to purchase safe milk, must be satisfied with the ordinary and run the risk of their children becoming infected with the Bovine Tubercle Bacillus. If dairy cows were examined at least once every six months, in accordance with the provisions of the Milk and Dairies Regulations, and herd samples subjected to the biological test, the risk of milk becoming contaminated with tubercle bacillus would be reduced to a minimum.

We are glad to be able to report that the handling of milk within the Borough, particularly in shops, is very much improved. There is installed in practically every shop a seamless churn, fitted with tap and plunger, in which milk is stored, with this receptacle the risk of contamination of the milk is reduced to a minimum.

An idea of the complexity which now characterises the administrative control of the milk supply may be obtained from an examination of the relevant legal enactments which have been brought into being within recent times. They are as follows :—

The Milk and Dairies Act, 1935.

The Milk and Dairies Regulations, 1936.

- The Milk and Dairies (Milk Sampling) Regulations, 1936.
- The Milk and Dairies (Bacteriological Examination) Regulations, 1936.
- The Milk and Dairies (Fees for Bacteriological Examination) Regulations, 1936.
- The Registration of Dairymen Regulations, 1936.
- The Milk and Dairies (Prohibition Order) Regulations, 1936.
- The Milk and Dairies Act, 1935 (Appeals to District Court under Section 41) Regulations, 1936.
- The Milk and Dairies (General Designations) Regulations, 1938.
- The Milk and Dairies (Special Designations) Regulations, 1938.
- The Milk and Dairies (Sale of Heated Milk) (Restriction) Regulations, 1938.
- The Milk and Dairies (Special Designations) (Amendment) Regulations, 1939.

Over and above this complicated mass of legislation there still remains the Bovine Tuberculosis Order, 1926.

SALE OF MILK UNDER SPECIAL DESIGNATIONS.

The Milk and Dairies Act, 1935 (Date of Commencement) (No. 2) Order 1938 was intended to bring into operation on the 1st of January, 1939, the undermentioned regulations :—

Milk and Dairies (Special Designations) Regulations, 1938.

Milk and Dairies (Sale of Heated Milk) (Restriction) Regulations, 1938, but the Minister made an Order revoking the above, and fixed the 1st of April, 1939, as the day on which the above mentioned Regulations should come into operation. It was thought desirable to postpone the operation of the Order, in view of the large number of applicants for licences for the sale of milk under Special Designations and the difficulty these applicants would have in effecting before the 1st of January, the improvements to premises and equipment necessary for compliance with the requirements of the Regulations.

The *General Designations* Regulations provide that the words "Milk" "New Milk" and "Fresh Milk" may be used in connection with the sale of ordinary milk for which there is no special designation licence required.

The *Special Designations* Regulations provide that milk may be sold under the designations "Highest Grade," "Standard" and "Pasteurised" in accordance with a licence granted by the Minister or with his authority.

These *Special Designations* Regulations only apply to the sale of whole milk, and do not effect the sale of skimmed or separated milk, cream or buttermilk.

The effect of Section 38 of the Milk and Dairies Act, and the *Designations Regulations* is to prohibit the use of any words other than a General or Special Designation in connection with the sale of milk. It will therefore be an offence to describe milk as "Tuberculin Tested" or "Grade A," or "Pure Milk," etc. It will also be an offence for any person to use a Special Designation, who is not the holder of a Special Designation Licence.

With regard to the sale of heated milk. The effect of Section 32 of the Act and of the Sale of Heated Milk (Restriction) Regulations is to prohibit the sale of any heated or pasteurised milk except in accordance with a Special Designation Licence to sell pasteurised milk. There is nothing to prevent a person from selling hot milk for consumption.

Granting of Licences.

The conditions under which Special Designation Licences may be granted are summarised in a memorandum (Memo. M.D.) issued by the Minister. There is also a memorandum (Memo. M.D.2) on the establishment and maintenance of a Tubercle Tested herd issued for the guidance of persons interested in the production of Highest Grade Milk.

The Licences issued by the Minister under the Special Designations Regulations are :—

Producer's Licence.

Pasteuriser's Licence.

Milk Bottler's Licence.

The only Licence issued by the Local Authority is a Dealer's Licence —A Dealer's Licence authorises the holder to sell at approved premises *milk which has not been produced or pasteurised or bottled by himself*, but which has been purchased by him under the Special Designation. The holder of a Dealer's Licence to sell Highest Grade Milk or Standard Milk which must be sold in bottles or in unventilated sealed containers will ordinarily sell milk in the bottles or other containers in which he received it. The holder of a Dealer's Licence to sell Pasteurised Milk may sell such milk loose, but if he bottles the milk for sale, he must obtain a Milk Bottler's Licence from the Minister.

The procedure to be followed in connection with an application for a Dealer's Licence is similar to that observed in connection with an application for Registration under the Act. Application Forms for Dealer's Licence can be had from the Local Authority.

The Fee for a Dealer's Licence is fixed at 5/—, which must be prepaid, where the Licence comes into force on the 2nd, 3rd or 4th quarter of the year this fee is reduced by $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ respectively. A Licence continues in force, subject to suspension or revocation, until the 31st day of December next after the date on which the Licence comes into force.

Chemical and Bacteriological Standards.

The standards applicable to "designated" milk (Highest Grade, Standard and Pasteurised) are as follows :—

I.—Chemical Standard.

Highest Grade	....	....	....	3.1%	Milk Fats
Standard	....	....	....	3.1%	"
Pasteurised	....	....	....	3.0%	"

II. Bacteriological Standard.

Is to be determined by (a) the methylene blue reduction test, and (b) the *B. Coli* test. The required standards are set out in the following table and a statement of the corresponding standards in Great Britain in the next but one.

Reference to the next table will show the standards required under the terms of the Milk and Dairies (Special Designations) Regulations, 1938.

Table 47.—Summary of the standards required under the terms of the Milk and Dairies (Special Designations) Regulations, 1938.

WHOLE MILK				
Designation	HERD	BACTERIAL STANDARD		OTHER CONDITIONS
		REDUCTION TIME	Coliform Bacillus	
Highest Grade	Tuberculin Tested and Physically Examined at Regular Intervals	5 Hours (Summer Period) 6 Hours (Winter Period)	Absent in $\frac{1}{100}$ of a Cubic Centimetre	To be sold in bottles or in unventilated sealed containers. The name and address of the person by whom they were filled, the day of Production, the word morning or evening, and the Special Designation under which the milk is to be sold, must be marked on the container, or on the cap, lid or other closing device. Chemical Standard 3.1% of Milk Fats
Standard	Physically Examined at Regular Intervals	4½ Hours (Summer Period) 5½ Hours (Winter Period)		
Pasteurised	100,000 Bacteria per Cubic Centimetre			To be sold loose or in bottles or in unventilated sealed containers and marked with the name and address of the Dairyman by whom filled, day of production and the words Pasteurised Milk Chemical Standard 3% of Milk Fats.

For comparative purposes the following table, setting out the standards in respect of the Special Designations in use in England, is shewn.

Table 48.—Standards required under the terms of the Milk Special Designation Order, 1923, made by the English Ministry of Health.

Designation	RAW MILK				OTHER CONDITIONS
	HERDS	BACTERIAL CONTENT		Coliform Bacillus	
		Maximum Number of Bacteria per Cubic Centimetre			
Certified	Tuberculin Tested and Physically Examined at regular intervals	30,000	Absent in $\frac{1}{10}$ C.C.	Bottled on the farm, name of farm, day of production and word "Certified" on each bottle cap.	
Grade A Tuberculin Tested	Tuberculin Tested and Physically Examined at regular intervals	200,000	Absent in $\frac{1}{100}$ C.C.	Delivered to Consumers in :—(a) the bottles or the sealed containers as received from the farm ; (b) suitable containers of not less than 2 gallons capacity ; (c) bottles with the name of the dealer by whom the milk was bottled, the address of the licenced bottling establishment, the day of production and the words "Grade A Tuberculin Tested" or "Grade A" on each bottle cap	
Grade A Pasteurised	PASTEURISED MILK				
Pasteurised	Grade A milk that after pasteurisation, as required by the Minister of Health contains not more than 30,000 bacilli per c.c. and no coliform bacillus in 1/10 c.c. All other conditions as required for Grade A milk.				
Pasteurised	Any milk that after pasteurisation, as required by the Minister of Health, contains not more than 100,000 bacteria per c.c. No Requirement for Bottling.				

It will be observed that the Irish Designations which number only three, as against the English five are, on the whole, much simpler and less confusing. They correspond to the English Grade A Tuberculin Tested, Grade A, and Pasteurised.

Applications for Registration.

Applications for Registration in the Register of Dairymen were received as follows:—

- (1) From persons resident outside the Borough and using vans for the purpose of their business—30.

Total number of vans registered, 269, and number of persons, 301.

- (2) From persons resident within the Borough:—

- (a) To sell milk in shops—7.

- (b) To sell cream only in shops—1.

Total number of premises now registered is 270, and the total number of persons, 260.

Inspection of Premises.

Inspections of premises where milk is produced or sold were as follows:

Milk Shops	....	1320
Milk Vans	....	1073
Cowsheds	....	177

The number of cows kept within the Borough for the production of milk is about 60. These were inspected quarterly and surprise visits were made between the ordinary routine visits. Each cow is clinically examined, particular attention being paid to the udder. A sample of milk is taken from any cow that shows the slightest induration of the gland substance, this is examined microscopically for the presence of pathogenic bacteria. In addition to the individual sample there is taken a sample representing the udder secretion of all animals constituting the herd, which is used for guinea pig inoculation.

EXAMINATION OF MILK SUPPLIES.

The number of milk samples taken for detailed Bacteriological Examination was as follows:—

Highest Grade	....	3
Standard	....	25
New Milk	....	379
Total	....	407

The tests applied were as follows:—

- 1.—The Sedimentation (or dirt) Test.
- 2.—The Microscopic Test.
- 3.—Determination of bacteria of faecal origin.
- 4.—Determination of Pathogenic Bacteria.
- 5.—The Reductase Test.

1.—The Sedimentation Test.

In addition to the 407 samples referred to above, on which a detailed Bacteriological Examination was made, 335 tests for dirt content only were made of city milk supplies. So that the total number of such examinations was 742. This is the greatest number of tests made for the past ten years.

The sedimentation test has been fully described in previous reports. Briefly it consists in forcing a quantity of milk under pressure through a cotton wool pad held in a metal container shaped like a bottle. Dirt suspended in the milk is separated by the pad and a rough standardisation can be made according to the appearance of the pad after the test. The results of the tests were as follows:—

		Highest Grade.	Standard	New Milk
Very Clean	....	3	9	61
Clean	....	—	13	184
Fairly Clean	....	—	3	224
Dirty	....	—	—	193
Very Dirty	....	—	—	52
Total	....	3	25	714

The designation New Milk is used to describe ordinary market milk. (Vide page 52, General Designations Regulations, 1938).

In connection with the sale of dirty milk, it was mentioned in the 1938 annual report that the District Justice dismissed a case brought by the Sanitary Authority under Section 59 of the Milk and Dairies Act, which reads "It shall not be lawful for any person to sell or expose or offer for sale any milk which is contaminated or dirty." The findings of the Justice were fully dealt with in the report. Subsequent to the dismissal of this case it was noted in newspaper reports that Sanitary Authorities in other parts of the country had succeeded in obtaining convictions under Section 59 on the result of the Sedimentation Test. It was therefore decided to bring a test case and in the event of an unfavourable decision to ask the Justice to state a case. In December a Dairyman was prosecuted for selling milk that was dirty, as demonstrated by the Sedimentation Test. In opening the case the City Solicitor reminded the Justice of his ruling in the previous case and asked him, in the event of his deciding against us to state a case. Judgement was deferred for one week and eventually went in our favour. In giving his decision, the Justice said "The procedure adopted in connection with the testing of the milk in this case differed somewhat from that of the previous occasion and we were entitled to succeed on the summons."

We have successfully brought a number of cases under Section 59, since the result of the test case. There has been a good deal of legal argument regarding the procedure on behalf of the defence. Some solicitors contend that when testing milk for dirt, the procedure should be in accordance with the provisions of the Milk and Dairies (Milk Sampling) Regulations. This contention does not appear to be reasonable if our interpretation of the Section is correct. Contaminated

milk is different altogether from dirty milk. *Contaminated Milk* is (a) Milk that may have an offensive taste or smell, these may be derived from certain feeding stuffs, e.g., turnips or medicines, decomposition, etc. (b) Milk that may contain visible offensive matter—such as pus, blood or pathogenic bacteria. Pus or blood may be visible to the naked eye or may be visible at the bottom of the sedimentation tube after centrifuging a quantity of the milk. The pathogenic bacteria will only be visible under the microscope. (c) Milk that contains over 500,000 bacteria per cubic centimeter. Milk may be heavily laden with bacteria and yet may be free from offensive taste or smell, pus, blood and pathogenic bacteria.

Dirty Milk—Is milk that contains any filthy substance, such as faecal matter, mud, dust, etc., which gets into the milk during milking and the subsequent handling of the milk. This dirt may be in suspension or in solution in the milk.

There appears to be no obligation on an Inspector to proceed in accordance with the provisions of the Milk and Dairies (Milk Sampling) Regulations, when making a test of milk for dirt content or when testing for offensive smell. There is no necessity to take a sample for the purpose of making the test in these circumstances.

Although there is no prescribed test for offensive taste, one could not taste milk without taking a sample of some quantity, and if a sample is taken at all, it must be taken in the prescribed manner.

If milk is to be tested for visible offensive matter, or for bacterial content, then a sample must be taken in the prescribed manner as outlined in the Milk and Dairies (Milk Sampling) Regulations.

The following is the procedure employed in testing milk for dirt :—A quantity of the milk is poured from the tap of the churn or the delivery can, through a cotton wool pad held in a metal container into a pint measure or other vessel belonging to the vendor, in this way the milk does not come into the possession of the Inspector at all and therefore it could not be held that the milk was sampled.

The test for offensive smell may also be made on the spot. If pronounced an offensive smell can easily be detected by any normal individual.

The fact of being able to bring a successful prosecution under Section 59 should be of great assistance in improving the quality of milk in so far as dirt content is concerned.

This dirt test has been applied every year since the first development of our laboratory service and the results to date are shown in Table 50.

The detailed results of the Tests applied to the 407 samples referred to in page 57, under sedimentation test, is shown in Tables 55, 56, 57, and the result of the dirt test on the 335 milk supplies, also referred to in the same paragraph, is shown in Table 49.

Table 49.—Results of Tests made for Dirt Content of City Milk Supplies.

No.	Dirt Test	No.	Dirt Test	No.	Dirt Test
75	Clean	215	Clean	324	Dirty
76	V. Clean	216	Dirty	325	"
77	Clean	217	"	326	"
78	"	218	"	327	"
79	"	231	F. Clean	342	"
80	"	232	Clean	343	F. Clean
81	"	233	Dirty	344	"
82	V. Clean	234	F. Clean	345	"
83	Clean	235	"	346	Clean
84	Dirty	236	Clean	347	"
85	V. Clean	237	"	348	Dirty
86	Clean	238	F. Clean	349	"
127	"	239	Dirty	350	"
128	V. Clean	240	Clean	351	F. Clean
129	F. Clean	241	Dirty	352	"
130	Dirty	242	"	353	"
131	F. Clean	259	V. Clean	354	"
132	"	260	"	355	"
133	"	261	"	356	Clean
134	"	262	"	357	Dirty
135	"	263	F. Clean	358	Clean
136	"	264	V. Clean	359	V. Dirty
148	Clean	265	V. Dirty	360	"
149	"	266	Dirty	361	F. Clean
150	F. Clean	267	Clean	362	Dirty
151	"	268	Dirty	363	V. Clean
152	"	269	"	364	Dirty
153	V. Clean	270	Clean	365	"
154	Dirty	286	"	366	"
155	"	287	"	375	F. Clean
168	F. Clean	288	F. Clean	376	Clean
169	Clean	289	Clean	377	"
170	F. Clean	290	Dirty	378	F. Clean
171	Clean	291	"	379	Clean
172	V. Clean	292	F. Clean	387	"
173	Clean	293	"	397	"
174	V. Clean	294	Dirty	398	Dirty
175	"	295	F. Clean	399	V. Dirty
176	F. Clean	296	Clean	400	Dirty
177	"	297	F. Clean	410	"
178	Clean	298	V. Dirty	411	F. Clean
179	Dirty	299	Clean	412	"
192	V. Clean	300	Dirty	413	V. Dirty
193	Clean	301	F. Clean	423	V. Clean
194	"	310	Dirty	428	F. Clean
195	F. Clean	311	"	431	"
196	Dirty	312	"	434	"
197	V. Clean	313	F. Clean	435	Dirty
198	F. Clean	314	"	436	F. Clean
199	"	315	V. Dirty	437	V. Dirty
207	F. Clean	316	Dirty	438	"
208	"	317	"	439	F. Clean
209	"	318	"	440	"
210	"	319	"	441	Clean
211	"	320	V. Dirty	442	"
212	"	321	F. Clean	443	F. Clean
213	Dirty	322	Dirty	444	"
214	F. Clean	323	"	445	"

Table 49.—Results of Tests made for Dirt Content
of City Milk Supplies—continued.

No.	Dirt Test	No.	Dirt Test	No.	Dirt Test
446	F. Clean	570	V. Dirty	638	Clean
447	"	571	Dirty	639	V. Dirty
448	V. Dirty	572	F. Clean	640	Dirty
449	Dirty	573	Dirty	641	Clean
450	"	574	"	642	"
451	"	575	Clean	643	"
452	"	576	"	644	"
453	F. Clean	577	"	645	"
454	"	578	Dirty	646	"
455	Dirty	579	"	647	F. Clean
479	V. Clean	580	Clean	648	Clean
480	Dirty	581	V. Dirty	649	Dirty
481	F. Clean	582	"	650	Clean
482	"	583	F. Clean	651	"
483	V. Clean	584	Dirty	680	F. Clean
484	Clean	585	Clean	681	Clean
485	V. Clean	586	Dirty	691	Dirty
486	F. Clean	587	"	698	Clean
487	"	588	"	699	F. Clean
488	"	589	V. Dirty	700	"
489	"	590	Dirty	701	"
490	Clean	591	"	702	Clean
491	"	592	"	703	F. Clean
500	"	593	Dirty	704	Clean
515	"	594	F. Clean	705	Dirty
516	"	595	Clean	706	V. Dirty
517	F. Clean	602	"	707	Clean
518	"	603	Dirty	708	F. Clean
519	Clean	604	V. Clean	709	Dirty
520	Dirty	605	V. Dirty	719	"
521	Clean	606	V. Clean	720	Clean
522	V. Clean	607	V. Dirty	721	F. Clean
523	Dirty	608	Dirty	722	"
524	Clean	609	F. Clean	723	Dirty
525	"	610	"	724	"
526	F. Clean	611	"	725	"
527	V. Dirty	612	V. Dirty	726	"
528	"	613	Dirty	727	"
529	F. Clean	614	F. Clean	728	F. Clean
530	Dirty	615	Dirty	729	Dirty
531	Clean	616	"	730	"
532	"	617	V. Dirty	731	"
533	Dirty	618	Clean	732	V. Dirty
534	V. Clean	619	Dirty	733	Dirty
535	Dirty	620	"	734	"
536	"	621	F. Clean	735	F. Clean
537	V. Dirty	622	"	736	"
538	F. Clean	623	Clean	737	"
539	V. Dirty	624	F. Clean	738	V. Dirty
555	F. Clean	633	Dirty	739	F. Clean
566	"	634	"	740	Clean
567	Clean	635	"	741	"
568	F. Clean	636	Clean	742	"
569	Dirty	637	"		

Table 50.—Results of Dirt Test of Ordinary Market Milk* from 1930.

Year	No. of Samples	Very Clean	Clean	Fairly Clean	Dirty	Very Dirty
1930	412	8	72	118	156	58
1931	408	23	61	82	139	103
1932	630	4	27	108	265	226
1933	485	3	27	105	221	129
1934	339	—	19	51	148	121
1935	223	—	7	21	103	92
1936	227	3	21	43	106	54
1937	206	5	31	80	70	20
1938	174	3	36	83	49	3
1939	714	61	184	224	193	52
Totals	3818	110	485	915	1450	858

There has been a reduction in the number of dirty samples since the Milk and Dairies Act came into force as reference to the next table will show:—

Table 51.—Proportion of Samples of Ordinary Market Milk* classified as "Dirty," 1930-39.

Year	No. of Samples	Dirty	Proportion of Total
1930	412	214	51.9 per cent.
1931	408	242	59.3 "
1932	630	491	77.9 "
1933	485	350	72.2 "
1934	339	269	79.3 "
1935	223	195	87.4 "
1936	227	160	70.9 "
1937	206	90	43.6 "
1938	174	52	29.8 "
1939	714	245	33.9 "
Total	3,818	2,308	60.2 "

Even though there has been a reduction in the number of dirty samples, there is still room for further improvement. It is to be feared that no reasonable effort is being made to enforce the provisions of the Milk and Dairies Regulations relating to the production of milk.

2.—Microscopic Examination.

The main object of this examination is the detection of the so-called "Acid Fast" group of micro-organisms, of which the Tubercle Bacillus is a member. In 6 samples acid fast bacilli were detected, streptococci in 15 and pus in 24. Pus in milk indicates suppuration of the udder. In the event of positive findings in either of these directions our results are reported to the County Health Authority for action. This has been the procedure for some years past.

* The term ordinary market milk in these tables is used to denote milk to which the terms "milk," "new milk" and "fresh milk" are applicable under the Milk and Dairies (Special Designations) Regulations, 1938.

Table 52.—Results of Microscopic Examinations, 1930-39.

Year	No. of Samples	Acid-fasts	Streptococci	Pus Cells	Free from Suspicious Organisms
1930	412	29	7	12	364
1931	408	16	29	19	344
1932	630	40	3	2	585
1933	492	32	3	—	457
1934	520	5	10	—	505
1935	382	—	17	10	325
1936	314	4	11	4	299
1937	303	8	9	11	275
1938	251	3	5	1	242
1939	107	6	15	24	362
Totals	4119	143	109	83	3758

3.—Determination of Bacteria of faecal origin.

Included in this group is the *Bacillus Coli*, the presence of which in milk may be taken to show carelessness in production and handling. A full description of this test has been given in previous reports.

Table 53.—Results of Tests for the Presence of *Bacillus Coli*.

Quality	No. of Sample	Coli Present	Proportion Free from Coli
Highest Grade	3	—	100.00 per cent.
Standard	25	1	96.00 per cent.
New Milk	406	43	89.41 per cent.

4.—Determination of Presence of Pathogenic Bacteria.

This matter has been partly alluded to under the heading of microscopic examination. The presence of streptococci in milk is to be regarded as of pathogenic significance from the point of view of the liability of such milk to cause septic sore throat. They were present in fifteen samples. In dealing with Pathogenic Bacteria our chief concern is the *Tubercle Bacillus*, which is transmissible to man in infected milk. The biological test is the only reliable one in detecting *Tubercle* in milk.

Table 54.—Biological Test for the presence of Tubercle Bacilli in Milk.

No. of G. Pig	No. of Sample	Date of Inoculation	Date of Postmortem	Result	Observations
1	G1	14/2/39	27/2/39	N	Group Sample (Pig died)
2	G2	"	17/5/39	N	"
3	G3	"	"	N	"
4	G4	"	4/3/39	N	" (Pig died)
5	G5	"	17/5/39	N	"
6	H1	"	11/4/39	N	Herd Sample
7	24	8/3/39	17/5/39	N	Market Milk
8	25	"	20/3/39	N	" (Pig died)
9	26	"	17/5/39	N	"
10	27	"	"	N	"
11	28	"	13/3/39	N	"
12	29	"	17/5/39	N	"
13	30	"	23/3/39	N	"
14	H2	"	17/5/39	N	Herd Sample (Pig died)
15	G6	10/3/39	"	N	Group Sample
16	G7	"	"	N	"
17	G8	"	1/5/39	N	"
18	42	16/3/39	17/5/39	N	Market Milk
19	G9	22/6/39	22/6/39	N	Group Sample (Pig died)
20	G10	"	20/9/39	N	"
21	G11	"	"	N	"
22	G12	"	"	N	"
23	G13	"	"	N	"
24	G14	"	"	N	"
25	C1	23/6/39	29/8/39	P	Sample from Cow
26	G15	2/9/39	12/11/39	N	Group Sample
27	G16	"	"	N	"
28	G17	"	"	N	"
29	G18	"	"	N	"
30	H3	11/9/39	20/11/39	N	Herd Sample
32	540	13/10/39	20/12/39	N	Market Milk
33	541	"	"	N	"
34	542	"	"	N	"
35	543	"	"	N	"
36	544	"	"	N	"
37	545	"	18/10/39	N	"
38	626	8/11/39	5/1/40	N	" (Pig died)
39	627	"	"	N	"
40	628	"	"	N	"
41	629	"	"	N	"
42	630	"	"	N	"
43	631	"	"	N	"
44	632	"	"	N	"
45	652	15/11/39	4/12/39	N	"
46	653	"	20/1/40	N	"
47	654	"	"	N	"
48	655	"	"	N	"
49	656	"	"	N	"
50	658	"	"	N	"
51	659	"	"	N	"
52	673	29/11/39	26/2/40	N	"
53	674	"	"	N	"
54	679	"	"	N	"
55	682	"	"	N	"
56	683	7/12/39	"	N	"
57	684	"	"	P	"

Table 54.—Biological Test for the presence of Tubercle Bacilli in Milk—
continued

No. of G. Pig	No. of Sample	Date of Inoculation	Date of Postmortem	Result	Observations
58	685	7/12/39	26/2/40	N	Market Milk
59	686	"	"	N	"
60	687	"	"	N	"
61	688	"	"	N	"
62	689	"	"	N	"
63	690	"	7/1/40	N	" (Pig died)
64	711	20/12/39	27/2/40	N	"
65	712	"	"	N	"
66	713	"	"	P	"
67	714	"	"	N	"
68	715	"	"	P	"
69	716	"	"	N	"
70	717	"	"	P	"
71	718	"	"	N	"

Number of Samples of Milk tested Biologically :—

Market Milk	....	....	....	48
Herd	....	....	....	3
Group	....	....	....	18
Individual Cows	....	....	....	1
Total	....	....	....	70

Number of Samples found to contain living Tubercle Bacilli :—

Market Milk	....	....	....	4
Herd	....	....	....	0
Group Samples	....	....	....	0
Individual Cows	....	....	....	1
Total	....	....	....	5

The procedure adopted when positive milk samples are discovered, is as follows. The Secretary of the County Council and the County Medical Officer are notified and furnished with the name and address of the Milk Vendor, as well as the names and addresses of any supplementary suppliers he may have. This is done with a view to having the suspicious herds, which are located outside our jurisdiction, examined under the Bovine Tuberculosis Order, 1926.

During the period under review, I reported to the County Authorities four milk supplies that I found positive for Tubercle Bacilli. These four supplies included the produce of five herds. The herds in question were examined by the Rural District Veterinary Inspector. His reports to the County M.O.H. go to show that no cow affected with Tuberculosis in any form was discovered.

The fifth sample that was found Positive to the test was taken from a cow whose milk was found positive for Acid Fast Bacilli, following an ordinary routine examination of the herd of which the cow was a member.

The herd is located in the rural area and is under my supervision, as the milk from this herd goes to supplement the supply of one of the contractors under the free milk scheme. The cow was dealt with under the Bovine Tuberculosis Order.

5.—The Reductase Test.

As in previous years, the modified method of Wilson was used. The main modification consists in inverting the tubes at half-hourly intervals during the course of the test in order to keep the cream (in which a reducing enzyme is concentrated) and the micro-organisms in a homogeneous suspension.

The test is carried out by adding 1 c.c. of standard solution of methylene blue to 10 c.c.'s of milk. A marked blue colour develops at once in the milk. The tubes are then placed in a water bath and maintained at a temperature of between 100° F and 104° F. The tubes are examined at half-hourly intervals. Complete decolorization of the whole column of milk or complete decolorization up to within five m.m. of the surface is regarded as the end point. Any tube which at the time of examination shows obvious signs of reduction is not inverted, but left until the end point is reached. As the result of the action of bacteria present in the milk the mixture gradually loses its colour, and the speed at which this takes place serves as an index of the bacterial contamination of the milk.

In order that the results could be more readily understood by the ordinary individual, the standards as suggested by O. Jensen and Barthel in connection with the old method are adopted. These are :—

Grade I.—When no change of colour takes place in 5½ hours in Summer, and 6½ hours in Winter—Bacteria less than 500,000 per c.c.

Grade II.—No change in two hours, but a change in 5½ or 6½ as the case may be—500,000 to 4,000,000 per c.c.

Grade III.—No change in 20 minutes but a change in 2 hours—4,000,000 to 20,000,000 per c.c.

Grade IV.—Change of colour in 20 minutes or less—Over 20,000,000.

The results of the tests carried out are shown in the following tables (column 3).

Table 55.—“*Highest Grade Milk.*” Detailed Results of Examinations.

Sample No.	Dirt Test	Reductase Test “Grade”	Coll-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
546	V. Clean	1	—	—	—	—	—
671	“	1	—	—	—	—	—
710	“	1	—	—	—	—	—

Table 56.—“*Standard*” *Milk*. Detailed Results of Examination

Sample No.	Dirt Test	Reductase Test "Grade"	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
25	V. Clean	1	—	—	—	—	—
29	"	1	—	—	—	—	—
70	Clean	1	—	—	—	—	—
72	"	1	—	—	—	—	—
122	"	1	—	—	—	—	—
124	F. Clean	1	—	—	—	—	—
202	V. Clean	1	—	—	—	—	—
204	"	1	—	—	—	—	—
273	Clean	1	+	—	—	—	—
275	"	1	—	—	—	—	—
329	"	1	—	—	—	—	—
331	"	1	—	—	—	+	—
416	"	3	—	—	—	—	—
418	"	1	—	—	—	—	—
468	F. Clean	1	—	—	—	—	—
511	Clean	1	—	—	—	—	—
514	V. Clean	1	—	—	—	—	—
598	"	1	—	—	—	—	—
601	F. Clean	1	—	—	—	—	—
668	Clean	1	—	—	—	—	—
669	"	1	—	—	—	—	—
670	V. Clean	1	—	—	—	—	—
672	"	1	—	—	—	—	—
694	Clean	1	—	—	—	—	—
697	V. Clean	1	—	—	—	—	—

Table 57.—“*Ordinary*” *Milk*. Detailed Results of Examination

Sample No.	Dirt Test	Reductase Test "Grade"	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
1	F. Clean	1	—	—	—	—	—
2	Clean	1	—	—	—	—	—
3	Dirty	2	—	—	—	—	—
4	F. Clean	1	—	—	—	—	—
5	Clean	1	—	—	—	—	—
6	F. Clean	1	—	—	—	—	—
7	"	1	—	—	—	—	—
8	"	1	—	—	—	—	—
9	"	1	—	—	—	—	—
10	"	1	—	—	—	—	—
11	"	1	—	—	—	—	—
12	Clean	1	—	—	—	—	—
13	"	1	—	—	—	—	—
14	F. Clean	1	—	—	—	—	—
15	"	2	—	—	—	—	—
16	"	2	—	—	—	—	—
17	"	1	—	—	—	—	—
18	"	1	—	—	—	—	—
19	V. Dirty	1	—	—	—	—	—
20	Dirty	1	—	—	—	—	—
21	V. Dirty	1	—	—	—	—	—
22	F. Clean	1	—	—	—	—	—

Table 57.—“Ordinary” Milk. Detailed Results of Examination—continued

Sample No.	Dirt Test	Reductase Test “Grade”	Coll-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
23	F. Clean	1	—	—	—	—	—
24	V. Clean	1	—	—	—	—	—
26	“	1	—	—	—	—	—
27	“	1	—	—	—	—	—
28	“	1	—	—	—	—	—
30	“	1	—	—	—	—	—
31	“	1	—	—	—	—	—
32	Clean	1	—	—	—	—	—
33	F. Clean	1	—	—	—	—	—
34	“	1	—	—	—	—	—
35	Clean	1	—	—	—	—	—
36	V. Clean	1	—	—	—	—	—
37	F. Clean	1	—	—	—	—	—
38	Clean	1	—	—	—	—	—
39	F. Clean	1	—	—	—	—	—
40	V. Clean	1	—	—	—	—	—
41	F. Clean	1	—	—	—	—	—
42	“	2	—	—	—	—	—
43	“	2	—	—	—	—	—
44	“	1	—	—	—	—	—
45	“	1	+	—	—	—	—
46	V. Clean	1	+	—	—	—	—
47	F. Clean	1	—	—	—	—	—
48	“	1	—	—	—	—	—
49	“	1	+	—	—	—	—
50	V. Clean	1	—	—	—	—	—
51	F. Clean	1	—	—	—	—	—
52	“	1	—	—	—	—	—
53	“	1	—	—	—	—	—
54	“	1	—	—	—	—	—
55	Clean	1	—	—	—	—	—
56	V. Clean	1	—	—	—	—	—
57	Clean	1	—	—	—	—	—
58	“	1	—	—	—	—	—
59	V. Dirty	3	—	—	—	—	—
60	Clean	3	—	—	—	—	—
61	V. Clean	1	—	—	—	—	—
62	Clean	3	—	—	—	—	—
63	“	2	—	—	—	—	—
64	“	2	—	—	—	—	—
65	Dirty	1	—	—	—	—	—
66	Clean	1	—	—	—	—	—
67	“	1	—	—	—	—	—
68	“	1	—	—	—	—	—
69	“	1	—	—	—	—	—
71	“	1	—	—	—	—	—
73	“	1	—	—	—	—	—
74	“	1	—	—	—	—	—
87	F. Clean	2	—	—	—	—	—
88	Clean	1	—	—	—	—	—
89	“	1	+	—	—	—	—
90	F. Clean	1	+	—	—	—	—
91	Dirty	1	—	—	—	—	—
92	V. Clean	1	—	—	—	—	—
93	“	1	—	—	—	—	—
94	Dirty	2	+	—	—	—	—

Table 57.—“*Ordinary*” *Milk*. Detailed Results of Examination—continued

Sample No.	Dirt Test	Reductase Test “Grade”	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
95	Clean	1	—	—	—	—	—
96	V. Clean	1	—	—	—	—	—
97	Clean	1	—	—	—	—	—
98	”	1	—	—	—	—	—
99	F. Clean	1	—	—	—	—	—
100	”	1	—	—	—	—	—
101	”	1	—	—	—	—	—
102	Clean	1	—	—	—	—	—
103	F. Clean	2	+	—	—	—	—
104	Dirty	1	—	—	—	—	—
105	”	1	—	—	—	—	—
106	F. Clean	1	—	—	—	—	—
107	Dirty	1	+	—	—	—	—
108	Clean	1	—	—	—	—	—
109	”	1	—	—	—	—	—
110	F. Clean	1	—	—	—	—	—
111	Clean	1	—	—	—	—	—
112	”	1	—	—	—	—	—
113	”	1	—	—	—	—	—
114	F. Clean	1	—	—	—	—	—
115	”	1	—	—	—	—	—
116	Dirty	1	—	—	—	—	—
117	”	1	—	—	—	—	—
118	Clean	1	—	—	—	—	—
119	V. Clean	1	—	—	—	—	—
120	F. Clean	1	—	—	—	—	—
121	Clean	1	—	—	—	—	—
123	”	1	—	—	—	—	—
125	Clean	1	—	—	—	—	—
126	F. Clean	1	—	—	—	—	—
137	”	2	—	—	—	—	—
138	”	2	+	—	—	—	—
139	Clean	2	—	—	—	—	—
140	F. Clean	2	—	—	—	—	—
141	Dirty	2	—	—	—	—	—
142	F. Clean	1	—	—	—	—	—
143	”	2	—	—	—	—	—
144	”	1	—	—	—	—	—
145	Clean	1	—	—	—	—	—
146	”	2	—	—	—	—	—
147	V. Clean	2	+	—	—	—	—
156	F. Clean	2	—	—	—	—	—
157	”	1	—	—	—	—	—
158	”	2	+	—	—	—	—
159	”	2	—	—	+	—	—
160	V. Dirty	3	—	—	—	—	—
161	Clean	2	—	—	—	—	—
162	V. Dirty	2	—	—	—	—	—
163	Clean	1	—	—	—	—	—
164	”	1	—	—	—	—	—
165	”	1	—	—	—	—	—
166	V. Clean	1	—	—	—	—	—
167	F. Clean	2	—	—	—	—	—
180	Clean	2	—	—	—	—	—
181	”	2	—	—	—	—	—
182	F. Clean	1	—	—	—	—	—

