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Borough of Harrogate

ANNUAL REPORT

OF THE

MEDICAL OFFICER

OF HEALTH

FOR THE YEAR

1940

BY

D. D. PAYNE, M.D., B.S., D.P.H.

Medical Officer of Health.





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D. D. PAYNE, M.D., B.S., D.P.H.

Medical Officer of Health.

THE HEALTH COMMITTEE, 1940.

CHAIRMAN : COUNCILLOR RHODES.

VICE-CHAIRMAN : COUNCILLOR SIR HAROLD MIDDLEBROOK.

THE MAYOR (COUNCILLOR JOHN CARUS TOPHAM)

ALD. FOSTER	COUN. HESSELWOOD	COUN. NEWSOME
„ STOTT	„ HOLMES	„ RHODES
„ WEBSTER	„ HOUTON	„ RICHARDSON
COUN. BAGSHAW	„ MAIL	„ SCHOFIELD
„ BURN	„ MIDDLEBROOK	„ WHITELEY
„ FERRAND	„ MYERS	

HEALTH SUB-COMMITTEE :

CHAIRMAN : COUNCILLOR RHODES.

VICE-CHAIRMAN : COUNCILLOR SIR HAROLD MIDDLEBROOK.

THE MAYOR	COUN. BAGSHAW	COUN. NEWSOME
ALD. STOTT	„ FERRAND	„ RHODES
„ WEBSTER	„ HOLMES	„ SCHOFIELD
	„ MIDDLEBROOK	

MATERNITY AND CHILD WELFARE SUB-COMMITTEE :

CHAIRMAN : COUNCILLOR RHODES.

VICE-CHAIRMAN : COUNCILLOR SIR HAROLD MIDDLEBROOK.

THE MAYOR	COUN. HESSELWOOD	COUN. NEWSOME
ALD. WEBSTER	„ HOLMES	„ RICHARDSON
COUN. FERRAND	„ MIDDLEBROOK	„ RHODES
	„ MYERS	

Co-opted Members.

MRS. BOLLAND
MRS. IMESON
MRS. LAWN

MRS. THOMPSON
MRS. WEBSTER

**To the Mayor, Aldermen, and Councillors of the
Borough of Harrogate.**

Gentlemen,

I have the honour to present to you for your information my Annual Report on the Health and Sanitary circumstances of the Borough of Harrogate for the year 1940.

The Report appears in an abbreviated form, having regard to the need of strict economy in the use of paper at the present time.

One of the most important and unwelcome events recorded was the outbreak of Acute Poliomyelitis, 77 cases occurring in the Borough. My thanks are due to the Regional Office of the Ministry of Health for the assistance they rendered in dealing with the outbreak, to the local practitioners for their full co-operation, and also to the staff of the Harrogate General Hospital. It was largely owing to the skilled treatment that the more serious cases admitted to the General Hospital received, that the after results of these cases have proved so much more favourable than might have been expected.

Details of the collection of waste materials are given in this Report, and Harrogate may be congratulated on the results achieved. Credit is largely due to the Chairman of the Harrogate Health Committee, who is also Chairman of the Salvage Committee, for his zest and enthusiasm, and to the staff of the Cleansing Department, on whom much additional work devolved.

I wish to express my gratitude to the personnel—both whole and part-time volunteers—of the First Aid Parties and First Aid Posts who have so devotedly given their time and effort to this section of the work of the Civil Defence Services.

In conclusion I desire to acknowledge the support and assistance I have received from the Chairman and Members of the Health Committee. To my staff for the hard work they have put in during the year and for their unstinted co-operation and loyalty I tender my thanks.

I am,

Gentlemen,

Your obedient servant,

D. D. PAYNE,

Medical Officer of Health.

Public Health Department,
Municipal Offices,
Harrogate.
October 1941.

PUBLIC HEALTH STAFF, 1940.

Medical Officer of Health and School Medical Officer :

D. D. PAYNE, M.D., B.S., D.P.H.

Assistant Medical Officer for Maternity and Child Welfare (part time) :

GLADYS KAY, B.Sc., M.D., M.B., B.S. Lond., M.R.C.S., L.R.C.P.

Chief Sanitary Inspector :

H. WALLS, A.R.S.I. (Certified Meat Inspector).

Sanitary Inspector and Cleansing Inspector :

V. OVERSBY, M.R.S.I. (Certified Meat Inspector).

Sanitary Inspectors :

W. BLACK, M.S.I.A. (Certified Meat Inspector).

a J. F. ASPINALL, M.S.I.A. (Certified Meat Inspector).

Public Analyst :

FRED W. M. JAFFÉ, B.Sc., F.I.C.

Health Visitors and School Nurses :

Miss A. WARDLE, C.M.B., M.R.S.I., Cert. of Ministry of Health
(Senior Health Visitor).

Miss M. NIBLETT, C.M.B.

Miss B. M. WILSON, C.M.B.

Miss N. GREEN, C.M.B.

Miss M. LANGTON, C.M.B., Cert. of Ministry of Health.

Miss C. B. RAMSAY, C.M.B., Cert. of Ministry of Health.

Clerical Staff :

a R. W. LEEMING.
L. R. WILKINSON.
E. W. SWABY.
Miss M. STARKEY.

H. K. PEARSON.
Miss A. PULLAN.
Miss M. JAKES.
b Miss S. M. CLARE.

Miss M. UNSWORTH
Miss M. LEAF

} Clinic. *c*

a On Active Service since commencement of war.

b Commenced duty on permanent staff, March, 1940.

c Part-time Child Welfare work.

GENERAL STATISTICS

[illegible]

TABLE I. VITAL STATISTICS OF HARROGATE FOR 1940 AND PREVIOUS YEARS

	Estimated Population.	Nett Births.		Nett Deaths.			
		No.	Rate.	Under 1 year of age.		At all ages.	
				No.	Rate per 1000 Live Births.	No.	Rate.
1912	34,400	500	14.5	32	64.0	320	9.3
1913	34,960	582	16.3	45	77.3	423	11.9
1914	35,030	513	14.6	36	70.2	371	10.6
1915	35,030	503	14.4	47	93.4	508	14.5
1916	33,204 <small>Death rate</small> 36,127 <small>Birth rate</small>	530	14.7	42	79.2	412	12.4
1917	33,204 <small>Death rate</small> 36,127 <small>Birth rate</small>	415	11.5	26	62.6	397	11.9
1918	33,245 <small>Death rate</small> 37,240 <small>Birth rate</small>	398	10.7	37	93.0	461	13.9
1919	36,231 <small>Death rate</small> 37,742 <small>Birth rate</small>	431	11.4	22	51.0	391	10.8
1920	37,674	619	16.4	36	58.2	422	11.2
1921	34,440	482	14.0	35	72.6	387	11.2
1922	34,490	485	14.1	30	62.0	419	12.1
1923	34,280	480	14.0	30	62.5	364	10.6
1924	34,300	485	14.1	31	63.9	440	12.8
1925	34,160	469	13.7	30	64.0	456	13.3
1926	35,500	474	13.4	34	71.7	471	13.3
1927	36,070	448	12.4	18	40.2	460	12.8
1928	36,880	445	12.1	30	67.4	466	12.6
1929	37,590	441	11.7	17	38.5	551	14.7
1930	37,590	464	12.3	21	45.3	513	13.6
1931	38,600	460	11.9	35	76.1	529	13.7
1932	38,590	471	12.2	16	34.0	510	13.2
1933	38,850	452	11.6	21	46.5	565	14.5
1934	39,210	442	11.3	21	47.5	573	14.6
1935	39,270	457	11.6	28	61.2	544	13.8
1936	39,210	460	11.7	30	65.2	550	14.0
1937	39,110	470	12.0	24	51.1	559	14.3
1938	42,885	514	12.0	25	48.6	647	15.1
1939	46,020	579	12.6	25	43.0	646	14.0
1940	52,200	583	11.2	35	59.2	737	14.1

	M.	F.	Total.	
Live Births: Leg.	269	274	583	Birth Rate 11.2
Illeg.	20	20		
Deaths	326	411	737	Death Rate 14.1
No. of Women dying in, or in consequence of, Childbirth... 1				
Death rates of Infants under one year of age per 1,000 live births:				
Legitimate, 49.7, Illegitimate, 20.0				
All Infants.....				59.2
Deaths from Measles (all ages)				0.02
do. Whooping Cough (all ages)				0.00
do. Diarrhoea (under two years)				0.00

TABLE II.
CAUSES OF DEATH IN HARROGATE BOROUGH, 1940.