Table 57.—“*Ordinary*” *Milk*. Detailed Results of Examination—continued

Sample No.	Dirt Test	Reductase Test “Grade”	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
183	F. Clean	1	—	—	—	—	—
184	Dirty	2	—	—	—	—	—
185	V. Dirty	3	+	—	—	—	—
186	Dirty	3	+	—	—	—	—
187	F. Clean	2	—	—	—	—	—
188	”	2	—	—	—	—	—
189	Dirty	2	—	—	—	—	—
190	F. Clean	2	—	—	—	—	—
191	”	3	—	—	—	—	—
200	Clean	1	—	—	—	—	—
201	”	1	+	—	—	—	—
203	V. Clean	1	—	—	—	—	—
205	”	1	—	—	—	—	—
206	”	1	+	—	—	—	—
219	Dirty	2	—	—	—	—	—
220	”	2	—	—	—	—	—
221	V. Clean	1	—	—	—	—	—
222	Clean	2	—	—	—	—	—
223	”	1	—	—	—	—	—
224	Dirty	2	—	—	—	—	—
225	”	1	—	—	—	—	—
226	F. Clean	1	—	—	—	—	—
227	V. Clean	1	—	—	—	—	—
228	Dirty	1	—	—	—	—	—
229	F. Clean	2	—	—	—	—	—
230	”	1	—	—	—	—	—
243	Dirty	2	—	—	—	—	—
244	F. Clean	2	—	—	—	—	—
245	”	2	—	—	—	+	—
246	Dirty	2	—	—	—	—	—
247	”	2	—	—	—	—	—
248	”	2	—	—	—	+	—
249	Clean	1	—	—	—	—	—
250	Dirty	1	—	—	—	—	—
251	”	1	—	—	—	—	—
252	”	1	—	—	—	—	—
253	Dirty	2	—	—	—	+	—
254	”	2	—	—	—	—	—
255	F. Clean	2	—	—	—	+	—
256	”	2	+	—	—	—	—
257	”	2	—	—	—	—	—
258	Dirty	1	—	—	—	—	—
271	Clean	1	—	—	—	—	—
272	”	2	+	—	—	—	—
274	”	1	—	—	—	—	—
276	”	1	—	—	—	—	—
277	”	1	—	—	—	—	—
278	”	2	—	—	—	—	—
279	Dirty	2	—	—	—	—	—
280	”	1	+	—	—	—	—
281	”	1	—	—	—	+	—
282	”	2	—	—	—	—	—
283	”	2	—	—	—	—	—
284	V. Dirty	2	—	—	—	—	—
285	Dirty	2	—	—	—	—	—
302	F. Clean	2	—	—	—	—	—

Table 57.—“*Ordinary*” *Milk*. Detailed Results of Examination—continued

Sample No.	Dirt Test	Reductase Test “Grade”	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
303	F. Clean	1	—	—	—	—	—
304	Dirty	2	—	—	—	—	—
305	F. Clean	2	—	—	—	—	—
306	V. Dirty	2	—	—	—	+	—
307	Dirty	1	—	—	—	—	—
308	”	2	—	—	—	+	—
309	V. Dirty	1	—	—	—	—	—
328	Clean	1	—	—	—	—	—
330	”	1	—	—	—	+	—
332	”	1	—	—	—	—	—
333	”	1	—	—	—	—	—
334	”	3	—	—	—	—	—
335	F. Clean	1	—	—	—	+	—
336	”	1	—	—	—	—	—
337	”	1	—	—	—	—	—
338	Dirty	2	—	—	—	—	—
339	”	1	+	—	—	—	—
340	”	1	+	—	—	—	—
341	”	1	—	—	—	—	—
367	V. Dirty	1	—	—	—	—	—
368	F. Clean	1	—	—	+	+	—
369	Dirty	2	—	—	—	+	—
370	V. Clean	3	+	—	—	—	—
371	Clean	1	—	—	—	—	—
372	Dirty	3	—	—	—	+	—
373	V. Clean	2	—	—	—	—	—
374	Dirty	1	—	—	—	+	—
380	”	2	+	—	—	—	—
381	Clean	3	—	—	—	+	—
382	F. Clean	3	—	—	—	—	—
383	Dirty	1	—	—	—	—	—
384	”	2	—	—	—	—	—
385	”	2	—	—	—	+	—
386	”	2	—	—	—	—	—
388	Clean	1	—	—	—	—	—
389	”	1	—	—	—	—	—
390	V. Dirty	2	—	—	—	—	—
391	F. Clean	2	—	—	—	+	—
392	Dirty	2	—	—	—	—	—
393	F. Clean	1	—	—	—	+	—
394	V. Clean	3	—	—	—	—	—
395	F. Clean	1	—	—	—	—	—
396	”	2	—	—	—	—	—
401	”	1	—	—	—	—	—
402	Dirty	3	—	—	—	—	—
403	V. Dirty	3	—	—	—	—	—
404	Dirty	3	+	—	—	—	—
405	”	2	—	—	—	—	—
406	”	1	+	—	—	—	—
407	F. Clean	1	—	—	—	—	—
408	Dirty	3	—	—	—	—	—
409	V. Clean	1	—	—	—	—	—
414	Clean	3	—	—	—	—	—
415	”	3	—	—	—	—	—
417	”	1	—	—	—	—	—
419	”	1	—	—	—	—	—

Table 57.—“*Ordinary*” *Milk*. Detailed Results of Examination—continued

Sample No.	Dirt Test	Reductase Test "Grade"	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
420	Clean	1	—	—	—	—	—
421	V. Dirty	3	+	—	—	—	—
422	Dirty	3	—	—	—	—	—
424	V. Clean	3	—	—	—	—	—
425	Clean	3	—	—	—	—	—
426	V. Clean	1	—	—	—	—	—
427	Dirty	2	—	—	—	—	—
429	"	2	—	—	—	—	—
430	Clean	2	—	—	—	—	—
432	F. Clean	3	—	—	—	—	—
433	Dirty	1	—	—	—	—	—
456	Clean	1	—	—	+	+	—
457	"	1	—	—	—	—	—
458	"	2	—	—	—	—	—
459	"	3	—	—	—	—	—
460	"	3	—	—	—	—	—
461	Dirty	3	—	—	—	—	—
462	F. Clean	2	—	—	—	—	—
463	V. Dirty	3	—	—	—	—	—
464	Dirty	2	—	—	—	—	—
465	Clean	3	—	—	—	—	—
466	F. Clean	1	—	—	—	—	—
467	"	1	—	—	—	—	—
469	"	1	—	—	—	—	—
470	"	1	—	—	—	—	—
471	"	1	—	—	—	—	—
472	"	1	—	—	—	—	—
473	"	1	+	—	—	—	—
474	"	2	—	—	—	—	—
475	V. Clean	1	—	—	—	—	—
476	Dirty	1	—	—	—	—	—
477	F. Clean	1	—	—	—	—	—
478	"	2	—	—	—	+	—
492	"	1	—	—	—	—	—
493	"	1	—	—	—	—	—
494	V. Clean	1	—	—	—	—	—
495	Dirty	2	—	—	—	—	—
496	"	3	+	—	—	—	—
497	"	3	—	—	—	—	—
498	"	3	—	—	—	—	—
499	"	2	+	—	—	—	—
501	Clean	1	—	—	—	—	—
502	F. Clean	1	—	—	—	—	—
503	V. Clean	1	+	—	—	—	—
504	"	1	—	—	+	—	—
505	Clean	1	—	—	—	—	—
506	"	2	—	—	—	—	—
507	Dirty	1	—	—	—	—	—
508	"	1	—	—	—	—	—
509	F. Clean	1	—	—	—	—	—
510	Dirty	3	—	—	—	—	—
512	Clean	1	—	—	—	—	—
513	V. Clean	1	—	—	—	—	—
540	Clean	1	—	—	—	—	—
541	Dirty	3	—	—	—	—	—
542	"	1	—	—	—	—	—

Table 57.—“ Ordinary ” Milk. Detailed Results of Examination—continued

Sample No.	Dirt Test	Reductase Test “ Grade ”	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
543	Clean	3	—	—	—	—	—
544	F. Clean	2	—	—	—	—	—
545	”	2	—	—	—	—	—
547	Dirty	1	—	—	—	—	—
548	V. Dirty	1	—	—	—	—	—
549	F. Clean	1	—	—	—	—	—
550	Clean	1	—	—	—	—	—
551	V. Dirty	1	—	—	—	—	—
552	F. Clean	1	—	—	—	—	—
553	Dirty	1	—	—	—	—	—
554	”	1	—	—	—	—	—
556	F. Clean	1	—	—	—	—	—
557	Dirty	2	—	—	—	—	—
558	F. Clean	2	—	—	+	+	—
559	V. Dirty	2	+	—	—	—	—
560	F. Clean	1	—	—	—	—	—
561	V. Dirty	1	—	—	—	—	—
562	Dirty	1	—	—	—	—	—
563	”	2	—	—	—	—	—
564	”	1	—	—	—	—	—
565	V. Dirty	2	—	—	—	—	—
596	Dirty	1	—	—	—	—	—
597	Clean	1	—	—	—	—	—
599	V. Clean	1	—	—	+	+	—
600	Clean	1	—	—	—	—	—
625	Dirty	1	—	—	—	—	—
626	V. Dirty	1	—	—	—	—	—
627	F. Clean	1	—	—	+	+	—
628	F. Clean	1	+	—	—	—	—
629	Dirty	1	—	—	—	—	—
630	V. Clean	1	—	—	—	—	—
631	Clean	2	—	—	—	—	—
632	Dirty	2	—	—	+	+	+
652	F. Clean	2	—	—	+	—	—
653	V. Dirty	1	—	—	—	—	—
654	”	1	—	—	—	—	—
655	Dirty	2	—	—	—	—	—
656	F. Clean	2	—	—	—	+	+
657	Clean	2	—	—	—	—	—
658	Dirty	2	—	—	—	—	—
659	Clean	2	—	—	—	—	—
660	”	1	—	—	—	—	—
661	Dirty	2	—	—	—	—	—
662	”	2	—	—	—	—	—
663	”	1	—	—	—	—	—
664	”	1	—	—	—	—	—
665	F. Clean	1	—	—	—	—	—
666	Dirty	1	—	—	—	—	—
667	F. Clean	2	—	—	—	—	—
673	”	2	—	—	—	—	—
674	Clean	1	—	—	—	—	—
675	”	1	—	—	—	—	—
676	F. Clean	2	—	—	—	—	—
677	Dirty	1	—	—	—	—	—
678	F. Clean	1	—	—	—	—	—
679	”	1	—	—	—	—	—

Table 57.—“ Ordinary ” Milk. Detailed Results of Examination—continued

Sample No.	Dirt Test	Reductase Test “ Grade ”	Coli-form Bacilli	Microscopical Test			
				Acid Fast	Strep-tococci	Pus	Blood
682	V. Dirty	2	—	—	—	—	—
683	V. Clean	3	—	—	+	—	—
684	F. Clean	1	—	—	—	—	—
685	Clean	1	—	—	—	—	—
686	Clean	1	—	—	—	—	—
687	”	2	—	—	—	—	—
688	F. Clean	1	—	—	—	—	—
689	”	1	—	—	—	—	—
690	Clean	2	—	—	—	—	—
692	”	1	—	—	—	—	—
693	”	1	—	—	—	—	—
695	”	1	—	—	—	—	—
696	”	1	—	—	—	—	—
711	Dirty	1	—	—	—	—	—
712	V. Clean	1	—	—	+	—	—
713	Clean	1	—	—	—	—	—
714	V. Dirty	2	—	—	—	—	—
715	F. Clean	1	—	—	—	—	—
716	Clean	1	—	—	—	—	—
717	F. Clean	1	—	—	—	—	—
718	Dirty	2	—	—	—	—	—

Bacteriological Examinations.

37 samples of milk, including 2 Highest Grade, 1 Standard and 2 Pasteurised, were taken for bacteriological examination and submitted to the Authorised Bacteriologist, to determine the number of bacteria in one c.c. of the milk in accordance with the provisions of Section 52 of the Milk and Dairies Act, 1935.

Table 58.—Result of *Bacteriological Examinations* carried out at the Pathological Department, University College, Cork, on samples of Milk submitted by Corporation Sampling Officers.

No. of Sample	Number of Bacteria per C.C.	No. of Sample	Number of Bacteria per C.C.	No. of Sample	Number of Bacteria per C.C.
1	30,000	13	2,000,000	25	20,000
2	18,000	14	80,000	26	151,000
3	60,000	15	40,000	27	50,000
4	14,000	16	300,000	28	Uncountable
5	70,000	17	50,000	29	17,000
6	190,000	18	300,000	30	305,000
7	400,000	19	55,000	31	86,000
8	600,000	20	200,000	32	7,500
9	10,000	21	140,000	33	208,000
10	700,000	22	46,000	34	12,500
11	3,000	23	50,000	35	65,500
12	24,000	24	24,000	36	51,500
				37	292,000

No. 9 and 29 were samples of "Highest Grade" Milk.

No. 12 and 31 were samples of "Pasteurised" Milk.

No. 34 was a sample of "Standard" Milk.

4 samples out of 37 or 10.81 per cent. failed to comply with the provisions of article 3 of the Milk and Dairies (Bacteriological Examination) Regulations, 1936, which prescribes that the number of Bacteria per unit volume shall be 500,000 per cubic centimetre.

State Grant for the Provision of Free Milk.

This scheme came into operation on the 1st October, 1933, and is now working very satisfactorily, considering the large quantity of milk distributed annually. During the year 56,020 gallons were distributed in pint bottles, and very few complaints were received regarding the quality of the milk. The quality which is of high standard was well maintained throughout the year, which, no doubt, is due to the constant supervision exercised over the source of supply, coupled with Bactriological control.

In consequence of the Milk and Dairies (Special Designation) Regulations, 1938, having come into operation during the year, the term "Grade A" as applied to milk had to be discarded, consequently the contractors under the scheme, who were supplying "Grade A" milk were obliged to seek a Government licence to produce what corresponded to "Grade A", viz.:—Standard Milk, or fall back to a lower grade. Four of the five contractors qualified for a Standard licence, their premises and equipment having been up to the required standard. One contractor failed to get a licence because the floor measurements of his cowshed failed to come within the requirements laid down by the L.G.D. governing such licences.

In view of the increased costs associated with the production of Standard milk, only two contractors accepted the Government licence.

The position now is, that two contractors are supplying Standard Milk and three ordinary "New Milk."

I am glad to say that the quality of the "New Milk" compares very favourably in every respect with Standard Milk. The herds producing it are subject to the same attention as those producing Standard, and from a bacteriological standpoint it is as safe from pathogenic bacteria as Standard.

The herds are examined regularly every three months, and several surprise visits are made in between. Herd samples are subjected to the Biological Test regularly.

During the year a cow giving tuberculous milk was discovered following ordinary routine examination of the herd. The animal was slaughtered subsequently under the Bovine Tuberculosis Order, 1926.

Prosecutions.

(A) MILK AND DAIRIES ACT, 1935.

56 persons were prosecuted for non-observance of the above Act.

46 convictions were obtained and fines amounting to £19 11s. 6d. imposed. 7 cases were marked proved and 3 cases dismissed.

With reference to the successful prosecutions—

5 summonses were brought under Section 24.

40	„	„	„	„	59.
1	„	„	„	„	60.

Section 24.—Relates to the prohibition of the sale of milk by unregistered dairymen or on unregistered premises.

Section 59.—Relates to the prohibition of the sale of dirty milk.

Section 60.—Relates to the sale of milk in public places and prescribes for the conspicuous inscription of the dairyman's name and address on the vehicle, car or receptacle and the words *Bainne ar díol*, *Machtar ar díol* or *Bláthach ar díol*.

Table 59.—Showing detailed results of proceedings against persons for infringements of the *Milk and Dairies Act*, 1935.

Prosecution under Section	Fines Imposed	Prosecution under Section	Fines Imposed
59	5/- and Costs	59	10/- and Costs
59	5/- „	24	7/6 „
59	5/- „	59	15/- „
59	5/- „	59	15/- „
24	3/6 „	59	7/6 „
59	7/6 „	59	10/6 „
59	7/6 „	59	7/6 „
59	5/- „	59	7/6 „
59	5/- „	59	10/- „
59	2/6 „	59	5/- „
24	5/- „	59	10/- „
59	7/6 „	59	7/6 „
60	12/6 „	59	7/6 „
59	20/- „	59	7/6 „
59	7/6 „	24	15/- „
59	10/- „	59	10/- „
24	10/- „	59	7/6 „
59	5/- „	59	5/- „
59	5/- „	59	10/- „
59	10/- „	59	5/- „
59	7/6 „	59	20/- „
59	10/- „	59	10/- „
59	10/- „	59	10/- „

(B) THE MILK AND DAIRIES REGULATIONS, 1936
and
THE MILK AND DAIRIES (BACTERIOLOGICAL EXAMINATION)
REGULATIONS, 1936.

57 persons were prosecuted for non-observance of the above Regulations. 27 convictions were obtained and fines amounting to £6 16s. 6d. imposed. 19 cases were marked proved, 5 withdrawn and 2 dismissed.

With reference to the successful prosecutions—

(a) Under the Milk and Dairies Regulations, 1936.

1	summons	was	brought	under	article	8	(2)
1	"	"	"	"	"	18	
3	"	"	"	"	"	22	
1	"	"	"	"	"	22	(5)
1	"	"	"	"	"	25	
6	"	"	"	"	"	27	
5	"	"	"	"	"	28	
4	"	"	"	"	"	40	

(b) Under the Milk and Dairies (Bacteriological Examination) Regulations, 1936.

4 summons under article 3

Article 8 (2) of the Milk and Dairies Regulations prescribes "a dairyman shall not permit any person in his employment to commit an offence, whether by act or omission against these regulations and shall take all reasonable steps to prevent the commission of such an offence by such person.

Article 18 relates to the cleansing of cowsheds.

Article 22 relates to the cleanliness and freedom from rust of utensils and appliances used with milk.

Article 22 (5) prescribes every vessel and appliance when not being used shall be stored in a clean place and shall be protected while so stored from dust, dirt and flies.

Article 25 relates to the prohibiting against depositing or keeping or dealing with milk in certain places.

Article 27 relates to the prohibition against keeping milk in uncovered vessels.

Article 28 relates to the cleanliness of persons having access to milk.

Article 40 relates to vehicles used for conveyance of milk.

Article 3 of the Milk and Dairies (Bacteriological Examinations) Regulations relates to the maximum number of bacteria allowed.

Table 60.—Showing detailed results of proceedings against persons for infringements of the *Milk and Dairies Regulations, 1936*, and the *Milk and Dairies (Bacteriological Examination) Regulations, 1936*.

Prosecution Under Article	Fines Imposed	Prosecution Under Article	Fines Imposed
31	15/- and Costs	22 (5)	5/- and Costs
22	1/- "	22	5/- "
25	3/6 "	40	5/- "
27	3/6 "	40	5/- "
28	3/6 "	3 (B.E.)	20/- "
27	2/6 "	3 (B.E.)	7/6 "
27	3/6 "	3 (B.E.)	7/6 "
27	2/6 "	3 (B.E.)	10/- "
22	3/6 "	28	5/- "
27	3/6 "	28	3/6 "
27	3/6 "	40	3/6 "
8 (2)	3/6 "	28	3/6 "
28	3/6 "	40	3/6 "
18	5/- "		

NOTICES SERVED.

The number of notices sent out under the Milk and Dairies Act and Regulations was 699.

B. MEAT INSPECTION.

In last year's Report it was mentioned that the administration of the Fresh Meat Act and the Pigs and Bacon Act was taken over by the Department of Agriculture, and that power to inspect and examine meat intended for home use, no matter where it is slaughtered within the Borough, was vested in the Local Authority under the Public Health Act. We did not, however, exercise that power so far as the inspection of meat in Bacon Factories was concerned. An arrangement had been made with the Inspector in charge that the Department Veterinary Examiner operating in the Factory would examine any pigs intended for manufacture into sausages and send us weekly returns of the number of pigs so examined and particulars of any disease with which the pig was affected. The figures given here in respect of Bacon Factories are those furnished by the Department Inspector, and they apply chiefly to sows, the latter being the type of pig most suitable as sausage meat.

MEAT INSPECTION DEPOT.

The Meat Inspection Depot, reference to which was made in last year's Report, is opened daily from 8.30 a.m. to 11.0 a.m.

Beyond those persons mentioned in the Report who bring their meat regularly for inspection. The butchers of Cork are not availing of the facilities offered for having their meat inspected and stamped. It is high time that something were done to compel them to bring their meat for inspection. The need for proper inspection can be judged by the tables showing the incidence of disease in the carcasses examined at the depot.

Out of 1321 beef carcasses examined, 502 were found affected with Tuberculosis, 32 were totally condemned. 21,451 lbs. of beef and 13,707 lbs. of offals were condemned as the result of Tuberculosis. 7 carcasses were totally condemned as the result of diseases other than Tuberculosis and 2,687 lbs. of beef and 7,428 lbs. of offals. Immediate steps should be taken to put the Meat Inspection Bye-Laws into operation.

The Slaughter of Animals Act, 1935.

The provisions of this Act were outlined in the 1937 Annual Report, it is not proposed to make further reference to them here.

The provisions of the Act are observed in a reasonable way by occupiers of slaughterhouses and slaughtermen. The humane slaughter instrument, as approved by the Department, is used in all slaughterhouses within the Borough. Three slaughtermen were prosecuted for failure to use the approved instrument (Section 15) and one was prosecuted for using the instrument and not being licensed for that purpose (Section 19). See page 83 for list of convictions and fines for infringements against the Slaughter of Animals Act.

28 persons are licensed to use the humane slaughter instrument.

The number of premises within the Cork Urban Sanitary District where meat and meat products are prepared for human consumption is as follows :—

Slaughter Houses :—

Licensed (under Public Health Act, 1878)	....	....	19
Registered (being in use before the 1878 Act)	....	....	1
Registered (under the Fresh Meat Act)	....	....	2

Bacon Factories :—

Where pigs only are slaughtered for production of Bacon	....	....	2
Where pigs are slaughtered for Bacon and Pork	....	....	1
Where Cattle and Sheep are slaughtered in addition to Pigs for Bacon and Pork	....	....	1

Sausage Factories 15

Triperies 9

Number of Inspections made of premises where meat is prepared and sold :—

Slaughter Houses	....	....	....	....	3,643
Sausage Factories	....	....	....	....	1,349
Triperies	....	....	....	....	1,430
Meat Markets	....	....	....	....	762
Butcher Shops	....	....	....	....	4,082
Pork Shops	....	....	....	....	279

In addition to the above, the following inspections were made of provision shops, fish shops, fruit shops and hawkers' stands :—

Provision Shops	....	....	....	....	....	3,126
Fish Shops	....	....	....	....	....	221
Fruit Shops	....	....	....	....	....	3,620
Hawkers' Stands	....	....	....	....	....	741

The number of Notices served to abate nuisances and remedy defects in Slaughter Houses and Triperies—31.

The following Tables show the results of inspection of meat in Slaughter Houses and Bacon Factories, and also the amount of meat surrendered by owners, and seized by the Inspectors :—

Table 61.—Carcases condemned for *Tuberculosis* in Slaughter Houses and Bacon Factories.

Species of Animal	SLAUGHTER HOUSES						
	Number slaughtered	Affected		Totally Condemned		Partially Condemned	
		Number	Per-centage	Number	Per-centage	Number	Per-centage
Cattle	1,301	229	17.64	8	.61	221	16.98
Calves	564	5	.88	2	.35	3	.53
Sheep	7,377	—	—	—	—	—	—
Pigs	1,548	286	18.47	10	.64	276	17.82
Pigs	BACON FACTORIES						
	2,701	1,067	39.50	25	.92	1,042	38.57

Table 62.—Carcases condemned for *diseases other than Tuberculosis* in Slaughter Houses and Bacon Factories.

Species of Animal	SLAUGHTER HOUSES						
	Number slaughtered	Affected		Totally Condemned		Partially Condemned	
		Number	Per-centage	Number	Per-centage	Number	Per-centage
Cattle	1,301	2	.15	1	.07	1	.07
Calves	564	3	.53	1	.17	2	.35
Sheep	7,377	3	.04	3	.04	—	—
Pigs	1,548	—	—	—	—	—	—
Pigs	BACON FACTORIES						
	2,701	16	.59	7	.25	9	.33

Table 63.—Quantity of Meat condemned for *Tuberculosis and other diseases* in Slaughter Houses and Bacon Factories.

Variety	SLAUGHTER HOUSES				
	Quantity Examined	Tuberculosis Quantity Condemned	Per-centage	Other Diseases Quantity Condemned	Per-centage
	lbs.	lbs.		lbs.	
Beef	650,500	15,556½	2 (app.)	63½	.009
Veal	45,120	90	.2	51	.1
Mutton	442,620	—	—	116	.02
Pork	123,840	3,429	2 (app.)	—	—
BACON FACTORIES.					
Pork	1,080,400	32,602½	11 (app.)	2,691	2 (app.)

Table 64.—Quantities of Offals Condemned for *Tuberculosis and other diseases* in Slaughter Houses and Bacon Factories.

[illegible]

OTHER DISEASES

[illegible]

Table 65.—Showing number of carcasses inspected and the quantity of meat, including Offals, condemned in Slaughter Houses and Meat Inspection Depot.

Class of Animal	Number of Carcasses Examined	Condemned		
		Wholly	Partially	Quantity of Meat and Offals
				lbs.
Cattle	2,614	48	700	72,028½
Calves	572	3	8	259
Sheep	7,377	3	—	150
Pigs	1,548	10	276	7,258½

CENTRAL MEAT INSPECTION DEPOT.

Table 66.—Number of Carcasses condemned for Tuberculosis at the Depot.

Class of Animal	No. Examined	Affected		Condemned			
		No.	Per cent.	Totally		Partially	
				No.	Per cent.	No.	Per cent.
Oxen	123	22	17.89	—	—	22	17.89
Bulls	17	5	29.41	—	—	5	29.41
Cows	639	326	51.01	28	4.38	298	46.63
Heifers	534	146	27.34	4	.74	142	26.59
Calves	8	3	37.50	—	—	3	37.50
Total	1,321	502	38.00	32	2.42	470	35.58

Table 67.—Number of Carcasses condemned for diseases other than Tuberculosis.

Class of Animal	No. Examined	Affected		Condemned			
		No.	Per cent.	Totally		Partially	
				No.	Per cent.	No.	Per cent.
Oxen	123	1	.81	—	—	1	0.81
Bulls	17	—	—	—	—	—	—
Cows	639	14	2.19	6	.93	8	1.25
Heifers	534	3	0.56	1	.18	2	0.37
Calves	8	—	—	—	—	—	—
Sheep	3	3	100.00	3	100.00	—	—
Total							
Cattle	1,321	18	1.36	7	.52	11	.83
Sheep	3	3	100.00	3	100.00	—	—

Table 68.—Quantity of Meat condemned in Depot for Tuberculosis and other Diseases.

Variety	Quantity Examined	Tuberculosis		Other Diseases	
		Quantity Condemned	Per-centage	Quantity Condemned	Per-centage
Beef	lbs. 657,700	lbs. 21,451	3.27	lbs. 2,687	.408 app.
Mutton	150	—	—	150	100.000

Table 69.—Quantity of Offals condemned in Depot for Tuberculosis and other Diseases.

Offals	TUBERCULOSIS		OTHER DISEASES	
	Quantity	Wt. in lbs.	Quantity	Wt. in lbs.
Lungs	922	4610	4	20
Hearts	461	2305	—	—
Stomachs	1	30	—	—
Intestines	1	30	—	—
Spleens	1	3	—	—
Livers	141	1692	607	7284
Kidneys	12	9	19	14
Head and Tongue	229	5028	5	110

The amount of Meat, etc., seized and surrendered during the year was as follows :—

Variety of Meat, etc.	Amount Seized in Shops		Amount Surrendered	
	Tuberculosis	Other Diseases	Tuberculosis	Other Diseases
	Lbs.	Lbs.	Lbs.	Lbs.
Beef	592	24	49,538	13,766
Pork	13½	4	45,943	3,335
Poultry	8¼	23	—	—
Rabbits	—	1	—	—
Bacon	—	222	—	79½
Veal	42	—	226½	57
Fruit	—	16	—	—
Butter	—	11½	—	—

PROSECUTIONS.

- (a) For offences against the Public Health Acts—19 prosecutions. Fines amounting to £12 were imposed.
- (b) For offences against the Slaughter of Animals Act—4 prosecutions. Fines amounting to £1 3s. 6d. were imposed.
- (c) For offences against the Corporation Bye-Laws—12 prosecutions. Fines amounting to £4 7s. 0d. were imposed.

Detailed list of Convictions and Fines under Section 132 of the Public Health (Ireland) Act, 1878 :—

Offence	Fine	Offence	Fine
Tuberculosis Beef	5/- and Costs	Tuberculosis Beef	20/- and Costs
Do.	5/- "	Do.	30/- "
Do.	7/6 "	Decomposed Bacon	5/- "
Do.	7/6 "	Do.	10/- "
Do.	7/6 "	Do.	15/- "
Do.	7/6 "	Do.	20/- "
Do.	7/6 "	Tuberculous Fowls	7/6 "
Do.	15/- "	Do.	20/- "
Do.	15/- "	Do.	20/- "
Do.	15/- "		

Detailed list of Convictions and Fines for infringement of the Slaughter of Animals Act :—

Section	Fine	Section	Fine
19	1/- and Costs	15	7/6 and Costs
15	5/- "	15	10/- "

Detailed list of Convictions and Fines in respect of infringements of the Corporation Bye-Laws in relation to Slaughterhouses in the County Borough of Cork :—

Bye-Law No. 12	....	Fine 20/- and costs
" "	....	" 10/- "
" "	....	" 5/- "
" "	....	" 3/6 "
" " 13	....	" 10/- "
" "	....	" 5/- "
" " 16	....	" 20/- "
" "	....	" 10/- "
" "	....	" 10/- "
" "	....	" 3/6 "

Detailed List of Convictions and Fines in respect of infringements of the Corporation Bye-Laws for the decent and seemly conveyance of meat through the public thoroughfares within the County Borough of Cork :—

Bye-Law No. 1	....	Fine 10/- and costs
" "	....	" 5/- "
" "	....	" 2/6 "

(C) FOOD AND DRUGS ACTS.

MILK.

Appended herewith is the Report of the City Analyst (Mr. D. J. O'Sullivan, M.Sc., F.I.C.)

Table 70.—Showing the number of samples of Milk submitted for Analysis during the year 1939 and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1939	157	145	12
June 30th, 1939	147	118	29
Sept. 30th, 1939	140	131	9
Dec. 31st, 1939	143	141	2
Totals	587	535	52

Table 71.—Showing results of proceedings against vendors of adulterated samples and fines imposed.

Extent and form of Adulteration				Fines Imposed	
				Fines	Costs
Deficient in Milk Fat	6%	.....	.....	2/6	15/8
	13%	.....	.....	3/6	15/8
"	8%	.....	.....	5/-	15/8
"	11%	.....	.....	3/6	15/8
"	21%	.....	.....	10/-	15/9
"	8%	.....	.....	5/-	15/8
"	6%	.....	.....	3/6	15/8
"	13%	.....	.....	5/-	15/8
"	16%	.....	.....	5/-	15/8
"	13%	.....	.....	5/-	15/8
"	10%	.....	.....	5/-	15/8
"	8%	.....	.....	—	—
"	6%	.....	.....	3/6	15/8
"	10%	.....	.....	—	—
"	6%	.....	.....	3/6	15/8
"	10%	.....	.....	5/-	17/8
"	8%	.....	.....	5/-	15/8
"	16%	.....	.....	5/-	15/8
"	18%	.....	.....	—	16/6 proved
"	10%	.....	.....	—	—
"	11%	.....	.....	5/-	16/6
"	13%	.....	.....	2/6	15/8
"	6%	.....	.....	—	—
"	10%	.....	.....	2/6	15/8
"	20%	.....	.....	7/6	15/8
"	6%	.....	.....	3/6	15/8

BUTTER.

Table 72.—Showing number of Samples of Butter submitted for analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1939	26	25	1
June 30th, 1939	39	39	—
Sept. 30th, 1939	37	33	4
Dec. 31st, 1939	34	34	—
Totals	136	131	5

Table 73.—Showing results of proceedings against vendors of adulterated samples and fines imposed.

Extent and form of Adulteration	Fines	Costs
Butter + 1.5% excess water	5/-	16/9
Butter + 6.2% excess water	7/6	16/9
Butter + 7.0% excess water	7/6	16/10
Butter + 1.1% excess water	3/6	16/8
Butter + 2.0% excess water	5/-	16/8

MARGARINE.

Table 74.—Showing the number of samples of Margarine submitted for analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1939	14	14	—
June 30th, 1939	9	9	—
Sept. 30th, 1939	13	13	—
Dec. 31st, 1939	15	15	—
Totals	51	51	—

SPIRITS.

Table 75.—Showing the number of samples of Spirits submitted for analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1939	5	2	3
June 30th, 1939	2	2	—
Sept. 30th, 1939	5	5	—
Dec. 31st, 1939	20	16	4
Totals	32	25	7

Table 76.—Showing the number of miscellaneous samples submitted for analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adul- terated
March 31st, 1939	68	67	1
June 30th, 1939	112	112	—
Sept. 30th, 1939	80	79	1
Dec. 31st, 1939	106	106	—
Totals	366	364	2

Table 77.—Showing details in regard to miscellaneous samples examined during the year.

Miscellaneous	Mar. 31st	June 30th	Sept. 30th	Dec. 31st
Drugs	12	15	6	7
Sugar	12	11	9	9
Rice	6	9	9	5
Confectionery	6	14	1	11
Cheese	5	5	6	7
Cream	4	6	6	2
Jam	3	9	6	10
Cocoa	3	6	1	9
Tea	2	4	3	8
Vinegar	2	2	1	—
Pepper	2	—	1	—
Sausages	2	4	3	2
Tinned Fish	2	—	—	—
Fish Paste	1	—	—	—
Flour	1	6	6	8
Cream of Tartar	1	—	—	—
Baking Powder	1	—	1	—
Beer	1	4	6	8
Dripping	1	2	2	2
Sauce	—	4	2	—
Salt	—	4	1	3
Lard	—	2	—	2
Bread	—	2	1	3
Wine	—	1	—	1
Cider	—	1	—	1
Custard Powder	—	1	2	—
Tinned Fish	—	—	2	—
Mineral Waters	—	—	1	3
Spice	—	—	1	—
Jelly	—	—	1	—
Mustard	—	—	1	—
Cornflour	—	—	1	—
Sweets	—	—	—	2
Suet	—	—	—	1
Sardines	—	—	—	1
Meat Paste	—	—	—	1
Total	—	—	—	—

The number of unsatisfactory samples amounted to 5.5 per cent. of the total received.

When the Sale of Food and Drugs Acts first became operative about 1875, the rate of adulteration recorded was far higher ; but there has since been a continuous and general decline to around this figure of 5 per cent., where it has been steady for some years. This may, therefore, be taken to represent a minimum of adulteration and a maximum of effect for the Acts in their present form.

Originally the Acts were made necessary to deal with ignorance, greed and other glaring incompatibilities between commerce and conscience in the sale of food. Within their bounds they have succeeded. But it may be asked whether they are really adapted to modern conditions of food supply.

Since their early days easier transport and an ever-progressing technique in marketing have made a wider variety of foods available to the public. Towards this achievement the highly organised food trade has itself found a ready use for scientific workers ; but has not hesitated to use its own interpretations of their findings towards its own main purpose—the boosting of sales. As instances may be cited :

The pother that has been created in advertising the importance of the vitamins, even to the extent of stuffing staple foods such as bread and margarine with them ; efforts that are rather spoiled when the vitamins are urged as equally efficacious in cosmetics ; and when their own indefinite scientific position is known ; the subtlety of the trade distinction between “egg powder” and “powdered egg.” The one is starch coloured with dyestuffs, the other a genuine egg product.

Against these practices, which tend to grow, the public will require to be definitely informed by some organised effort. It can then decide for itself, or in collaboration with its own officers, whether any counter-action is to be desired and the means to be adopted towards this end. It will find that the present Acts are too closely ringed round by the economic and legal principle of *caveat emptor* to give the necessary mobility for correction.

Section VII.—Water Supply

GENERAL LAYOUT.

The Cork Waterworks is situated on the river Lee a half mile west of the city boundary. It consists of the following :—

- (1) Pumping plant for lifting purified water to service reservoirs on the adjacent hillside. From these reservoirs the city is supplied by gravitation.
- (2) The purification plant in which raw river water is filtered and in which both filtered river water and auxiliary supply from gravel beds are subjected to Chloramine treatment.

Pumping Plant.

The pumping plant which has been developed over a period of nearly 100 years consists of :—

- (a) Five water turbine-driven pumping units, utilising a head of six feet, having a total capacity of $5\frac{1}{4}$ million gallons per day under favourable conditions.
- (b) Three sets of three-throw ram pumps driven by triple expansion steam engines, installed in 1904, having a total capacity of $4\frac{1}{2}$ million gallons per day.
- (c) Two sets of three-throw ram pumps driven by Diesel engine, installed in 1927, having a total capacity of a million gallons per day.
- (d) Three electrically driven centrifugal pumps installed in 1936, having a total capacity of 6 million gallons per day.

Formerly the main supply was drawn from a tunnel in gravel beds close to the river. This tunnel discharged, and still discharges, into what is now called the filtered water tank and is really the sump from which all the pumps draw. Up to 1928 the supply from the tunnel was supplemented when necessary by admitting raw water from the river, through an intake which is now out of commission.

Filtration Plant.

The filtration plant, constructed in 1928 and extended in 1934, is situated to the west of the filtered water sump and its intake for drawing water from the river is 137 yards up stream from the old raw water intake.

Purification is divided into four stages :—

- (a) Coarse screening at the river intake. The screen has an area of 27.7 sq. ft. and is constructed of 1" iron bars placed at 3" centres in a concrete setting.
- (b) Fine screening at the filter house through box screens, which are constructed of $\frac{1}{8}$ " mesh, each having a cubic capacity of 29 cu. ft. and surface area of 29.8 sq. ft. As they are arranged in duplicate, one can be withdrawn for cleaning by placing the other in commission.
- (c) Filtration through Candy rapid gravity sand filters.
- (d) Sterilisation of both the filtered and tunnel waters by the chloramine process.

Sources of Supply.

(a) Gravel beds which yield a pure water. A horizontal tunnel is driven through gravel beds for a length of 600 yards. Its distance from the river bank varies from about 3 feet at its commencement to about 12 feet at its centre. At the extreme end away from the works is situated a well which is about 16 feet deep; and the tunnel starts in the wall of this well at a depth of 14 feet. From this point the tunnel is laid at a fall of $1/300$ to discharge into the main Filtered Water suction tank. The tunnel is circular in section, and is formed for the first 100 yards of its course of earthenware pipes 2 feet in diameter with numerous perforations around its circumference. The remaining 500 yards consist of a circular tunnel 3 feet in diameter built of bricks laid dry. With the exception of the invert the entire tunnel is pervious. At intervals of 100 yards the tunnel is intersected by wells, each about 12 feet in diameter and about 20 feet deep. They were constructed to augment the flow, but they also serve as settlement tanks. The water taken from this tunnel is first quality water; it is chlorinated and is delivered into the filtered water suction tank. Its pH value is usually about 6.8 and its colour has a reading of 3 to 5 on the Hazen scale, which means that it is really colourless.

This source of supply has been frequently analysed and results have been satisfactory. In wet weather the yield is about $3\frac{1}{2}$ million gallons per day, while in dry weather it is about $2\frac{1}{4}$ million gallons per day, which is less than half the total maximum demand.

(b) *The River Lee*: This gives a polluted water. The remainder of the supply is drawn direct from the river Lee, which can always supply considerably more than the requirements.

The probable extreme dry weather flow has been estimated to be in the region of 20 million gallons per day. Under the conditions of a low flow which obtained in the Autumn of 1937, when 3 million gallons per day was being drawn from the river, there was still sufficient water to operate two turbines giving a useful pumping power of 80 H.P., which is equivalent to a flow of 90 million gallons per day. The amount of water obtainable is therefore limited solely by the capacity of the filter plant.

When in good condition the river varies from a clear to a light brown colour, and has a pH value of 7.2, temporary hardness of 5 parts per million, and the amount of oxygen absorbed in parts per 100,000 is only 0.1. This water is in good condition for treatment. When it is in bad condition the water varies from a yellow to a brown colour. The pH value varies between 6.6 and 6.9. The temporary hardness is 1.2 parts per 100,000. The oxygen absorbed is any figure up to 0.7 parts per 100,000. Water in this condition is difficult to treat.

Treatment.

All the river water is treated in Candy rapid gravity filters. Briefly the treatment is as follows:—

- (a) Removal of large floating masses by fine and coarse screens.
- (b) Removal of fine suspended impurities and colouring matter by filters.

The water is drawn from the river intake (18.0 O.D.) through a 24" concrete main, whence it flows through the fine screens situated at the entrance to the filter house into the crude water suction sump. From there it is pumped to an overhead tank (which commands the filter beds), from which it flows over a rectangular weir, through a channel on the filter beds. The weir measures the quantity of water and also serves as a control on the proportion of alumina added. The channel between the weir and filters is fitted with baffles to give a turbulent flow, and acts as a mixing race to ensure a thorough and uniform distribution of the coagulant with the water. Having passed through the filters the water gravitates to the filtered water sump where it mixes with the water from the tunnel as described above. The total supply is treated with chloramine. This process consists of adding ammonia and chlorine in the order in which they are named. The ammonia is added in the form of ammonium sulphate solution at the main filtered water outlet in the Candy plant, and the chlorine gas at the entrance to the filtered water tank.

BACTERIOLOGICAL EXAMINATIONS.

In the report for 1931 I outlined the procedure adopted in connection with the examination of the supply at the bacteriological laboratories of University College, Cork, by Dr. W. J. O'Donovan. In the year 1928 Dr. O'Donovan undertook a detailed and systematic examination in which a very large number of samples were studied. Our subsequent procedure has been based on his findings of that year and his recommendations have resulted in a supply of a consistently high degree of purity. In 1939, as in former years, samples were collected and examined on five days during each week. The procedure included an estimate of the number of bacteria growing at 37° C. in 24 hours. The total number of samples examined amounted to 259. The average number of bacteria in 1 c.c. was 7.76* and the number of samples sterile in 1 c.c. was 60.

Such routine examination of water supplies is of the utmost importance as it affords an adequate check on the efficacy of purification methods and directs attention at once to any possibility of danger arising. The results achieved are not, perhaps, dramatic, but none the less they take their place in the ranks of achievement in the field of preventive medicine. A glance at our statistical tables for typhoid fever reveals at once the enormous improvement which has taken place since the installation of adequate plant for dealing with purification of our supply. Water-borne diseases have entirely disappeared and such cases of typhoid as have arisen have been definitely proved not to be attributable to the water. Considering the vital importance of water to the existence of the community, the sense of security arising from a supply of known purity is very great indeed, and in this respect it may truthfully be said that the funds invested in the erection of the new plant are not only a very sane form of insurance but also a valuable investment.

The routine procedure in connection with these examinations is that samples are collected by the staff of the Public Health Department in

* The increased average count was due entirely to extraneous circumstances. See Dr. O'Donovan's note.

special sterilised bottles. These samples are transmitted to the Laboratory for examination. A report is sent daily to the Medical Officer of Health who, in turn, sends a copy to the Water Engineer. In the event of an unsatisfactory sample coming to light in the laboratory the subsequent cycle of events is speeded up by telephonic communications between the various departments pending receipt of a subsequent formal report. In this manner there is exercised a triple check in the purification and distribution of the supply.

In the following tables are summarised the results of the various examinations carried out during the year (and previous years) at the Bacteriological Laboratories, U.C.C., by Dr. W. J. O'Donovan.

Table 78.—Summary of results of routine examinations of water during 1939.

Total Routine Samples of Tap Water	Bacillus Coli Test					Average daily No. of Bacteria per c.c.	No. of Samples sterile in 1 c.c.
	100 c.c.'s —ive	100 c.c.'s +ive	50 c.c.'s +ive	10 c.c.'s +ive	1 c.c. +ive		
259	254	1	3	1	0	7.67	60

As stated above, the examinations carried out during the year included an estimation of the numbers of bacteria growing at 37° C. in 24 hours. The findings are set out in the following table and compared with those of 1932 (in which year the figures were first computed) and following years.

Table 79.—Average number of bacteria per cubic centimetre growing at 37° C. from daily sample for each month.

Month	1932	1933	1934	1935	1936	1937	1938	1939
January	14.0	1.8	1.1	2.9	1.2	4.1	1.8	1.7
February	0.8	1.0	1.6	2.7	1.2	2.8	2.2	1.4
March	1.6	1.1	1.3	1.6	0.9	1.4	1.9	2.9
April	4.6	1.5	1.4	1.0	1.6	1.2	1.5	2.6
May	4.5	1.8	3.4	2.7	1.9	0.7	0.9	1.7
June	5.4	4.1	21.2	2.1	1.9	0.2	1.4	21.5
July	44.1	19.2	18.4	2.9	5.0	3.7	2.0	6.6
August	20.3	14.6	7.4	5.2	1.8	1.0	1.4	6.7
September	2.2	2.7	1.7	8.9	3.4	2.8	2.2	3.0
October	4.6	2.1	4.0	7.9	1.4	6.4	2.0	30.8
November	4.7	1.3	4.2	4.4	2.7	2.8	2.6	9.4
December	2.2	3.9	4.0	1.2	3.9	5.4	2.2	3.5

Table 80.—Comparative results of examinations of tap water made during each of the years from 1928 to 1939.

Year	Total number of samples examined	BACILLUS COLI TEST.				
		100 c.c's —ive	100 c.c's +ive	50 c.c's +ive	10 c.c's +ive	1 c.c. +ive
1928	245	187 (76.3%)	10 (4.0%)	32 (13.1%)	14 (5.7%)	2 (0.8%)
1929	251	153 (60.9%)	44 (17.5%)	40 (15.9%)	9 (3.6%)	5 (2.0%)
1930	268	216 (80.6%)	15 (5.6%)	14 (5.6%)	13 (4.5%)	10 (3.7%)
1931	260	242 (93.0%)	9 (3.5%)	9 (3.5%)	— —	— —
1932	260	245 (94.2%)	3 (1.2%)	12 (4.6%)	— —	— —
1933	253	244 (96.4%)	4 (1.6%)	4 (1.6%)	1 (0.4%)	— —
1934	261	249 (95.4%)	4 (1.5%)	6 (2.3%)	2 (0.8%)	— —
1935	252	235 (93.2%)	3 (1.2%)	7 (2.8%)	5 (2%)	2 (0.8%)
1936	252	244 (96.8%)	2 (0.8%)	5 (2%)	1 (0.4%)	— —
1937	253	235 (92.9%)	11 (4.3%)	6 (2.4%)	0 —	1 (0.4%)
1938	254	251 (98.8%)	1 (0.4%)	0 —	1 (0.4%)	1 (0.4%)
1939	259	254 (98.0%)	1 (0.4%)	3 (1.2%)	1 (0.4%)	— —

As indicated by the bacteriological results, an extremely high degree of purity was maintained throughout the year, indicating a corresponding degree of efficiency in the working of the filtration plant. The fact that no less than 98 per cent. of the samples examined were free from coliform bacilli in amounts of 100 c.c.'s is sufficient testimony in this respect. Dr. O'Donovan's comments on this aspect of his examinations are as follows:—

The results for the year 1939 show consistently good control by the filter plants. On five days only were lactose fermenting organisms found in 100 c.c. or less. Of these Faecal B. Coli were isolated in three instances, Aerogenes in one, and Intermediate type in one.

The average daily bacterial content was higher than usual, due to some very high counts on a few occasions, which were proved by control tests to be local conditions at point of sampling. Excluding two only of these high counts the average daily figure becomes 4.5 organisms per c.c.

Such results from a river source are very satisfactory and the protection afforded is indicated in the absence of enteric infection in the City.

Table 81.—Detailed Results of Bacteriological Examinations of Water Samples, 1939—continued.

Date 1939	SOURCE	McCONKEY'S BROTH				Presumptive B. Coll per 100 c.c.	Agar Count per c.c. 370 c.	COLON GROUP CONFIRMATIONS							REMARKS
		50 c.c.	10 c.c.	1 c.c.	0.1 c.c.			Milk	Sacch.	Dulcitol	Indol.	V.P.	M.R.	Citrate		Gelatin
April 17...	Hydrant, Victoria Quay	0	0/5	0/5	—	0	0								First Quality Water
" 18...	1 Slattery's Avenue	0	0/5	0/5	—	0	1								
" 19...	8 Goggin's Lane	0	0/5	0/5	—	0	9								
" 20...	108 Lower Glanmire Road	0	0/5	0/5	—	0	3								
" 21...	6 Coleman's Lane	0	0/5	0/5	—	0	0								
" 24...	47 Warren's Lane	0	0/5	0/5	—	0	0								First Quality Water
" 25...	18 Upper Quarry Lane	0	0/5	0/5	—	0	0								
" 26...	1 Barrett's Buildings	0	0/5	0/5	—	0	0								
" 27...	19 Cockpit Lane	0	0/5	0/5	—	0	2								
" 28...	6 Walsh's Place	0	0/5	0/5	—	0	1								
May 1...	2 Gurrabraher Avenue	0	0/5	0/5	—	0	0								First Quality Water
" 2...	St. Gobnat's, The Lough	0	0/5	0/5	—	0	2								
" 3...	15 Red Abbey Street	0	0/5	0/5	—	0	1								
" 4...	Hydrant, Albert Quay	0	0/5	0/5	—	0	4								
" 5...	11 Brocklesby Street	0	0/5	0/5	—	0	5								
" 8...	22 John Street	0	0/5	0/5	—	0	1								First Quality Water
" 9...	9 Hillgrove Lane	0	0/5	0/5	—	0	0								
" 10...	17 Mary Street	0	0/5	0/5	—	0	0								
" 11...	7 King's Terrace	0	0/5	0/5	—	0	1								
" 12...	4 Little Cross Street	0	0/5	0/5	—	0	4								
" 15...	Hydrant, Victoria Quay	0	0/5	—	—	0	2								First Quality Water
" 16...	4 Church Street	0	0/5	—	—	0	3								
" 17...	6 Broad Street	0	0/5	—	—	0	0								
" 18...	13 Keyser's Hill	0	0/5	—	—	0	1								
" 19...	Laboratory Tap, U.C.C.	0	0/5	—	—	0	1								
" 22...	Pump, Broad Lane	0	0/5	—	—	0	2								First Quality Water
" 23...	3 Woburn Place	0	0/5	—	—	0	1								
" 24...	22 John Street	0	0/5	—	—	0	0								
" 25...	93 Bandon Road	0	0/5	—	—	0	0								
" 26...	246 Blarney Street	0	0/5	—	—	0	3								

* See notes at end of Table (page 103)

Table 81.—Detailed Results of Bacteriological Examinations of Water Samples, 1939—continued.

Date 1939	SOURCE	McCONKEY'S BROTH				Presumptive B. Coli per 100 c.c.	Agar Count per c.c. 370 c.	COLON GROUP CONFIRMATIONS							REMARKS	
		50 c.c.	10 c.c.	1 c.c.	0.1 c.c.			Milk	Sacch.	Dulcitol	Indol.	V.P.	M.R.	Citrate		Gelatin
May 30...	23 Rutland Street	0	0/5	—	—	0	2									First Quality Water
" 31...	35 Evergreen Buildings	0	0/5	—	—	0	1									
June 1...	11 Maylor Street	0	0/5	—	—	0	0									
" 2...	10 Audley Place	0	0/5	—	—	0	1									
" 5...	51 Grand Parade	0	0/5	—	—	0	2									First Quality Water
" 6...	9 Waggett's Lane	0	0/5	—	—	0	0									
" 7...	Mercy Hospital (Kitchen)	0	0/5	—	—	0	259									
" 8...	2 St. Vincent's Terrace	0	0/5	—	—	0	6									
" * 9...	Mercy Hospital	0	0/5	—	—	0	4									
" 12...	Hydrant, Victoria Quay	0	0/5	—	—	0	4									First Quality Water
" 13...	5 Cross Street	0	0/5	—	—	0	1									A.C., B. Coli Type 1
" 14...	7 Bridge Street	0	0/5	—	—	0	1									Repeat Sample
" 15...	12 Drawbridge Street	0	4/5	—	—	0	2									First Quality Water
" 16...	12 Drawbridge Street	0	0/5	—	—	0	2									
" + 16...	31 Cathedral Walk	0	0/5	—	—	0	3									
" 16...	Hydrant, Custom House Quay	0	0/5	—	—	0	6									First Quality Water
" 19...	13 Rock Cottages	0	0/5	—	—	0	3									
" 20...	14 James' Street	0	0/5	—	—	0	0									
" 21...	22 Sullivan's Quay	0	0/5	—	—	0	176									
" 22...	60 Dominick Street	0	0/5	—	—	0	0									
" 23...	50 Ballyhooley Road	0	0/5	—	—	0	3									First Quality Water
" 26...	30 Washington Street	0	0/5	—	—	0	8									
" 27...	Laboratory Tap, U.C.C.	0	0/5	—	—	0	2									
" 28...	66 Barrett's Buildings	0	0/5	—	—	0	6									
" 29...	29 Wycherley Terrace	0	0/5	—	—	0	0									
" 30...	Hydrant, Anderson's Quay	0	0/5	—	—	0	2									First Quality Water
July 3...	64 Douglas Street	0	0/5	—	—	0	3									
" 4...	22 Gratian Street	0	0/5	—	—	0	5									
" 5...	2 North Abbey Square	0	0/5	—	—	0	1									
" 6...	1 Peter Street	0	0/5	—	—	0	1									
" 7...		0	0/5	—	—	0										

* Repeat Sample, original sample on 7/6/39.

† Repeat Sample, original sample on 15/6/39

Table 81.—Detailed Results of Bacteriological Examinations of Water Samples, 1939—continued

Date 1939	SOURCE	McCONKEY'S BROTH				Presumptive B. Coll per 100 c.c.	Agar Count per c.c. 370 c.c.	COLON GROUP CONFIRMATIONS							REMARKS
		50 c.c.	10 c.c.	1 c.c.	0.1 c.c.			Milk	Sacch.	Dulcitol	Indol.	V.P.	M.R.	Citrate		Gelatin
Aug. 14...	Hydrant, Fishguard Shed	0	0/5	—	—	0	3								First Quality Water
" 15...	Glenlee, Western Road	0	0/5	—	—	0	0								
" 16...	42 Evergreen Buildings	0	0/5	—	—	0	0								
" 17...	1 Mary's Lane, John Street	0	0/5	—	—	0	0								
" 18...	235 Blarney Street	0	0/5	—	—	0	1								First Quality Water
" 21...	Clifton Lodge, Montenotte	0	0/5	—	—	0	2								
" 22...	9 Wandesford Street	0	0/5	—	—	0	0								
" 23...	46 Tower Street	0	0/5	—	—	0	1								
" 24...	27 Grattan Street	0	0/5	—	—	0	0								First Quality Water
" 25...	Lisheen, Strawberry Hill	0	0/5	—	—	0	87								
" 28...	Hydrant, Albert Quay	0	0/5	—	—	0	8								
" 29...	27 Merchant's Quay	0	0/5	—	—	0	2								
" 30...	2 York Street	0	0/5	—	—	0	1								First Quality Water
" 31...	4 Magazine Road	0	0/5	—	—	0	0								
Sept. 1...	21 Cove Street	0	0/5	—	—	0	0								
" 4...	Laboratory Tap	0	0/5	—	—	0	0								
" 5...	4 North Abbey Square	0	0/5	—	—	0	3								First Quality Water
" 6...	8 Adelaide Street	0	0/5	—	—	0	0								
" 7...	23 St. Patrick's Quay	0	0/5	—	—	0	0								
" 8...	97 Bandon Road	0	0/5	—	—	0	0								
" 11...	93 Grand Parade	0	0/5	—	—	0	2								First Quality Water
" 12...	Hydrant, Anderson's Quay	0	0/5	—	—	0	0								
" 13...	4 St. Finbarr's Street	0	0/5	—	—	0	2								
" 14...	43 Dominick Street	0	0/5	—	—	0	12								
" 15...	5 Mann's Lane	0	0/5	—	—	0	3								

Notes on Water Examinations.

May 15th. Change in method of count. From this date 1 x 50 c.c.'s and 5 x 10 c.c.'s only put up for examination. If any of these fractions yield a *positive* result, then smaller fractions (1 c.c. and 0.1 c.c.) would be put up. This is now the accepted method.

June 7th. High agar count. This is evidently a chance contamination as previous and subsequent samples give very low counts on this medium.

June 15th. Evidence of *B. Coli* in four out of five 10 c.c.'s samples. Evidently extraneous contamination, as check samples taken on the following day gave negative results.

June 22nd. High agar count. See remarks for 7th June.

Sept. 25th. Evidence of *B. Coli*. Probably also extraneous contamination. Sample taken from quayside hydrant by inexperienced (temporary) officer.

October 4th. Result omitted. Obviously gross *extraneous* contamination. Acid and gas in 50 c.c. sample and in each fraction of 5 x 10 c.c.'s. Agar count also unduly high compared with previous and subsequent averages. Check sample on the following day was quite normal.

November 14th. Acid and gas in four fractions of 10 c.c.'s sample. Check sample (on 16th) was normal.

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	Gallons Pumped (Millions)	CHEMICALS USED				Raw Water			ANALYTICAL DATA					REMARKS	
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	pH	Colour	Turbidity	Filtered Water						
									Residual Alumina	Residual Chlorine		Turbidity	pH		Colour
										Low Level Reservoir	High Level Reservoir				
31/7/39	3.8	1.7	—	0.4	0.1	6.7	40	1.8	6.0	4	0.4	—	0.1	0.1	
1/8/39	5.0	1.7	—	0.4	0.1	6.8	35	1.0	6.2	4	0.3	—	0.1	0.1	
2/8/39	5.1	1.7	—	0.4	0.1	6.8	30	1.0	6.4	4	0.4	—	0.1	0.4	
3/8/39	4.8	1.6	—	0.4	0.1	7.0	25	1.0	6.4	4	0.4	—	0.1	0.1	
4/8/39	4.9	1.6	—	0.4	0.1	7.0	25	0.8	6.4	4	0.4	—	0.1	0.1	
5/8/39	5.0	2.16	—	0.4	0.1	7.0	25	0.8	6.4	4	0.4	0.05	0.1	0.1	
6/8/39	4.5	2.34	—	0.4	0.1	7.0	25	0.8	6.4	5	0.5	0.1	0.1	0.1	
7/8/39	3.5	2.16	—	0.4	0.1	7.0	25	0.8	6.7	5	0.5	0.05	0.1	0.1	
8/8/39	3.6	2.03	—	0.4	0.1	7.2	20	0.8	6.7	4	0.4	—	0.1	0.1	
9/8/39	4.6	1.9	—	0.4	0.1	7.2	25	1.0	6.8	4	0.4	—	0.1	0.1	
10/8/39	4.4	2.03	—	0.4	0.1	7.1	27	1.0	6.8	4	0.4	0.05	0.1	0.1	
11/8/39	4.5	2.03	—	0.4	0.1	7.1	35	1.2	6.7	4	0.4	—	0.1	0.1	
12/8/39	4.8	2.37	—	0.4	0.1	7.0	37	1.4	6.4	5	0.5	0.05	0.1	0.1	
13/8/39	4.2	2.37	—	0.4	0.1	7.0	40	1.6	6.6	4	0.5	—	0.1	0.1	
14/8/39	3.5	2.37	—	0.4	0.1	7.2	37	1.2	6.7	4	0.4	—	0.1	0.1	
15/8/39	4.8	2.25	—	0.4	0.1	7.4	30	1.0	6.8	4	0.4	0.05	0.1	0.1	
16/8/39	5.2	2.25	—	0.4	0.1	7.4	30	1.0	6.8	6	0.7	0.1	0.1	0.1	
17/8/39	4.8	2.16	—	0.4	0.1	7.7	30	1.0	6.8	4	0.4	0.05	0.1	0.1	
18/8/39	4.9	2.16	—	0.4	0.1	7.7	25	1.0	6.8	4	0.4	0.05	0.1	0.1	
19/8/39	4.9	2.16	—	0.4	0.1	7.7	25	1.0	6.9	4	0.5	0.1	0.1	0.1	
20/8/39	4.4	2.03	—	0.4	0.1	7.7	25	1.0	6.8	5	0.6	0.05	0.1	0.1	
21/8/39	3.3	2.16	—	0.4	0.1	7.7	25	1.0	6.8	4	0.4	0.05	0.1	0.1	
22/8/39	4.7	1.9	—	0.4	0.1	7.7	20	1.0	7.0	6	0.6	0.1	0.1	0.1	
23/8/39	4.7	1.9	—	0.4	0.1	7.8	20	1.0	7.0	4	0.4	0.05	0.1	0.1	
24/8/39	4.7	2.16	—	0.4	0.1	7.8	20	1.0	7.0	5	0.6	0.1	0.1	0.1	Bi-Sulphate of Soda 0.5 0.5 0.5 0.5 0.5
25/8/39	4.7	2.16	—	0.4	0.1	7.8	20	1.0	7.0	5	0.6	0.1	0.1	0.1	
26/8/39	4.8	1.8	—	0.4	0.1	7.8	20	1.0	7.1	6	0.6	0.1	0.1	0.1	
27/8/39	4.3	2.07	—	0.4	0.1	7.8	20	1.0	6.8	4	0.4	0.1	0.1	0.1	
28/8/39	3.4	2.16	—	0.4	0.1	7.6	22	1.0	7.0	4	0.4	0.1	0.1	0.1	
29/8/39	4.7	2.16	—	0.4	0.1	7.5	20	1.0	6.8	4	0.4	0.05	0.1	0.1	
30/8/39	4.8	1.6	—	0.4	0.1	7.6	20	1.0	7.0	4	0.5	0.05	0.1	0.1	
31/8/39	4.8	1.7	—	0.4	0.1	7.4	22	1.0	6.9	5	0.5	0.05	0.1	0.1	
1/9/39	4.7	1.9	—	0.4	0.1	7.4	22	1.0	7.0	5	0.5	0.1	0.1	0.1	
2/9/39	4.7	1.9	—	0.4	0.1	7.6	20	1.0	7.0	4	0.4	0.05	0.1	0.1	
3/9/39	4.3	1.9	—	0.4	0.1	7.2	25	1.2	6.8	5	0.5	0.1	0.1	0.1	

* 0.5 Grs per gal of Bi-Sulphate of Soda was used to reduce PH of Raw Water from 7.8 to 7.4.

Bi-Sulphate of Soda
0.5
0.5
0.5
0.5
0.5
0.5

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	CHEMICALS USED					ANALYTICAL DATA						REMARKS			
	Gallons Pumped (Millions)	Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	Raw Water			Filtered Water						
						pH	Colour	Turbidity	pH	Colour	Turbidity		Residual Alumina	Residual Chlorine	
														Low Level Reservoir	High Level Reservoir
13/11/39	4.0	1.9	1.0	0.4	0.1	6.8	38	2.0	6.4	4	0.4	—	0.1	0.1	
14/11/39	4.8	1.9	1.0	0.4	0.1	6.8	38	1.8	6.2	4	0.4	—	0.15	0.15	
15/11/39	4.6	2.5	1.0	0.4	0.1	6.8	50	4.0	6.2	4	0.4	—	0.15	0.15	
16/11/39	4.7	2.16	1.0	0.4	0.1	6.8	37	1.2	5.8	4	0.3	—	0.15	0.2	
17/11/39	4.7	2.16	1.0	0.4	0.1	6.8	40	1.8	6.0	4	0.3	—	0.1	0.1	
18/11/39	4.4	2.16	1.0	0.4	0.1	6.8	37	1.4	6.2	4	0.3	—	0.1	0.15	
19/11/39	4.2	2.55	1.0	0.4	0.1	6.8	70	7.0	6.2	4	0.4	—	0.1	0.15	
20/11/39	3.8	2.16	1.0	0.4	0.1	6.8	40	2.4	6.0	4	0.4	—	0.15	0.2	
21/11/39	3.4	1.9	1.0	0.4	0.1	6.8	37	1.6	6.4	4	0.4	—	0.15	0.2	
22/11/39	4.0	1.9	1.0	0.4	0.1	6.8	40	2.4	6.4	7	1.0	0.1	0.15	0.2	
23/11/39	4.4	2.25	1.0	0.4	0.1	6.8	38	2.0	6.2	4	0.4	—	0.15	0.15	
24/11/39	5.1	2.5	1.0	0.4	0.1	6.8	35	1.8	6.4	4	0.4	—	0.1	0.15	
25/11/39	5.0	2.5	1.0	0.4	0.1	6.8	60	3.0	6.2	4	0.4	—	0.2	0.1	
26/11/39	4.3	2.5	1.0	0.4	0.1	6.8	40	2.5	6.4	4	0.4	—	0.2	0.2	
27/11/39	2.4	2.5	1.0	0.4	0.1	6.8	38	2.0	6.4	4	0.4	—	0.2	0.2	
28/11/39	4.4	2.16	1.0	0.4	0.1	6.9	37	1.5	6.4	4	0.4	—	0.15	0.15	
29/11/39	4.7	2.16	1.0	0.4	0.1	6.8	38	1.6	6.2	4	0.4	—	0.15	0.15	
30/11/39	4.5	2.16	1.0	0.4	0.1	6.8	40	2.0	6.4	4	0.4	—	0.15	0.15	
1/12/39	6.1	2.07	—	0.4	0.1	6.8	70	6.0	6.0	4	0.4	—	0.15	0.15	
2/12/39	4.9	2.13	—	0.4	0.1	6.8	39	2.4	6.0	4	0.4	—	0.15	0.2	
3/12/39	5.0	2.07	—	0.4	0.1	6.8	50	3.0	6.2	5	0.8	0.05	0.15	0.15	
4/12/39	4.0	1.9	—	0.4	0.1	6.8	37	2.0	6.2	4	0.4	—	0.15	0.15	
5/12/39	4.5	1.7	—	0.4	0.1	6.8	36	1.6	6.2	4	0.4	—	0.15	0.15	
6/12/39	4.7	1.5	—	0.4	0.1	6.9	30	1.5	6.5	4	0.4	—	0.15	0.15	
7/12/39	4.7	1.5	—	0.4	0.1	6.9	30	1.4	6.5	4	0.4	—	0.15	0.15	
8/12/39	4.7	1.7	—	0.4	0.1	6.8	35	1.8	6.4	4	0.4	—	0.15	0.15	
9/12/39	4.6	1.7	—	0.4	0.1	6.8	40	2.4	6.2	4	0.4	—	0.15	0.15	
10/12/39	4.1	1.7	—	0.4	0.1	6.8	38	1.8	6.2	4	0.4	—	0.15	0.15	
11/12/39	3.7	1.7	—	0.4	0.1	6.8	32	1.4	6.2	4	0.4	—	0.15	0.15	
12/12/39	4.9	1.7	—	0.4	0.1	6.9	25	1.4	6.4	4	0.4	—	0.15	0.15	
13/12/39	4.8	1.5	—	0.4	0.1	6.8	50	3.0	6.4	4	0.4	—	0.15	0.15	
14/12/39	4.7	1.9	—	0.4	0.1	6.8	37	1.8	6.4	4	0.4	—	0.15	0.15	
15/12/39	4.7	1.9	—	0.4	0.1	6.8	35	1.4	6.4	4	0.4	—	0.15	0.15	
16/12/39	4.6	1.9	—	0.4	0.1	6.8	22	1.0	6.4	4	0.4	—	0.15	0.15	
17/12/39	4.3	1.7	—	0.4	0.1	6.8	22	1.0	6.4	4	0.4	—	0.15	0.15	

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	Gallons Pumped (Millions)	CHEMICALS USED				ANALYTICAL DATA					REMARKS				
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	Raw Water		Filtered Water							
						pH	Colour	Turbidity	pH	Colour		Turbidity	Residual Alumina	Residual Chlorine	
														Low Level Reservoir	High Level Reservoir
9/10/39	3.7	1.9	0.1	0.4	0.1	6.7	70	6.0	6.0	6	0.5	0.05	0.1	0.1	
10/10/39	4.9	1.9	0.1	0.4	0.1	6.6	55	4.0	6.0	7	0.9	0.1	0.1	0.1	
11/10/39	4.7	1.9	0.1	0.4	0.1	6.6	65	6.0	6.0	6	1.0	0.1	0.1	0.1	
12/10/39	5.1	1.5	0.1	0.4	0.1	6.7	40	2.0	6.0	5	0.4	0.05	0.1	0.1	
13/10/39	4.7	1.5	0.1	0.4	0.1	6.7	40	1.2	6.0	7	0.6	0.1	0.1	0.1	
14/10/39	5.0	1.5	0.1	0.4	0.1	6.8	38	1.0	6.2	6	0.5	0.1	0.1	0.1	
15/10/39	4.4	1.5	0.1	0.4	0.1	6.8	30	1.0	6.4	4	0.4	—	0.1	0.1	
16/10/39	4.0	1.28	0.1	0.4	0.1	6.8	27	1.0	6.4	5	0.5	0.05	0.1	0.1	
17/10/39	4.7	1.28	—	0.4	0.1	7.0	25	1.0	6.7	4	0.4	—	0.1	0.1	
18/10/39	4.9	1.28	—	0.4	0.1	7.0	25	0.8	6.7	5	0.5	0.05	0.1	0.1	
19/10/39	4.5	1.28	—	0.4	0.1	7.0	22	0.8	6.7	5	0.5	0.05	0.15	0.25	
20/10/39	4.5	1.45	—	0.4	0.1	7.0	20	0.8	6.8	4	0.4	—	0.15	0.2	
21/10/39	5.1	1.45	—	0.4	0.1	7.0	20	0.8	6.8	4	0.4	—	0.2	0.2	
22/10/39	4.4	1.45	—	0.4	0.1	7.0	20	0.8	6.8	4	0.4	—	0.2	0.2	
23/10/39	3.7	1.6	—	0.4	0.1	7.0	20	0.8	6.8	4	0.5	—	0.2	0.2	
24/10/39	4.5	1.6	—	0.4	0.1	7.0	20	0.8	6.8	4	0.4	—	0.2	0.2	
25/10/39	4.9	1.6	—	0.4	0.1	7.0	18	0.8	6.8	4	0.4	—	0.15	0.2	
26/10/39	4.4	1.6	—	0.4	0.1	7.0	20	0.8	6.8	4	0.4	—	0.15	0.2	
27/10/39	4.6	1.6	—	0.4	0.1	7.0	18	0.8	6.8	4	0.4	—	0.15	0.2	
28/10/39	4.6	1.6	—	0.4	0.1	7.0	18	0.8	6.8	4	0.4	—	0.15	0.2	
29/10/39	4.6	1.6	—	0.4	0.1	7.0	18	0.8	6.8	4	0.4	—	0.15	0.2	
30/10/39	3.4	1.6	—	0.4	0.1	7.0	18	0.8	6.8	4	0.4	—	0.15	0.2	
31/10/39	4.4	1.6	—	0.4	0.1	7.0	18	0.8	6.8	4	0.4	—	0.1	0.2	
1/11/39	4.7	1.6	—	0.4	0.1	7.0	18	0.8	6.8	4	0.4	—	0.15	0.2	
2/11/39	4.5	1.7	—	0.4	0.1	7.0	25	1.4	6.8	4	0.5	—	0.15	0.2	
3/11/39	4.6	2.07	1.0	0.4	0.1	6.8	76	8.0	6.3	5	0.5	0.05	0.1	0.15	
4/11/39	4.4	2.16	1.0	0.4	0.1	6.7	76	5.0	6.0	4	0.4	—	0.1	0.15	
5/11/39	4.4	2.16	1.0	0.4	0.1	6.5	78	7.0	5.8	4	0.4	—	0.1	0.15	
6/11/39	4.2	2.16	1.0	0.4	0.1	6.5	76	7.0	5.8	4	0.4	—	0.1	0.15	
7/11/39	4.5	1.9	1.0	0.4	0.1	6.8	40	3.0	5.8	4	0.4	—	0.1	0.15	
8/11/39	3.8	—	—	0.4	0.1	6.5	78	19.0	6.5	12	0.4	—	0.15	0.15	
9/11/39	4.3	—	—	0.4	0.1	6.7	40	5.0	6.5	7	0.6	—	0.2	0.2	
10/11/39	4.5	—	—	0.4	0.1	6.7	37	2.2	6.5	7	0.5	—	0.15	0.15	
11/11/39	4.6	1.9	1.0	0.4	0.1	6.5	60	8.0	5.8	4	0.4	—	0.15	0.15	
12/11/39	4.0	—	—	0.4	0.1	6.7	38	2.0	6.4	8	0.4	—	0.1	0.15	

* Results are from Tunnel Supply, which was sufficient. Filtration Plant shut down.