Causes of Death.						1940.	
						Male	Female
(Civilians only) All Causes ..						326	411
1	Typhoid and Paratyphoid Fevers					1	—
2	Cerebro-spinal Fever					2	1
3	Scarlet Fever					1	—
4	Whooping Cough					—	—
5	Diphtheria					3	1
6	Tuberculosis of Respiratory System					8	6
7	Other forms of Tuberculosis					7	1
8	Syphilitic Disease					2	—
9	Influenza					6	10
10	Measles					1	—
11	Acute Poliomyelitis and Polioencephalitis					3	—
12	Acute Infectious Encephalitis					1	—
13M	Cancer of Buccal Cavity and Oesophagus (males only)					3	—
13F	Cancer of Uterus					—	5
14	Cancer of Stomach and Duodenum					5	12
15	Cancer of Breast					—	10
16	Cancer of all other sites					29	34
17	Diabetes					7	4
18	Intra-cranial Vascular Lesions					33	63
19	Heart Disease					86	96
20	Other Diseases of Circulatory System					9	16
21	Bronchitis					21	28
22	Pneumonia					11	23
23	Other Respiratory Diseases					6	8
24	Ulceration of the Stomach or Duodenum					7	1
25	Diarrhoea (under 2 years of age)					—	—
26	Appendicitis					—	2
27	Other Digestive Diseases					6	13
28	Nephritis					7	19
29	Puerperal and post-abortive Sepsis					—	—
30	Other Maternal Causes					—	1
31	Premature Birth					4	2
32	Congenital Malformations, Birth Injury, Infantile Disease					5	7
33	Suicide					—	4
34	Road Traffic Accidents					7	1
35	Other Violent Causes					8	13
36	All other Causes					37	30

TABLE III.

INFANT MORTALITY, 1939 and 1940.

Nett Deaths from Stated Causes at various Ages under 1 Year of Age.

Cause of Death.	1939	1940									
		Under 1 week.	1-2 weeks.	2-3 weeks.	3-4 weeks.	Total under 4 weeks.	4 wks. and under 3 mths.	3 and under 6 months.	6 and under 9 months.	9 and under 12 months.	Total Deaths under 1 yr.
Measles	—	—	—	—	—	—	—	—	—	—	—
Scarlet Fever	—	—	—	—	—	—	—	—	—	—	—
Whooping Cough	—	—	—	—	—	—	—	—	—	—	—
Diphtheria and Croup	—	—	—	—	—	—	—	—	—	—	—
Tuberculous Meningitis	—	—	—	—	—	—	—	—	—	—	—
Abdominal Tuberculosis	—	—	—	—	—	—	—	—	—	—	—
Other Tuberculous Diseases	—	—	—	—	—	—	—	—	—	—	—
Meningitis (not Tuberculous)	—	—	—	—	—	—	—	—	—	—	—
Convulsions	—	1	—	—	—	1	1	—	—	—	2
Encephalitis	—	—	—	—	—	—	—	—	1	—	1
Bronchitis	1	—	—	—	—	—	—	1	—	—	1
Pneumonia (all forms)	2	1	—	—	—	1	1	3	3	—	8
Diarrhoea, Enteritis and Gastritis	2	—	—	—	—	—	—	—	—	—	—
Syphilis	—	—	—	—	—	—	—	—	—	—	—
Asphyxia	—	—	—	—	—	—	—	—	1	—	1
Injury at birth	1	2	—	—	—	2	—	—	—	—	2
Atelectasis	1	1	1	1	—	3	—	—	—	—	3
Congenital Malformations	3	2	1	—	—	3	—	—	—	—	3
Premature Birth	9	6	—	—	—	6	—	—	—	—	6
Atrophy, Debility and Marasmus.....	—	—	—	—	—	—	—	—	—	—	—
Other Causes	6	5	—	—	—	5	—	1	—	1	7
Totals	25	18	2	1	—	21	2	5	5	1	34

TABLE IV.

BIRTH-RATES, DEATH-RATES, ANALYSIS OF MORTALITY, MATERNAL DEATH-RATES, and CASE-RATES for certain Infectious Diseases in the year 1940.

(England and Wales, London, 125 Great Towns and 148 Smaller Towns.)
(Provisional Figures based on Weekly and Quarterly Returns.)

	England and Wales.	126 County Boroughs and Great Towns including London.	148 Smaller Towns (Resident Populations 25,000 to 50,000 at 1931 Census).	London Administrative County.
Rates per 1,000 Population.				
Births—				
Live	14. 6	16. 0	15. 7	13. 7
Still	0.55	0.64	0.55	0.44
Deaths—				
All Causes	14. 3	15. 8	12. 8	17. 8
Typhoid and Paratyphoid fevers	0.00	0.00	0.00	0.00
Smallpox	0.00	0.00	0.00	0.00
Measles	0.02	0.02	0.02	0.01
Scarlet fever	0.00	0.00	0.00	0.00
Whooping Cough	0.02	0.02	0.02	0.00
Diphtheria	0.06	0.07	0.05	0.01
Influenza	0.32	0.29	0.30	0.18
Notifications—				
Whooping Cough	1.34	1.29	1.35	0.22
Smallpox	0.00	0.00	0.00	0.00
Scarlet fever	1.63	1.53	1.57	0.82
Diphtheria	1.16	1.29	1.21	0.61
Enteric fever	0.07	0.06	0.10	0.06
Erysipelas.....	0.33	0.36	0.30	0.35
Pneumonia	1.20	1.37	1.00	0.87
Cerebro-Spinal Fever	0.32	0.33	0.29	0.28
Measles	10.24	9.23	9.99	1.78
Rates per 1,000 Live Births.				
Deaths under 1 year of age	55	61	54	50
Deaths from Diarrhoea and Enteritis under 2 years of age.....	4.6	5.9	4.4	5.8
Rates per 1,000 Total Births (i.e. Live and Still).				
Maternal Mortality—				
Puerperal Sepsis	0.52	Not available		
Others	1.64			
Total	2.16			
Notifications—				
Puerperal fever	11.96	13.90	9.73	{ 3.34 13.30 Including Puerperal Fever
Puerperal pyrexia.....				

BOROUGH OF HARROGATE.—NOTI

(These figures refer to cases actually notified in the
differ slightly from the figures sup

Disease.	Total Cases Notified.	Number of Cases Notified.									
		At Ages—Years.									
		U'd'r 1 yr.	1-2 yrs.	2-3 yrs.	3-4 yrs.	4-5 yrs.	5-10 yrs.	10-15 yrs.	15-20 yrs.	20-35 yrs.	35-45 yrs.
Diphtheria (including Mem- braneous Croup)	30			1		3	17	4	2	2	1
Scarlet Fever	74			3	1	4	37	9	4	12	2
Enteric Fever (including Para- Typhoid)	5		1			1					1
Puerperal Pyrexia	8								1	4	3
Encephalitis Lethargica	1									1	
Small Pox	Nil										
Pneumonia	82	3	3	2	4	1	10	2	2	5	12
Erysipelas	17									2	1
Ophthalmia Neonatorum	1	1									
Cerebro-Spinal Fever	13	2				1	3			4	
Measles	788	18	49	64	87	65	349	48	34	59	10
Whooping Cough	16	1		3	4	3	4	1			
Acute Poliomyelitis	76	2	2	6	3	5	24	20	11	3	

VE V.

VE DISEASES during Calendar Year 1940.

ough, and include non-residents, and they therefore
by the Registrar General).

	No. of Cases admitted to Hospit'l.	Total No. of Deaths.	Number of Deaths.											
			At Ages—Years.											
			U'd'r 1 yr.	1-2 yrs.	2-3 yrs.	3-4 yrs.	4-5 yrs.	5-10 yrs.	10-15 yrs.	15-20 yrs.	20-35 yrs.	35-45 yrs.	45-65 yrs.	65 and over
	30	4					1	3						
	65	1						1						
	4	1											1	
	6													
	1													
	5	8		2								2	1	3
	1	1												1
	1													
	12	4					1	2					1	
	3	1		1										
	54	4							1	2		1		

(A) STATISTICS AND SOCIAL CONDITIONS OF THE AREA

1. POPULATION.

The Population at the middle of 1940 is estimated by the Registrar-General at 52,200.

2. UNEMPLOYMENT.

I learn from the Employment Exchange that the number of unemployed persons in the district (which includes neighbouring areas) at the end of December, 1940, was 441, a substantial decrease of 1,383, as compared with 1939.

3. BIRTHS.

The number of live births registered in Harrogate during the year was 701—348 males and 353 females, but the corrected *figure supplied by the Registrar-General is 583—289 males and 294 females. The birth rate is 11.2 per 1,000, which is 3.4 below the rate for England and Wales, and 4.5 below that for the 148 smaller towns.

There were 40 illegitimate births, 20 males and 20 females; representing 6.9 per cent. of the live births and an illegitimate birth rate of 0.77 per 1,000; the corresponding figures for 1939 were 7.6 per cent. and 0.6 per 1,000.

Still-Births.