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

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DATE	Gallons Pumped (Millions)	CHEMICALS USED				ANALYTICAL DATA				REMARKS				
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	Raw Water		Filtered Water						
						pH	Colour	Turbidity	pH		Colour	Turbidity	Residual Alumina	
														Residual Chlorine	High Level Reservoir
4/9/39	3.8	1.7	—	0.4	0.1	7.1	35	1.4	6.5	4	0.4	—	0.1	0.1
5/9/39	4.7	1.9	—	0.4	0.1	7.0	38	1.6	6.4	7	1.0	0.1	0.1	0.1
6/9/39	5.0	2.25	—	0.4	0.1	7.0	38	1.6	6.5	7	1.0	0.1	0.1	0.1
7/9/39	4.9	1.9	—	0.4	0.1	6.9	38	2.2	6.4	6	1.0	—	0.1	0.1
8/9/39	5.0	1.9	—	0.4	0.1	6.8	40	2.4	6.4	4	0.4	—	0.1	0.1
9/9/39	4.7	2.16	—	0.4	0.1	6.7	80	5.0	6.0	6	0.6	0.1	0.1	0.1
10/9/39	4.6	2.34	—	0.4	0.1	6.8	60	2.4	6.0	6	0.7	0.1	0.1	0.1
11/9/39	3.9	2.06	—	0.4	0.1	6.8	40	1.2	6.0	5	0.6	0.05	0.1	0.1
12/9/39	4.8	1.9	—	0.4	0.1	6.9	38	1.4	6.4	8	1.0	0.15	0.1	0.1
13/9/39	4.9	1.9	—	0.4	0.1	7.0	37	1.3	6.4	7	1.0	0.1	0.1	0.1
14/9/39	5.1	1.9	—	0.4	0.1	7.0	35	1.2	6.4	7	1.0	0.1	0.1	0.1
15/9/39	4.9	1.8	—	0.4	0.1	7.0	30	1.2	6.5	7	1.0	0.1	0.1	0.1
16/9/39	5.0	1.6	—	0.4	0.1	7.0	30	1.0	6.8	8	0.8	0.1	0.1	0.1
17/9/39	4.6	1.9	—	0.4	0.1	7.2	30	1.0	6.9	8	0.8	0.1	0.1	0.1
18/9/39	4.0	1.9	—	0.4	0.1	7.3	25	1.0	6.9	8	0.7	0.1	0.1	0.1
19/9/39	4.6	1.9	—	0.4	0.1	7.4	25	1.0	7.0	8	0.8	0.1	0.1	0.1
20/9/39	5.1	1.9	—	0.4	0.1	7.2	22	1.0	6.8	8	0.8	0.1	0.1	0.1
21/9/39	4.6	1.9	—	0.4	0.1	7.3	20	0.8	6.9	8	0.7	0.1	0.1	0.1
22/9/39	4.8	1.7	—	0.4	0.1	7.3	20	0.9	6.9	7	0.6	0.1	0.1	0.1
23/9/39	5.0	1.6	—	0.4	0.1	7.3	18	0.8	6.9	5	0.6	0.05	0.1	0.1
24/9/39	4.3	1.6	—	0.4	0.1	7.3	18	0.8	6.9	6	0.6	0.1	0.1	0.1
25/9/39	3.5	1.33	—	0.4	0.1	7.3	17	0.7	6.9	5	0.6	0.05	0.1	0.5
26/9/39	4.8	1.33	—	0.4	0.1	7.6	17	0.8	7.0	7	0.6	0.1	0.1	0.1
27/9/39	4.9	1.12	—	0.4	0.1	7.7	17	0.8	7.0	6	0.6	0.1	0.1	0.1
28/9/39	4.7	1.12	—	0.4	0.1	7.7	16	0.8	7.0	6	0.6	0.1	0.1	0.1
29/9/39	4.7	1.12	—	0.4	0.1	7.7	16	0.8	7.0	7	0.6	0.1	0.1	0.1
30/9/39	4.8	1.12	—	0.4	0.1	7.7	15	0.8	7.0	7	0.6	0.1	0.1	0.1
1/10/39	4.2	1.12	—	0.4	0.1	7.6	15	0.8	7.0	6	0.6	0.1	0.1	0.1
2/10/39	3.4	1.12	—	0.4	0.1	7.6	15	0.7	7.0	6	0.6	0.1	0.1	0.1
3/10/39	4.7	0.96	—	0.4	0.1	7.6	15	0.7	7.0	5	0.6	0.05	0.1	0.1
4/10/39	4.6	0.96	—	0.4	0.1	7.6	15	0.7	7.2	6	0.6	0.1	0.1	0.1
5/10/39	4.4	1.45	—	0.4	0.1	7.2	15	0.7	7.0	7	0.6	0.2	0.1	0.1
6/10/39	4.7	1.9	0.1	0.4	0.1	6.8	60	5.0	6.4	4	0.4	—	0.1	0.1
7/10/39	4.6	1.7	0.1	0.4	0.1	6.4	60	4.0	6.2	8	1.2	0.1	0.1	0.1
8/10/39	4.7	1.9	0.1	0.4	0.1	6.8	40	3.0	6.2	7	1.0	0.1	0.1	0.1

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	Gallons Pumped (Millions)	CHEMICALS USED				Raw Water			ANALYTICAL DATA					REMARKS	
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	pH	Colour	Turbidity	Filtered Water						
									Residual Alumina	Turbidity	Residual Chlorine				
											Low Level Reservoir	High Level Reservoir			
25/6/39	3.7	1.9	—	0.4	0.1	7.6	15	0.8	7.0	4	0.4	—	0.1	0.1	
26/6/39	5.1	1.9	—	0.4	0.1	7.6	15	0.8	7.0	4	0.4	0.05	0.1	0.1	
27/6/39	4.4	1.9	—	0.4	0.1	7.6	15	0.8	7.0	4	0.4	0.05	0.1	0.1	
28/6/39	4.9	1.9	—	0.4	0.1	7.4	17	1.0	7.0	5	0.5	—	0.1	0.1	
29/6/39	4.7	1.9	—	0.4	0.1	7.3	30	2.6	6.8	4	0.4	—	0.1	0.1	
30/6/39	4.8	1.9	—	0.4	0.1	7.0	30	2.0	6.6	4	0.4	—	0.1	0.1	
1/7/39	4.4	2.03	—	0.4	0.1	7.0	35	1.4	6.4	5	0.5	0.05	0.1	0.1	
2/7/39	3.5	2.03	—	0.4	0.1	7.2	30	1.4	6.7	4	0.5	—	0.1	0.1	
3/7/39	4.7	1.9	—	0.4	0.1	7.2	25	1.0	6.7	4	0.4	—	0.1	0.1	
4/7/39	4.6	1.9	—	0.4	0.1	7.2	20	1.0	6.8	4	0.4	—	0.1	0.1	
5/7/39	4.8	1.9	—	0.4	0.1	7.4	20	0.8	6.8	4	0.4	—	0.1	0.1	
6/7/39	4.9	1.9	—	0.4	0.1	7.4	20	0.8	6.8	4	0.4	—	0.1	0.1	
7/7/39	4.9	1.9	—	0.4	0.1	7.2	17	0.8	6.8	4	0.4	—	0.1	0.1	
8/7/39	4.3	1.9	—	0.4	0.1	7.2	17	0.8	6.8	4	0.4	—	0.1	0.1	
9/7/39	4.0	1.7	—	0.4	0.1	7.2	25	1.4	6.8	4	0.4	—	0.1	0.1	
10/7/39	4.9	1.9	—	0.4	0.1	7.0	35	1.6	6.4	4	0.5	—	0.1	0.1	
11/7/39	5.0	1.9	—	0.4	0.1	7.0	35	1.2	6.4	4	0.4	—	0.1	0.1	
13/7/39	4.9	1.9	—	0.4	0.1	7.0	30	1.0	6.4	4	0.4	—	0.1	0.1	
13/7/39	4.8	1.9	—	0.4	0.1	7.0	25	1.0	6.4	4	0.4	—	0.1	0.1	
14/7/39	4.8	1.9	—	0.4	0.1	7.0	25	1.0	6.4	4	0.4	—	0.1	0.1	
15/7/39	4.3	1.9	—	0.4	0.1	7.0	25	1.0	6.5	4	0.4	—	0.1	0.1	
16/7/39	3.9	2.34	—	0.4	0.1	6.9	40	4.0	6.4	4	0.4	—	0.1	0.1	
17/7/39	4.8	2.16	—	0.4	0.1	6.9	37	1.2	6.4	4	0.4	—	0.1	0.1	
18/7/39	4.6	2.16	—	0.4	0.1	7.0	37	1.0	6.4	4	0.4	—	0.1	0.1	
19/7/39	4.8	2.16	—	0.4	0.1	7.0	30	0.8	6.4	4	0.4	—	0.1	0.1	
20/7/39	4.9	2.03	—	0.4	0.1	7.2	25	1.0	6.7	4	0.4	—	0.1	0.1	
21/7/39	4.6	2.16	—	0.4	0.1	7.4	30	1.0	6.8	4	0.4	—	0.1	0.1	
22/7/39	4.8	2.16	—	0.4	0.1	7.4	25	1.0	6.8	4	0.4	—	0.1	0.1	
23/7/39	3.3	2.16	—	0.4	0.1	7.7	25	1.0	6.8	5	0.4	0.05	0.1	0.1	
24/7/39	4.8	2.34	—	0.4	0.1	7.7	20	0.8	7.0	4	0.4	—	0.1	0.1	
25/7/39	4.6	2.34	—	0.4	0.1	7.6	20	0.8	7.0	4	0.4	—	0.1	0.1	
26/7/39	4.8	2.34	—	0.4	0.1	7.7	20	0.8	7.0	4	0.4	—	0.1	0.1	
27/7/39	5.4	2.34	—	0.4	0.1	7.7	20	0.8	7.0	4	0.4	—	0.1	0.1	
28/7/39	5.1	2.16	—	0.4	0.1	7.3	20	0.8	6.7	4	0.4	—	0.1	0.1	
30/7/39	4.6	2.34	—	0.4	0.1	6.5	80	4.0	6.2	4	0.4	—	0.1	0.1	

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	Gallons Pumped (Millions)	CHEMICALS USED				Raw Water			ANALYTICAL DATA					REMARKS
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	Filtered Water			Residual Chlorine					
						pH	Colour	Turbidity						
											pH	Colour	Turbidity		Residual Alumina	Low Level Reservoir	High Level Reservoir
21/5/39	3.5	2.07	—	0.4	0.1	7.4	12	0.7	6.8	4				0.2				—	0.1	0.1
22/5/39	4.7	2.03	—	0.4	0.1	7.4	12	0.7	6.9	4	0.2	—	0.1	0.1
23/5/39	4.5	2.03	—	0.4	0.1	7.3	12	0.7	6.9	4	0.2	—	0.1	0.1
24/5/39	4.3	2.03	—	0.4	0.1	7.3	12	0.7	6.9	4	0.2	—	0.1	0.1
25/5/39	4.7	2.03	—	0.4	0.1	7.4	12	0.8	6.9	4	0.4	—	0.1	0.1
26/5/39	4.8	2.03	—	0.4	0.1	7.4	12	0.7	6.9	4	0.2	—	0.1	0.1
27/5/39	4.4	1.9	—	0.4	0.1	7.4	12	0.7	7.0	8	0.7	0.15	0.1	0.1
28/5/39	3.6	2.25	—	0.4	0.1	7.4	15	0.7	6.9	5	0.7	0.05	0.1	0.1
29/5/39	3.8	2.25	—	0.4	0.1	7.4	17	1.0	6.9	5	0.8	0.05	0.1	0.1
30/5/39	4.8	2.25	—	0.4	0.1	7.4	15	1.0	6.9	4	0.4	—	0.1	0.1
31/5/39	4.9	2.03	—	0.4	0.1	7.4	15	1.0	6.9	4	0.4	—	0.1	0.1
1/6/39	5.0	2.03	—	0.4	0.1	7.5	15	0.8	6.9	4	0.4	—	0.1	0.1
2/6/39	4.8	2.16	—	0.4	0.1	7.5	15	1.2	6.9	4	0.4	—	0.1	0.1
3/6/39	5.0	2.16	—	0.4	0.1	7.6	15	1.0	7.0	5	0.6	0.05	0.1	0.1
4/6/39	3.8	2.16	—	0.4	0.1	7.5	15	0.8	7.0	4	0.3	—	0.1	0.1
5/6/39	5.2	2.25	—	0.4	0.1	7.6	15	0.8	7.0	4	0.4	—	0.1	0.1
6/6/39	5.2	2.25	—	0.4	0.1	7.6	15	0.8	7.0	4	0.4	0.05	0.1	0.1
7/6/39	5.4	2.25	—	0.4	0.1	7.6	15	0.8	7.0	4	0.2	—	0.1	0.1
8/6/39	5.1	2.25	—	0.4	0.1	7.8	15	0.8	7.1	6	0.4	0.05	0.1	0.1
9/6/39	5.3	1.6	—	0.4	0.1	7.6	15	0.8	7.1	4	0.4	0.05	0.1	0.1
10/6/39	4.6	1.6	—	0.4	0.1	7.8	15	0.8	7.1	5	0.4	0.15	0.1	0.1
11/6/39	3.5	1.9	—	0.4	0.1	7.6	15	0.8	7.1	4	0.3	—	0.1	0.1
12/6/39	4.9	1.98	—	0.4	0.1	7.8	15	0.8	7.1	5	0.4	0.05	0.1	0.1
13/6/39	5.1	1.98	—	0.4	0.1	7.8	15	0.8	7.1	5	0.5	0.1	0.1	0.1
14/6/39	4.8	1.98	—	0.4	0.1	7.6	15	0.8	7.0	4	0.5	0.05	0.1	0.1
15/6/39	5.1	1.98	—	0.4	0.1	7.4	15	0.8	7.0	5	0.4	0.05	0.1	0.1
16/6/39	5.0	1.98	—	0.4	0.1	7.6	15	0.8	7.1	5	0.4	0.05	0.1	0.1
17/6/39	4.2	1.9	—	0.4	0.1	7.6	15	0.8	7.0	6	0.6	0.1	0.1	0.1
18/6/39	3.5	1.9	—	0.4	0.1	7.6	15	0.8	7.1	4	0.4	0.05	0.1	0.1
19/6/39	5.1	1.9	—	0.4	0.1	7.7	15	0.8	7.0	5	0.5	0.05	0.1	0.1
20/6/39	5.0	1.9	—	0.4	0.1	7.7	15	0.8	7.0	4	0.5	0.05	0.1	0.1
21/6/39	5.1	1.9	—	0.4	0.1	7.5	15	0.8	7.0	4	0.4	—	0.1	0.1
22/6/39	5.0	1.9	—	0.4	0.1	7.4	15	0.8	7.0	5	0.5	0.05	0.1	0.1
23/6/39	4.9	1.9	—	0.4	0.1	7.3	15	0.8	7.0	5	0.4	0.05	0.1	0.1
24/6/39	4.4	1.9	—	0.4	0.1	7.3	15	0.8	6.9	4	0.4	—	0.1	0.1

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	Gallons Pumped (Millions)	CHEMICALS USED				ANALYTICAL DATA					REMARKS				
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	Raw Water			Filtered Water						
						pH	Colour	Turbidity	pH	Colour		Turbidity	Residual Alumina	Residual Chlorine	
														Low Level Reservoir	High Level Reservoir
16/4/39 ...	3.8	2.07	—	0.4	0.1	7.0	35	1.2	6.4	4	0.4	—	0.1	0.1	
17/4/39 ...	4.3	2.01	—	0.4	0.1	7.1	35	1.2	6.5	4	0.4	—	0.1	0.1	
18/4/39 ...	4.9	1.7	—	0.4	0.1	7.1	25	1.0	6.5	4	0.4	—	0.1	0.1	
19/4/39 ...	4.9	1.7	—	0.4	0.1	7.1	25	1.0	6.8	4	0.4	—	0.1	0.1	
20/4/39 ...	4.9	1.7	—	0.4	0.1	7.2	20	1.0	6.8	4	0.4	—	0.1	0.1	
21/4/39 ...	5.1	1.7	—	0.4	0.1	7.2	18	1.0	6.8	4	0.4	—	0.1	0.1	
22/4/39 ...	4.6	1.7	—	0.4	0.1	7.2	18	1.0	6.8	4	0.4	—	0.1	0.1	
23/4/39 ...	4.3	1.7	—	0.4	0.1	7.2	15	1.0	6.8	4	0.4	—	0.1	0.1	
24/4/39 ...	4.9	1.6	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
25/4/39 ...	5.1	1.6	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
26/4/39 ...	4.2	1.5	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
27/4/39 ...	4.4	1.5	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
28/4/39 ...	5.0	1.6	—	0.4	0.1	7.2	15	1.0	6.8	4	0.4	—	0.1	0.1	
29/4/39 ...	4.2	1.6	—	0.4	0.1	7.2	15	1.0	6.8	4	0.4	—	0.1	0.1	
30/4/39 ...	3.7	1.6	—	0.4	0.1	7.2	15	1.0	6.8	4	0.4	—	0.1	0.1	
1/5/39 ...	5.0	1.6	—	0.4	0.1	7.2	15	1.0	6.8	4	0.4	—	0.1	0.1	
2/5/39 ...	5.0	1.6	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
3/5/39 ...	4.5	1.6	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
4/5/39 ...	4.6	1.6	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
5/5/39 ...	4.5	1.9	—	0.4	0.1	7.2	20	2.0	6.8	4	0.8	—	0.1	0.1	
6/5/39 ...	4.3	2.37	—	0.4	0.1	7.0	35	2.6	6.4	4	0.5	—	0.1	0.1	
7/5/39 ...	4.0	2.5	—	0.4	0.1	7.0	37	2.0	6.4	4	0.6	—	0.1	0.1	
8/5/39 ...	5.1	2.37	—	0.4	0.1	7.0	30	1.8	6.4	4	0.6	—	0.1	0.1	
9/5/39 ...	4.8	2.03	—	0.4	0.1	7.2	20	1.4	6.7	4	0.4	—	0.1	0.1	
10/5/39 ...	4.9	1.7	—	0.4	0.1	7.2	17	1.0	6.8	4	0.4	—	0.1	0.1	
11/5/39 ...	4.8	1.8	—	0.4	0.1	7.3	15	1.0	6.8	4	0.4	—	0.1	0.1	
12/5/39 ...	4.6	1.8	—	0.4	0.1	7.3	17	1.0	6.8	5	0.4	0.5	0.1	0.1	
13/5/39 ...	4.3	1.7	—	0.4	0.1	7.3	17	1.0	6.9	5	0.7	0.5	0.1	0.1	
14/5/39 ...	3.7	2.32	—	0.4	0.1	7.3	17	1.0	6.9	4	0.4	—	0.1	0.1	
15/5/39 ...	4.5	2.32	—	0.4	0.1	7.4	17	1.0	6.9	4	0.4	—	0.1	0.1	
16/5/39 ...	4.8	2.32	—	0.4	0.1	7.4	15	1.0	6.9	4	0.3	—	0.1	0.1	
17/5/39 ...	4.1	2.32	—	0.4	0.1	7.4	15	0.7	6.9	4	0.2	—	0.1	0.1	
18/5/39 ...	4.4	2.32	—	0.4	0.1	7.4	15	0.7	6.8	4	0.2	—	0.1	0.1	
19/5/39 ...	4.4	2.32	—	0.4	0.1	7.4	15	0.7	6.8	4	0.2	—	0.1	0.1	
20/5/39 ...	3.7	2.16	—	0.4	0.1	7.4	12	0.7	6.8	4	0.2	—	0.1	0.1	

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	Gallons Pumped (Millions)	CHEMICALS USED				Raw Water			Filtered Water				REMARKS		
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	pH	Colour	Turbidity	Residual Alumina	Residual Chlorine					
										Low Level Reservoir	High Level Reservoir				
12/3/39	3.8	1.33	—	0.4	0.1	7.0	12	1.0	6.8	4	0.4	—	0.12	0.12	
13/3/39	4.8	1.33	—	0.4	0.1	7.0	10	1.0	6.8	4	0.4	—	0.12	0.12	
14/3/39	4.7	1.33	—	0.4	0.1	7.0	10	1.0	6.8	4	0.4	—	0.12	0.12	
15/3/39	4.8	1.33	—	0.4	0.1	7.0	10	1.0	6.8	4	0.4	—	0.12	0.12	
16/3/39	4.8	1.33	—	0.4	0.1	7.0	10	1.0	6.8	4	0.4	—	0.12	0.12	
17/3/39	3.9	1.33	—	0.4	0.1	7.2	10	1.0	6.8	4	0.4	—	0.12	0.12	
18/3/39	4.1	1.33	—	0.4	0.1	7.2	10	1.0	6.8	4	0.4	—	0.12	0.12	
19/3/39	3.8	1.33	—	0.4	0.1	7.2	10	1.0	6.8	4	0.4	—	0.12	0.12	
20/3/39	4.5	1.33	—	0.4	0.1	7.2	10	1.0	6.8	4	0.4	—	0.12	0.1	
21/3/39	4.6	1.33	—	0.4	0.1	7.2	10	1.0	6.8	4	0.4	—	0.1	0.1	
22/3/39	4.6	1.33	—	0.4	0.1	7.2	10	1.4	7.0	4	0.4	—	0.1	0.1	
23/3/39	4.8	1.33	—	0.4	0.1	7.2	10	1.4	7.0	4	0.4	—	0.1	0.1	
24/3/39	4.6	1.6	—	0.4	0.1	6.9	25	2.1	6.5	4	0.4	—	0.1	0.1	
25/3/39	4.2	1.45	—	0.4	0.1	7.0	20	1.2	6.4	4	0.4	—	0.1	0.1	
26/3/39	3.7	1.45	—	0.4	0.1	7.0	17	1.2	6.8	4	0.4	—	0.1	0.1	
27/3/39	4.6	1.45	—	0.4	0.1	7.0	15	1.2	6.8	4	0.4	—	0.1	0.1	
28/3/39	4.6	1.45	—	0.4	0.1	7.0	12	1.0	6.8	4	0.4	—	0.1	0.1	
29/3/39	4.6	1.28	—	0.4	0.1	7.0	10	1.0	6.8	4	0.4	—	0.1	0.1	
30/3/39	4.8	1.28	—	0.4	0.1	7.0	10	1.0	6.8	4	0.4	—	0.2	0.2	
31/3/39	4.7	1.28	—	0.4	0.1	7.0	10	1.0	6.8	4	0.4	—	0.2	0.2	
1/4/39	3.9	1.28	—	0.4	0.1	7.2	10	1.0	7.0	4	0.4	—	0.2	0.2	
2/4/39	4.3	1.33	—	0.4	0.1	7.2	10	1.2	7.0	4	0.4	—	0.2	0.1	
3/4/39	4.2	1.33	—	0.4	0.1	7.2	10	1.2	7.0	4	0.6	—	0.1	0.1	
4/4/39	4.3	1.9	—	0.4	0.1	6.8	38	4.0	6.4	4	1.0	—	0.1	0.1	
5/4/39	5.0	1.9	—	0.4	0.1	6.8	38	6.0	6.4	4	0.4	—	0.1	0.1	
6/4/39	4.3	1.9	—	0.4	0.1	6.8	38	4.0	6.2	4	0.4	—	0.1	0.1	
7/4/39	5.0	1.7	—	0.4	0.1	7.0	30	1.2	6.4	4	0.4	—	0.1	0.1	
8/4/39	4.4	1.7	—	0.4	0.1	7.0	20	1.2	6.7	4	0.4	—	0.1	0.1	
9/4/39	3.6	1.5	—	0.4	0.1	7.0	15	1.2	6.8	4	0.4	—	0.1	0.1	
10/4/39	4.0	1.5	—	0.4	0.1	7.2	15	1.2	6.8	4	0.4	—	0.1	0.1	
11/4/39	4.4	1.45	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
12/4/39	5.1	1.39	—	0.4	0.1	7.2	12	1.0	6.8	4	0.4	—	0.1	0.1	
13/4/39	4.8	1.45	—	0.4	0.1	7.2	17	2.0	6.8	4	0.4	—	0.1	0.1	
14/4/39	4.8	2.07	—	0.4	0.1	7.2	37	2.0	6.5	4	0.4	—	0.1	0.1	
15/4/39	4.2	2.07	—	0.4	0.1	7.0	37	2.0	6.4	4	0.4	—	0.1	0.1	

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939—continued

DATE	Gallons Pumped (Millions)	CHEMICALS USED				ANALYTICAL DATA						REMARKS			
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	Raw Water			Filtered Water						
						pH	Colour	Turbidity	pH	Colour	Turbidity		Residual Alumina	Residual Chlorine	
														Low Level Reservoir	High Level Reservoir
5/2/39	4.0	1.6	—	0.4	0.1	7.0	12	1.2	6.8	4	0.5	—	0.12	0.12	
6/2/39	4.6	1.6	—	0.4	0.1	6.9	25	2.0	6.4	4	0.4	—	0.12	0.12	
7/2/39	4.9	1.9	—	0.4	0.1	6.7	60	9.0	6.2	4	0.5	—	0.12	0.12	
8/2/39	4.7	1.9	—	0.4	0.1	6.7	38	3.0	6.2	4	0.4	—	0.12	0.12	
9/2/39	4.7	1.9	—	0.4	0.1	6.8	40	5.0	6.2	4	0.4	—	0.12	0.12	
10/2/39	4.8	1.9	—	0.4	0.1	6.7	40	4.0	6.0	4	0.5	—	0.12	0.12	
11/2/39	4.4	1.9	—	0.4	0.1	6.8	35	2.0	6.2	4	0.4	—	0.12	0.12	
12/2/39	3.8	1.7	—	0.4	0.1	6.8	30	1.6	6.2	4	0.4	—	0.12	0.12	
13/2/39	4.8	1.7	—	0.4	0.1	6.8	25	1.2	6.4	4	0.4	—	0.12	0.12	
14/2/39	4.8	1.6	—	0.4	0.1	7.0	20	1.2	6.4	4	0.4	—	0.12	0.12	
15/2/39	4.6	1.6	—	0.4	0.1	7.0	18	1.2	6.4	4	0.4	—	0.12	0.12	
16/2/39	4.7	1.6	—	0.4	0.1	7.0	18	1.2	6.4	4	0.4	—	0.12	0.12	
17/2/39	4.6	1.6	—	0.4	0.1	7.0	15	1.2	6.4	4	0.5	—	0.12	0.12	
18/2/39	4.4	1.6	—	0.4	0.1	7.0	17	1.6	6.4	4	0.4	—	0.12	0.12	
19/2/39	3.9	1.6	—	0.4	0.1	7.0	17	1.2	6.4	4	0.4	—	0.15	0.15	
20/2/39	4.7	1.6	—	0.4	0.1	7.0	17	1.2	6.5	4	0.4	—	0.15	0.15	
21/2/39	4.8	1.6	—	0.4	0.1	7.1	15	1.4	6.8	4	0.4	—	0.1	0.1	
22/2/39	4.6	1.9	—	0.4	0.1	6.7	50	4.0	6.0	4	0.4	—	0.1	0.12	
23/2/39	4.7	1.9	—	0.4	0.1	6.7	55	6.0	6.0	4	0.4	—	0.1	0.1	
24/2/39	4.7	1.7	—	0.4	0.1	6.7	35	2.2	6.0	4	0.4	—	0.12	0.12	
25/2/39	4.3	1.6	—	0.4	0.1	6.8	30	2.0	6.2	4	0.4	—	0.1	0.12	
26/2/39	3.6	1.7	—	0.4	0.1	6.8	25	1.8	6.2	4	0.4	—	0.1	0.12	
27/2/39	4.8	1.31	—	0.4	0.1	6.8	25	2.0	6.4	4	0.4	—	0.12	0.12	
28/2/39	4.7	1.7	—	0.4	0.1	6.8	35	4.0	6.4	4	0.4	—	0.12	0.12	
1/3/39	4.2	1.7	—	0.4	0.1	6.8	37	4.0	6.2	4	0.4	—	0.12	0.12	
2/3/39	4.7	1.6	—	0.4	0.1	6.4	50	16.0	6.0	4	0.4	—	0.1	0.1	
3/3/39	4.6	1.5	—	0.4	0.1	6.8	37	5.0	6.0	4	0.4	—	0.12	0.12	
4/3/39	4.3	1.5	—	0.4	0.1	6.8	30	2.0	6.2	4	0.4	—	0.12	0.12	
5/3/39	3.7	1.5	—	0.4	0.1	6.8	35	4.0	6.2	4	0.4	—	0.1	0.1	
6/3/39	4.9	1.45	—	0.4	0.1	6.8	25	2.0	6.2	4	0.4	—	0.12	0.12	
7/3/39	4.7	1.45	—	0.4	0.1	6.8	20	1.6	6.4	4	0.4	—	0.12	0.12	
8/3/39	4.6	1.33	—	0.4	0.1	6.8	15	1.6	6.4	4	0.4	—	0.1	0.1	
9/3/39	4.7	1.33	—	0.4	0.1	7.0	15	1.4	6.8	4	0.4	—	0.12	0.12	
10/3/39	4.6	1.33	—	0.4	0.1	7.0	12	1.0	6.8	4	0.4	—	0.12	0.12	
11/3/39	4.2	1.33	—	0.4	0.1	7.0	12	1.2	6.8	4	0.4	—	0.12	0.12	

Table 82—Waterworks Department—Particulars and Results of Water Treatment, 1939.

DATE	Gallons Pumped (Millions)	CHEMICALS USED				ANALYTICAL DATA						REMARKS		
		Alumina (Grs. per Gallon)	Soda Aluminate (Grs. per Gallon)	Chlorine (Parts per Million)	Ammonium Sulphate (Parts per Million)	Raw Water			Filtered Water					
						pH	Colour	Turbidity	pH	Colour	Turbidity		Residual Alumina	
														Low Level Reservoir
1/1/39	5.1	1.6	—	0.4	0.1	7.0	15	2.0	6.4	4	0.4	—	0.1	
2/1/39	5.2	1.7	—	0.4	0.1	7.0	20	2.4	6.4	4	0.5	—	0.12	
3/1/39	5.3	1.7	—	0.4	0.1	7.0	20	2.4	6.4	4	0.5	—	0.12	
4/1/39	5.4	1.7	—	0.4	0.1	7.0	20	2.4	6.4	4	0.5	—	0.12	
5/1/39	5.9	1.7	—	0.4	0.1	6.8	20	2.4	6.4	4	0.5	—	0.12	
6/1/39	5.2	1.6	—	0.4	0.1	6.8	15	2.6	6.4	4	0.5	—	0.12	
7/1/39	4.9	1.6	—	0.4	0.1	6.8	15	2.6	6.4	4	0.5	—	0.12	
8/1/39	4.4	2.07	—	0.4	0.1	6.8	38	4.0	6.4	5	1.0	0.05	0.12	
9/1/39	4.9	2.07	—	0.4	0.1	6.8	38	4.0	6.2	4	0.4	—	0.12	
10/1/39	5.4	1.8	—	0.4	0.1	6.8	30	1.8	6.2	4	0.4	—	0.12	
11/1/39	5.0	1.8	—	0.4	0.1	6.8	20	1.4	6.4	4	0.4	—	0.12	
12/1/39	4.8	1.6	—	0.4	0.1	7.0	17	1.0	6.4	4	0.4	—	0.12	
13/1/39	4.9	1.6	—	0.4	0.1	6.8	15	1.0	6.4	4	0.4	—	0.12	
14/1/39	5.0	1.6	—	0.4	0.1	7.0	15	1.4	6.5	4	0.4	—	0.12	
15/1/39	4.0	2.13	—	0.4	0.1	6.8	80	25.0	6.0	4	1.4	—	0.12	
16/1/39	4.8	1.9	—	0.4	0.1	6.7	50	4.0	6.0	4	0.5	—	0.12	
17/1/39	5.0	1.9	—	0.4	0.1	6.8	37	3.0	6.0	4	0.4	—	0.12	
18/1/39	4.9	1.9	—	0.4	0.1	6.8	35	2.2	6.0	4	0.4	—	0.1	
19/1/39	5.0	1.6	—	0.4	0.1	6.8	25	2.0	6.2	4	0.4	—	0.12	
20/1/39	4.9	1.6	—	0.4	0.1	6.8	30	2.4	6.4	4	0.5	—	0.12	
21/1/39	4.6	1.6	—	0.4	0.1	6.8	25	1.8	6.4	4	0.5	—	0.12	
22/1/39	4.0	1.6	—	0.4	0.1	6.8	30	2.6	6.4	4	0.5	—	0.2	
23/1/39	4.4	1.7	—	0.4	0.1	6.4	60	11.0	6.0	4	0.4	—	0.15	
24/1/39	5.3	1.7	—	0.4	0.1	6.8	30	3.0	6.0	4	0.4	—	0.12	
25/1/39	4.8	1.6	—	0.4	0.1	6.8	25	2.2	6.4	4	0.4	—	0.12	
26/1/39	4.8	1.6	—	0.4	0.1	6.8	20	1.2	6.4	4	0.4	—	0.12	
27/1/39	4.8	1.6	—	0.4	0.1	6.8	17	1.2	6.4	4	0.5	—	0.12	
28/1/39	4.3	1.6	—	0.4	0.1	6.8	15	1.2	6.4	4	0.5	—	0.12	
29/1/39	4.2	1.6	—	0.4	0.1	7.0	15	1.2	6.8	4	0.4	—	0.12	
30/1/39	4.8	1.6	—	0.4	0.1	7.0	15	1.2	6.8	4	0.4	—	0.12	
31/1/39	4.7	1.6	—	0.4	0.1	7.0	12	1.2	6.8	4	0.4	—	0.12	
1/2/39	4.8	1.6	—	0.4	0.1	7.0	12	1.2	6.8	4	0.4	—	0.12	
2/2/39	4.7	1.6	—	0.4	0.1	7.0	12	1.2	6.8	4	0.4	—	0.12	
3/2/39	4.5	1.6	—	0.4	0.1	7.0	10	1.0	6.8	4	0.5	—	0.12	
4/2/39	4.5	1.6	—	0.4	0.1	7.0	12	1.0	6.8	4	0.5	—	0.12	

Table 83—Showing average consumption of Water per Head, per Day.

Month	1934	1935	1936	1937	1938	1939
January	39.6	38.5	47.6	42.7	41.5	45.6
February	40.0	40.2	44.1	43.1	40.3	40.9
March	39.1	40.1	44.0	41.8	39.5	39.9
April	39.9	41.2	44.4	41.6	41.4	40.1
May	39.2	41.2	46.5	45.1	40.5	40.0
June	42.1	43.6	47.1	45.9	40.5	44.2
July	42.8	46.8	47.1	45.9	40.9	42.8
August	40.6	48.1	46.4	46.3	39.8	41.6
September	41.4	46.5	44.5	45.7	41.3	41.8
October	38.6	43.5	44.8	45.0	40.6	39.5
November	39.0	43.4	44.1	43.1	39.7	37.5
December	40.2	35.2	43.8	42.7	41.8	37.2

Section VIII.—Sanitary Department

Table 84.—Return of Work performed by Sanitary Inspectors during 1939 :—

District	INSPECTION OF										SERVED		
	Houses and Yards	Tenement Houses	Tenement Rooms	Infected Dwellings	Common Lodging Houses	Milk Shops	Bakeries	Work Shops	Slaughter Houses	Factories	Out-workers	Justices Orders	Notices to abate nuisance
No. 1	7886	346	1132	69	—	18	11	47	3	—	—	1	353
No. 2	6874	2435	—	27	19	1	4	86	9	—	—	—	359
No. 3	11205	2946	11851	97	129	701	82	620	328	—	—	1	269
No. 5	740	4215	—	29	26	11	29	88	—	—	—	—	104
No. 6	6742	—	—	6	—	—	—	—	—	—	—	6	325
No. 7 ...	13928	1323	3582	55	67	145	15	234	35	—	—	6	591
Female Inspector	—	—	—	—	—	—	239	2285	—	1064	361	—	22
Totals	47375	11265	16570	283	241	876	380	3360	375	1064	361	14	2023

District No. 4 is divided for purposes of supervision between Districts No. 2 and 5
No separate records have been kept hitherto.

The number of inspections carried out by the Corporation Drain Tester was 3,665

Table 85—Summary of Inspections, etc.

	No. of Inspections
Houses, yards, etc.	47,375
Tenement Houses	11,265
Tenement Rooms	16,570
Infected Dwellings	283
Common Lodging Houses	241
Bakeries	380
Workshops	3,360
Outworkers	361
Factories	1,064
Milk Shops	876
Slaughter Houses	375
Drains and W.C.'s Tested	3,665
Number of Notices to abate nuisances	2,023
Number of Justices' Orders	14
Amount of fines imposed in respect of same	£0 16 6

Table 86—Return of Work carried out by Veterinary Staff during the year :—

Slaughter Houses	3,866
Butcher Shops	1,383
Tripe Houses	1,495
Meat Markets	762
Milk Shops	1,320
Milk Vans	1,073
Cowsheds	177
Sausage Factories	377
Hawker's Stands	774
Provision Shops	2,606
Pork Shops	160
Fish Shops	142
Fruit Shops	180
Cold Stores	22
No. of Prosecutions	} See Section VI., Prosecutions
Amount of Fines imposed	

SHOPS (CONDITIONS OF EMPLOYMENT) ACT, 1938.

In the following tables are set out particulars of the work done by the Shops Inspector during part of 1938 and whole of 1939.

Table 87. Number of Inspections.

Number	1938	1939
First Inspections	1181	1183
Subsequent Inspections	92	1643
Total	1273	2862

Table 88. Particulars of Defects Found.

Nature of Defect	1938	1939
Insufficient Ventilation	57	23
Insufficient Heating	29	20
No Heating Provided	20	8
No Seating Accommodation	9	4
Insufficient Sanitary Accommodation	16	2
No Sanitary Accommodation	92	27
No Accommodation for Same	68	18
No Washing Accommodation	44	14
Lavatory Lighting Insufficient	21	—
Total	356	116

Exemption Orders served (*re* Sanitary Accommodation)—83.

Exemption Orders served (*re* Washing Accommodation)—53.

Works Notices served—7

Section IX.—Port Sanitary Administration

Constitution of the Port Sanitary Authority.

The port was constituted a port sanitary district by the Local Government Board (Ireland) on 27th April, 1903. The Authority consists of twenty members chosen by the respective riparian authorities who elect representatives to the joint board as follows:—

By the Lord Mayor, Aldermen and Councillors of the County Borough of Cork	....	....	12
By the South Cork Board of Public Health	....	....	5
By the Urban District of Cobh	....	....	2
By the Urban District of Passage West	....	....	1

The South Cork Board of Public Health was substituted for the Cork County Board of Public Health as a constituent Authority by the Local Government and Public Health Provisional Order Confirmation Act, 1937, as from 1st April, 1937, on which date the provisions contained in the Order came into operation.

Apportionment of Expenses.

Cork County Borough contributes	....	62½ per cent. of the total
South Cork Board of Public Health	....	25 "
Cobh Urban District Council	....	10 "
Passage West Urban District Council	....	2½ "

Limits of Jurisdiction.

These are defined in Act 18 of the Cork Port Sanitary Order No. 3 as follows:—"The jurisdiction of the said Port Sanitary Authority shall extend to the whole of that part of the customs port of Cork that lies between Power Head and Cork Head in the County of Cork, together with the waters of the said port of Cork within such limits and all docks, basins, harbours, creeks, rivers, channels, bays and streams within the aforesaid limits and the places for the time being appointed as the customs boarding station or stations for such part of the said port and the places for the time being appointed for the mooring or anchoring of ships for such part of the said port under any regulations for the prevention of the spread of diseases issued under the authority of the statutes in that behalf."

Quarantine Anchorage.

Anchorage for vessels with cases of infectious disease on board is between the town of Cobh and the Spit buoy.

Cuskinny Intercepting Hospital.

The intercepting hospital is situated about two miles east of the town of Cobh and about half-a-mile from Cuskinny Strand on the northern shore of the harbour. The hospital was built in the year 1880 by the old Cork Board of Guardians and was acquired by the Port Sanitary Authority in the year 1902 from the Commissioners of Public Works (Ireland) and since has been kept in good repair and condition. During the past year minor repair work was carried out. The function of the hospital is to deal with the more serious types of infectious disease (e.g. small pox, plague, cholera, typhus, etc.) should any such cases arrive in the port necessitating hospital treatment or isolation. Infected vessels would moor at the quarantine anchorage, the patient being removed by motor launch and landed at Cuskinny Strand or some suitable slipway and transferred to the Authorities' ambulance for transport to the hospital. In point of fact it is many years since the hospital was called upon to deal with any cases and the likelihood of such cases arising in the future is not very great. The greatly increased speed of modern sea transport, together with the precautions taken at all sea ports throughout the world in regard to the prevention of infectious disease has greatly reduced the risk of such diseases being introduced to this port. While, however, any such risk exists, the hospital will have to be maintained unless adequate alternative measures are adopted for dealing with cases. Although no case has been admitted since 1918, arrangements can be put on foot for dealing with possible admissions at a moment's notice as it has been the policy to maintain the hospital on this basis. The caretaker has fulfilled her duties in this respect in a praiseworthy manner.

Procedure for granting Pratique.

Deepladen vessels arriving in the lower harbour and bound for Cork may be detained there for tide. Such vessels are boarded by an officer of the Customs and Excise, who puts the usual questions to the master in regard to the prevalence of illness on board and especially in relation to cholera, plague and yellow fever or as to the prevalence of same at any ports of call en route. If the answers are in the *negative*, free pratique is granted and the vessels allowed to proceed to her moorings. If any answers are in the affirmative, pratique is not granted until the vessel has been visited by the Port Medical Officer. Vessels of light draught able to proceed to the City at any state of the tide are hailed while passing Cobh and if the answers are satisfactory are allowed to proceed to Cork where they are boarded by the Customs Officer and the usual questions are put. In addition, instructions have been sent to all shipping agents for companies using the port of Cork that masters of vessels approaching the port with cases of infectious disease on board are to notify the Authority by wireless.

Measures against Rodents.

All vessels from foreign ports are boarded immediately on arrival by the Port Sanitary Officer who, after satisfying himself as the documents relative to health and deratisation certificates proceeds to the examination of the vessel in regard to rat infestation, particular

attention being paid to cargo surfaces as soon as the holds have been opened up. The various cargo compartments are searched for sick or dead rats, which, if found, are submitted at once for bacteriological examination. So far a positive result has not been obtained, but such a result would necessitate suspension of discharge of cargo. In addition, traps are laid in various parts of the ship and rats caught are submitted to examination. Precautions adopted to prevent migration of rodents ashore comprise the placing of rat guards on all mooring ropes and wires of all except cross-channel vessels. In addition, grain boats from the Argentine have to keep their gangways lime-washed daily and well lighted at night whilst alongside the quays.

The following measures would be adopted in this port in the event of a vessel being found effected with human or rodent plague to prevent egress from ship to shore :—

- (1) Vessel would be breasted off at least six feet from the quayside by placing wood floats between it and the quay wall.
- (2) Besides the adjusting of rat guards, moorings would be parcelled with old canvas on shore side of rat guards and same smeared with Stockholm tar.
- (3) Gangway would be required to be lifted from sunset to sunrise.
- (4) Intensive trapping and examination of rodents caught in the immediate neighbourhood of the ship's berth.

Of all diseases liable to be introduced by shipping, *plague* is without doubt the most to be feared, hence the necessity for the stringent precautions in regard to its prevention. Several of the ports from which shipping arrives in Cork are situated in countries in which plague is endemic, even though the ports themselves may not actually be infected at the time of departure. There is, however, the ever present danger of the importation of *plague infected rats* from such ports and it is in consequence of this danger that so much importance is attached to the systematic trapping and examination of rats taken on vessels coming into this port. As there is always a certain amount of migration of rats from ships to the shore while vessels are tied up at their moorings it is also necessary to maintain a constant sampling and examination of the shore rats taken in warehouses adjacent to the quays. It will be noted from the appropriate tables that of 231 rats taken during the past year, 149 were submitted to post-mortem examination and that all gave negative results. In the previous year 199 were trapped, of which 137 were examined, also with negative results. The rats are examined in the first instance by the Inspector, under the supervision of the Chief Veterinary Officer. In the event of a suspicious finding, the carcass would be referred to the Bacteriological Department of University College for a further examination.

The fact that so many rats have been examined and found negative is not by any means an indication for relaxation in the measures which have been adopted in connection with their reduction and the prevention of plague. One infected rat coming ashore might be the cause of an outbreak among the shore population and from time to time we are reminded of this ever present danger by the discovery of plague infected

rats in other ports. Plague is rarely transferred from one human being to the other, such transfer requires an intermediary and the agent is almost always the rat flea. It is only when an epizootic breaks out among the rats and large numbers die that the infecting flea seeks a new host and may transfer his attention to human beings. In countries where the disease is endemic, outbreaks among human beings are always heralded by excessive mortality among rats. Excessive rat mortality on board ship is a very suspicious sign of plague infection and masters are bound to notify any such happening at the port of arrival. Plague is such a deadly disease that no relaxation in preventive measures can be tolerated and for this reason it is necessary to keep up a constant watch over vessels arriving from foreign parts and for systematic examination and extermination of rats.

Of recent years it has been noticed that there has been a very marked reduction in the number of rats infesting ships. This is undoubtedly due to the implementation of the recommendations of the International Sanitary Convention of 1926 by the signatory countries. One of the clauses of this agreement requires the fumigation or exemption from fumigation of all foreign going vessels every six months and has been adopted by practically every country in the world. In the event of a vessel arriving at an approved port with a certificate which is no longer valid, it is examined by the Port Health Authority and if it is found to harbour an excessive number of rats it must undergo fumigation or, alternatively, an exemption certificate is issued if there are no rats or only a very small number. The general adoption of such measures by all countries has undoubtedly had a most beneficial effect in reducing the number of rats found on board ship and it is now quite common to find vessels arriving without any rat indications whatever.

This port has not, so far, been approved for the issue of certificates. When Mr. Kieran took up his appointment I suggested that he should keep records of his findings in such a way that the information so obtained could be correlated with the findings in other ports, with a view to making application for approval when sufficient material had been collected to justify it. It was decided that when fifty cases had been collected, application should be made to the appropriate quarter for recognition. We are now closely approaching that number and there has been a very marked correspondence between Mr. Kieran's estimations and those of rat inspectors in the ports to which the vessels proceeded on departure from Cork. Such ports included Cardiff, Swansea, Newport, Barry Docks, Belfast, Glasgow, Hull and Goole, Liverpool and Falmouth, and I am indebted to the Port Medical Officer's concerned for their kind co-operation in the matter. Briefly, the procedure is that Mr. Kieran examines each vessel just before its departure and submits his estimation of the rat population to me. I then send the information to the Medical Officer of the port of destination with an explanatory note and in due course have received the findings of his inspector. This has been a matter of no little interest and I have noted, as remarked above, that there has been a very close correspondence indeed between the findings here and in the other ports. This has been especially pronounced since the first few exchanges, so that it is now justifiable to assume that our inspector

Table 89.—SUMMARY OF FINDINGS IN RESPECT OF ESTIMATION OF RAT POPULATION ON BOARD FOREIGN-GOING VESSELS IN THE PORT OF CORK COMPARED WITH SIMILAR FINDINGS IN REGARD TO THE SAME VESSELS IN OTHER PORTS.

Vessel	Port of Departure	Intermediate Ports	Cargo	Estimated Rat Population in Cork	Left Cork for	Rat Findings in Latter Port	REMARKS
1.—S.S. Perast	River Plate	St. Vincent, C. V. Islands	Maize	Nil	Cardiff	Nil. 7/4/37	Confirmatory
2.—S.S. Koumoundouros	River Plate	Dakar	Maize	9	Cardiff...	15. 23/4/37	Findings in Cardiff the result of fumigation with SO ₂
3.—S.S. Kafirstan	Freemantle	Durban and Dakar	Wheat	2 to 3	Cardiff...	Nil. 20/5/37	Confirmatory. Holds free of evidence in Cork but poop definitely infested
4.—S.S. Kepwick Hall	Port Pirie	Durban and Las Palmas	Wheat	8	Belfast	(See Remarks) 19/4/37	Confirmatory letter from Dr. Thompson (Port M.O.) confirming our finds, based on No. of rats trapped
5.—S.S. Kepwick Hall	Port Pirie	Durban and Las Palmas	Wheat	8	Cardiff...	2. 25/5/37	Confirmatory. Proceeded from Belfast to Cardiff. Three rats trapped in Belfast. Leaving 5 according to our estimation. Findings in Cardiff based on dead rats found after fumigation. Cardiff findings result of fumigation
6.—S.S. Olympus	Montreal	Limerick	Wheat	1 or 2	Cardiff...	17. 19/6/37	Confirmatory. 3 mice trapped in Belfast
7.—S.S. Bridgepool	Freemantle	Durban, Dakar and Dartmouth	Wheat	No Rats	Belfast	No Rats. 14/6/37	Confirmatory
8.—S.S. Bridgepool	Freemantle	Durban, Dakar and Dartmouth	Wheat	15-20 Mice	Cardiff...	No Rats	Confirmatory
9.—S.S. Fanad Head	Montreal	Dublin and Waterford	Wheat	15-20 Mice	Glasgow	Mice found. 24/6/37	Confirmatory.
10.—S.S. Amicus	Rosario	Las Palmas	Maize	Nil	Cardiff...	Nil. 21/7/37	Confirmatory.
11.—S.S. Sneaton	Rosario	St. Vincent	Maize	Nil	Newport	Nil. 5/8/37	Confirmatory.
12.—S.S. Bolton Hall	Freemantle	Durban and Dakar	Wheat	Nil	Belfast	Nil. 29/7/37	Confirmatory.
13.—Africa Thalassini	Rosario	Dakar	Maize	21/22	Cardiff...	24. 22/9/37	Confirmatory. Cardiff findings after fumigation.
14.—S.S. Pillarde Larrinaga	Bunbury	Freemantle, Dakar	Wheat	18/12	Cardiff...	See Remarks	Letter from P.M.O., Cardiff "informed that whilst at Barry vessel fumigated with SO ₂ with negative results" (22/10/37).
15.—S.S. Axco	Buenos Aires	St. Vincents C.V. Islands	Maize	1/3	Cardiff...	Nil. 10/11/37	Confirmatory.
16.—M.V. Tolhen	Adelaide	Dakar	Wheat	2-4 Rats 15-25 Mice	Liverpool	Rats 6/8 Mice 22/11/37	Confirmatory. Letter from P.M.O. Mice findings in Cork probably due to stale excreta.
17.—S.S. Hollinside	San Pedro (River Plate)	St. Vincent (Cape Verde)	Maize	Nil	Cardiff...	Nil. 12/2/38	Confirmatory.
18.—M.V. King Edwin	Wallaroo	Las Palmas	Wheat	1/2	Cardiff	Nil. 9/8/38	Confirmatory.
19.—S.S. Dunaff Head	St. John's, N.B.	Dublin	Wheat	Nil	Belfast	Nil. 21/3/38	Confirmatory.
20.—S.S. Trafalgar	Galveston	Pensacola	Wheat	Nil	Barry	Nil. 19/3/38	Confirmatory.
21.—S.S. Kenbane Head	St. John's, N.B.	Belfast and Dublin	Wheat & Timber	Nil	*	Nil. 21/3/38	*Advance advice from P.M.O. Belfast. Confirmatory.
22.—S.S. Demekerton	Portland Ore	Panama Canal and Port Royal (Jamaica)	Wheat	Nil	Limerick & N'port Mon.	Nil 5/4/38 (Newport)	Confirmatory.

Vessel	Port of Departure	Intermediate Ports	Cargo	Estimated Rat Population in Cork	Left Cork for	Rat Findings in Latter Port	REMARKS
23.—S.S. Cleanthis	—	San Miguel (Azores)	Maize	12/15	Newport	10. 25/4/38	Fumigated with SO ₂ at Newport—Findings recorded after fumigation. Confirmatory.
24.—S.S. Ilandillo	Texas	Charleston	Wheat	6/10	Swansea	See Remarks. 8. 19/5/38	Agrees with findings in Cork (See letter). Confirmatory.
25.—S.S. Frances Dawson	Albany, N.Y.	—	Maize	1/3	Barry	Nil. 26/5/38	Fumigated with SO ₂ at Barry. No rats found. (See letter) ? Confirmatory.
26.—S.S. Bengore Head	Montreal	Belfast	Wheat	None	Belfast	None. 29/6/38	Confirmatory.
27.—S.S. Newton Ash	Montreal	Direct	Maize	None	Cardiff	None. 6/7/38	Confirmatory. (F.I.C.N. fumigation at Cardiff)
28.—S.S. Treliske	Freemantle	Durban and Dakar	Wheat	32/40	Cardiff	7. 6/7/38	...
29.—S.S. Constantinos Loubondis	Rosario	St. Vincent, Cape Verde Islands	Maize	3/4	Cardiff	Nil. 30/7/38	Regard this as confirmatory. (Not fumigated).
30.—Theoskposti	Villa Constitution (R. Plate)	St. Vincent (C. V. Islands)	Maize	Nil	Cardiff	Nil. 10/8/38	Confirmatory.
31.—S.S. Masunda	Geelong (S. Australia)	Durban and Dakar	Wheat	Nil	Barry	See Remarks	Not inspected at Barry, as exemption certificate (granted at Sydney) still valid.
32.—S.S. Frances Dawson	Three Rivers P.Q. Canada	Direct	Wheat	Nil	Barry	Nil. 1/11/38	...
33.—S.V. Archibald Russell	P. Pine (Australia)	Direct	Wheat	16/20	Falm'th	22.* 25/11/38	After fumigation 22 dead rats recovered. Confirmatory.
34.—S.S. Melmore Head	Montreal	Three Rivers and Dublin	Wheat	Nil	Glasgow	Nil. 21/12/38	Confirmatory.
35.—Aristides L Goulardris	San Nicolas, San Pedro	Montevideo, Bahia and St. Vincent C.V.I.	Maize	Nil	Barry	Nil. 14/1/39	Confirmatory.
36.—S.S. Theomiter	San Lorenzo	Direct	Maize	4/6	Cardiff	2. 19/1/39	Confirmatory. Note d. rats found in No. 3 hold and poop as designated by Mr. Kerin. Confirmatory.
37.—S.S. Leo Dawson	San Nicolas	Direct	Maize	Nil	Cardiff	Nil. 19/1/39	...
38.—S.S. Glenmoor	Sydney	Capetown	Wheat & Bran	Nil	Swansea	Nil. 6/2/39	Confirmatory.
39.—S.S. Ingola	Sorel P.Q.	Direct	Wheat	Nil	Newport	Nil. 8/2/39	Confirmatory.
40.—S.S. Recina	Portland, Oregon	Panama Canal and St. Thomas, Virgin Islands	Wheat	Nil	Cardiff	Nil. 11/2/39	Confirmatory.
41.—S.S. Tordene	Vancouver	Panama Canal and Port Royal	Wheat	Nil	Cardiff	Nil. 23/3/39	Confirmatory.
42.—S.S. Szent Gellert	River Plate	Dakar	Maize	Nil	Swansea	Nil. 25/3/39	Confirmatory.
43.—S.S. Kella	San Pedro	Rosario	Wheat	Nil	Newport	Nil. 23/3/39	Confirmatory.
44.—S.S. Neptunian	Freemantle	Capetown and Dakar	Wheat	Nil	South Shields	Nil. 19/3/39	Confirmatory.
45.—S.S. Amarylus	San Nicolas	St. Vincent, C.V.I.	Maize	5 to 7	Cardiff	18. 8/5/39	Not confirmatory.
46.—S.S. P.L. Cambanis	San Nicolas, Rosario	Montevideo and Dakar	Maize	0 to 2	Barry	10. 15/5/39	Note at Barry (fumigated) 3 rats found in bridge space and 3 in bunker space. These were not examined at Cork. Confirmatory.
47.—S.S. Constantinos Loubondis	San Pedro	Montevideo	Maize	9 to 13	Newport	12. 18/7/39	...

has acquired a high degree of skill in estimating the rat population of vessels arriving here. It may, perhaps, be helpful to mention that these estimates are based on such evidence as droppings (their age and nature being taken into consideration), feet marks, runs, harbourage and so on. In this (and other matters) I have been especially indebted to Dr. Greenwood Wilson, not only in his capacity as Medical Officer of Health of the Port of Cardiff, but also as Honorary Secretary of the Association of Port Health Authorities of the British Isles. The great majority of grain boats discharging here leave for Cardiff and consequently most of our enquiries have been directed to that port.

Particulars of these surveys, together with the corresponding findings in the other reports are set out in Table 89. It will be noted the numbers included fall short of that aimed at, but this was due to the outbreak of the war, which compelled the suspension of this arrangement. The following note on rat harbourage on board ship has been contributed by Mr. Kieran:

From reports I have received, coupled with the results of my inspections on board several types of vessels both foreign and coastwise, it appears to me that rat proofing at sea is not wholly understood and I will endeavour to convey my idea of certain classes of rat proofing in the following brief lines. We will first inspect a vessel just out of a shipbuilder's yard and examine their method of proofing. In the bridge space underneath the saloon and navigating officer's quarters all waste pipes from wash-hand basins in cabins, bathrooms, w.c.'s, pantry sinks, etc., usually run flush with the steel deckhead and are meticulously cased in by timber planking, the control wires to and from the bridge telegraphs are similarly boxed, likewise the waste pipes in the fore and aft bunkers underneath the engineers and petty officers' quarters amidships. Sounding pipes to the various circular double bottom tanks, fitted well out in the wings of the holds and bracketed to the athwartship steel bulkheads are often boxed in with timber of such dimensions that the inside area would carry a half dozen or more sounding pipes. Fresh water supply tanks, whether fitted in bunkers or after tween decks have a casing fitted around them extending from tank top to the deckhead. After a voyage or two through the negligence of longshore men and coal trimmers, these timber casings appear the worse for wear and a little later lengths of these casings become sprung, giving access to the interior. A wandering rat finds its way aboard, either in a crate of cargo or via the gangway, finding a nesting place already awaiting him to walk into—viz. these defective wood casings. Other rodents find their way on board and before long (six weeks being the period of gestation) a young colony arrives and we find the vessel heavily infested with unlimited harbourages. When it is found necessary to work on the control wires from the bridge telegraph, one or two planks of its protective casing are removed here and there along its length and as the casing presumably remains open for some hours or days, rodents in adjacent harbourages seek a longer run and transfer to a new abode inside the telegraph casing. When the latter is finally boxed up the rodents being unable to find an exit to their food and water supplies diligently attack the wood planking and gnaw their way out, leaving another harbourage running for a length of forty or fifty feet. To obviate these harbourages and at the same time offer simple protection to waste and sounding pipes I would recommend the abolition of the present complete boxing-in arrangement and the construction of a skeleton framework which would afford not only ample protection against fractures in these castings but would at the same time prevent rat nesting and breeding. Casings for telegraph control wires should be of light metal, made in suitable lengths and bolted to the deckhead. Single planks, sufficiently broad to completely cover faces of sounding pipes would, in my opinion, be sufficient protection. F.W. tanks must be free from wood casings of any description and should, if possible, have a clearance of 6 inches from the deck on which it is built and from any bulkhead or shell plating.

Water Supply.

Drinking and boiler water is obtained directly from the public supply. There are upwards of 80 such hydrants available in this port. As mentioned in the section dealing specifically with the supply to the City, the water is subjected to systematic sampling and bacteriological examination throughout the year. 253 samples were examined during the year and the results indicated that the water was of first-class quality. Of this number, 25 were taken direct from hydrants at the quayside.

Sanitation of Coasting Vessels.

I am able to report a definite improvement in the sanitary arrangements on board the majority of the vessels using this port. This improvement is, in my opinion, entirely due to the assiduity of your officer, Mr. Kieran, in following the cases of defect which have come to his notice. Notwithstanding the relaxation which has had to be admitted as a consequence of the outbreak of hostilities, it is satisfactory to note that a very fair standard of cleanliness has been maintained on board the majority of the vessels. A large number of coasters are now being pressed into service which had not previously visited this port and an effort is being made to ensure that reasonable standards are maintained on these also.

Measures against Rodents Ashore.

During the year intensified measures against rodents in the mills and stores abutting the quays have resulted in further minimising the danger of the introduction of rodent plague into the port. The majority of the premises around the port have signed yearly contracts with a Dublin firm, who specialise in the destruction of rodents, whilst those who have no such contract, themselves, lay down poison from time to time. The effects of this poisoning campaign cannot be determined in numbers, but if 25 per cent. of the treatments are effective, it will prevent a recurrence of the heavy rodent infestation discovered around the quays in 1937. The contract with these specialists in rodent destruction calls for a poison treatment of the stores and mills every three weeks, and in the event of reinvasions, further baits are laid down between the periodical treatments. Trapping for specimen rodents is routine, and the same procedure for the bacteriological examination is still in operation namely: a preliminary examination by the Port Medical Officer or the Chief Veterinary Officer, and if found necessary a further examination of the specimen by the bacteriological department of the University College, Cork.

During the year 182 rodents have been trapped ashore and 166 post mortem examinations held, all of which proved negative.

Rat Proofing Ashore.

It must be realised that the proofing of some of the old premises abutting the quays has not proved very successful in one or two cases on account of the apparent honeycombed condition of the limestone supporting walls which are from three to four feet in thickness and the

ease with which these pests can burrow through these walls when the old runs have been cement proofed. The hollow sound of some of the old stone flagged floors give rise to the belief that the soft ground beneath must be similarly burrowed, and it appears in one instance that runs underneath the floors extend inwards for a distance of at least 60 feet before breaking the surface through soft ground at the rear. With such conditions prevailing, rat proofing would have to be undertaken on a large scale, and it is even doubtful then, whether these premises would be efficiently proofed on account of their structure.

Bad fitting doors, unprotected skylights, etc., contribute in a minor degree to the continual infestation of this type of premises, but the huge quantities of grain in sacks lying for long periods are the main attraction for rodents, as they provide for these pests nesting places which are very difficult to detect, for the rodent, ever suspicious, builds breeding places as high as five sacks high from the ground and as far into the centre as it is possible to get. As it is impossible therefore to spread bait close around this breeding area, the only means left is to surround these large sacks of grain with poison baits and to try and drop as many as possible from the top through the tiers of sacks towards the centre, and to abundantly distribute baits around the sources of their water supply. A few excellent methods of rat proofing stores intended for the storage of sacks have been noticed, these consist of a wired-in cage arrangement with either one or two doors, but unfortunately the most important point in preventing rodents gaining access to the roofs for water have been overlooked when building this framework and consequently its effectiveness has been considerably reduced, doors not being fitted with self closing springs remain open during the working day and stray rodents find no difficulty in gaining admittance. The defects in these structures have been pointed out to the charge hands from time to time, but I regret to say no serious effort has been made to have them remedied. Mill managers and managers of grain stores have been satisfied with the results of the poisoning campaign as it has saved them money and at the same time lightened the burdens of those who administer Public Health in the Port Sanitary area.

Cargo Traffic.

The principal imports are coal, maize, wheat, timber, machinery, steel, phosphate, car parts, cement. The principal exports, cattle, pigs, sheep, bacon, butter and other dairy and agricultural products.

Table 90.—Return of Shipping entering the Port since 1928.

Year	Number of Arrivals			Tonnage		
	Foreign	Coastwise	Totals	Foreign	Coastwise	Totals
1928	442	1,492	1,934	261,612	488,158	749,770
1929	260	1,567	1,827	283,759	525,231	808,990
1930	297	1,636	1,933	364,650	617,783	982,433
1931	272	1,566	1,838	345,430	647,327	992,757
1932	315	1,375	1,690	352,459	602,509	954,968
1933	399	893	1,292	371,757	462,047	833,804
1934	404	817	1,221	407,188	463,169	870,357
1935	285	1,015	1,300	323,631	525,062	848,693
1936	249	1,053	1,302	277,779	583,922	861,701
1937	250	1,098	1,348	300,730	594,396	895,126
1938	239	1,084	1,323	280,403	598,114	878,517
1939	202	1,074	1,276	274,660	521,801	796,461

Vessels not shipping or transshipping cargo :—

Transatlantic Liners 167 Tons 2,135,778

Other Vessels 86 Tons 103,166

Table 91.—Summary of Inspections and Defects.

	Number of Arrivals	Tonnage of Arrivals	Number Inspected	Number Reported Defective	No. of Vessels on which Defects Remedied	Number of Vessels reported as having or having had during voyage Infectious Diseases on Board
<i>Foreign</i>						
Steamers						
Motor	202	274,660	185	16	10	—
Sailing						
Fishing						
Total Foreign	202	274,660	185	16	10	—
<i>Coastwise</i>						
Steamers						
Motor	1,074	521,801	842	82	42	—
Sailing						
Fishing						
Tot. Coastwise	1,074	521,801	842	82	42	—
Total Foreign and Coastwise	1,276	796,461	1,027	98	52	—

Table 92.—Return of Vessels entering the Port which were dealt with by the Department each month during 1939.

Month	Foreign	Coastwise	Total
January	21	74	95
February	16	72	88
March	22	73	95
April	13	70	83
May	15	81	96
June	19	70	89
July	28	67	95
August	16	67	83
September	5	74	79
October	8	81	89
November	9	59	68
December	13	54	67
Totals	185	842	1027

Table 93.—Return of Imports and Exports, 1929-39.

Year	Imports (tons)	Exports (tons)
1929	815,347	86,246
1930	906,340	120,610
1931	861,782	85,704
1932	890,377	104,884
1933	710,149	89,319
1934	784,174	66,606
1935	743,939	63,219
1936	788,545	73,673
1937	829,704	78,530
1938	802,238	65,147
1939	900,644	105,659

The particulars contained in the above tables were kindly supplied by the Manager of the Cork Harbour Board.

Passenger Traffic.

Particulars have been compiled from figures supplied by the Shipping Companies.

(A) Cobh :—

Outward to Boston and New York	....	6,305
Inward from Boston and New York	....	5,883
Outward to Germany, France and England	....	(No Record)
Inward from Germany, France and England	....	(No Record)
Total	....	12,188

(B) Cork :—			
Outward to England and Scotland	....	....	20,645
Inward from England and Scotland	....	....	20,058
Total			40,703

Total number of passengers landed and embarked at
Cobh and Cork 52,891

Passenger Services suspended on the outbreak of war.

Table 94.—The nationalities of the several types of vessels entering the port which were dealt with by the Department during 1939.

Nationality	Steam	Motor	Sailing	Total
United States	10	....	....	10
Belgian	1	....	....	1
British and Irish	862	60	....	922
Danish	5	....	....	5
Dutch	5	12	....	17
French ....	....	1	....	1
Estonian	1	....	....	1
Finnish	3	....	1	4
German	18	....	1	19
Greek	10	....	....	10
Hungarian	2	....	....	2
Italian	2	....	....	2
Latvian	1	....	....	1
Norwegian	9	2	....	11
Panamanian	2	....	....	2
Russian ....	....	....	....	....
Spanish	1	....	....	1
Swedish	15	....	....	15
Yugo Slav	3	....	....	3
Total	950	75	....	1027

Venereal Disease notified on board vessels entering the Port since 1937.

Year	Gonorrhoea	Soft Chancre	Conditions other than Venereal	Syphilis	Total
1937	3	1	1	—	5
1938	1	1	3	—	5
1939	2	1	—	12	15

Importation of Parrots (Temporary) Regulations, 1930.

Four parakeets were destroyed under the provisions of the above Regulations.

Small Pox (Importation of Clothing, etc.) Temporary Regulations, 1927.

These Regulations still remain in force. 5 tons 11 cwts. of second-hand clothing and cleaning rags (mainly imported from Great Britain) were disinfected in the Corporation plant by high steam pressure. Certificates were issued in connection with same.

Public Health (Foreign Meat) (Ireland) Regulations, 1908.

There has been no importation of foreign meat of either Class I. or Class II. and no reports have been transmitted by the Customs Officer to the Medical Officer of Health in regard to meat unclassified.

Countries and Ports of Origin of Vessels arriving in this Port during 1939.

<i>Algeria</i>	....	Bona, Sfax, Algiers.
<i>Argentina</i>	....	Buenos Aires, San Lorenzo, San Nicolas, San Pedro, La Rosario, Villa Constitution, Sante Fe, La Plata.
<i>Australia</i>	....	Freemantle, Port Lincoln, Sydney.
<i>Canada</i>	....	Montreal, Halifax, Three Rivers, St. John's, Sorel, Fort William.
<i>Spain</i>	....	Huelva.
<i>U.S.A.</i>	....	New York, Boston, Vancouver, Portland, Norfolk, Baltimore, Philadelphia, Albany. <i>Panama Canal Zone</i> —Colon, Cristobal.
<i>West Africa</i>	....	Dakar, Freetown.
<i>South Africa</i>	....	Capetown, Durban.
<i>Brazil</i>	....	Bahia, Rio de Janeiro.
<i>Uruguay</i>	....	Montevideo.
<i>British West Indies</i>	....	Port Royal.
<i>Canary Islands</i>	....	Las Palmas.
<i>Cape Verde Islands</i>	....	St. Vincent.
<i>Leeward Islands</i>	....	St. Thomas.
<i>European Ports</i>	....	Aalborg, Antwerp, Bergen, Bremen, Copenhagen, Stockholm, Gotenborg, Hamburg, Aijn, Riga, Rotterdam, Abo, Fécamp, Koivisto, Brahested.

Sanitary Defects and Nuisances dealt with during 1939.

Dirty Focsles	....	....	....	....	....	96
Dirty Store Rooms	....	....	....	....	....	25
Foul Water Tanks	....	....	....	....	....	2
Foul Water Closets	....	....	....	....	....	49
Accumulation of Offensive Rubbish	....	....	....	....	....	4
Damp Quarters	....	....	....	....	....	28
Leaky Deckheads	....	....	....	....	....	11
Defective Bulkheads	....	....	....	....	....	2
Defective Port Frames and Glass Discs	....	....	....	....	....	26
Defective Ventilators	....	....	....	....	....	5
Defective Flooring Boards in Focsles	....	....	....	....	....	2
Defective Lockers	....	....	....	....	....	15
Defective Hawse Pipes	....	....	....	....	....	7
Defective Spurling Pipes	....	....	....	....	....	2
Defective W.C. Fittings	....	....	....	....	....	10
Inadequate Lighting	....	....	....	....	....	—
Verminous Quarters	....	....	....	....	....	23
Total						307
Verbal Notices Given	....	....	....	....	....	120
Memos Left on Board	....	....	....	....	....	105
Letters to Owners	....	....	....	....	....	8
Statutory Notices Served	....	....	....	....	....	5
Total						238

Table 95.—RATS TRAPPED ASHORE.