There has been a slight increase in the number of still-births, 36 (19 males and 17 females) were registered as compared with 26 in the previous year, but the corrected figure supplied by the Registrar-General is 23 (12 males and 11 females) as compared with 13 for the preceding year. This gives a rate of 38.0 per 1,000 total births and a still-birth rate of 0.44 per 1,000 of the population.

4. DEATHS.

The number of deaths registered during the year was 781 (357 males and 424 females), but the corrected number of deaths of residents as supplied by the Registrar-General is 737 (326 males and 411 females). The death rate using the latter figure is 14.1, which is the same as last year and which is 0.2 below that for England and Wales.

* The correction made by the Registrar General adjusts the number of births for Inward and Outward Transfers.

Institution Deaths.

Of the 781 deaths which occurred in the Borough, 214 occurred in public institutions, representing 27.4 per cent. of the whole number.

5. INFANT MORTALITY.

See section on Maternity and Child Welfare, page 29.

(B) GENERAL PROVISION OF HEALTH SERVICES IN THE AREA

1. PUBLIC HEALTH OFFICERS OF THE AUTHORITY.

The names and qualifications of these are set out on page 4.

2. HEALTH SERVICES.

These were fully set out in the Annual Report for 1938, and only changes which have taken place during the year are noted in this Report.

Clinics and Treatment Centres.

The arrangements as specified in the 1939 Report are still in force.

(C) SANITARY CIRCUMSTANCES OF THE AREA

1. WATER SUPPLY.

All houses in the old Borough are supplied with Corporation water. The majority of the houses in the Added Area are supplied with Corporation water; of the remainder some twenty-three houses obtain their supply from a deep well belonging to the Wetherby Rural District Council, and approximately thirty-five houses derive their supply from thirteen different wells or springs. A sample taken from the Wetherby Council well examined during the year gave a satisfactory result. Samples of water taken from other wells, except Throstle Nest Farm, were found to be satisfactory, and samples taken from an open stream at Burn Bridge used for domestic purposes for two condemned cottages, from which the tenants have not been rehoused owing to the war, were unsatisfactory.

As regards Throstle Nest Farm the well was cleaned out towards the end of the year and the owner requested to carry out other works. The occupants of the two cottages at Burn Bridge referred to above have made arrangements to use the water of a house nearby, where the supply is satisfactory.

The Corporation water, which is obtained from Upland sources, is ample in quantity and is analysed regularly by the Waterworks Department Analyst throughout the year. From these reports it appears to be a pure and wholesome water.

2. DRAINAGE AND SEWERAGE.

No extensions have been made during the year.

3. RIVERS AND STREAMS.

These come under the supervision of the West Riding Rivers Board, and I am not aware that any of the streams in the area are polluted to any extent.

4. CLOSET ACCOMMODATION.

Excrement disposal is almost entirely by water carriage, there being in the Borough approximately 20,370 water closets and 88 waste water closets.

5. SALVAGE.

During the year the public have shown greatly increased interest and enthusiasm in the salvage of waste materials. This is in no small part due to the house to house canvass carried out by the Women's Voluntary Services.

Handbills have been distributed and films shown in the cinemas to promote Salvage returns. The local press have also been very helpful in publishing articles on Salvage matter. Every endeavour has been made to bring the activities of the Cleansing Department to the public eye through such channels as the Salvage Display Shop in Cambridge Street, posters and other literature.

Waste Paper.

The total waste paper and cardboard recovered and sold during 1940 was 383 tons, which shows the notable increase on 1939 of 135 tons.

The better grades of paper are sorted and sold at much higher prices. Many large firms co-operate by disposing of receipt books, ledgers, etc., and entrust the Department with the disposal of their confidential matter and records.

Kitchen Waste.

Many appeals, both through the press and by handbills, have been made to the public to save this material and to keep it separate from the household refuse. During the year 170 tons have been collected. This is by no means the whole of Kitchen Waste which is collected in the Town, as many tradespeople, farmers, and others collect pig swill by private arrangements. One firm alone collects an amount equal to that collected by the Cleansing Department.

Towards the end of the period under review the Cleansing Department was collecting 5 tons of Kitchen Waste per week, and this is sufficient to feed 200 pigs for one week.

Bottles and Jars.

A large quantity of these commodities were salvaged during the year and it is pleasing to put on record that unlike some Authorities we have had no difficulty in finding a market for them.

Bones.

During the year 6 tons of bones have been collected. The Salvage of bones commenced only in May, 1940, so no figures are available for comparison with the previous year. These are sorted out of the Kitchen Waste before the latter commodity is sold,

Old Rubber, Motor Tyres, etc.

A considerable quantity of these have been collected, and at one time it was difficult to find a suitable market on account of the risk of fire from incendiary bombs when large quantities were stored. A market has recently been found for these.

Scrap Metal (other than iron railings).

The flow of Scrap Metal has been very slow during the year as one may anticipate after a peak had been reached following previous appeals.

Tins.

This commodity has shown a decided increase during the year as small tins as well as large ones are now being salvaged and considerably add to the weight.

88 tons have been recovered compared with 44 tons for 1939.

Iron Railings.

During 1940 Harrogate contributed 132 tons of iron railings to the Government's appeal for this type of scrap. This result has only been achieved by the expenditure of a considerable amount of time and energy. Railings are only removed after the consent of both owner and occupier have been obtained. The cost of removal and making good the masonry is deducted from receipts from the sale of the metal.

Receipts.

The total value of salvaged materials collected and sold during the twelve months ended 31st December, 1940, amounted to £2,764 16s. 6d., *i.e.* an average of £230 8s. 0d. per month.

These satisfactory results are largely due to the enthusiasm of the Salvage Committee and the untiring efforts of the Cleansing Superintendent.

6. NOTICES SERVED.

During the year 691 notices under the Public Health Acts for the abatement of nuisances, etc., were served; 674 of these were preliminary, of which 623 were complied with and 17 were legal notices, 9 of which were complied with, leaving 8 legal and 51 informal notices uncomplied with at the end of the year.

Total number of visits and inspections made	....	....	12,806
Total number of nuisances reported by Inspectors, 1940			1,669
Total number of nuisances left over at the close of 1939			36
Total number of nuisances left over at the close of 1940			55
Total number of nuisances abated during 1940	....	....	1,650
Number of complaints received and investigated during 1940	....	....	341

7. SMOKE ABATEMENT.

Harrogate is a residential town with practically no factories, and smoke nuisances exist only to a very small extent. During the year a prosecution was taken against the owners of a Harrogate Laundry, for failure to comply with a Nuisance Order in respect of excessive smoke emission, made by the Court on the 23rd of August, 1939, when a fine of £2 was inflicted. The magistrates also warned the defendants to take extra care to prevent a smoke nuisance occurring on a Monday morning when the boilers are cold.

The following table, for which I am indebted to Mr. Woodmansey, M.Sc., Chemist to the Royal Baths, shows that the amount of atmospheric impurity is small.

ATMOSPHERIC IMPURITIES.

(average figures for 1940.)

	Total Solids.	Insoluble Matter (Grit).	Sulphate.	Chloride.
Harrogate Observatory	288	43	36	33
London (S. Kensington)	793	258	105	37
Bourneville	398	112	36	29
Otley	470	118	80	56
Hove	1198	230	169	222
Leeds : Headingley	411	122	44	49
Park Square	1104	442	102	90
Templenessam	453	103	48	53
Rothamsted	259	53	—	—
Southport	232	51	39	37
Southampton	559	250	50	37

8. SWIMMING BATHS.

There are two Corporation owned Swimming Baths in the district, one in Harrogate and one in Starbeck. Both are provided with continuous filtration plants. Samples of bath water are examined weekly and with two exceptions the bacteriological tests were satisfactory.

9. SCHOOLS.

No further changes have taken place since my last year's Report.

10. SHOPS ACTS, 1912-38.

During the year 256 inspections were made under the provisions of the above Acts.

Dirty or defective w.c.'s and wash basins were remedied in six cases.

(D) HOUSING**1. HOUSING STATISTICS, 1940.**

Number of new houses erected during 1940—

(1) By the Local Authority	18
(2) By Private Enterprise	76

Of the above, 66 houses were for the use of the working class.

1. Inspections of Dwelling-houses during the year :—

(1) (a)	Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	218
(b)	Number of Inspections made for the purpose	898
(2) (a)	Number of dwelling-houses (included under sub-head (1) above), which were inspected and recorded under the Housing Consolidated Regulations	26
(b)	Number of inspections made for the purpose	156
(3)	Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	—
(4)	Number of dwelling-houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation	142

2. Remedy of Defects during the year without Service of Formal Notices.

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their Officers	108
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3. Action under Statutory Powers during the year.

A.—Proceedings under Sections 9, 10 and 16 of the Housing Act, 1936.