Month	No.	Mus Decumans	Mus Alexandrinus	Mus Rattus	Species Unknown	No. of P.M. Exam.*
Jan.	14	8	2	4	—	13
Feb.	16	9	7	—	—	13
March	19	6	11	1	1	15
April	14	—	12	—	2	8
May	14	1	13	—	—	8
June	16	—	16	—	—	7
July	27	4	19	4	—	11
August	22	7	11	4	—	14
Sept.	11	2	9	—	—	5
Oct.	14	5	7	2	—	6
Nov.	9	—	8	—	1	5
Dec.	6	—	5	—	1	1
Total	182	42	120	15	5	106

* All P.M. Examinations proved Negative.

Table 96.—RATS TRAPPED ON VESSELS.

Month	No.	Mus Decumans	Mus Alexandrinus	Mus Rattus	Species Unknown	No. of P.M. Exam.*
January	—	—	—	—	—	—
Feb.	—	—	—	—	—	—
March	4	—	4	—	—	4
April	11	—	—	9	2	10
May	1	—	—	1	—	1
June	3	—	—	3	—	3
July	4	—	—	4	—	3
August	—	—	—	—	—	—
Sept.	—	—	—	—	—	—
October	—	—	—	—	—	—
Nov.	4	—	—	4	—	3
Dec.	22	—	11	11	—	19
Totals	49	—	15	32	2	43

* All P.M. Examinations proved Negative.

Section X—Housing.

Houses erected and let	....	....	....	....	2306
Houses erected and bought out	....	....	....	....	62
Houses erected and still repaying mortgage			....	....	265
Houses in process of erection	....	....	....	....	141

Assistance to private persons and Public Utility Societies :—

(a) Under Section 6 of the Housing Acts, 1925–28	£4685	0	0
(b) Under the Housing Acts	£10,405	0	0

Assistance under Small Dwellings Acquisition Acts :—

(a) To houses built by Public Utility Societies	£103,125	0	0
(b) To houses built by Private Individuals	£58,347	10	0

Amount expended by Corporation on Working Class Dwellings,
£1,041,000 0s. 0d.

The following note has been contributed by Mr. G. A. Byrne, B.E.,
M.R. San. I., F.I. Hsg., Housing Superintendent :—

During the year 1939–40, 206 houses at Farranferris were completed and tenancies allocated as follows :—113 to deserving applicants from overcrowded or unsuitable habitations, and 93 to persons whose homes were closed or demolished as unfit for human habitation. The rents of these houses were all fixed on a differential basis and range between 3/6 and 18/-. It is of interest to note that this is the first occasion on which we have applied the “differential” system to houses let to applicants as distinct from slum clearance cases.

Of the 242 houses at Baker’s Lane, 101 have been completed and let as follows :—11 to applicants and 90 to persons from “unhealthy” houses. Here again the rents range between 3/6 and 18/- and again the “differential” system is used for applicants.

The following, Table 97, shows the number and rents of the various houses built by the Corporation to date :—

Location	No. of Houses	Year Built	Weekly Rents (Including Rates)
Madden's Buildings	76	1886	4/4 to 6/6
Ryan's	16	1888	2/4 to 5/-
Horgan's	126	1891	2/8 to 6/5
Roche's	128	1892	2/11 to 6/8
Corporation	33	1900	5/-
Sutton's	46	1905	5/9 to 6/7
Kelleher's	50	1906	5/7 to 7/5
Barrett's	89	1906	4/3 to 6/7
MacCurtain Villas	76	1922	11/4 to 11/10
McSwiney	40	1923	11/-
French's	30	1923	10/- and 10/6
Capwell	148	1928	*8/6, 10/6 and 14/-
Turner's Cross	152	1930	*8/-, 10/- and 13/-
Turner's Cross Extension	168	1932	11/6 and 12/6
Gurranabraher 1	252	1934	†2/6 to 8/-
" 2	25	1935	2/6 to 8/-
" 3	83	1935	8/6
" 4	78	1936	†2/6 to 8/6
" 5	82	1936	†3/6 to 9/6
Common's Road 1	48	1936	9/6, 10/6 and 13/6
" 2	122	1936	†3/6 to 9/6
" 3	64	1937	†3/6 to 12/6
" 4	42	1937	10/6 and 12/6
Greenmount 1	86	1936	†3/- to 8/-
Baker's Lane 1	178	1938	12/6 and 15/-
" 2	88	1938	†3/6 to 12/6
" 3	11	1940	†3/6 to 18/-
" 4	90	1940	†3/6 to 18/-
Farranferris 1	113	1939	†3/6 to 18/-
" 2	93	1939	†3/6 to 18/-
Total	2633		*Exclusive of Rates. †Differential Rents.

The remaining 141 houses of the 242 houses at Baker's Lane should be completed before June, 1940.

A scheme of 200 houses is proposed at lands held by the Presentation Brothers at Greenmount. In order to obtain a clear title to this land it was necessary to make a compulsory purchase order, and all the details in this connection have been completed and the final arbitration before Mr. McAulay, Department of Justice, has been held.

"Official Representations" were made by the Medical Officer of Health about two further areas in the North West, Wise's Lane and Sive's Lane areas. Compulsory Purchase Orders were prepared on these schemes and passed by the Corporation, but due to war conditions it was decided to postpone proceedings for some time and to proceed against the worst houses as individually unfit houses.

Following representations under the 1931 Act to the City Manager by the Medical Officer of Health, Closing or Demolition Orders were obtained on the following houses :—

Batchelors' Quay, Nos. 2, 6, 7, 8, 17.
 Brocklesby Street, Nos. 7 and 8.
 Cattlemarket Avenue, No. 19.
 Corbett's Lane, No. 11.
 Cockpit Lane, Nos. 16 and 17.
 Douglas Street, Nos. 16 and 49.
 Frenche's Quay, Nos. 6 and 8.
 Clankittane Square, Nos. 1, 18 and 19.
 Goulding's Terrace, Nos. 2, 3, 4, 6, 7, 8, 9, 10, 11 and 12.
 Grattan Street, Nos. 11, 14 and 34.
 Little Market Street, Nos. 1 and 2.
 Mary Street, No. 10.
 St. Nicholas Place, Nos. 1 and 2.
 St. Paul's Avenue, Nos. 16, 17 and 18.
 Wolfe Tone Street, No. 57.
 Moriarty's Lane, Nos. 4, 5, 7, 8, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24.
 Henry Street, No. 30.
 Broad Lane, Nos. 13, 14, 15, 16 and 17.
 Daly's Row, Nos. 2, 3 and 4.
 Walsh's Lane, Nos. 2, 3, 4, 5, 6, 7, 8 and 9.
 Collins Lane, Nos. 6, 7, 8, 9 and 10.

Slum Clearance Orders became effective on :—

St. Joseph's Court, Nos. 1, 2, 3, 4, 5, 6 and 7.
 Fitzgerald's Alley, Nos. 1, 1a, 2, 3, 4 and 5.

From these 93 houses 173 families, totalling 963 persons were moved either to Farranferris or Baker's Lane sites, and of these 93 families comprising 461 persons were moved from the City to the County area.

Since June, 1934, 611 houses have been closed or demolished in the City, and from these houses 993 families, comprising 5440 persons have been rehoused in Corporation houses.

Table 98.—Showing the number of houses built since 1934 and the number of families rehoused and the effect on the population of the City :—

Location	Number of Houses	City Area		County Area	
		Families	Persons	Families	Persons
Gurranabraher	520	516	2923	4	22
Commons Road	276	10	79	266	1643
Greenmount	86	86	430	—	—
Baker's Lane	367	249	1482	118	668
Farranferris	206	—	—	206	1123
Totals	1455	861	4914	594	3456

The standard of neatness and cleanliness in houses and gardens continues.

The Rent Collection continues steady and the Differential Rent system has now been extended to some of the application houses.

Table 100.—NUMBER OF TENANTS PAYING RENT AT

SCHEME	18/-	17/6	17/-	16/6	16/-	15/6	15/-	14/6	14/-	13/6	13/-	12/6	12/-	11/6	11/-	10/6	10/-	9/6	9/-	8/6	8/-	7/6	7/-	6/6	6/-	5/6	5/-	4/6	4/-	3/6	3/-	2/6
Gurranabraher No. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92	5	10	5	13	9	17	11	27	17	21	25
" No. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	1	1	1	-	-	1	1	3	1	3	-
" No. 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	36	2	4	1	3	-	5	1	6	5	7	5
" No. 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	2	3	2	3	2	10	1	2	3	4	25	1	-
Greenmount	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	1	5	4	10	2	4	6	6	13	7	-
Commons Rd. No. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	-	1	2	1	8	2	12	7	8	9	6	35	-	-
" No. 3	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	1	1	1	1	1	3	3	-	1	6	4	3	5	5	25	-	-
*Farranferris No. 1	15	-	-	-	7	3	3	6	2	4	3	15	6	4	17	17	8	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-
" No. 2	-	1	-	-	-	-	4	2	1	-	-	3	1	-	-	-	3	2	-	2	8	1	1	1	5	3	4	7	4	39	-	-
Baker's Lane No. 2	-	-	-	-	-	-	-	-	-	-	-	7	1	-	2	2	5	1	1	1	1	2	8	3	7	1	3	10	3	30	-	-
" No. 4	2	-	-	-	-	-	1	-	-	1	1	1	1	3	-	1	2	1	1	3	5	5	2	6	9	2	7	3	5	28	-	-

• Application Houses

Section XI.—School Medical Service.

Medical Inspection for the year ended 31st December, 1939.

Number of Children Inspected.

1.— <i>Particular Inspections</i>	4,566
(a) <i>Routine</i>	3,990
(1) <i>Entrants</i>	1,558
(2) <i>Intermediates</i>	1,432
(3) <i>Leavers</i>	1,000
(b) <i>Special</i>	576
2.— <i>Other Inspections</i> , e.g., re-inspection of children referred for observation ; of children treated for eye, ear, nose and throat defects since previous examination ; of those who previously refused treatment of such defects and of those who signed for treatment by private practitioners	2,963

Table 101.—Return of Defects found by Medical Inspection for the year ended 31st December, 1939.

	Disease or Defect	Routine Inspections	Special Inspections
		Number of Defects	Number of Defects
Skin	Ringworm—Scalp	4	1
	Ringworm—Body	11	1
	Scabies	13	1
	Impetigo	31	—
	Other Diseases (non-Tuberculous)	12	—
Eye	Defective Vision (Strabismus excluded)	289	211
	Strabismus	141	68
	Blepharitis	61	8
	Conjunctivitis	39	35
	Corneal Opacities	7	2
	Trachoma	1	4
	Other Conditions	31	21
Ear	Defective Hearing	14	6
	Otorrhoea	56	60
	Other Conditions	9	26
Nose and Throat	Enlarged Tonsils	228	104
	Adenoids	77	28
	Enlarged Tonsils and Adenoids	324	92
	Other Conditions	27	17
Miscellaneous	Enlarged Cervical Glands (non-Tuberculous)	98	20
	Sceptic Sores, Minor Injuries, etc	75	2

Table 102.—Return of Defects found by Medical Inspection for the year ended 31st December, 1939—continued

	Disease or Defect	Routine Inspections	Special Inspections
		Number of Defects	Number of Defects
Heart and Circulation	Heart—Organic	21	29
	Heart—Functional	5	4
	Anaemia	62	22
Lungs	Bronchitis	58	24
	Other Diseases (non-Tuberculous)	9	10
Nervous System	Chorea	2	3
	Epilepsy	3	1
	Other Conditions	9	6
Tuber- culosis	Pulmonary	—	—
	Glands	2	4
	Bones and Joints	1	—
	Other Forms	—	1
Deformities	Infantile Paralysis	—	1
	Surgical Tuberculosis	1	—
	Rickets	2	—
	Congenital	6	—
	Other Forms	4	—
	Hernia	8	2
	Rickets	2	1
	Other Diseases and Defects	88	13

DENTAL DEFECTS.

	No. of Inspections				No. found to require Treatment
Routine	4566	....	....	2675
Special	367	....	....	367
Total	4933	....	....	3042

Defective Nutrition.

Percentage of mal-nourished children 10.7

Uncleanliness.

Percentage of Verminous Children—Boys and Girls 3.8
 " " " Girls 6.6
 " " " Boys 1.4

Table 103.—Percentage of Conditions of Uncleanliness.

	Head Nits Present	Head Pediculi Present	Body Pediculi Present
Girls	5.1	1.9	0.9
Boys	0.2	0.4	0.8

Unsatisfactory Clothing and Footwear.

Boys and Girls 10%
 Girls 9.5%
 Boys 10.5%

**Percentage of Principal Diseases and Defects found by
 Routine Medical Inspection.**

Disease or Defect	Percentage
Defective Nutrition	10.7
Verminous Conditions	3.8
Skin (non-Tuberculous Disease)	1.8
Teeth	58.6
Eye :—	
(a) Defective Vision requiring Refraction	15.1
(b) Other Diseases and Defects	3.5
Ear	2.0
Nose and Throat :—	
(a) Enlarged Tonsils and Adenoids	15.8
(b) Other Conditions	0.7
Heart and Circulation	2.2
Lungs (non-Tuberculous Disease)	1.7
Tuberculosis	0.08
Nervous System	0.3
Deformities	0.3
Other Diseases and Defects	2.2

"Following up" of Children found to be suffering from Physical Defects.

In connection with children found to be suffering from physical defects :—

Number of children visited	....	....	2,430
Number of visits paid	....	....	3,221

In connection with those who refused treatment or failed to keep appointments given for treatment :—

Number of children visited	....	....	101
Number who consequently obtained treatment	....	....	13

In connection with children for whom glasses have been prescribed :—

These are "followed up" by the School Medical Officer when visiting the school; parents are notified *re* need for change of glasses where necessary and are visited by the Nurses when it is found that the glasses are not worn. To children who suffer from squint and amblyopia of the squinting eye, instructions regarding the "education" of the squinting eye are given by the School Medical Officer and Nurses, and the importance of compliance with such instructions is explained to the parents.

Teachers are notified of all children for whom glasses have been prescribed and special notifications are sent in case of high myopes. Instructions to parents and children regarding preventive measures against the progress of the myopia are given at school, clinic or the homes.

Myopic Defects :—

Number of myopes refracted	88
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Nature of Defect :—

Myopia	18
Simple Myopic Astigmatism	6
Compound Myopic Astigmatism	32
Mixed Astigmatism	....	....	32

Degree of Myopia :—	Children under 7	Children over 7
3 to 5 Dioptres	—	23
5 to 10 Dioptres	1	13
10 to 15 Dioptres	2	5
Over 15 Dioptres	—	1

Table 104.—The Average Height and Weight of Children Inspected and Comparison with the Average Standard. (Baldwin and Woods Tables).

BOYS.

Age last Birthday Years	No. of Children Examined	Average Height in ins.	Average Weight in lbs.	Average Standard Weight for Height	Percentage over or under Weight according to Standard
5	196	42	41	39	5.1% over
6	384	44	44	43	2.3% over
7	73	47	49	50	2% under
8	327	48	54	53	1.8% over
9	386	50	57	58	1.7% under
12	218	55	75	74	1.4% over
13	265	57	78	82	4.9% under

GIRLS.

Age last Birthday Years	No. of Children Examined	Average Height in ins.	Average Weight in lbs.	Average Standard Weight for Height	Percentage over or under Weight according to Standard
5	178	42	40	39	2.5% over
6	418	43	43	41	4.9% over
7	78	46	47	47	—
8	226	48	52	52	—
9	301	49	55	55	—
12	193	56	76	78	2.6% under
13	182	58	84	88	4.5% under

Rheumatic Children.

Special investigation of rheumatic suspects was continued.

The number of children examined as "routines" was 3,990, the number of suspects 189 and the number positive 110.

The number of children examined as "specials" was 576, the number of suspects 125 and the number positive 84.

The following Tables give the number of positive cases classified according to the basis adopted in 1935.

Table 105.—I.—ROUTINE EXAMINATIONS.

GIRLS.

AGE GROUP	Number Examined	Number of Suspects	Number Rheumatic	Percentage Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Entrants	771	26	11	1.4	—	4	—	—	3	1	3
Intermediates	646	38	22	3.4	2	3	—	2	10	1	4
Leavers	451	43	34	7.5	2	9	—	3	9	5	6
Total	1,868	107	67	3.6	4	16	—	5	22	7	13

BOYS.

AGE GROUP	Number Examined	Number, of Suspects	Number Rheumatic	Percentage Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Entrants	787	21	8	1.0	—	1	—	—	3	1	3
Intermediate	786	36	21	2.7	2	9	—	—	5	2	3
Leavers	549	25	14	2.5	1	5	—	—	2	3	3
Total	2,122	82	43	2.0	3	15	—	—	10	6	9

BOYS AND GIRLS.

Number Examined	Number of Suspects	Number Rheumatic	Percentage Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
3,990	189	110	2.7	7	31	—	5	32	13	22

II.—SPECIAL EXAMINATIONS.

	Number Examined	Number of Suspects	Number Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Girls	330	47	34	6	12	1	3	3	2	7
Boys	246	78	50	8	14	—	7	12	4	5
Total	576	125	84	14	26	1	10	15	6	12

The following gives the percentage of signs and symptoms found in rheumatic children and their personal and family history as regards rheumatism.

Endocarditis	....	....	....	....	20.1
Carditis	....	....	....	....	2.6
Suspicious Heart Signs	....	....	....	....	34.0
Suspicious Nervous Signs and Symptoms	....	....	....	....	15.5
Suspicious Constitutional Signs and Symptoms	....	....	....	....	30.9
Unhealthy or Enlarged Tonsils	....	....	....	....	39.7
Tonsils removed	....	....	....	....	18.5
Growing Pains and Sore Throats	....	....	....	....	11.8
Growing Pains	....	....	....	....	25.8
Recurrent Sore Throats	....	....	....	....	14.9
History of Acute Rheumatism	....	....	....	....	40.2
History of Chorea	....	....	....	....	12.4
History of Acute Rheumatism and Chorea	....	....	....	....	2.1
Family History of Rheumatism	....	....	....	....	22.7

Treatment of Defects.

The following figures do not include treatment of children who attend City Schools but who reside in the County and are therefore referred to the County School Medical Service for treatment.

Enlarged Tonsils and Adenoids.

Operative Treatment.

Under the School Medical Service Scheme	By Private Practitioners	Total
360	19	379

Other Defects and Diseases of Nose and Throat.

Treated at :—

Intern Department of Hospitals associated with S.M.S. Scheme	20
Extern Department of Hospitals associated with S.M.S. Scheme	7
Intern and Extern Departments of Hospitals associated with S.M.S. Scheme	3
Total number treated	30

Defective Vision.

Submitted to Refraction		Glasses Prescribed			Change of Glasses not necessary	Glasses not Prescribed
Under the School Medical Service Scheme	By Private Practitioners	Under the School Medical Service Scheme	By Private Practitioners	Total		
555	12	535	12	547	17	3

Other Diseases and Defects of the Eye.

Treated at Intern Department of Hospitals associated with S.M.S. Scheme	8
Treated at Extern Department of Hospitals associated with S.M.S. Scheme	97
Treated at Intern and Extern Departments of Hospitals associated with S.M.S. Scheme	5
Total number treated	110

Ear Diseases and Defects.

Treated at Intern Department of Hospitals associated with S.M.S. Scheme	13
Treated at Extern Department of Hospitals associated with S.M.S. Scheme	115
Treated at Intern and Extern Departments of Hospitals associated with S.M.S. Scheme	3
Total number treated	131

Minor Ailments.

Treated at the School Clinic	1,250
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Dental Defects.

Treated under the School Medical Service Scheme	Treated by Private Dentists	Total
1,683	23	1,706

Nature of Dental Treatment.

Extractions	Temporary Teeth	4,651
	Permanent Teeth	2,094
	Total	6,745
Fillings	Temporary Teeth	234
	Permanent Teeth	1,280
	Total	1,514
Scalings		223

General Anaesthetics have been administered to 480 children.

Children residing in the County and attending Schools within the Borough.

Referred to the County School Medical Service for Treatment :—

No. referred for Nose and Throat Defects	....	120
No. referred for Eye Defects	....	101
No. referred for Ear Defects	....	8
No. referred for Dental Defects	....	426

Children referred to Tuberculosis Clinics.

	County Borough Clinic		County Clinic	
	Suspects	Contacts	Suspects	Contacts
Number referred	21	69	—	7
Positive	8	—	—	—
Negative	8	50	—	1
Arrested Disease	1	15	—	—
Retained for Observation	2	15	—	—
Did not attend	2	4	—	6

Review of Defects Treated under the School Medical Service Scheme.

Teeth.—All treatments show an increase of 528 on those for last year. The improvement in the nature of the treatments is highly satisfactory—conservative treatment being markedly increased. Fillings of temporary teeth have increased by 186 and of permanent teeth by 602. The total number of fillings for the year is over twice that of last year.

Skin.—433 cases were treated at the School Clinic.

Minor Injuries and Septic Sores.—634 cases were treated at the School Clinic.

Ear.—131 cases were treated at the Hospitals associated with the Scheme. These consisted chiefly of otitis media; there were 4 cases of mastoiditis (2 of which had operative treatment), 1 of auricular cyst and 1 of pre-auricular adenitis.

Nose and Throat.—360 cases of enlarged tonsils and adenoids were operated on (9 of these also had antra wash outs) and 30 cases of other diseases were treated at the Hospitals associated with the Scheme. The latter consisted chiefly of sinusitis (3 of which had operative treatment), 2 cases of deflected septum were also operated on.

Eye.—Defective Vision.—555 cases were refracted at the Hospitals associated with the Scheme. Glasses were supplied by Messrs. T. L. Egan & Co., Ltd., and were given free of charge to 412 children whose parents were in poor financial circumstances.

External Eye.—110 cases were treated at the Hospitals associated with the Scheme and 183 cases of minor diseases were treated at the School Clinic. The former included 1 case each of congenital cataract, adherent lencoma and meibomian cyst, which were operated on. Five cases of squint also had operative treatment and 11 had fusion training. Other cases treated included trachoma 5, Spring catarrh 2, iritis 1, iritis and keratitis 1, ulcers 13, herpes ophthalmicus 1 and trauma 8.

Trachoma.

It is very satisfactory to record that there have been no new cases of trachoma. One suspect was sent for diagnosis last September. She still suffers from a mild folliculitis of the lids, which is rather suspicious, and continues to attend bi-weekly for treatment and observation.

Of the old cases, one attended for treatment until March and the other until November, when they left school. The latter was then very much improved but the former still suffered from active disease. The remaining three cases attended regularly—two for prophylactic treatment and observation once a month, and the other for tri-weekly treatments until July and bi-weekly treatments since then, she is responding well to treatment.

Review of General Working of the Scheme.

Friendly relations between the Teachers and Staff of the School Medical Service continue. I desire to thank the Teachers for their co-operation, which has been so helpful in expediting medical inspections in the Schools. My thanks are also due to the Nurses and Clerk for their conscientious work, especially in connection with children failing to keep treatment appointments. The Clerk has brought these children to my notice regularly and the Nurses have been tireless in following them up.

The School Clinic, as a centre for treatment of minor ailments and for advice, has been well attended—the total attendances for the year being 8,308.

School Meals.

A mid-day meal is given in the following schools :—

Angel Guardian, Mayfield ; the Cathedral ; Central District ; Christian Brothers, Blarney Street ; Presentation Brothers, Greenmount ; South Presentation Monastery ; St. Joseph's Presentation Monastery ; North Presentation Convent Senior Girls' ; North Presentation Convent Infants' ; South Presentation Convent Infant and Senior Girls' ; South Presentation Convent Infant Boys' ; St. Marie's of the Isle ; St. Vincent's Convent ; St. Nicholas' Girls', Blackpool ; St. Nicholas' Boys', Blackpool ; Strawberry Hill, Girls' ; Strawberry Hill, Boys' ; St. Francis', Girls' ; St. Francis', Boys' ; SS. Peter and Paul's Senior Girls' ; SS. Peter and Paul's, Infant Boys' ; SS. Peter and Paul's, Infant Girls' ; St. Patrick's, Senior Girls' ; St. Patrick's, Senior Boys' ; St. Patrick's, Infants' ; St. Mary's, Eason's Hill ; St. Mary's of the Rock and Clochar Christ an Rí.

The meal in all cases consisted of bread and butter or jam, or a currant bun, with cocoa in 17 schools and milk in 11. Milk is given on all school days in 3 schools only, to the pupils of the sixth standard only in one school (cocoa being given to the pupils of the lower standards), and during the Summer months only in another (cocoa being given during the other months). In the remaining six schools the milk is given for varying periods according to the adequacy of the grant.

The grant for the meal was £2,100 and the number catered for 3,897. It is regrettable that the grant does not cover the cost of milk (which has no substitute in a child's diet) for all meals—their nutritive value would be greatly increased thereby and their preparation would be simplified also.

Breakfast and dinner was given to approximately 90 pupils of the North Presentation Convent Senior Girls' and Infants' and to approximately 20 of St. Vincent's Convent Schools at the Communities' expense.

Fresh Air Holidays for Children.

A fortnight's holiday at the seaside for debilitated children was provided by the Committee of the Cork Children's Fresh Air Fund. The benefit of the holiday was evident in many cases.

Hygiene of Schools.

Reports on individual schools as they were visited during the year were made to the Medical Superintendent Officer of Health. The following improvements were made :—

Sanitation :—The insanitary trough closets of the Girls' Department of the North Presentation Convent Infants' School were replaced by nine modern pedestal closets with separate flushing cisterns. The lavatory building (which is situated indoors) was also modernised—the lighting and ventilation having been improved, the floor tiled and the walls painted.

Heating :—The heating of the Girls' Department of the North Presentation Convent Infants' School improved by the installation of a larger boiler.

Lighting :—The lighting of one class room of St. Vincent's Convent School very much improved by a large roof light.

Division of Class Rooms :—One large class room of the North Presentation Convent Senior Girls' School divided by a wooden and glass partition.

Painting and Distempering of School Premises :—The entire interior of St. Francis', Girls' ; Strawberry Hill, Girls' ; Strawberry Hill, Boys' ; Summerhill and South Presentation Monastery. Fourteen class rooms of St. Vincent's Convent ; two class rooms and one cloakroom of St. Nicholas', Cove Street ; one class room of St. Luke's ; four class rooms of the North Presentation Convent Senior Girls' ; one class room of the North Presentation Convent Infants' ; and one class room, corridor and staircase of St. Marie's of the Isle. The walls, seats and covered shelter of the North Presentation Convent Senior Girls' and Infants' playgrounds. The out-offices of St. Marie's of the Isle and North Presentation Convent Senior Girls.'

Repairs :—New roof to South Presentation Monastery ; new floors in two class rooms of the North Presentation Senior Girls' and repairs to the porch of St. Luke's.

Modern Desks Procured :—North Presentation Convent Senior Girls' 24 ; North Presentation Convent Infants' 26 ; and Strawberry Hill Girls' 4.

It is disappointing that these improvements do not include cloak-rooms which, in many instances, are inadequate or unsuitable. Apart from suggestions made in individual reports regarding the need for erection of new cloakrooms, I also suggested that rather unsatisfactory class rooms should be converted into cloak-rooms in schools which were likely to have the numbers on roll decreased when the two new schools at Turner's Cross were opened. Though there was a substantial decrease of numbers in the schools concerned, it was found that the suggestion was not practicable as the evacuation of these class rooms would result in overcrowding in others.

It is to be hoped that the defective cloakrooms will soon receive attention and that their standard will improve to the same extent as the accommodation and sanitation in the County Borough Schools have within recent years.

Table 106—Floor and Cubic Space per pupil in Average Attendance.

NATIONAL SCHOOL	Average attendance	Sq. feet per pupil in average attendance	Cub. feet per pupil in average attendance
Angel Guardian, Mayfield	136.6	8.1	113.4
St. Mary's, Eason's Hill	307.4	9.4	112.4
St. Patrick's Infants'	241.1	10.0	175.4
St. Mary's of the Rock	310.2	10.1	171.7
The Cathedral	393.8	10.2	120.9
St. Nicholas' Boys', Blackpool	437.9	10.2	140.6
South Presentation Convent Infant Boys'	172.5	10.5	115.4
Clochar Chriost an Rí	414.9	10.7	131.3
North Presentation Convent Infants'	560.4	10.9	178.7
St. Marie's of the Isle	1,190.0	11.0	180.4
Bun Scoil Gobnatan	262.3	11.3	338.2
St. Francis' Boys'	180.0	11.4	130.7
North Monastery	676.4	11.4	186.5
St. Nicholas' Girls', Blackpool	293.2	11.5	165.1
Strawberry Hill Girls'	148.4	11.6	137.6
St. Vincent's Convent	1,373.8	12.1	176.0
North Presentation Convent, Senior Girls'	731.9	12.1	187.7
Strawberry Hill Boys'	133.0	12.2	146.0
Scoil Neasain Naomhtha	444.6	12.2	160.1
Christian Brothers, Blarney Street	444.0	12.4	211.4
Presentation Brothers, Greenmount	524.6	12.4	266.9
SS. Peter and Paul's Infant Girls'	146.7	13.2	198.0
SS. Peter and Paul's Senior Girls'	146.2	13.4	401.7
St. Joseph's Monastery, Mardyke	348.8	13.9	195.7
SS. Peter and Paul's Infant Boys'	140.0	14.0	209.8
St. Patrick's Senior Boys'	238.4	14.4	187.7
South Presentation Monastery	412.3	15.0	224.7
St. Francis' Girls'	141.0	15.6	187.2
South Presentation Convent Infant and Senior Girls'	1,125.4	16.3	179.4
Mainistir Chriost an Rí	264.3	16.3	188.1
St. Patrick's Senior Girls'	205.1	16.7	274.7
Ard Scoil Gobnatan	151.7	17.9	533.9
An Mhodh-Scoil	134.2	21.4	641.6
Scoil Ghaedhealach na mBuachailli	67.1	27.8	833.4
St. Finbarr's, Dean Street	41.6	37.5	450.0
St. Ann's Shandon	24.5	42.9	685.1
St. Mary's Shandon	25.2	53.3	852.1
St. Luke's	35.4	61.6	1,141.9
Central District	46.2	68.0	1,087.8
Summerhill	31.4	68.8	1,375.8
St. Nicholas', Cove Street	46.4	83.3	1,085.9

Section XII.—Meteorology

I am indebted to Prof. H. N. Walsh, University College, for the following particulars concerning the weather conditions during the year, and more especially for the trouble which he has gone to to bring up to date the Tables which follow.

Table 107.

Rainfall in inches for each quarter and for each year, 1901–1939.

Year	I.	II.	III.	IV.	Total
1901	10.07	7.62	10.75	10.12	38.56
1902	9.29	7.80	7.31	12.88	37.28
1903	16.89	8.80	14.95	12.13	52.77
1904	13.63	5.71	10.41	7.47	37.22
1905	11.70	6.59	9.82	9.14	37.25
1906	9.46	5.76	5.58	9.03	29.83
1907	4.06	10.10	7.40	16.02	37.58
1908	7.67	5.28	10.16	9.53	32.64
1909	7.61	9.94	2.62	9.74	29.91
1910	10.70	7.24	8.64	11.98	38.56
1911	5.94	6.89	7.87	18.47	39.17
1912	13.46	7.07	9.30	7.05	36.88
1913	13.92	10.32	7.73	12.49	44.46
•1914	13.72	3.60	9.85	15.20	42.42
1915	11.62	6.27	9.26	15.68	42.83
1916	8.68	9.19	7.37	21.11	46.35
1917	8.75	6.93	9.40	7.25	32.33
1918	14.75	5.59	13.37	13.73	47.44
1919	10.78	7.11	6.77	6.97	31.63
1920	11.75	14.12	8.90	13.24	48.01
1921	8.04	2.22	8.71	9.90	28.87
1922	13.08	5.45	10.57	8.15	37.25
1923	14.41	5.38	10.71	10.54	41.04
1924	12.32	9.76	11.82	17.66	51.56
1925	10.31	10.49	8.43	11.92	41.15
1926	15.42	8.19	4.68	9.55	37.84
1927	12.20	6.16	11.45	16.06	45.87
1928	1.14	13.86	8.31	17.35	55.66
1929	11.28	6.72	7.27	20.91	46.18
1930	14.98	5.91	12.67	14.35	47.91
1931	12.30	10.35	8.34	13.27	44.26
1932	8.54	8.11	7.31	13.62	37.58
1933	8.61	8.74	5.22	6.47	29.04
1934	9.66	7.13	11.49	13.75	42.03
1935	5.33	9.33	9.98	10.97	35.61
1936	16.77	4.51	9.13	9.88	40.29
1937	19.67	6.12	7.90	8.52	42.21
1938	9.22	7.38	7.99	15.14	39.73
1939	13.01	4.94	7.43	16.53	41.91

•Since 1914 the returns in Tables 80, 81, 82 and 83 are taken from observations made at University College, Cork.

The mean temperature for 1939 was 51° F. The warmest day was June 6th, with a maximum shade temperature of 84° F. The warmest night was August 29th, with a minimum shade of 64° F. The coldest day was January 11th with a maximum shade temperature of 33° F. The coldest night was December 24th, with a minimum shade temperature of 23° F.

TABLE 108.—Temperature at Cork (in the Shade) for 56 years ending 1939.

YEAR	January			February			March			April			May			June			July			August			September			October			November			December			Mean Temper- ature of Year
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean				
	Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees						
1884	55-31-45.5			54-31-46.5			54-30-45.5			57-34-48.5			68-37-55.5			73-40-59.0			72-45-61.5			74-44-62.2			71-45-58.5			60-34-52.2			60-28-45.2			55-28-41.3	51.8		
1885	54-27-41.7			50-27-43.5			54-30-43.5			62-30-48.2			61-34-52.0			72-42-59.2			80-43-62.0			74-46-60.5			65-36-55.2			57-35-46.7			58-31-46.7			54-25-39.5	49.9		
1886	52-23-38.0			52-28-41.5			57-25-41.5			65-32-46.7			65-33-50.5			76-45-57.7			79-44-59.5			76-45-60.5			65-39-56.5			64-37-51.5			58-29-45.0			50-22-39.0	49.0		
1887	54-30-43.0			54-27-43.5			58-25-42.0			62-26-44.5			70-35-52.5			81-47-62.5			80-47-64.2			76-42-60.7			69-39-55.0			61-28-48.2			54-24-42.0			55-25-39.7	50.0		
1888	54-26-43.0			52-26-38.2			56-26-40.7			59-28-46.5			68-39-53.2			73-39-57.0			70-40-57.5			74-42-60.0			66-37-55.5			63-31-50.5			58-27-48.0			56-28-44.7	49.6		
1889	58-26-43.0			57-27-42.2			59-29-44.7			58-32-46.7			68-40-48.0			77-46-58.0			77-45-60.0			72-43-58.7			70-38-57.2			59-32-48.2			60-29-48.2			56-29-44.2	49.9		
1890	55-29-44.0			54-29-42.5			58-28-45.2			61-29-48.0			70-39-53.0			73-45-58.0			72-43-58.4			72-40-58.0			75-42-50.2			66-34-53.0			60-24-44.6			52-25-39.0	50.3		
1891	53-23-40.3			56-31-45.7			61-22-42.1			60-31-46.9			73-34-50.0			78-40-58.6			75-44-59.0			73-40-58.0			71-39-56.5			61-29-48.5			53-28-42.6			55-26-44.0	49.4		
1892	55-20-39.2			55-25-42.3			57-24-40.0			62-27-47.2			66-37-53.1			73-39-56.2			73-44-59.0			70-44-60.0			68-37-55.0			56-28-45.0			56-31-47.2			53-27-42.7	49.7		
1893	53-21-40.5			53-24-42.5			60-34-47.5			67-31-51.5			69-43-56.5			80-46-59.8			74-46-61.2			77-45-61.7			71-33-55.2			63-31-49.0			59-30-43.0			53-26-42.5	50.9		
1894	53-11-39.5			56-28-44.6			57-33-44.8			62-37-49.0			67-34-50.0			71-38-57.0			72-45-69.0			71-44-57.5			66-36-53.5			66-33-49.5			59-28-46.0			54-29-44.5	49.6		
1895	47-23-36.5			48-22-34.5			63-27-44.0			61-31-48.2			70-33-53.0			74-40-58.7			70-44-58.7			70-43-59.0			71-46-58.9			62-28-46.0			56-30-45.0			54-26-42.5	48.7		
1896	53-26-43.0			55-32-45.2			56-31-46.5			65-34-50.0			74-33-56.2			82-47-60.5			75-42-60.0			73-41-57.5			68-41-55.0			65-30-43.2			53-29-42.0			53-23-40.0	49.9		
1897	50-22-37.5			56-32-46.0			55-31-44.0			58-29-46.0			70-35-51.0			75-41-59.0			77-43-61.0			80-45-59.5			67-38-53.2			61-37-52.2			58-32-47.2			53-29-44.0	50.1		
1898	55-32-45.8			54-26-41.5			58-28-41.0			60-31-47.7			67-34-51.0			74-39-56.8			78-44-59.5			73-46-69.5			72-40-58.7			64-34-51.3			59-30-44.0			55-27-45.4	50.3		
1899	53-26-40.1			52-29-43.0			64-22-43.0			63-29-46.6			65-34-50.6			78-41-59.5			76-45-60.0			76-46-62.3			71-31-54.1			60-29-47.9			55-39-47.2			51-24-40.0	49.5		
1900	54-27-39.5			52-14-35.4			51-25-38.6			65-33-47.8			68-36-50.7			75-42-56.8			75-45-60.1			71-42-57.0			67-38-55.1			63-32-48.1			57-29-41.7			52-26-42.3	47.9		
1901	49-24-37.8			49-22-35.8			51-34-38.9			59-39-45.0			68-34-51.9			72-37-54.2			76-46-60.2			75-41-57.5			67-39-54.0			61-31-47.0			54-19-41.2			51-26-37.5	46.8		
1902	50-25-40.6			52-19-36.6			57-30-44.0			57-29-44.0			67-31-47.3			74-38-53.1			74-40-56.0			68-40-56.2			68-36-53.6			62-34-57.4			55-30-43.5			52-25-39.0	46.8		
1903	50-22-39.5			52-29-42.7			52-29-41.1			57-27-43.7			69-36-50.4			70-35-54.0			74-43-56.6			68-40-54.3			64-36-52.4			60-28-46.2			55-24-41.0			48-22-37.0	46.4		
1904	49-27-38.5			49-24-37.2			52-25-39.1			60-32-44.4			65-32-48.6			69-49-54.2			73-40-57.3			69-41-56.4			63-38-52.5			63-35-50.2			57-25-43.5			52-28-43.0	47.4		
1905	51-29-42.0			55-23-41.6			53-30-42.6			58-33-46.4			68-36-52.6			75-42-58.0			76-45-60.0			70-42-55.5			68-39-53.6			62-26-45.0			52-23-39.0			50-30-43.3	48.3		
1906	50-28-41.1			47-25-38.0			58-30-42.6			59-29-44.3			64-33-49.7			75-42-57.8			74-44-59.0			73-44-59.8			71-40-55.0			63-29-49.0			55-29-44.0			53-20-39.0	48.4		
1907	49-18-39.6			52-25-38.4			57-32-45.8			64-30-45.4			65-35-48.7			68-49-53.5			78-41-58.6			68-43-57.0			68-38-57.0			60-28-45.9			52-28-49.8			49-27-39.5	47.5		
1908	52-23-38.5			53-31-43.0			52-29-40.4			56-26-43.4			68-37-52.0			71-40-55.7			80-46-59.5			74-44-58.2			67-38-53.5			64-33-53.0			56-29-45.7			51-30-41.1	49.0		
1909	51-28-40.3			52-22-39.6			56-23-40.6			61-31-46.8			66-33-51.0			69-41-54.0			71-45-58.6			79-43-59.7			65-37-52.3			64-26-49.0			55-20-38.2			50-24-38.3	47.4		
1910	50-25-38.5			53-27-39.0			55-30-41.0			60-29-43.9			68-34-51.4			66-44-55.5			70-45-57.5			69-46-57.0			68-37-54.5			62-34-49.0			53-24-39.0			50-28-41.5	47.3		
1911	50-27-39.2			53-22-39.7			56-29-40.3			59-27-40.9			70-37-52.2			72-45-56.7			79-44-61.0			73-45-60.2			73-39-54.3			57-31-48.0			53-26-39.9			49-27-39.3	48.0		
1912	50-27-40.8			50-32-40.0			57-32-41.8			61-32-47.0			64-36-51.2			66-32-52.9			74-44-55.7			61-36-51.3			68-36-53.5			61-31-50.1			59-33-49.2			54-30-44.3	48.1		
1913	52-27-40.6			54-32-43.6			55-34-45.0			59-29-44.7			64-36-49.5			75-38-54.0			74-47-55.9			74-40-58.8			72-44-57.6			61-32-51.5			60-34-48.9			56-33-45.6	49.6		
1914	54-43-48.5			55-50-53.0			55-50-52.4			60-53-56.9			62-55-58.2			70-59-64.4			69-53-64.8			67-63-64.6			66-60-62.6			62-55-58.4			58-50-53.4			53-46-50.6	47.2		
1915	50-37-43.5			45-25-35.0			58-35-46.5			50-35-42.5			62-40-51.0			64-40-52.0			62-42-52.0			65-43-54.0			62-40-51.0			55-37-46.0			48-28-38.0			40-28-34.0	44.9		
1916	50-36-43.3			47-30-39.1			45-30-37.8			49-36-42.6			60-34-47.4			55-40-47.8			66-40-53.4			65-49-57.7			60-40-50.0			56-36-46.4			47-32-40.4			40-24-32.5	44.8		
1917	52-22-36.0			50-24-35.0			52-28-39.25			59-30-41.5			70-32-50.25			66-40-52.25			68-40-55.4			70-46-56.12			66-26-51.25			56-36-40.8			58-30-44.5			56-26-38.4	45.7		
1918	50-22-36.0			54-32-43.0			56-26-41.0			6																											

THE UNIVERSITY OF CHICAGO

LIBRARY

1950

1951

1952

1953

1954

1955

1956

1957

1958

1959

1960

1961

1962

1963

1964

1965

1966

1967

1968

1969

1970

1971

1972

1973

1974

1975

TABLE 109.—Showing Monthly Rainfall in Cork for 62 Years ending 1939.

1006

1906																																																															
Months	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	
Jan.	2.28	6.31	1.70	1.33	3.91	6.63	6.18	4.01	3.09	4.70	5.41	2.81	6.00	2.30	3.35	5.98	6.15	5.73	1.14	3.77	7.51	4.55	3.55	5.68	1.86	8.38	5.61	3.59	5.81	1.27	2.81	1.86	3.07	0.80	5.01	7.40	5.93	3.45	2.64	3.97	4.94	4.94	5.94	2.57	0.41	1.94	8.04	5.64	9.18	4.73	5.28	2.75	7.07	1.67	5.19	3.58	4.47	0.84	7.51	0.04	4.59	5.79	
Feb.	2.80	4.77	4.78	5.48	4.86	6.88	7.35	6.81	3.70	1.41	0.41	1.47	3.16	0.63	4.74	3.16	2.23	2.35	1.99	2.67	1.33	5.98	4.16	1.79	0.34	3.85	5.68	1.60	3.55	1.98	2.31	2.25	5.61	1.82	4.76	2.70	6.48	7.44	4.30	1.45	0.12	3.88	1.67	2.38	4.47	8.53	2.97	6.45	4.74	2.68	3.48	8.10	1.03	2.69	0.17	2.25	0.34	2.95	6.05	4.64	3.13	4.28	
March	0.95	1.13	3.38	5.20	2.00	1.78	5.91	2.75	5.91	2.18	3.14	1.55	4.55	1.53	1.24	0.16	1.84	3.19	2.99	6.99	0.95	1.84	0.78	3.58	1.77	5.84	2.58	7.49	1.33	0.93	3.38	2.77	2.86	3.99	2.69	4.00	5.53	0.72	2.14	3.85	3.99	2.48	4.74	2.91	2.22	3.98	1.31	0.21	1.50	4.79	7.33	0.50	0.88	8.01	3.18	2.78	4.47	1.54	3.13	5.95	1.51	2.83	
April	4.55	3.70	2.84	1.84	5.09	2.66	1.84	4.30	2.45	1.13	1.78	4.55	1.32	2.81	0.95	1.54	6.52	2.95	0.43	5.39	1.71	3.06	1.68	4.48	3.22	2.01	3.64	3.44	1.40	2.70	1.47	4.75	1.88	1.77	0.54	3.59	1.37	1.50	3.35	1.12	1.73	2.30	5.54	0.54	1.08	4.38	2.44	5.51	3.04	1.21	5.60	1.46	0.09	2.74	2.48	2.58	3.53	3.31	1.58	3.50	0.16	2.08	
May	4.84	1.83	0.86	1.70	2.31	1.35	1.56	3.05	2.80	1.04	3.60	4.50	3.95	2.65	2.74	2.01	0.08	0.77	0.16	1.69	2.38	3.94	2.65	1.88	2.00	2.69	3.15	0.86	3.24	3.66	2.81	1.54	1.84	1.44	1.16	4.57	1.40	2.53	2.91	0.85	2.75	5.18	3.36	1.66	1.07	0.90	3.62	4.35	2.87	2.38	2.60	4.09	1.92	4.36	4.57	1.98	0.71	1.55	1.94	4.43	1.08		
June	6.74	8.47	1.91	4.79	3.15	2.39	0.75	1.47	1.13	0.59	4.23	1.78	2.86	3.45	2.78	1.68	2.10	3.35	2.16	3.08	2.02	1.37	4.26	1.58	3.13	3.95	3.14	2.58	1.64	3.19	1.20	2.79	3.66	2.60	5.17	2.09	0.88	2.16	3.10	1.77	1.11	0.93	3.22	0.02	0.86	0.14	3.70	0.63	2.85	2.57	5.60	1.21	2.15	3.27	1.70	1.50	1.65	5.31	1.55	0.68	4.43	1.78	
July	1.85	4.24	1.08	1.85	4.30	3.50	2.75	1.52	5.90	1.43	5.16	4.81	2.28	1.55	3.14	4.70	1.90	3.64	4.71	0.96	1.26	1.85	1.64	0.66	2.71	5.85	4.65	1.96	3.01	2.64	1.71	0.51	2.16	2.03	5.08	0.20	3.00	5.23	2.40	1.57	4.43	1.49	3.96	3.77	3.21	2.37	3.81	2.77	1.07	4.55	1.13	4.09	2.79	2.73	2.67	2.00	2.00	0.50	5.07	3.21	3.97	4.20	
August	5.06	2.86	1.07	4.95	3.20	4.12	0.86	4.07	2.78	2.19	3.34	1.11	2.28	3.66	7.75	5.44	4.93	4.03	1.45	4.52	4.16	2.71	1.04	2.31	3.43	4.40	3.99	6.53	1.49	2.14	2.95	0.43	4.75	2.99	3.21	2.27	3.70	2.22	3.70	6.54	2.55	3.73	2.28	3.50	3.91	5.58	2.15	3.03	2.50	3.68	5.04	2.16	5.36	4.74	2.28	1.64	3.21	2.88	0.58	1.68	1.85	1.58	
Sept.	2.44	3.25	1.80	2.38	2.05	5.02	2.40	5.49	3.92	2.48	0.98	1.87	2.69	3.12	3.64	1.34	1.40	1.30	5.46	2.07	3.04	1.15	0.81	8.34	1.55	4.22	4.00	1.41	0.40	1.13	4.04	0.46	1.37	2.56	1.01	5.27	3.07	1.94	1.12	2.99	0.41	2.15	2.66	1.35	1.41	0.95	5.56	2.63	0.51	3.42	2.28	0.82	4.52	0.82	3.46	1.58	5.98	0.80	2.88	1.11	2.17	1.05	
Oct.	3.97	0.39	2.49	3.99	4.90	2.85	1.72	2.14	6.13	2.75	2.94	3.87	1.40	6.70	3.37	2.55	6.39	2.62	3.25	5.43	7.79	1.71	5.88	2.59	1.22	6.14	3.95	1.95	4.38	5.00	2.83	6.18	4.32	3.98	3.52	6.04	1.31	5.64	0.13	3.51	2.59	0.51	3.90	2.00	1.95	4.91	4.22	5.31	2.87	3.48	6.43	3.22	5.12	1.12	3.78	1.09	3.50	2.10	1.53	2.48	4.84	4.53	
Nov.	1.88	0.65	5.24	6.95	4.67	4.03	3.50	3.21	2.42	2.53	7.31	2.51	4.94	4.36	8.18	2.11	5.30	2.88	1.61	5.36	7.01	3.38	5.03	1.79	0.33	2.74	1.55	4.81	3.01	4.88	2.60	0.47	4.91	4.19	1.27	4.45	2.66	3.48	9.04	1.68	3.31	1.90	4.16	5.16	1.85	3.46	5.56	2.48	6.20	4.15	5.33	6.91	5.95	0.85	1.66	2.72	1.33	4.58	3.46	3.57	5.93	9.00	
Dec.	2.24	1.70	1.13	5.50	4.85	1.08	3.84	2.04	4.77	3.22	7.50	3.53	3.92	6.77	3.04	5.99	3.08	10.93	6.06	4.35	3.44	15.11	0.55	5.94	3.37	4.00	3.00	6.34	1.91	6.04	3.68	4.86	4.31	6.04	2.15	1.41	10.73	6.56	3.94	2.66	7.10	4.58	5.12	1.84	4.34	2.27	7.48	4.73	0.48	8.43	5.61	0.78	3.07	2.25	8.17	1.66	8.92	4.29	4.59	2.47	4.35	3.00	
Total	37.98	41.45	30.74	45.86	45.94	42.18	37.85	40.81	44.76	45.46	13.14	40.59	56.38	70.44	33.95	40.33	49.98	52.22	44.59	51.64	45.50	40.00	40.17	47.51	53.37	30.01	41.40	30.90	35.86	51.54	28.58	58.40	36.34	35.35	35.88	44.18	42.42	42.83	45.45	35.34	33.47	44.18	62.48	01.28	87.37	25.47	04.51	36.41	15.37	84.45	87.55	66.45	18.47	01.44	16.37	57.25	04.12	03.51	65.40	29.42	21.30	73.47	51
No. of Raindays	199	222	179	220	215	222	205	185	212	150	195	176	201	198	191	170	168	194	179	221	192	182	224	191	187	250	214	182	186	194	207	184	240	209	244	211	213	198	211	182	210	189	217	178	201	214	225	197	209	220	231	198	197	205	175	223	196	194	197	207	200		
Greatest month's rainfall 1974 inches in December, 1887.																																																															
Least month's rainfall 0.12 in June, 1912.																																																															
Greatest number of consecutive days with rain was 31, ending February 12th, 1898.																																																															
Greatest number of days without rain (absolute drought) was 16, ending July 30th, 1887.																																																															

Greatest month's rainfall 17.72 inches in December, 1899.

Least month's rainfall 0.02 in June, 1921.

Greatest number of consecutive days with rain was 31, ending February 12th, 1918.

Greatest number of days without rain (absolute drought) was 26, ending July 3rd, 1887.

SUNSHINE.

The total number of hours of bright sunshine received in 1930 was 1,478.1; in 1931 the amount was 1,313.8; in 1932 the amount was 1,282.5; in 1933 the amount was 1,465.8 hours; in 1934 the amount was 1,480.1 hours; in 1935, 1,442.0 hours; in 1936, 1,357.5 hours, in 1937, 1,259.4 hours; in 1938, 1,350.9 hours; and in 1939, 1,393.1 hours.

Table 110.

Mean Temperature (°F.) for each quarter and for each year from 1901 to 1939, inclusive.

Year	I.	II.	III.	IV.	For whole year
1901	37.5	50.4	57.2	41.9	46.8
1902	40.4	48.1	55.3	43.3	46.5
1903	41.1	49.4	54.4	41.4	46.6
1904	38.3	49.1	55.4	45.6	47.1
1905	42.1	52.4	56.9	42.4	48.4
1906	40.6	50.6	57.9	44.0	48.3
1907	41.3	49.1	57.5	42.1	47.5
1908	40.6	50.4	57.0	46.6	48.6
1909	40.2	50.6	56.9	41.8	47.5
1910	39.5	50.3	56.3	43.2	47.4
1911	39.7	51.3	58.5	42.4	47.5
1912	40.9	50.4	53.5	47.9	48.2
1913	43.0	49.4	57.4	48.7	49.6
1914	40.3	51.4	56.7	43.5	48.1
1915	38.3	49.2	52.7	39.2	44.9
1916	40.0	45.9	53.7	39.7	44.8
1917	36.7	48.1	54.2	43.9	45.7
1918	40.0	51.3	55.0	42.0	47.0
1919	37.6	48.5	54.4	40.0	45.5
1920	40.3	48.9	52.6	42.0	45.9
1921	39.6	48.3	54.3	42.7	46.2
1922	40.2	49.9	57.8	46.4	48.6
1923	44.0	50.7	58.4	43.8	49.2
1924	42.6	51.4	56.7	47.6	49.6
1925	43.3	51.8	57.9	44.5	49.4
1926	45.1	52.1	61.1	44.0	50.6
1927	44.1	52.2	58.5	45.5	50.1
1928	44.7	52.0	58.0	46.4	50.3
1929	43.2	52.3	59.4	45.7	50.1
1930	40.7	52.9	57.8	46.5	49.5
1931	42.3	53.1	58.2	46.7	50.1
1932	43.2	52.1	59.7	46.4	50.4
1933	42.3	54.5	62.1	44.9	51.0
1934	42.4	52.8	59.8	47.6	50.6
1935	44.1	52.7	59.4	44.2	50.1
1936	42.8	52.6	59.9	47.1	50.5
1937	42.6	53.8	59.2	44.9	50.1
1938	45.3	52.3	58.4	46.6	50.6
1939	44.6	53.9	59.8	45.9	51.0

BAROMETER.

The mean reading for 1939 was 29.96 inches; the highest was 30.76 inches on the 13th and 14th March. The lowest was 28.73 inches on the 16th January. (Observations made at 9 a.m., G.M.T. only).

Appendix I.—Nutrition.

In conformity with the request of the Minister (in P.H. Circular 1/1940) the following observations on the subject of nutrition have been incorporated in this report.

Few words in the English language are more often misused than the word "nutrition." It is commonly, indeed usually, employed as a synonym for "food"; and sometimes it is spoken of as a condition of body depending on food. Actually it is the sum of the processes—respiration, mastication, digestion, absorption, circulation, assimilation and excretion—concerned in the growth, maintenance and repair of the living body as a whole or of its constituent parts. Its purpose is to establish and sustain the structure and function of all organs and parts; to keep, in short, the mechanism of the body in good repair and running order, having first ensured its proper construction. Nutrition is not, therefore, a condition of body, but the function that keeps it in condition, that is, in health. And since health is that condition of body in which all organs or parts are sound and perform their functions duly, easily and satisfactorily, it follows that the purpose of nutrition is to maintain health and to prevent, as far as its limitations permit, that disturbance of structure and of function or organs or parts of the body which is "disease."

Sir ROBERT McCARRISON.

This observation is a fitting introduction to a discussion on the subject of nutrition. We are reminded of the many pitfalls which await the superficial observer who may be inclined to imagine that nutrition is a question purely and simply of food and that the effects of malnutrition may be measured and documented from the more or less obvious physical characteristics of the individual under observation. There is no yardstick by which we can measure nutrition and of the many systems which purported to do so there is scarcely one of which it can be said that it has not fallen into disrepute. Some of the earlier systems, for example, attempted to assess nutrition on a physical basis by correlation of weights and heights and working out a ratio based on the measurements of large numbers of individuals. It is obvious, however, that such a system was bound to be fallacious for it is common experience that, according to such standards, sub-normal individuals may be found among the classes which, economically, are not subject to those fluctuations in the standard of living which tend to bring about conditions of malnutrition in other sections of the community. More often than not, indeed, the thin spare individual is functioning far more efficiently than his overlaid fellow struggling against the burden of masses of superfluous fatty tissue. Yet, how often have we not heard it said of the latter that "You would have taken a lease of his life." Significantly enough, that remark is most often heard after he has made a premature exit from the stage, but its real meaning does not seem to have penetrated the public mind because, in the general esteem, the fat individual is still regarded as the well-nourished one. As with adults, so with children in the matter of nutrition. While it is true, of course, that lack of sufficiency or lack of suitability in the matter of food intake plays a preponderating role in the production of malnutrition, it must be borne in mind that there

are other factors too concerned, such as lack of sufficient rest and fresh air and the possibility of some lack of balance in the intricate apparatus whose function is to bring about and maintain the completely healthy body.

The Assessment of Nutrition.

At the Conference on the Wider Aspects of Nutrition which was held in London under the auspices of the British Medical Association in April, 1939, Professor E. P. Cathcart, speaking on the subject of assessment, remarked :

A subject of constant complaint, perhaps even more often of caustic comment, are the varying reports on the state of nutrition, particularly of children. Let us say that in area A, which is contiguous to area B, it is reported that the incidence of malnutrition is 15 per cent., whereas in area B it is only 5 per cent. Obviously it does look as if a mistake had been made somewhere, as it is inconceivable that the difference, provided that the areas maintain the same population, rural or urban, can be one of, for example, race or occupation of parents. *The difference in the great majority of instances lies in the assessment made by the medical officers of the area.*¹ The real cause is that there is no objective measure of the state of nutrition. The physical measurements of the child do not give much help and the other accepted signs are in the main subjective, the gloss of the hair, the bloom of the skin, the brightness of the eye, the alertness of response, and so on. Each doctor forms his own mental standard and judges the children by this subjective measure. All subjective measures are subject to great distortion. They seem, no doubt, to the individual to be fixed and sure, but are indeed fluid. His judgement is warped by his immediately preceding stimulus. If he has examined a group of children who are fit and well and the next group is less satisfactory, he ranks the second group lower than he would have done had the first group been only very moderate. Until some subjective standard can be devised it is quite impossible to expect any uniformity in the assessment of nutrition in a wide area. Too often, as Bacon has said, the eye of the examiner "is bedewed with human passion."

That there is great confusion in the matter of such assessment is made clear from the contribution to the subject by Mr. Huws Jones (*Jour. R. Stat. Soc.*—1938—101, 1-52) in which it is shewn that the assessment of different medical officers of the same children are so contradictory that no reliance is to be placed on the clinical method of assessing nutrition as it is usually practised. The investigations concerned embraced six groups of children varying from 100 to 200 each. Each group was examined separately by four or five doctors and one group by six. The number of children classified by the different doctors as belonging to the four nutritional categories varied enormously. The number allocated to a particular class by one medical officer ranges from four times to seventeen times that by another. In one instance one doctor judged 30 times as many children to be suffering from malnutrition, as were found in the same group by another doctor. When assessments were made by different medical officers of the same children, the discrepancies were even more strikingly marked. 40 to 50 per cent. of the children were affected by the disagreement in allocation by the different doctors. In one investigation, none of the four medical officers agreed in their assessment of 40 per cent. of the cases. In another group they disagreed in over 75 per cent. of the cases and actually, when

¹ Italics do not appear in the original.

Table 111—Proportion of School Children diagnosed to be suffering from MALNUTRITION in various districts.
(Figures collected from Annual Reports of the Medical Officers of Health in the areas concerned).

COUNTY BOROUGHES (Urban)			COUNTY HEALTH AREAS (Rural)												
Cork	Dublin	Waterford	Cork	Dublin	Cavan	Galway	Kerry	Kildare	Louth	Mayo	Monaghan	Tipperary (S.R.)	Tipperary (N.R.)	Westm'th	Wicklow
1931	14.7	4.0	19.2	1.1	-	4.8	-	-	3.1	-	7.3	-	-	20.5	3.2
1932	13.7	3.5	8.0	0.2	10.9	7.4	8.6	-	5.1	2.8	6.6	-	-	13.1	1.0
1933	14.3	2.2	7.7	2.8	9.0	9.3	7.0	1.1	3.0	1.7	6.7	-	-	14.2	1.1
1934	12.7	1.8	7.1	1.9	12.7	7.9	7.3	2.2	1.1	1.2	4.5	-	-	13.7	0.6
1935	14.2	1.2	19.7	2.3	8.2	4.7	5.3	0.6	-	1.1	4.3	2.2	5.5	13.8	0.9
1936	12.9	3.1	1.5	0.9	12.9	7.1	5.3	2.1	4.4	1.6	2.2	2.7	4.8	12.1	1.5
1937	10.9	8.9	2.4	1.1	19.7	5.0	2.9	3.6	4.2	1.4	1.4	2.7	2.4	10.8	1.7
1938	11.6	2.2	2.1	0.9	10.0	6.0	5.3	2.2	5.7	3.2	2.3	2.2	2.7	10.8	1.2

the same doctors examined the same group of children on two separate occasions the findings of the individual doctors varied on the two occasions, that is to say that the same children were put into different categories when examined by the same doctor on different occasions. When one takes into consideration the fact that the doctors actually knew they were under test and would naturally be on the alert and careful to avoid error, and that notwithstanding such precaution an enormous amount of individual variation resulted, it is obvious that the individual interpretation of nutrition must, of necessity, remain unreliable. It is clear therefore that there is nothing to be gained from a comparison of published figures in relation to nutrition from different areas since such gross errors of interpretation remain inherent to any scheme of assessment.

In view of this great difficulty it is not to be wondered that the available figures for this country show wide discrepancies from area to area, and that such disparities are to be noted for districts which closely resemble each other in topography and in social and economic circumstances. This disparity is shewn in the table (111) which sets out the respective figures for the different administrative units of the country, urban and rural, so far as they are available. It will be noted that in some areas the figures relate only to comparatively recent years, and that will generally have been because health services have only been recently established.

Cork City, it will be noted, ranks among those which present high figures for malnutrition, varying from 14.7 per cent. in 1931 to 10.9 per cent. in 1939 and, curiously, the only other areas to show comparable figures are rural districts, County Dublin, Tipperary (N.R.) and Westmeath. These figures bring out in a very striking manner the difficulties, already alluded to, of assessing nutrition and they illustrate in a most striking manner the futility of expecting reliable indices from the methods which are now available. If we take the figures for the last available year, 1938, for urban areas, we note a remarkable disparity between those for Cork and for the two other areas, Dublin and Waterford. It is by no means possible to adduce any reason for such a difference as is shown here other than individual variations in the standards of the examiners. Why should the proportion of mal-nourished children in Cork be 11.6 per cent. while those in Dublin and Waterford are computed at 2.2 per cent. and 2.1 per cent. respectively? One cannot possibly explain a discrepancy of this magnitude on the assumption that social and economic conditions are much worse here than in the two other cities when it is common knowledge that, for all practical purposes, they are on a par in all three areas. One is forced back on the assumption, then, that the standard of examination is higher or perhaps (which is the more likely explanation) that it is too high here and that the figures for the two other areas are a less distorted reflex of the true position in regard to malnutrition. This is borne out by a comparison with the other areas generally although one would naturally expect a higher incidence of malnutrition among city children than amongst those in country schools. Westmeath is an outstanding exception to the other rural areas inasmuch as it shows a more or less consistently high figure for malnutrition. This figure varies from 20.5 per cent. in 1931 to

12.9 per cent. in 1938 (as compared with 3.2 per cent. and 1.2 per cent. respectively in the corresponding years in Co. Wicklow, which shows the lowest figures for the whole country). The County Medical Officer of Health for Westmeath, however, stresses this difference and alludes to the disparity in figures for various districts and in his Reports divides his numbers into those who show evidence of *marked* malnutrition and those of *moderate*. This effects a very pronounced modification in the final result. In the 1932 Report it shows that 239 children were classed as being mal-nourished, but of this total only 21 were ranked as *marked*. This subdivision immediately reduced the proportion of definitely malnourished children *from 20.5 per cent. to less than 2 per cent.* and, possibly affords the clue to the disparity in the figures for the different areas. It is quite likely that if the examiners limited their findings to the grosser manifestations of malnutrition the final results would be much more uniform in character. It is not suggested, of course, that this would be a desirable procedure since, under it, many cases of lesser degree would be likely to be overlooked in any scheme for ameliorating the conditions that bring about malnutrition. Apart from these figures for Westmeath and Wicklow, there are wide variations also for the other counties and one surprising feature of the statistics is that the reputedly poorer counties like Kerry, Mayo and Wicklow present the lowest proportions of malnutrition among children. One would have expected the contrary to be the case. Again, wide variations are exhibited for individual counties for different years, some of which have been traced to changes in the personnel of the staffs concerned. Whatever be the explanation of the discrepancies, one thing is certain, that it is not possible to expect a uniform standard of judgement in this matter, so that there is no reason for astonishment at such marked variations in the findings. In view of what has been said above, and in view of the findings of far more experienced observers than we can hope to be for many years to come, this is only to be expected and must be expected until such time as the thing to be assessed has been defined in such a way as to reduce individual variations to a minimum. That the subject is one of real difficulty is shown in the following extract:

It would be well were this Conference to make the meanings of the words "nutrition" and "malnutrition" clear, to emphasize that *nutrition implies function rather than food, acts and processes rather than their results*, and to insist that when we speak of food we should call it "*food*" and not "*nutrition*," also, that malnutrition means disorder of the function of nutrition rather than a condition of body; that it is not in itself a morbid entity, but the cause of a great variety of morbid states. I am convinced that the loose use of the words "nutrition" and "malnutrition" has done, and is doing much to confuse the issues involved. What, for instance do we mean by the "state of nutrition" in the assessment of which there is so much confusion? Does it mean the state of efficiency of the function of nutrition? If so its assessment requires the testing of the efficiency of each one of the processes involved in it and estimation of the influence upon it of each one of the factors on which its efficiency depends.

Such an assessment, or overhaul, is a lengthy undertaking and one *demanding biochemical as well as clinical skill*. It may be compared to the overhaul of a motor engine. Imagine an engineer being asked to test some hundred cars a day, yet the school medical officer is expected to test as many children in the same length. If we mean by "state of nutrition" the state or condition of the body brought about by the operation of the function of nutrition, we should say what we mean—"state of health"—and require

the school medical officer to differentiate between the effects of dietetic malnutrition *per se* and those of antecedent disease which may not have resulted from malnutrition at all—an equally difficult task, but at least one that is defined? It seems to me that the cause of the caustic comments on the results of the assessment of the "state of nutrition" by different medical officers is mainly due to uncertainty as to what they are supposed to assess. (McCarrison—B.M.A. Conference on Nutrition, 1939).

In the July (1939) issue of *Public Health*, Dr. E. H. Wilkins, Birmingham, has an interesting article on the "Clinical Assessment of Nutrition," which is an elaboration of previous work on this subject and in which he outlines the procedure adopted by him in assessing the condition of school children in regard to their state of nutrition. In dealing with the signs and symptoms of malnutrition he discusses first the ratio of height to weight and emphasises the fallacy of attaching undue importance to this sign and points out that the thin child may be quite well nourished, that a child with an average amount of flesh in relation to its height and skeletal build may be malnourished and that a fat or decidedly over-weight-for-height child may be malnourished. It would be an error to regard the fat child as, *ipso facto*, well nourished. The obese child is, of course, abnormal and often owes its obesity to defective functioning of the internal glands. The common type of defective diet in this country is fattening rather than thinning. It is important to recognise that, owing to the disproportionate failure of growth in stature (chiefly in the limbs) and the tendency to maintain fat, the weight/height ratio is generally higher, that is, the body is less thin, in the moderately malnourished than in the well nourished.

Posture, skin condition, pallor and anaemia, facial expression, and condition of the eyes and hair as indicators of the state of nutrition are discussed, but here we are up against the problem of individual interpretation since the assessment of each of these characteristics must necessarily depend upon the subjective impressions formed in the mind of the individual examiner. It is quite easy to see that what one person might regard as brightness of eye and lustre of hair another might classify as being deficient in these respects. Hence it is that such confusion has arisen for, obviously, the subject is bristling with difficulties and until the requirements have been more clearly defined it is difficult to see how any real uniformity of results is to be expected. It may be possible, however, by indirect means to arrive at some conclusion as to whether a child is the subject of malnutrition or not, and that is the sociological approach. If we assess a child's nutrition to be good, no doubt we mean that he is being well nourished. *The most important and definitely assessable factor in this is the adequacy of the child's food.* After all, we are trying to assess function rather than bodily state, and consideration of the diet brings us a step nearer to the estimate of the function of nutrition. By general agreement, food is the most telling factor. By tactful enquiry, important facts about diet can usually be obtained from the parent. The total income per head of family, or better, the income per head after payment of rent, gives an estimate of the upper limit of the standard of life attainable and *the possibility of the child obtaining adequate diet.* Many figures have been published relating to the cost of maintaining an adequate standard of life and they might be used as a basis of enquiry in any given community making allowances for

differences of prices in different places. Income does not, of course, tell us that the child is well nourished, but only whether it *can* be. Nor does a good diet tell us that its consumer is necessarily healthy. The diet and income, however, are basic items in the sociological background of the child's condition. Any such enquiry must, of necessity, be both onerous and arduous and is one which could not possibly be ordinarily undertaken by the staff of a public health department but, as has been the case, in other areas might be allocated to a committee specially convened for the purpose. In this connection the question of family allowances naturally arises, a problem of far-reaching extent and one scarcely capable of adequate treatment at such a juncture as this. Let it suffice therefore to barely touch upon the subject by explaining that in some countries, notably France, Belgium, Italy, Germany and New South Wales, some such system has been introduced, while in England some individual firms have adopted voluntary schemes under which employees receive additions to their basic wage after the birth of the second or third child in order to help the parents to maintain the same standard of family nutrition which prevailed when the first and second child only had to be provided for. The case for family allowances have been ably stated by Mr. S. S. Amery, and his views have been set forth in the Report of the B.M.A. Conference of April, 1939, already alluded to.

Nutrition and Diet.