(1)	Number of dwelling-houses in respect of which notices were served requiring repairs	—
(2)	Number of dwelling-houses which were rendered fit after service of formal notices	—
(a)	By owners	—
(b)	By Local Authority in default of owners	—

B.—Proceedings under Public Health Acts.

(1)	Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	7
(2)	Number of dwelling-houses in which defects were remedied after service of formal notices	2
(a)	By owners	2
(b)	By Local Authority in default of owners	—

C.—Proceedings under Sections 11 and 13 of the Housing Act, 1936.

(1)	No. of representations, etc., made in respect of dwelling-houses unfit for habitation	—
(2)	Number of dwelling-houses in respect of which Demolition Orders were made	—
(3)	Number of dwelling-houses demolished in pursuance of Demolition Orders	—

D.—Proceedings under Section 12 of the Housing Act, 1936.

(1)	Number of separate tenements or underground rooms in respect of which Closing Orders were made	—
(2)	Number of separate tenements or underground rooms in respect of which Closing Orders were determined, the tenement or room having been rendered fit	—

4. Housing Act, 1936.—Overcrowding.

(a)	(i)	Number of dwellings overcrowded at the end of the year	20
	(ii)	Number of families dwelling therein	20
	(iii)	Number of persons dwelling therein	140
(b)		Number of new cases of overcrowding reported during the year	9
(c)	(i)	Number of cases of overcrowding relieved during the year	6
	(ii)	Number of persons concerned in such cases	28.5
(d)		Particulars of any cases in which dwelling-houses have again become overcrowded after the Local Authority have taken steps for the abatement of overcrowding	—
(e)		Any other particulars with respect to overcrowding conditions upon which the Medical Officer of Health may consider it desirable to report	—

(E) INSPECTION AND SUPERVISION OF FOOD

(a) MILK SUPPLY.

1. Farms and Dairies.

At the end of the year there were 40 cow-keepers on our register; the number of sheds is 68 and the average total number of cows in milk was 588.

26 cow-keepers are wholesale dealers as well as retailers, 13 are wholesale dealers only and 1 is a retailer only.

226 visits of inspection have been made and the cattle and sheds have been kept in a fair state of cleanliness.

One of our cow-keepers is licensed to produce "Tuberculin Tested" milk, and 7 are licensed to produce "Accredited" milk.

There were on the register at the end of the year 41 wholesale and retail purveyors, 87 retail purveyors and 28 wholesale traders; of the wholesale and retail dealers 8, of the retailers 24, and of the wholesalers only 15, had their premises outside the Borough.

380 visits of inspection have been made to these places and I am pleased to report that they have generally been found to be kept in a cleanly condition.

2. Graded Milks.

Milk (Special Designations) Orders, 1936 & 1938.

One license for the processing and one for the sale of "Pasteurised" milk, and two licences for the bottling, and twelve licences for the sale of "Tuberculin Tested" milk, were issued by the Council during the year. One supplementary licence to sell "Tuberculin Tested" milk was also granted.

The whole of the "Tuberculin Tested" milk is obtained from six producers, only one of whom has his premises in the Borough.

3. Milk and Tuberculosis.

During the year 30 samples of milk were submitted to the County Laboratory to be examined for the presence of bacillus tuberculosis and the result was positive in one case. The Veterinary Officer of the Ministry of Agriculture was at once notified, so that he could take the necessary steps to deal with the offending cows.

4. Ice Cream.

The Harrogate Corporation Act, 1935, requires any person being a manufacturer or vendor, or merchant, or dealer in, ice cream or similar commodity, and any premises used or proposed to be used in the manufacture or sale of ice cream, or other similar commodities, to be registered with the Corporation, and at the end of the year 26 manufacturers and vendors, and 32 vendors only, were registered. The number of premises used for the manufacture or sale of ice cream registered was 58.

Eight samples of ice cream were bacteriologically examined during the year with varying results. The best sample was found to contain 400 bacteria in a cubic centimetre, and the worst sample contained over 330,000 bacteria in a cubic centimetre.

The two best samples bacteriologically were samples of ice cream supplied by large wholesale dealers outside the district, whilst the worst sample came from a street vendor.

(b) MEAT AND OTHER FOODS.

1. Slaughterhouses.

1,000 visits of inspection have been made by the Sanitary Inspectors to the seven private slaughterhouses in the Borough, namely: Hunter's 772, Coulson's 7, Goodrick's 188, Croft's 15, Staples' 5, Johnson's 10, and Dunn's 3.

I am pleased to report that they have been kept in a cleanly condition.

Hunter's slaughterhouse, Starbeck, was taken over by the Government as a controlled slaughterhouse as from Monday, January 15th, 1940, and came into use on the following day, and the other six slaughterhouses were then closed down. Goodrick's slaughterhouse, Belford Square, was similarly taken over, and re-opened during the week ending June 7th, 1940.

Certain alterations at Hunter's slaughterhouse, which were suggested by this Department to the Ministry of Food, namely, the provision of a door in the wall of one of the outbuildings to allow cattle to enter the lairs without crossing the floor of the slaughterhouse when killing is in progress, have been carried out; also the removal of old skin lockers near the side entrance. These alterations, etc., constitute a decided improvement.

2. Inspection of Meat, and other Foods.

This is carried out by the Sanitary Inspectors, and the services of a Veterinary Surgeon are available in doubtful cases. So far as is possible the Inspector arranges to be present at the Slaughterhouse during or shortly after slaughter, and particular attention is paid to the shops of those butchers who slaughter in other areas.

2,889 visits of inspection have been made to shops and other premises where food is exposed, manufactured or prepared for sale. Only one uncleanly condition was reported and on a subsequent visit this was found to be remedied.

The following lists show the number of carcasses of food animals inspected during the year and the weight and description of meat and other foods destroyed during the year. Most of the meat destroyed was surrendered at the slaughterhouse.

	Cattle.	Calves.	Sheep or Lambs.	Pigs.
Number killed and Inspected	3,569	1,198	18,739	3,004

The unsound meat destroyed during the year was :—

Beef	....	....	....	....	38,574 lbs.
Veal	....	....	....	....	497 „
Mutton	....	....	....	....	2,135 „
Lamb	....	....	....	....	58 „
Pork	....	....	....	....	10,138 „
Offals	....	....	....	....	28,698 „
Total	....	....	....	....	80,100 „

=35 tons, 15 cwts., 1 stone, 6 lbs.

Of the above the following amount was destroyed for tuberculous disease :—

Beef	....	....	....	....	27,523 lbs.
Veal	....	....	....	....	51 „
Pork	....	....	....	....	9,002 „
Offals	....	....	....	....	16,086 „
Total	....	....	....	....	52,662 „

=23 tons, 10 cwts., 1 stone, 8 lbs.

Other foods destroyed were :—

146 tins of Milk.	4 Milk Puddings.
13 „ Cream.	40 lbs. of Pears.
278 „ Fruit.	1 cwt. of Potatoes.
91 „ Vegetables.	1 bottle of Meat Extract.
115 „ Fish.	56 lbs. of Sausage.
9 „ Meat Paste.	3 cases of Frozen Rabbits.
48 „ Meat.	93 lbs. of Bacon.
1 „ Ham.	56 lbs. of Fresh Fish.
9 „ Soup.	6 quarts of Shrimps.
63 bags of Cabbages.	

The total amount of butchers' meat destroyed this year is 21 tons, 7 cwts., 2 quarters, 1 stone, 9 lbs. more than last year, and that destroyed for tuberculous disease is 13 tons, 0 cwts., 1 quarter, 1 stone, 6 lbs. more.

(c) BAKEHOUSES.

At the end of the year there were 44 bakehouses on the register, made up of 33 factory bakehouses employing power, 6 factory bakehouses where no power is used, and 5 bakehouses where no persons other than the proprietors are employed. Two of these bakehouses are underground.

179 visits have been made to these places, and generally speaking they have been kept in a cleanly condition.

(d) ADULTERATION.

During the year 231 samples of foods were submitted to the Public Analyst for analysis, 225 formal and 6 informal. 20 were not of the nature and substance demanded by the purchasers. In five instances legal proceedings were taken.

(F) PREVALENCE OF, AND CONTROL OVER INFECTIOUS DISEASES

(a) NOTIFIABLE DISEASES.

The number of cases notified and the number of deaths which occurred are set out in Table V. on pages 10 and 11.

1. Scarlet Fever.

Scarlet Fever was much more prevalent than in the previous year. The number of notifications was 74 as compared with 30. The attack rate is 1.42 per 1,000 as against 0.7 in 1939. There was one death from Scarlet Fever during the year, which was in a boy aged nine years, who was also suffering from Diphtheria.

The age and sex distribution is shown on the table underneath.

	Under 1 year	1-2	2-3	3-4	4-5	5-15	15-25	25-35	35-45	45-65	65 up- wards	Totals
Males	—	—	1	1	1	18	4	—	5	2	—	32
Females	—	—	2	1	2	24	8	4	—	—	1	42
Totals	—	—	3	2	3	42	12	4	5	2	1	74

Return Cases.

Two cases were classed as "return" cases. This is about 3 per cent. of the number admitted to hospital as compared with 3 per cent. last year.

2. Diphtheria.

Diphtheria was more prevalent during the year, 30 cases having been notified as compared with 13 during 1939, giving an attack rate of 0.57 per 1,000 as against 0.29.

There were 4 deaths due to Diphtheria, giving a case mortality of 13.33 and a death-rate of 0.08 per 1,000 as compared with 0.06—the rate for England and Wales.

The age and sex distribution is shown in the following table :

	Under 1 year	1-2	2-3	3-4	4-5	5-15	15-25	25 and up- wards	Totals
Male	—	—	1	—	3	14	—	—	18
Female	—	—	—	—	—	7	3	2	12
Totals	—	—	1	—	3	21	3	2	30

Only 1 of these 30 cases had been immunised against Diphtheria, and this case had a very mild attack, making a rapid and uninterrupted recovery.

No "carriers" were discovered during the year.

Immunisation.

This has been carried out on the same lines as before. The following table shows the number immunised during the year; it is still disappointingly small, especially among the younger children.

Under 1 year	1-2 years	2-3 years	3-4 years	4-5 years	5-10 years	10-15 years	15-20 years	Over 20 years	Total
1	6	6	10	4	53	33	2	—	115

Diphtheria Antitoxin.

The arrangements for the supply of free anti-toxin for necessitous cases continued in force, and during the year 68,000 units were supplied to two cases at a cost of £3-19-6.

3. Enteric Fever.

5 cases of Enteric Fever were notified during the year as compared with 11 during 1939. One patient, a commercial traveller, died in a Harrogate Nursing Home, and it is probable he had contracted the infection outside Harrogate. The remainder of the cases were admitted to hospital, and made good recoveries.

4. Pneumonia.

There was an increase in the prevalence of Pneumonia, 82 cases being notified as compared with 48 during 1939.

5. Encephalitis Lethargica.

1 case was notified during the year as compared with 1 during 1939. The patient, who was a soldier, made a good recovery.

6. Cerebro Spinal Meningitis.

There was a considerable increase in the prevalence of Cerebro Spinal Meningitis, 13 cases being notified as compared with 1 during 1939. 4 cases were fatal. A "Carrier" case was discovered, who infected her mother and sister; the sister was unfortunately one of the fatal cases.

7. Dysentery.

1 case of Dysentery was notified during the year, as compared with 1 during 1939. The patient, who was a school-child, made a rapid recovery.

8. Acute Poliomyelitis.

A serious epidemic of Acute Poliomyelitis occurred in the Borough in 1940. This disease is also known as "Infantile Paralysis," but this name is misleading, since cases arise far more commonly in children of school age than in infants.

As an alternative to giving a summary of the outbreak in this Annual Report I am enclosing a reprint of a paper published in "Public Health" which deals more in detail with the epidemic. Since this article was published there are some amendments I would refer to here.

The total number of cases notified from within the Borough during 1940 was 76, but one further case has subsequently come to my knowledge which should have been notified to me during the epidemic, raising the total therefore to 77.

There were 5 fatal cases (a case fatality of 6.5 per cent.). This differs by one from the mortality given in my paper, and is accounted for by the death in May 1941, from Pneumonia of the case shown in my paper as suffering from total invalidity.

It has been possible with the assistance of the physicians of the Harrogate General Hospital and a medical officer of the Ministry of Health to re-assess the after-results of the 77 cases. The end-results being as follows :

Died	5
Severe crippling interfering seriously with the individual's capacity for work in later life	2
Crippling likely to impair working capacity....	5
Trivial disability that will probably clear up or cause no handicap	22
Completely recovered with no disability	43

These end-results in an epidemic of this serious disease can be considered highly satisfactory, being far better than might have been expected.

An analysis of the chief signs and symptoms shows that the commonest illnesses with which the disease in its early stages may be confused are acute rheumatism, influenza, and cerebro-spinal fever.

The following signs and symptoms occurring together are suggestive of Acute Poliomyelitis :

Aching muscles, vomiting, inability to sit up in bed, Kernigs sign present, absent or diminished reflexes.

9. Tuberculosis.

NEW CASES & MORTALITY during 1940.

Age Periods.	New Cases.				Deaths.			
	Respiratory.		Non-Respiratory.		Respiratory.		Non-Respiratory.	
	M.	F.	M.	F.	M.	F.	M.	F.
Under 1 year	-	-	-	-	-	-	-	-
1-5 years	-	-	2	1	-	-	1	-
5-15 „	1	1	4	2	-	1	-	-
15-25 „	4	4	5	5	-	3	1	-
25-35 „	4	2	1	-	-	-	-	-
35-45 „	2	3	-	-	1	2	-	-
45-55 „	4	-	-	-	4	-	1	-
55-65 „	2	2	-	-	3	-	-	-
65 and upwards	-	-	-	-	1	-	-	-
Totals	17	12	12	8	9	6	3	-

49 cases of Tuberculosis were notified during the year. There were 18 deaths from Tuberculosis during the year as compared with 27 in 1939. The death rate is 0.36 per 1,000, which is somewhat lower than that of the preceding year (0.61).

In 15 cases death was due to pulmonary Tuberculosis, and in 3 to Tuberculosis of other organs.

In 11 of the fatal cases notification had been received more than one year; in 3, more than six months; and in 4, less than six months before death. In 4 instances—22.2 per cent. of the total number of deaths—the case had not been notified before death.

10. Puerperal Pyrexia.

8 cases were notified during the year as compared with 11 during 1939. 6 cases, including one non-resident, were notified

from the Harrogate and District General Hospital. 1 case was notified from a Nursing Home, and 1 was nursed at home. They all made good recoveries.

11. Food Poisoning.

No case came to notice during the year.

12. Measles.

788 cases of Measles were notified during the year. The incidence was chiefly between the beginning of February and the end of July, when there was an epidemic. There was only 1 fatal case, which occurred in a child aged one year.

13. Whooping Cough.

16 cases were notified during the year, none of which were fatal.

(b) NOT-NOTIFIABLE DISEASES.

1. Mumps.

164 cases of Mumps came to notice during the year as compared with 83 cases during 1939.

2. Influenza.

Influenza appears to have been less prevalent than in the previous year; 16 deaths, 6 males and 10 females, were registered as compared with 20 during 1939. The death rate is therefore 0.31 per 1,000 as compared with that for England and Wales (0.32).

3. Cancer.

According to the Registrar-General 98 deaths—37 males and 61 females—were due to Cancer, but the local records show that 99—33 males and 66 females were due to this cause. Using the Registrar-General's figure, the death rate is 1.09, which is considerably higher than last year's figure 0.51.

The following table compiled from the local returns show the age and sex distribution :—

	AGE GROUPS.							Total
	Under 25	25-35	35-45	45-55	55-65	65-75	75 and over	
Males	—	1	—	1	7	12	12	33
Females	1	—	3	3	16	16	27	66
Totals	1	1	3	4	23	28	39	99

(c) DISINFECTION.

Disinfection of infected premises is carried out by the Council's staff; infected clothing, etc., is disinfected at the Joint Isolation Hospital.

Verminous clothing, etc., is also disinfected at the Isolation Hospital, but it is seldom that the necessity arises.

Disinfections were carried out at the following premises during the year :—

Houses	....	....	....	....	....	....	....	200
Orphanages	....	....	....	....	....	....	....	4
Hospital	....	....	....	....	....	....	....	1
Nursing Homes	....	....	....	....	....	....	....	3
Schools	....	....	....	....	....	....	....	3
Hotels	....	....	....	....	....	....	....	4
Nursery College	....	....	....	....	....	....	....	1
Cinema	....	....	....	....	....	....	....	1

(d) ERADICATION OF BED BUGS.

- (1) Number of houses found to be infested :

(a) Council Houses	....	....	....	....	....	1
(b) Other Houses	....	....	....	....	....	7

Number of houses disinfected :

(a) Council Houses	....	....	....	....	....	1
(b) Other Houses	....	....	....	....	....	7

- (2) Method employed for freeing infested houses from bed bugs.
Spraying with insecticides.
- (3) The methods employed for ensuring that the belongings of tenants are free from vermin before removal to Council houses.

Furniture and bedding subjected to " Cimex " process.

(G) MATERNITY AND CHILD WELFARE**(a) MATERNAL MORTALITY.**

There was one maternal death during the year. On enquiry from the certifying medical officer, I learnt that the toxæmia of pregnancy which was given as the third cause of death occurred 14 years ago and was, in his opinion, a contributory cause of the chronic nephritis which was the second cause of death. The Registrar-General ruled that the death be classified as puerperal albuminuria and nephritis. The death rate was therefore 1.6 as compared with a rate for England and Wales of 2.16 per 1,000 total births.