Any discussion on the subject of malnutrition would be incomplete without some reference to the question of diet. It must be remembered that more important than the *quantity* of the food is its *quality*. We have already seen how it is possible that gross malnutrition may be found among the children of the well-to-do and generally such cases are due to the consumption of excessive quantities of rich, sweetened carbohydrate foodstuffs. It is, however, naturally amongst the rank and file of the children of the poor that we expect to find the greatest proportion of malnutrition and, in actual fact, it is amongst them that such cases are found. Cereals are the cheapest form of food and constitute the staple article of diet of the poor in practically all parts of the world, in the East rice is the grain favoured and in the West, wheat, both cereals, unfortunately, being utterly denatured before reaching the consumer, to his great detriment. For the vast majority of the poorer classes in this country (and that is to say for a large majority of the population) bread constitutes the chief article of diet. It is a matter of profound importance therefore that it should not only be wholesome in quality but that it should afford the *maximum of nutriment* as well. This, unhappily, we know is far from being the case due to the almost universal substitution of white flour for wholemeal. This matter of the relative value of white bread and wholemeal bread is, in reality, one of profound importance in the nutrition of the poor. If it can be shown that the nutritive value of one is in any way appreciably superior to the other, then it is of the utmost importance to secure that it should be made more accessible to people whose earning capacity precludes a wide choice in the selection of foodstuffs. The question has been threshed out fairly frequently in the past and has been renewed

again of late. The following extract (which is an editorial that appeared in the *British Medical Journal*, 5th August, 1939, p. 289) is therefore not only timely but appropriate:

It might be thought that the battle between brown and white bread has been fought too often and that the recurring victories of the former would justify the cancellation of what has now become an annual fixture. It is true that the idea has triumphed, but anything that brings grist to the mill of those who want to translate the idea into action is to be welcomed, and such is the comprehensive review of the nutritive value of wheaten flour and bread recently made by A. M. Copping.¹ White flour is made by grinding the endosperm of the wheat berry to a fine powder, the outer layers being removed. The usual extraction of the finer parts amounts to 70 to 72 per cent. of the whole; this type of flour is termed "straight-run" or "standard-grade" flour. It is the one in most general use in this country. Finer flours still can be obtained by further milling; "long patent" and "top patent" flours are the products of 60 and 42 per cent. extraction respectively. In patent flours the fat content is about one-half and the ash content about one-sixth of that found in whole wheat. Bleaching does not greatly alter the general composition of flour. There are various ways of measuring the biological values of proteins: one is by determining the ratio of body nitrogen spared to food nitrogen absorbed; another is by measuring the percentage of the protein required in the diet for maintaining body weight and normal growth; and still another is by measuring the increase in weight corresponding to the amount of protein ingested. Various workers using these methods have shown that in the modern process of milling the biological value of wheat protein is lowered for nitrogen repair as well as for growth of the animal organism. The evidence for the relative availability and digestibility of the carbohydrate of whole wheat and white flour is somewhat conflicting. *The reduction of the iron content of the whole berry to one-fifth of its amount in patent flour is probably very serious. The vitamin C and D content of wheat and wheat flour is nil.*² The amount of carotene in whole flour is enough to be of value, but it is largely lost during milling, and the small amount that survives in flour after milling is destroyed during the bleaching process. The vitamin B (complex) content of the wheat seed is considerable. It has been thought for a long time that the whole of the vitamin B. complex of the wheat berry was contained in the embryo and outer layers, and that the endosperm and therefore the white flour made from it were devoid of these factors. It has been recently shown, however, by Copping and Roscoe that whole meal may contain from 1.2 to 3.4 (mean 1.86) international units of vitamin B₁ per gramme, that stone-ground flour may contain 1.6 units, and that the amounts in white flour decrease rapidly with increase of milling—for example, 1.2 units in 95 per cent. extraction, 1.0 in 82, 0.4 in 75, 0.37 in 70, 0.24 in 60, to 0.00 in 42 per cent. They found whole-wheat bread to contain 0.95 (0.75–1.3), "brown" bread 0.6 (0.5–0.8), and white bread 0.22 (0.12–0.30) units per gramme. The flavin content of white flour is about a half of that of whole-meal flour and is partly destroyed during storage. Whole-wheat flour contains vitamin E, but white flour almost certainly contains none. *Thus the more exact information on the nutritive value of whole-wheat and white flours made available by more accurate methods of determination fully confirms the earlier impression of the really serious inferiority of white bread as compared with wholemeal bread in every criterion of nutritive value so far adopted.*³

An interesting and most valuable article on this subject appeared in a recent issue of an important journal³ from the pen of Professor J. C. Drummond (Professor of Biochemistry in the University of London) and one of the foremost of living authorities on dietetics and nutrition.

¹ *Nutr. Abstr. Rev.* 1938, 8, 555.

² The Italics do not appear in the original.—J.C.S.

³ *Jour. Roy. Inst. Pub. Health and Hygiene*, 1939; v. 2, 441–450.

In this article is traced the origin and development of the modern white loaf which had its beginning in the substitution of wheat for rye in the manufacture of flour, the use of this lighter coloured flour by the well-to-do, the demand for it by the poorer classes and the gradual development of a false impression amongst all classes that the whiter the bread was the more pure must it necessarily have been. A demand was thus created for whiter and whiter flour which the millers had great difficulty in satisfying. The early wheaten flour was, of course, entirely stone-ground and therefore more or less "wholemeal." It contained both germ and bran, the proportion depending on the character of the grinding and on the degree of "bolting." It is a popular fallacy that "wholemeal" flour is necessarily dark in colour. By appropriate setting of the stones and by careful control of the bolting process a "white" flour can be milled from the whole grain that will yield loaves of a very pale cream or very slightly "off-white" shade and it was such breads which were eaten by the greater proportion of the population a century ago. It is possible to trace the association in the popular mind between the quality of the bread and social status, and it was this association which led to the clamour for whiter and whiter bread. The people suffered a good deal because of their pride, their demands leading to extensive adulteration of flours.

The "white" flour we know to-day was first introduced to the public in 1878 when roller mills began to operate in Liverpool. Such mills were no innovation but hitherto had proved disappointing in their operation. The new method was quicker, the costs of upkeep were lower and it was easier to control the milling. *By no means the least important advantage to the millers, however, was the possibility of removing the germ, the cause of a great deal of their troubles in the days of stone grinding.* No longer was the germ so finely divided that it passed into the flour; it was crushed into a tiny flat disc which could easily be sifted off with the coarser particles of the bran. In 1901 a patent was granted covering the use of *nitrous oxide for bleaching flour*, and before long protection was claimed for similar processes involving the use of *chlorine* and *peroxide*. The agents "improved" colour by oxidising to colourless compounds the carotenoid pigments which are normally present in the endosperm of the wheat berry. Their use spread rapidly so that to-day practically the whole of the ordinary flour used in this country is subjected to one or other of the processes that bring about the discolouration of the natural yellow pigment of the flour.

There is no question that the introduction of the roller mill has brought about one of the most significant changes in the character of our daily diet that has ever occurred. Few people realise how far-reaching have been the consequences. The old stone-ground wholemeal flour was rich in vitamins A. and B. and in calcium, phosphorous and iron. The modern white flour contains half the amount of calcium and phosphorous, one-third the amount of iron, one-sixth to one-tenth the amount of vitamin B. and no vitamin A. Most of the mineral salts and vitamin B. are removed with the germ and bran, while vitamin A. is lost in the pernicious bleaching process. Bread may be a mere accompaniment to the diet of the well-to-do, but it should not be regarded as merely a source of energy to the workingman. It is his

chief source of vitamin B. and one of his principal sources of vitamin A. and of minerals. White bread supplies no vitamin A. but one pound of wholemeal bread would supply half the daily requirement of an adult. Professor Drummond, in his article, gives the result of an analysis of a "poverty" diet composed of sausages, potatoes, white bread, margarine, jam, cocoa, banana, condensed milk and sugar. There are deficiencies in vitamins A., B. and C. and in calcium and iron. *If the bread in this diet were changed to wholemeal, nearly all the major deficiencies would be rectified.* He believes that the increase in appendicitis may be connected with the use of white flour and that such diseases as gastric and duodenal ulcers may be associated with deficiency of vitamin B.

The importance of this question of bread is insisted upon by Professor Drummond. He points out the truth that bread is essentially a food of poverty, and that the poorer the community the larger the proportion of the food supply represented by bread and hence the importance of insisting on the *nutritive* quality of the bread. The steady decline in the consumption of bread during the past fifty or sixty years is one of the many indications of a steady rise in the standard of living. As a corollary, with the advent of increased poverty and rising prices of all commodities as a result of the war we may expect further relative increase in the consumption of bread among the poor and once more we are faced with an additional reason for ensuring that that bread will afford the maximum amount of nutriment which it is capable of bearing. Advocates of the modern type of white bread dismiss the arguments in favour of wholemeal bread by reminding us that the balance of the diet could be made good by a wider choice of food. This is true and it is the varied character of the diet consumed by the middle classes that protects them from similar deficiencies, *but the foods that give protection are for the most part among the more expensive varieties.* Let us consider, for example, vitamin B., which is one of the most important factors in the case under review. Half a pound of wholemeal bread provides approximately 350 international units of B₁—which may be taken as the minimum of an adult's daily intake—whereas the same quantity of white bread contains a mere 35. To obtain 300 or so units which the difference represents it would be necessary to consume any one of the following amounts of other foods :

2½ pints of milk.
 ½ lb. of liver.
 2 lbs. of apples.
 1 lb. of cabbage.
 2 lbs. of potatoes.
 6 eggs.

There is no cheap source of vitamin B. other than wholemeal bread. In every case where income restricts the choice of foods there is grave danger in accepting the comfortable assurance that a mixed diet will protect against mineral and vitamin deficiency.

The deficiencies in white flour (as compared with wholemeal) referred to by Professor Drummond are summarised in the following table, which

is based on his own analysis :—

	Wholemeal flour (per cent)	White flour (per cent)
Protein	10.87	10.27
Fat	1.22	0.97
Calories	370	369
Calcium (m.g.)	50	22
Phosphorous (m.g.)	120	60
Iron (m.g.)	2	0.8
Vitamin A (I.U.)	200	0
Vitamin B. (I.U.)	150	22

In the face of the facts and figures which have been adduced it is impossible to imagine a clearer case against any important article of diet than that which has been made against white bread. What is the solution to the problem? One personal suggestion will be referred to later, meanwhile it seems appropriate to quote the views of Professor Drummond himself on this very important aspect of the subject. They are expressed with force, but with a force born obviously of conviction and of a conviction based on a lifetime's study of the subject of nutrition :

It is high time the millers were given a stern warning. They do not appear to be showing the slightest concern with the rapid spread of knowledge regarding the influence of diet on health. They are still comforting themselves with the belief that the people as a whole desire bread to be, above all other things, white. They seem oblivious to the fact that already in many parts of the country the poorer people are getting to know that some kinds of bread are more nutritious than others. Enquiries that I have made recently in a very poverty-stricken area of the East End of London satisfy me that there are already many working-class mothers who have learned that it is healthier for their families to eat wholemeal bread. They have learned that children are stronger, have better teeth and are less anaemic when fed on such breads. Few of them have the slightest idea what wholemeal bread is. They usually think it is a dark bread—shades of the old belief persist—so they turn to brown bread, only to find that *it is usually much dearer than white. Why should this be so? Will the millers and bakers give a straight answer to a straight question?* Nine times out of ten it is baked from ordinary white flour with a proportion of bran and is appropriately tinted by admixture of molasses, malt extract or other colouring matter. The bran adds a little extra nutriment, but its food value is still a long way behind that of the wholemeal loaf.

No one who has given this important question serious consideration can have the slightest doubt that a marked improvement in the health of the people of this country would result from the introduction of wholemeal bread. The day is nearly past when white bread is eaten because it is white. Many of the social snobberies of the last century have gone by the board and this is one that will soon join the number. The sooner the millers realise this the better both for themselves and for the public. For a fraction of the money that has been expended in attempting to popularise the meaningless slogan "Bread for energy" it would have been possible to perfect the production of a cheap, attractive, palatable "white" wholemeal loaf that would have been *a notable contribution to the fight against malnutrition* that is being so actively waged to-day.

So far, bread only has been discussed and that is because it occupies a position of paramount importance in the discussion on nutrition since it is the staple article in the diet of the poor. Obviously, however, bread alone will not suffice to maintain nutrition at the highest level of efficiency, other foodstuffs are required to maintain that harmonious

balance between all the parts of the body which we term health. Of the vast range of foods which are on offer to-day is it possible to enumerate those which are necessary and sufficient for the maintenance of health? For a definitely affirmative answer to this question we have the authority of Sir Robert McCarrison (also an eminent authority on nutrition) whose work on this subject has received world-wide recognition:

There is, therefore, no longer any doubt as to what the right kind of diet is. It is made up of the following eight classes of foodstuffs:—

1.—Whole or lightly-milled cereal grains; whole wheat flour and the bread made from it or standard bread or bread containing the germ of the wheat and a proportion of the outer skin of the wheat grains; rye bread; oatmeal; semolina.

2.—Milk and the products of milk; cheese, butter, skimmed milk, curds and buttermilk.

3.—Pulses; peas, beans and lentils.

4.—Fresh green leaf vegetables such as spinach, lettuce, watercress, cabbage, parsley, turnips and young dandelion leaves.

5.—Root vegetables, particularly potatoes, carrots and onions.

6.—Fruit, both fresh and sun dried (including tomato).

7.—Egg.

8.—Meat, including glandular organ such as liver, fowl and fish, particularly the herring.

And it is on diets made up for the most part of these that you must live if you wish to be vigorous, hardy and healthy and to remain healthy.

Of this regimen it may be said that it is eminently practical and rational. There is not an item of it that may not be produced in abundance in this country, so that, theoretically at any rate, there should be no question of starvation or sub-starvation conditions prevailing here. McCarrison places milk second in importance to wholemeal bread and it is common experience, of course, that milk is a most valuable article of food, especially to the young growing child. There is, however, one drawback to its extended use and that is its cost. It seems extraordinary that in one of the greatest dairying countries in the world, milk should be beyond the purchasing power of the great masses of the poor and that, indubitably, is the position to-day. Milk and dairy products generally have always been among the higher priced foodstuffs which, in view of their great nutritive value, is unfortunate, but they have never been more expensive than now. Various factors have contributed to this increase into which it is unnecessary to enter here but it seems expedient to discuss ways and means which might conceivably tend to bring them within the purchasing power of the poor. Wholemeal bread, milk and butter are so vital to sound nutrition that it is seemly to explore every such possibility.

The four great faults in the diets of the mass of the population are, according to McCarrison, the use of denatured white flour instead of whole wheat flour, the insufficient use of "safe" milk, the insufficient use of fresh, green vegetable foodstuffs in the form of salads and lastly the *excessive and inordinate* use of sugar, sweets and sweet cakes. It is with the latter factor that we are concerned at the moment and it will, no doubt, be agreed that sugar is consumed to-day in enormously excessive quantities. The growth of the confectionery industry is sufficient evidence of this. One of the ill effects of this inordinate consumption is, as McCarrison points out, that the balance of the diet is upset, causing it to be excessively rich in carbohydrate relative to vitamin B₁

producing in effect, a relative deficiency in this very important vitamin. It impairs the appetite, especially in children, for more nutritious foods. One of the most common results of excessive use of sugar is dental caries. Here there are two factors at play. In one there is the direct action on the enamel of the teeth by bacteria favoured by carbohydrate fermentation and the second is the reduced powers of resistance to disease due to insufficient intake of the protective foods. A vicious cycle is set in motion, the effects of which may be seen in the widespread prevalence of dental caries. Over sixty per cent. of the school children in this city require dental treatment and in eighty per cent. of these dental disease has progressed so far when first seen that the teeth cannot be saved. This is a most deplorable state of affairs and the figures give us some idea of the magnitude of the problem.

A plausible case may be made for the use of sugar as a food. It is true of course that (in the strict sense of the word) it is a food and, in some circumstances a most useful one. The same may be said of alcohol, but it would be a very foolish person who would suggest that the consumption of alcohol should be increased at the expense of the ordinary constituents of the daily diet. The analogy is appropriate for the truth is that sugar is more of a stimulant than a food. It must be remembered that sugar as we know it to-day is an innovation and that it occurs nowhere in nature in the form that it takes on our tables and in confectionery. Nature provided for the manufacture of sugar within the body itself from the ordinary carbohydrate foodstuffs (cereals, flour, etc.) long before the introduction of synthetic sugar. The starch contained in these foods is acted upon by the intestinal ferments and converted into glycogen in which form it is stored in the liver for further conversion into sugar according to the requirements of the body. By eating sugar ready made at least one function of the body is side-tracked, and when any function is allowed to fall into disuse it atrophies and the whole mechanism is liable to be thrown out of gear. Significant evidence has been brought forward to connect the increase in diabetes with the increased consumption of sugar. Given (D.H.) in his book¹ shows a diagram correlating the increased deaths from diabetes with the increase in the use of sugar over the past 70 years. This is based on figures supplied by the Registrar-General and the Board of Trade respectively. At the same time he is able to show that this steadily increasing consumption of sugar is accompanied by a steady *decrease* in the use of alcohol and a corresponding decrease in the deaths from cirrhosis of the liver. It would almost seem as if sugar had taken the place of alcohol in the mortality tables. He holds that one of the primary physiological defects of a wrong balance between food and work is an oxygen shortage which deranges metabolism. Refined foods accentuate this derangement, especially sugar, they are highly combustible and use up the available oxygen already at a premium and by their pleasing properties create an artificial appetite that in itself leads to excess.

It is obvious that there is a serious case against sugar, but how does this help us to bring the protective foods within the reach of the poor, more especially as it has been said that sugar is one of the main foodstuffs of the poor? This may be true or it may not. If it is true, then so much

¹ *A New Angle of Health* (Bale, Sons & Daniellsson, Ltd.) 1935; 29.

the worse for the poor. Our problem at the moment is to render sugar less attractive and at the same time to lower the price of milk, milk products and wholemeal bread. I suggest that one method of meeting this problem would be to increase taxation on sugar and, at the same time, to provide that the whole of the revenue so raised be used to lessen the cost of the essential foodstuffs, either by way of subsidy or grant or any other financial expediency which would have the effect of reducing these commodities to a reasonable price. Milk, which is placed second in McCarrison's classes of foodstuffs, is now almost entirely outside the purchasing power of the poor, to the great detriment of the public health and to the great apprehension of those who appreciate the significance of this fact. Wholemeal bread is, practically speaking, scarcely consumed at all. It would be consumed far more extensively if it was made cheaper. (It would be interesting to know why it is not cheaper than white bread now. Wholemeal flour, as we know, does not go through the same complicated processes of manufacture as white flour. Why then does the wholemeal loaf retail at exactly the same price as the white loaf?)

The solution proposed may appear to be somewhat revolutionary at first sight (it would be too much to hope that it should not be regarded as controversial), but there must be a considerable number of people who would welcome legislation apprehended to have the effect of bringing the price of milk within the region of a penny a pint and that of the wholemeal loaf to a penny a pound and which would, at the same time, place a brake upon the inordinate and extravagant expenditure on sugar. If such a legislative enactment could be effected within the framework of the Constitution one feels sure it would be welcomed by all with an interest in the health of the people.

Fatigue and Nutrition.

As any discussion on nutrition would be incomplete without reference to diet, so also is the question of fatigue not only germane to the subject but absolutely essential to it. Apart from McCarrison's conception there has been no definite attempt to define nutrition, but one may assume as a working hypothesis that it is that state of good health or well-being resulting from a harmonious balance between the amount of food taken in the diet and that consumed or burnt up as a result of growth, and the expenditure of physical energy. When there is a condition of unbalance, the mechanism is upset and malnutrition ensues. If, for example, the amount of energy expended by the individual is out of proportion to the food intake then harmful effects are bound to follow. This tendency is, of course, much more pronounced in the case of the child than in that of the adult because here we have the additional factor of growth with its insistent demand on available food reserves. There is no doubt that fatigue has a deleterious effect on the constitution not only of children but of adults also. This may be reflected in an increased susceptibility to disease and also in diminished general well-being, decreased growth and inability to benefit by education. These effects are of course well known and are firmly fixed in the public mind; it is interesting therefore to find the popular opinion so amply confirmed by educational and medical opinion on the subject. Of the many numerous text books on School

Hygiene there is scarcely one which does not impress the absolute necessity of adequate sleep and rest. Particular stress is attached to the importance of sufficient sleep. The following extracts are taken from standard text-books on the subject and speak for themselves :

- (a) Most town children suffer from insufficient sleep. The results upon the organism are most disastrous, both physically and mentally. *To cut down a child's sleep is as cruel as to deprive him of food.* Children as a rule require at least as long a period of rest as they have of work and play, for most of their growth takes place in bed, and therefore to stint them of sleep is to hinder their development. A common fallacy is that physical exercise acts as a compensation for long hours of mental application. Nothing could be more mischievous in its results. It is perfectly true that mental fatigue is prevented to some extent by intervals of physical recreation but the only true rest to body and mind is obtained by sleep. If in addition to bad hygienic conditions the child arrives at school suffering from want of sleep and insufficient food, it is wonderful how teachers manage to get any real mental work done at all. If it is done, what a price the child pays for its poor little stock of knowledge.

LYSTER, R. A. *School Hygiene*, 1910.

- (b) The growing neurone with no reserves, wants more repose to build up its machinery than it does when reserves are developed and established. Extra sleep is correlated with immaturity and growth, as well as with maintenance of life. Menaceine determined that *sleep is even more necessary than food for young and growing animals.* Deprivation of sleep when it is real will cause diminished mental efficiency.

The Caldecott community schools, residential for poor children, find that the poor child is always a year behind the rich one in mental age. This they ascribe to lack of sleep. Sir Charles Sherrington says : "Most of a boy's growth in stature is done in bed, and there mental and physiological recreation goes on most efficiently ; without plenty of sleep the activity of the waking day is like a house built on sand."

KERR. *Fundamentals of School Health*. 1926.

- (c) The signs of insufficient sleep are mainly mental, but largely also physical. They are most marked in the case of children who get too little sleep and are readily recognised. They are anaemic, languid, dull, drowsy and stupid. The appetite is poor and growth is stunted. They are disinclined for muscular activity and are incapable of learning. The children of the very poor often show such signs, neglectful parents permitting them to roam the streets until very late. Children of the well-to-do also often suffer from insufficient sleep, parents permitting late hours and visits to entertainments quite unsuitable in every respect to children.

PORTER. *School Hygiene*. 1906.

The findings in the fields of bacteriology and immunity are of a similar character. Kolle and Hensch (*Experimental Bacteriology*—1934) point out that the natural immunity of many animals to certain diseases can be experimentally removed as the result of malnutrition, immoderate cooling or excessive fatigue (treadmill). Hutt and Thompson (*Principles and Practice of Preventive Medicine*, 1935) refer to Dudley's findings that environmental factors may favour a rise in epidemic diseases in several ways, e.g., by lowering the resistance and thus increasing the ratio of susceptibles. He includes under the term "environmental" such factors as atmospheric conditions, nutritional changes and fatigue. In the *System of Bacteriology*, published by the Medical Research Council in 1931, reference is made to the work of Bailey, who noted the development of rapid and severe systematic infection in rabbits infected intranasally with pneumococci and then fatigued and to the work of Boycott and Price-Jones who also found that fatigue greatly influenced

the subsequent illness and mortality following the oral administration of enteritidis bacillus of Gaertner.

In Topley's *Outline of Immunity* (1933) the influence of fatigue on resistance is also dealt with in a review of the available material on this subject. The first reference is to Spaeth (*et alia*) who have published the results of a series of experiments carried out on animals from which they conclude that the resistance to tetanus toxin and to pneumococcus is decreased as a result of the fatigue induced by making the animals run for a long period in a revolving cage. Further reference is then made to experiments recorded by Boycott and Price-Jones which are regarded as even more illuminating. The disease which they studied (that produced by Bact. enteritidis in the rat) is a natural disease in that animal, and therefore more analagous to natural human infections than the experimental conditions selected by other workers. When rats are infected by feeding them with the bacteria and then fatigued on several occasions during the ensuing few days the mortality was very heavy. Twenty-seven rats were treated in this way and of these, thirteen died. Twenty control rats were fed on the same cultures, but were not subsequently fatigued; of these, none died. There is an obvious suggestion that fatigue has a significant effect in activating a latent infection and favouring its fatal termination.

It is apparent therefore that there is a strong body of scientific opinion in support of the view that fatigue is an important factor in the production of malnutrition and in the lowering of resistance to disease. Indeed it would be highly unscientific to consider the question of nutrition solely from the point of view of food intake and to ignore the matter of excessive exercise. That would be to deal with one-half of the problem only. That fatigue is a practical factor in the production of mal-nutrition to-day is unfortunately only too true—I have repeatedly condemned the practice of allowing children to be up and about, roaming the streets of this city, until "all hours" at night. This is a social evil of the first magnitude, the ill-effects of which have been aggravated by the artificial prolongation of the hours during which children are out of bed. It is now, unfortunately, extremely difficult (if not actually impossible) under modern urban conditions to ensure sufficient sleep and rest for children. The neighbours' wireless sets, the noise of motor traffic, the cries of other children in the streets, the persistence of daylight and numerous other factors all conspire to break the morale of the conscientious city mother who realises the necessity of sufficient rest for her children and who eventually may find it easier to drift with the tide and to leave the health of her children to chance. It requires no exercise of the imagination to realise how greatly these detrimental influences are increased in the case of the tenement house—here the problem of rest for children would almost appear to be insoluble but it would seem reasonable to assume that one means of meeting it would be to revert to the natural order in regard to time. This question of sufficient rest and relaxation for town children is an important one and until such time as it is seriously tackled discussion of the subject of malnutrition will be largely futile because, as we know, fatigue is one of the major factors in the production of malnutrition. "Enough sleep," writes Burgerstein "is the absolute right of every child—and the recognition of the rights of the weak marks the culture of any civilisation."

Appendix II.

OPERATION OF THE SCHEME FOR THE TREATMENT OF VENEREAL DISEASES.

Table 112—Record of Work done in V.D. Treatment Centre, 1939

	Cork City		Cork County		Other Districts		Total		Total Male and Female Cases
	M.	F.	M.	F.	M.	F.	M.	F.	
<i>New Cases (1st Time)</i>									
Syphilis	4	9	7	4	12	1	23	14	37
Soft Chancre	—	—	—	—	1	—	1	—	1
Gonorrhoea	13	4	6	2	2	—	21	6	27
Not V.D.	30	5	5	2	—	—	35	7	42
Total	47	18	18	8	15	1	80	27	107
<i>Total Attendances :—</i>									
Syphilis	484	347	197	158	47	7	728	512	1240
Soft Chancre	—	—	—	—	2	—	2	—	2
Gonorrhoea	130	46	105	39	2	—	237	85	322
Not V.D.	57	24	10	4	—	—	67	28	95
Total	671	417	312	201	51	7	1034	625	1659
<i>Cured :—</i>									
Syphilis	—	1	2	—	—	—	2	1	3
Soft Chancre	—	—	—	—	1	—	1	—	1
Gonorrhoea	11	2	5	—	—	—	16	2	18
Total	11	3	7	—	1	—	19	3	22
<i>Pathological Exams. :—</i>									
Wassermanns	43	24	23	14	2	—	68	38	106
Gonococci	26	19	21	3	2	—	49	22	71
Kahn	2	3	1	2	—	—	3	5	8
Dark Ground	2	—	1	—	1	—	4	—	4
Total	73	46	46	19	5	—	124	65	189
<i>Therapy :—</i>									
Stabilarsan	197	253	77	106	17	7	291	336	627
Bismostab	236	53	94	23	25	—	355	76	431
Irrigations	5	—	—	—	—	—	5	—	5
Mercury and Iodides	48	—	4	—	—	—	52	—	52
Vaccines, M. & B. 693....	123	33	85	40	2	—	210	73	283
Total	609	339	260	169	44	7	913	515	1428

Appendix III.

OPERATION OF THE COUNTY BOROUGH SCHEME FOR THE WELFARE OF THE BLIND.

The following are the terms of the Scheme drafted for this purpose and now in operation within the Borough:—

In this scheme the term "Blind Person" shall mean any inhabitant of the County Borough who is so blind as to be either unable to perform any work for which eyesight is essential, or unable to continue his or her ordinary occupation; the term "The Corporation" shall mean the Lord Mayor, Aldermen and Burgesses of the County Borough of Cork, acting by the City Manager; the term "The Minister" shall mean the Minister for Local Government and Public Health.

2. The Corporation will establish and maintain a Register in which shall be entered the name and address, age, sex, religion and other necessary particulars of every blind person who shall produce a certificate from a recognised Ophthalmic Surgeon that the acuity of vision of such person (refractive error being corrected) is below 1/20th normal (3/60th Snellen), or that such person is so blind as to be unable to continue his or her ordinary occupation. Any person between the ages of 30 and 70 may, however, be registered without producing such certificate on furnishing evidence of being in receipt of a pension in pursuance of Section 6 of the Old Age Pensions Act, 1932. The Register shall be kept written up-to-date, and shall be revised annually in the month of January. The Corporation shall be empowered to pay reasonable fees to Ophthalmic Surgeons for certifying in cases of necessitous persons.

3. Arrangements will be made by the Corporation with the Authorities of one or more of the Institutions for the Blind mentioned in the Schedule hereto on such terms as may be approved by the Minister for the following purposes:—

- (a) the education or industrial training of suitable blind persons between the ages of five years and thirty years;
- (b) the employment in workshops for the Blind of blind persons suitable for such employment, their maintenance in a Hostel, and the augmentation of their wages;
- (c) the maintenance in Homes of blind persons who, owing to age or infirmity, are incapable of work.

4. The Corporation may in cases of unemployed and necessitous blind persons ineligible for education or industrial training under Article

3 (a) of this Scheme and living in their own homes or in lodgings, grant assistance to such persons in accordance with the following scale:—

Classification of Blind Persons	Amount of weekly allowance
(a) Blind person over 15 years and under 30 years of age	12s. 6d.
(b) Blind person 30 years of age and upwards	.... 6s. 0d. (with pension)
(c) Married man under 30 years of age with wife dependent on him	.... 19s. 0d.
(d) Married man 30 years of age and upwards with wife dependent on him	.... 12s. 0d. (with pension)
(e) Additional allowance for each child	.... 2s. 6d.

In considering the grant of allowances on this scale to the classes of blind persons at (a) and (c) above, the Corporation will not take into account casual earnings of any such person where they are satisfied that such earnings do not exceed six shillings per week.

5. Nothing in this Scheme is to be construed as giving blind persons irrespective of their means or conduct, a right absolute to assistance. The Corporation will not grant an allowance under Article 4 above to any blind person under 30 years of age who is capable of instruction and who declines without a satisfactory reason to take advantage of the facilities for education, training or employment under the Scheme, or who is by conduct or otherwise deemed unsuitable for assistance. No habitual mendicant shall be granted an allowance under the Scheme unless the practice of mendicancy is discontinued. No person shall be eligible to receive assistance under this Scheme who shall not have been resident within the County Borough for two years previous to date of application for assistance.

6. The Corporation may incur such expenditure in the execution of this Scheme as the Minister may from time to time approve.

7. This Scheme shall come into operation on the 1st October, 1932, and shall continue for a period of three years, but may during the period with the consent of the Minister be modified, extended or revoked by the Corporation, and with the like consent may be continued for such further time as may be deemed necessary. Any question, dispute or difference arising in connection with the interpretation of this Scheme shall be determined by the Minister whose decision shall be final.

SCHEDULE

Institutions for the Blind Approved by the Minister	Class of Blind Persons Received
1. St. Mary's Institution for Female Blind, Merrion, County Dublin	Females, also boys up to 7 years of age
2. St. Joseph's Asylum for Male Blind, Drumcondra, Dublin	Males
3. Richmond National Institution for Industrious Blind, 41 Upper O'Connell Street, Dublin	Males
4. Cork County and City Asylum for the Blind, Infirmary Road, Cork	Males and Females

The number of persons receiving weekly allowances in their own homes from the Corporation during the year was 200, and the disbursements under the heading amounted to £3,735 12s. 3d. 48 applications were received for allowances. Other disbursements amounted to £82 8s. 6d. (examinations, grant to National Council and other expenses). In addition to the above-mentioned cases there were 26 cases maintained in Institutions by direct grants from the Corporation, viz. :—Cork Blind Asylum (7 males and 5 females) ; St. Mary's Merrion (13 females) ; and Richmond National Institution (1 male). The total cost of the maintenance amounting to £483 1s. 4d.

The following note is contributed by the Hon. Secretary of the local branch of the National Council for the Blind of Ireland.

Home Teaching for the Blind.

Under the National Council for the Blind, this very essential service has been inaugurated in Cork City, to which the Corporation has granted a small annual contribution towards the expenses incurred by employing trained and qualified Home Visitors and Teachers.

The work of the Home Visitor is varied and broad, embracing social as well as mental instruction. She must help the blind to become active members in their homes, teach them to read embossed type, various handicrafts, such as knitting and rugmaking, and to bring an interest and hope into their otherwise hopeless lives.

The Home Visitor can help to prevent blindness in children, who often, through parental ignorance and negligence, or want of interest, lose their sight, which under proper care and supervision can be cured, by seeing that they are provided with glasses where necessary and sent for treatment. She also gives her assistance and advice over pension applications, appeals and better accommodation.

Wireless sets are distributed on loan where most required, entertainments organised and free seats at musical shows secured.

Voluntary visitors also give their services to read and spend some time talking to the lonely blind, who greatly appreciate these visits.

Classes are held weekly for instruction in basket making, chair-caning and other forms of handicraft. The finished articles are presented for sale only if up to standard—no inferior goods labelled "Made by the Blind" are passed for sale. Efficiency is the definite aim.

The Home Teacher becomes a real friend of the Blind, who turn to her in all their difficulties, knowing that they will obtain help and encouragement to become as useful and important as their sighted brothers and sisters.

Suitable cases are urged to enter institutions for the blind and arrangements made for this purpose.

The Home Teacher has office hours daily where any blind or defective sighted person can get in touch with her and make enquiries. Over

the Home Visitor is an Executive Council who meet monthly, receive the reports of the Home Visitor, deal with various cases, arrange the financial side of the work and follow closely and with interest the progress which is being made.

SUMMARY.

Number of city cases on Register on 31st December, 1939	307	(272)
Visits paid to the Blind	2,094	(1,850)
Interviewed at Office, City Hall	651	(436)
Number of Braille readers	17	(14)
Number of Moon readers	3	(3)
Number learning handicrafts at Men's weekly classes	11	(10)
Number of Home Workers whose work is of saleable standard	28	(24)
Number of bed-ridden and aged blind visited and helped in various ways	48	(22)
Number sent to Convalescent Home	3	(1)
Number sent to St. Mary's, Merrion	1	(1)
Number helped to obtain spectacles or artificial eyes	8	(11)
Number given special relief during illness	12	(21)
Number given clothing and blankets	83	(81)
Number given various Christmas gifts	76	(57)
Number given Wireless Sets on loan	23	(54)
Number given gramophone and records	1	(3)
Help given over dentures	5	(5)

The corresponding figures for the previous year are shown in parenthesis.

Appendix IV.

ROADS AND SEWERS.

WORK COMPLETED DURING 1939.

Concrete Roads :—	No. Sq. Yards
Victoria Road Crossing	1,989
Strawberry Hill	1,367
Lover's Walk	3,970
The Crescent, St. Luke's	703
Silverspring	1,623
Richmond Hill and Roads at Roche's Buildings	3,379
Back Watercourse Road....	1,138
Lower John Street (Part)	243
Hansboro'	1,089
Part Leitrim Street	680
Part Wolfe Tone Street	395
Wandesford Street and Clarke's Bridge	766
St. Luke's Cross	1,000
St. Luke's Avenue	431
Curragh Road Widening....	844
New Road, Lower City Park	2,242
Shandon Church Yard	745
Barrack View and Part School Lane	398
Philpott's Lane and Chapel Street	970
St. Mary's Road	2,523
Part Tower Street	355
Reid's Square	756
Gas House Road	2,341
Windmill Road	988
Gaol Cross Road	569
North Abbey Street, Brown's Hill, River Lane	569
Part of Shandon Street	679
Devonshire Street, Skiddy's Castle Lane and Francis Street	1,337
Dyer's Lane, Gravel Lane	676
Connaught Avenue (Part)	672
Ninety-Eight Street	996
Tobin Street	561
Part Barrack Street	1,520

Mastic Asphalt Roads—

	No.	Sq. Yards
Pembroke Street, Marlboro' Street, Cook Street	2,497
South Terrace	4,000
Grand Parade	4,329
Tuckey Street	662
Part Southern Road	1,037

Streets and Highways

No. of miles of Streets and Highways	....	76.25 Miles
		Sq. Yards
Total Area of Road Surfaces	....	642,700
Area of Water Bound Macadam	....	1,000
Area of Bituminous Macadam	....	49,476
Area of Block Paving (Stone)	....	12,000
Area of Asphalt	....	300,000
Area of Concrete	....	279,224
Area of Block Paving (Wood)	....	1,000

STREET CLEANING AND DOMESTIC SCAVENGING.

(a) Mechanical Street Cleaning (Karrier Sweeper)

Total No. of miles travelled per annum	....	5,000
Surface Sweepings Collected and Disposed of	....	1,978 Tons
Average cost of collection and disposal	....	5/4 per Ton

(b) Night Service (Mechanical Washer and Sweeper)

Area Washed per night	....	50,000 sq. Yds.
Cost per 1,000 sq. yards per night	....	1/-

(c) Scavenging and Surface Sweepings (hand)

Number of Electric Trucks	....	13
Average number of miles travelled per annum	....	58,500
Surface Sweepings and Domestic Refuse Collected and disposed of per annum	....	34,000 Tons
Average cost of collection and disposal	....	17/- per Ton

SEWERS.

Dimensions	Location	Description	Length in Yards
54"x36"	Ship Street	Concrete Culvert	130
48"x37"	Alfred Street	"	87
12"	Lover's Walk	Stoneware	300
9"	"	"	600
9"	Old Youghal Road	"	100
12"	Pembroke Street	"	130
18"	Barrack Street	"	170

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