(b) MIDWIFERY AND MATERNITY SERVICES.**1. Municipal Midwives.**

During the year the three municipal midwives attended 187 confinements—104 as midwives and 83 as maternity nurses ; and they paid 1,020 ante-natal and 3,274 post-natal visits during the same period.

In addition, the Harrogate District Nursing Association and the Pannal District Nursing Association, both of which are subsidised by the West Riding County Council, attended 189 confinements—146 as midwives and 43 as maternity nurses. During the same period they have paid 1,207 ante-natal visits, and 3,406 post-natal visits.

2. Maternity Services.

The arrangements for the admission of complicated maternity cases to the General Hospital remain in operation.

The extent to which these services are utilised is set out below.

(1) Normal Maternity Cases—applications for admission to the General Hospital.

No. of applications received	....	....	....	....	....	26
No. granted	....	....	....	....	....	24
No. refused	....	....	....	....	....	2

(2) Complicated Maternity Cases—applications for admission to the General Hospital.

No. of applications received	....	....	....	....	....	61
No. granted	....	....	....	....	....	51
No. refused	....	....	....	....	....	7
No. withdrawn by applicant	....	....	....	....	....	3

(3) Grant in aid of Midwife's Fee.

No. of applications received	....	....	....	....	....	53
No. granted (43 mid. cases, 3 mat. cases)	....	....	....	....	....	46
No. refused	....	....	....	....	....	4
No. cancelled (patient admitted to Hospital)	....	....	....	....	....	3

(4) Puerperal Pyrexia—applications for admission to the General Hospital.

No. of applications received	....	....	....	....	....	3
No. granted	....	....	....	....	....	3
No. refused	....	....	....	....	....	—

(5) Home Helps.

No. of applications received	....	....	....	....	....	1
No. granted	....	....	....	....	....	—
No. refused	....	....	....	....	....	1

(c) INSTITUTIONAL PROVISION FOR MOTHERS.

Apart from the Hospital provision mentioned above, the only provision is the St. Monica's Home, which is maintained by voluntary subscriptions, and which, while primarily a rescue home, admits a certain number of unmarried mothers both before and after confinement.

(d) ANTE-NATAL CLINIC.

The following table shows in statistical form the work done at this Clinic, which is held on Tuesday afternoons and Wednesday mornings.

	1939.	1940.
(a) Total attendances	1,321	1,426
(b) Average attendance per session	13.7	14.0
(c) Number of individual mothers	†351	*370
Percentage of notified births (live and still) represented by the total numbers of women shown under (c) ...	59	62
Number referred for treatment	\$80	80
To Hospital for confinement	46	‡49
For Dental treatment	18	13
For miscellaneous reasons	16	13
Evacuees sent to Farnley Hall Emergency Maternity Home	—	5
* Includes 16 from County Areas.		
‡	3	..
†	16	..
\$	4	..

(e) COMPENSATION TO MIDWIVES.

Where a midwife brings or sends a patient to the Ante-Natal Clinic and that patient is sent to hospital for her confinement the Council pays to the Midwife the sum of 15s. as compensation.

Two applications for compensations were received during the year; one was granted and one was refused.

(f) STERILISED MATERNITY OUTFITS.

A supply of these is kept at the Ante-Natal Clinic and sold at cost price, or, in necessitous cases, given free.

The demand is small, and none were supplied during the year.

(g) CHILD WELFARE.**(a) Infant Mortality.**

During the year 34 resident infants—16 males and 18 females, died before reaching their first birthday. The infant mortality is, therefore, 57.5 per 1,000 live births.

As is nearly always the case, the mortality was mainly among newly born infants ; in 3 instances, 8.5 per cent. of the total number, the infant survived its birth for less than four weeks, and in 18 instances for less than 1 week. The neo-natal mortality, i.e. the deaths of infants under one month of age is 35.5 per 1,000 live births.

(b) Institutional Provision.

(1) Hospital Treatment of Children under Five years of Age.

The Agreement made with the General Hospital upon the transfer of the Municipal Babies' Hospital has been renewed. The Council accept liability for the maintenance of infants under five years of age suffering from malnutrition. Suitable cases are referred for admission by the Medical Officer of the Infant Welfare Clinics.

During 1940, 9 infants were admitted, 8 of whom were covered by the contributory scheme.

(2) St. Agnes' Home.

This Home is maintained by voluntary subscriptions and a grant from the Ministry of Health, and has accommodation for 14 infants, aged 1-18 months ; only illegitimate infants are received, and a charge of 10s. per week is made.

(c) Health Visiting.

The work of the Health Visitors has continued on the lines set out in former Reports.

The following table shows the work done during the year :

First visits to Infants	526
Subsequent visits to Infants	2,820
Visits to Children aged 1-5 years	4,257
Enquiries into Infant deaths	17
Visits to Cases of Measles under 5 years	306
Visits to Whooping Cough under 5 years	11
Visits to Cases of Ophthalmia Neonatorum	1
Visits to Expectant Mothers	165
Visits to Cases of Tuberculosis	79
Visits to Cases of Pneumonia	42
Miscellaneous visits	430
Total	8,654

In addition to Home Visiting the Health Visitors are on duty at the different Clinics and Welfare Centres. Since the outbreak

of war they have also been on duty at the three First Aid Posts, and have been responsible for the issue, exchange and cleansing of Babies' Anti-Gas Helmets.

(d) Welfare Centres.

The work of the Welfare Centres has been carried on as in previous years, three sessions per week being held, one at Starbeck and two at Harrogate.

Attendances at the Centres have been well maintained. The number of children attending during their first year represents 83% of the Harrogate births.

A separate record is kept of children attending from outside areas and also of children who have attended other Centres before coming to Harrogate.

The attendances at the Centres are set out in the following table :—

(a)	Total attendances of children under 1 year of age	5,904
(b)	„ „ „ between 1 - 5 yrs.	5,617
(c)	Total number of children who have attended at the Centres for the first time during the year and who, at the date of their first attendance were :	
	(1) Under 1 year of age	483
	(2) Between 1 and 5 years	123
	Total number of children who attended the Centres during the year and who, at the end of the year were :—	
	(1) Under 1 year of age	408
	(2) Between 1 and 5 years	1,122
	Percentage of notified live births represented by number in (c) (1) (after adjustment of outward and inward transfers).	83.4

In addition 18 children from other districts attended—9 under one year and 9 between 1 and 5 years. These were children from the villages near Harrogate in which there are no Welfare Centres provided.

A further additional 60 children were admitted—20 under 1 year and 40 between 1 and 5 years, who had previously attended Centres elsewhere before coming to Harrogate, and are therefore not included as new admissions. These were mostly children who had come from dangerous areas.

The Centres were entered for the National Parentcraft Competitions and were awarded the Bronze Medal for the fourth place. The work sent in was of a high standard and the mothers showed much keenness in preparation.

The Mayoress (Mrs. J. C. Topham) presented the Medal to the Centre on behalf of the National Association of Maternity and Child Welfare Centres and individual certificates to the mothers who had achieved this honour for the Centre.

In December a local Parentcraft Exhibition was again held and, in spite of the war and limited accommodation, proved as popular as in previous years.

The Exhibition which lasted six days was held at the Welfare Centre and was opened on the first day by the Mayoress (Mrs. E. J. Wheeler). On the closing day the prizes, awarded to successful competitors in the various competitions, were presented by Mrs. W. H. Webster, a member of the Maternity and Child Welfare Sub-Committee.

In order to bring the Exhibition into line with current events special attention was paid to food problems. Cookery demonstrations were held daily showing particularly diets suitable for toddlers prepared from unrationed foods. These made an interesting appeal to the mothers and were most helpful.

The Exhibition was visited by the Regional Food Officer during one of the demonstrations.

The demonstrations were made possible through the co-operation of the Borough Electrical Engineer (Mr. Kelso), who arranged for the fitting up of the necessary equipment and also arranged for Miss Day, from the Electricity Showrooms, to give the demonstrations.

Health Education Films were shown during the week and as these included several on First Aid a special evening display was arranged for the personnel of the First Aid Posts.

In March a National Savings Group was started at each Centre which the mothers have loyally supported and, in addition, the Centres have been the medium through which over two hundred pounds have been raised for local and National War Funds.

(e) Supply of Milk.

The supply of free milk to necessitous infants and mothers was taken over during the year by the Milk Office under the National Milk Scheme.

This Department continued to supply free liquid milk until 20th July, 1940, and during that time supplied 1,746 galls., 2 pints.

Dried milk was supplied free in all cases until the 2nd September, 1940, and continued to be supplied to delicate infants, who could not take the National Dried Milk, until the end of the year. 722 lbs. of patent dried milks were supplied during the year and 221 lbs. of Government dried milk were distributed free by the Corporation to supplement the amount allowed by the Government, which is not sufficient for older infants.

(f) **Ophthalmia Neonatorum.**

Only one case was notified during the year as compared with 5 cases during the previous year. The child was admitted to the Harrogate and District General Hospital and no impairment of vision resulted.

No. Notified.	Treated.		Vision Unim- paired.	Vision Im- paired.	Total Blind- ness.	Deaths.	Still under treatment at end of year.
	At Home.	At General Hospital.					
1	—	1	1	—	—	—	—

(g) **Infant Life Protection.**

This work has continued on the same lines as in former years.

Children on the Register at beginning of year	....	89
New notifications received during the year	....	128
Children removed from the Register	....	97
Children on the Register at end of the year	....	120

Reasons for the removal of children's names from the Register were as follows:—

Transferred to the care of relations	....	54
Adopted	....	18
Removed to Institutions	....	6
Transferred to other districts	....	14
Died	....	1
Over age	....	4

Foster Parents.

Number on Register at the beginning of year	....	28
New applications received	....	5
Removed from Register	....	8
On Register at end of year	....	25

**ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH for the YEAR
1940 for the BOROUGH OF HARROGATE in the
County of York, West Riding
on the administration of the Factories Act, 1937**

1—INSPECTIONS for purposes of provisions as to Health.
(Including Inspections made by Sanitary Inspectors)

Premises.	Number of		
	Inspections.	Written Notices.	Occupiers Prosecuted.
Factories with mechanical power	355	34	—
Factories without mechanical power	171	36	—
*Other Premises under the Act (in- cluding works of building and engineering construction but not including outworkers' premises)	—	—	—
* Electrical Stations should be reckoned as factories.			
Total	526	70	—

2—DEFECTS FOUND.

Particulars.	Number of Defects.			Number of defects in respect of which Prosecutions were instituted.
	Found.	Remedied.	Referred to H.M. Inspector.	
Want of Cleanliness (S. 1)	21	19	—	—
Overcrowding (S. 2)	—	—	—	—
Unreasonable Temperature (S. 3)	—	—	—	—
Inadequate Ventilation (S. 4)	3	2	—	—
Ineffective Drainage of Floors (S. 6)	—	—	—	—
Sanitary Conveniences (S. 7) {	insufficient	1	1	—
	unsuitable or defective	26	18	—
	not separate for sexes	1	1	—
Other Offences (Not including offences relating to Home Work or offences under the Sections mentioned in the Schedule to the Ministry of Health (Factories and Workshops Transfer of Powers) Order, 1921, and re-enacted in the Third Schedule to the Factories Act, 1937.)	20	17	2	—
Total	72	58	2	—

AN OUTBREAK OF ACUTE POLIOMYELITIS IN HARROGATE DURING 1940

By D. D. PAYNE, M.D., D.P.H.,

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Epidemics of acute poliomyelitis have fortunately been uncommon in this country, and those which have occurred in England and Wales have usually been in the nature of small localised outbreaks. The year 1926 stands out prominently in the history of poliomyelitis in this country, no fewer than 1,397 cases being notified, with 176 deaths; the chief outbreaks were in the County Borough of Leicester (81 cases), Grays in Essex (58 cases), and Broadstairs in Kent (74 cases). A full description and discussion of the epidemiology of these outbreaks is given in the *Annual Report* of the Chief Medical Officer of the Ministry of Health for 1926 (pp. 84-108); in the same report there is also a summary of the chief epidemics of poliomyelitis in England and Wales between the years 1897 and 1926. The U.S.A., Australia, and Scandinavia have been the centres of major epidemics. In 1937, in Victoria, Australia, there was a total of 38,250 cases, and in 1916 in New York State alone there were 13,164 cases with 3,331 deaths. Fortunately we have had nothing comparable in this country.

Acute poliomyelitis as a clearly differentiated epidemic disease has a short history. With its accompanying disabilities it appears to have been recognised clinically towards the end of the eighteenth century. The first epidemic to be carefully studied was that occurring in Sweden in 1887, and described by Medin (1890) of Stockholm. Sir Walter Scott, born in 1771, was undoubtedly a victim of the disease at the age of 18 months. He states, "In the morning I was discovered to be affected with the fever which often accompanies the cutting of large teeth. It held me three days. On the fourth, when they went to bathe me as usual, they discovered that I had lost the power of my right leg;" and later he goes on to state that "the limb affected was much shrunk and contracted"

(Lockhart, 1837). Acute poliomyelitis was made notifiable in 1912, and polio-encephalitis was made separately notifiable in 1919.

Bacteriology and Transmission of Infection

The infective agent is a neurotropic virus and can be identified only by injecting and reproducing the disease in monkeys. Owing to war-time conditions it was not deemed possible to attempt any such identification or experimental work in the Harrogate outbreak.

A brief survey of the recent work on the poliomyelitic group of viruses was given in the *Lancet* of November 16th, 1940. A mouse virus has been isolated from the brains of mice that had developed a flaccid paralysis of the hind legs. In America the same virus has now been found in the intestines of a high percentage of normal mice, although few develop symptoms. There is no serological relationship between the mouse virus and the human poliomyelitic virus. Two human strains, the Lansing and SK strain of virus, have, however, been isolated, and are pathogenic for cotton-rats and mice. Most mouse poliomyelitic viruses are pathogenic only for mice, but one strain is pathogenic also for cotton-rats. The *Lancet* makes the following comment: "The crucial question is the exact status of the Lansing and SK strains of poliomyelitic viruses. Are they human viruses that have become pathogenic for mice, or mouse viruses that have become pathogenic for man?"

The virus of poliomyelitis has been isolated from the stools of human cases on numerous occasions, even as long as 123 days after a mild abortive attack (Lépine, Sédallian, and Sauter, 1939), also from the stools of healthy human contacts who remained well during the period of exposure (Trask, Paul, and Vignec, 1940). In two out of three urban epidemics of poliomyelitis in 1939 the virus was isolated from samples of sewage, and could not be isolated when the epidemics were over. From the results obtained, the following conclusions were drawn: (1) Poliomyelitis virus can be isolated occasionally from urban sewage during the course of an epidemic. (2) It cannot be

demonstrated in urban sewers at all times. (3) Isolation of virus from sewers in the vicinity of an isolation hospital is easier than in sewers elsewhere.

(4) The total virus content of sewage may occasionally be very large (Paul, Trask, and Gard, 1940). Similar findings regarding sewage were also noted in epidemics in South Carolina and in Stockholm in 1939. Bearing in mind these facts, and the theoretically possible risk of infection of water supplies, it

is of interest that laboratory experiments have shown that as high a concentration as 0.5 parts per million of chlorine did not inactivate the virus of poliomyelitis in one-and-a-half hours, whereas the residual chlorine content of from 0.1 to 0.2 parts per million for half to two hours is normally considered adequate for producing a safe water (Kempf and Soule, 1940).

The portal of entry of infection is generally considered to be the nasopharynx and the spread of infection to be caused by droplet infection from active carriers—that is from the persons either suffering from a subclinical infection or in the early and possibly symptomless stages of incubating the disease.

Some Facts of the Outbreak

The outbreak in the Borough of Harrogate started during the first week in June, and by the end of August had largely subsided, though sporadic cases still continued until the middle of November. The total number of cases notified from within the borough was 76, and in the surrounding districts a further 21 cases were noted from the weekly returns of infectious

diseases circulated by the Registrar General. There were a further 19 children in the borough who had suspected abortive attacks in which the diagnosis was too indefinite to warrant notification.

Age Incidence.

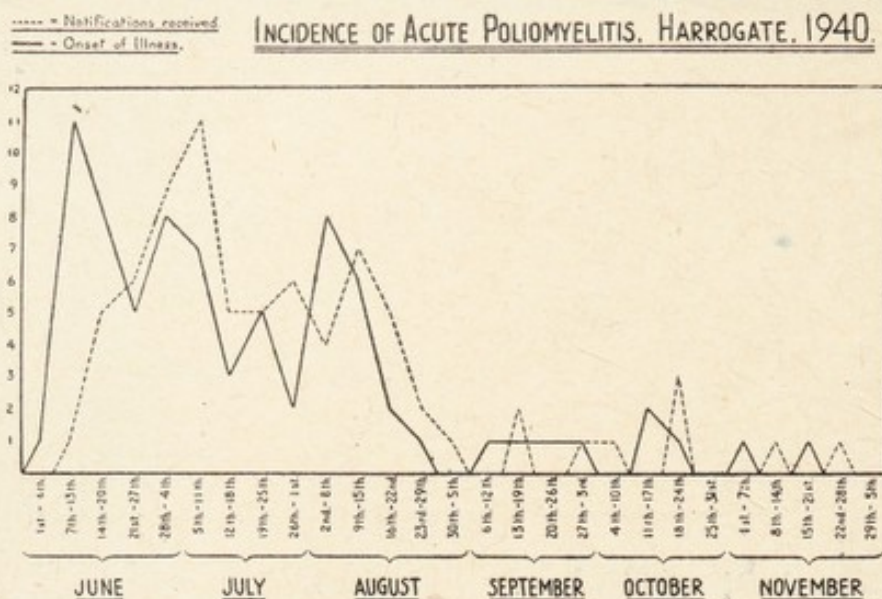
—The age incidence is shown by the table. It may be noted that 44 of the 76 cases occurred in children of elementary school age (5 to 14), and, of those, 40 were between the ages of 7 and 13. This shift of the age incidence towards the older

age group is of interest. In epidemics before 1910, 60 to 90 per cent. fell in the age group of 1 to 5, hence the name infantile paralysis; but in more recent epidemics it has been frequently observed that the incidence is greatest in older children. It has been noted that the greater the degree of density of population the younger will be the age of those affected, and it is not improbable that with improved social conditions and smaller families there is less likelihood of the spread of droplet infection and of consequent subclinical infection. Therefore a larger number of older children are non-immune than formerly, hence causing the age incidence to rise (Burnet, 1940).

Sex Incidence.—Forty-one cases (54 per cent.) were in males and 35 in females; this slight but definite excess of males is seen consistently in outbreaks large or small.

Predisposing Factors.—The cases as shown by a spot map of the borough, and also from my experience in

INCIDENCE OF ACUTE POLIOMYELITIS, HARROGATE, 1940.



AGE INCIDENCE

Age.	No. of Cases.	Age.	No. of Cases.	Age.	No. of Cases.
Under 1 year	2	11 years	10	21 years	1
1 "	2	12 "	4	22 "	0
2 years	6	13 "	3	23 "	0
3 "	3	14 "	0	24 "	0
4 "	5	15 "	5	25 "	0
5 "	2	16 "	1	26 "	0
6 "	2	17 "	2	27 "	0
7 "	10	18 "	2	28 "	0
8 "	7	19 "	1	29 "	1
9 "	3	20 "	0	30 "	1
10 "	3				

Total ... 76

AGE INCIDENCE IN FIVE-YEAR AGE GROUPS

Age ...	0-4	5-9	10-14	15-19	20-24	25-29	30-34	Total
Number	18	24	20	11	1	1	1	76

making home enquiries, were drawn equally from both well-to-do and poor homes; social status and the previous state of health of the patient made no observable difference in the resistance to infection.

Seasonal Prevalence.—Epidemic poliomyelitis tends to appear during the summer and early autumn after a period of unusually dry and hot weather, such as we experienced last summer at the time of the outbreak.

Water Supply.—Owing to the fact that the virus may be found in urine and excreta, it is necessary to consider if such an outbreak as that under consideration could have been transmitted by water-borne in-

fection or through the medium of the milk supply. The water supply of Harrogate comes from an upland moorland source and is filtered but not chlorinated. There are two service reservoirs which supply the southern and the northern portion of the town respectively. The notifications were distributed evenly over the areas covered by these two water supplies, 29 cases occurring in one area and 47 in the other. There were, in addition, 21 cases in the surrounding districts, which had different water supplies. It therefore seems a safe assumption that water can be excluded as the vector of infection.

Milk Supplies.—It is known that the virus of the disease will live, though not multiply, in milk for a month or longer (Landsteiner *et al.*, 1911).

In the Broadstairs outbreak of epidemic poliomyelitis in 1926, whilst the local health department and the Ministry of Health medical officers regarded the transmission of the infection to be due to healthy carriers, Dr. W. L. Aycock, of Harvard, U.S.A., analysed the outbreak in an article in the *American Journal of Hygiene*, contending that the epidemic was transmitted by milk-borne infection. The matter was fully discussed in the *Lancet* of December 3, 1927.

In Harrogate all the cases recorded received their milk from no fewer than eleven supplies. One case did occur at a milk farm, but this was towards the end of the epidemic and could have no bearing on the spread of infection.

Population of the Borough.—The population of the Borough of Harrogate in June, 1940, was approximately 53,000, and by November, 1940, had risen to 57,500.

Cases Before the Outbreak.—During 1939 only two cases of poliomyelitis had been notified, one on January 2nd and the other on October 24th.

History of the Outbreak.—On June 10th, 1940, a severe case of acute poliomyelitis with respiratory paralysis was notified. This was in a girl aged 15 who was a scholar at the Harrogate Grammar School; she had been admitted to the Harrogate General Hospital the previous day. The onset of her illness was on June 7th. The second notification reached me on June 17th—a boy aged 11 attending an elementary school, whose onset of illness was also on June 7th. On June 19th, in addition to the two cases notified, there were a further six suspicious cases in the hospital. On that date I notified the Regional Office of the Ministry of Health of the outbreak. The same day I sent to all practitioners in the borough a letter informing them of the outbreak, the type of case to be on the look-out for, with the commoner early signs and symptoms, and also offering my assistance where desired. I would here mention that I received full and valued co-operation from the general practitioners throughout the epidemic.

HOSPITAL ACCOMMODATION

That same afternoon I visited the Harrogate General Hospital, which is a voluntary hospital, with a medical officer of the Ministry of Health, and arranged for the cases to be treated in the isolation cubicles; the cases had up to that time been admitted to the general wards. This isolation accommodation was available for only eight cases, and arrangements were made for further

cases to be treated at the Wharfedale Joint Isolation Hospital, the services of an orthopaedic specialist to be available as required.

By the first week in July, 21 cases had been notified in Harrogate, and the isolation accommodation so far provided was becoming severely taxed. In consultation with the medical staff and Chairman of the Harrogate General Hospital, the Senior Regional Medical Officer of the Ministry of Health was approached and consented to the opening of a hutment ward in the grounds of the hospital. The ward was one of five previously intended for the treatment of military cases and of civilian casualties due to air-raids, and was erected by the Ministry of Health under the Emergency Medical Scheme.

On July 4th, the hutment ward was opened and the cases at the Wharfedale Isolation Hospital were transferred to it. On July 11th, a second hutment ward at the Harrogate General Hospital was opened. With the exception of one abortive case treated at the Harrogate and Knaresborough Joint Isolation Hospital, all further cases during the epidemic requiring hospital treatment were admitted to these two wards. A Nuffield iron lung was provided in each ward, and was undoubtedly instrumental in saving two lives.

The advantages of the cases being treated and centralised at the Harrogate General Hospital were as follows: (1) Resident medical officers were available at all times for the reception of cases and for any medical emergency which might arise; (2) The services of an orthopaedic surgeon were readily available; (3) There were facilities for massage and electrical treatment through the massage department of the hospital; (4) Laboratory facilities were available at the hospital; (5) The parents of patients were able to visit the hospital and make enquiries as to the progress of their children more readily than at a hospital situated at a distance outside the borough.

CASES AT HARROGATE GRAMMAR SCHOOL

This school is a secondary day school maintained by the West Riding County Council, having between 600 and 700 pupils between the ages of 10 and 18, both girls and boys being admitted. As already mentioned, the first notified case of the epidemic was that of a girl aged 15 attending the school, the onset of her illness being on June 7th. In a different class at the school from that of the girl three boys (all in the same class) were taken ill on June 7th, 12th, and 15th; there was no history of contact between the pupils of these two classes. The three boys were admitted to the Harrogate General Hospital on June 14th, 13th and 19th respectively; they were very mild cases and subsequently recovered without residual paralysis. The diagnosis of these boys after admission to hospital was not confirmed for a week, the notifications reaching me on June 20th, 21st and 25th.

On June 21st the position at the school was as follows: Two boys and one girl had been notified and one boy was suspected of suffering from the disease, the three boys coming from the same class. I visited the school on this date with a medical officer on the West Riding County Council School Medical Staff, and attended a meeting of the Board of Governors.

I advised the closure of the affected boys' class for two weeks, the boys from the class being placed in strict quarantine at home during that time; they were instructed to gargle at home with a solution of permanganate of potash, 1 in 5,000 in 0.8 solution of chloride of sodium as recommended in Memorandum 166/Med. issued by the Ministry of Health in December, 1936. The whole school was put on to daily gargling with the above mixture for two weeks, advice as to spacing of desks and avoidance of overcrowding was given, and the class room in which the three cases had arisen was disinfected. A list of absentees was obtained from the headmaster and all were visited by my health visitors in an endeavour to track down any missed or abortive cases. Of twenty-five children so visited eight were possibly mild abortive cases of poliomyelitis; in none of them was the onset of illness before June 10th and in none did any paralysis subsequently develop. The symptoms in these suspected cases were very indefinite and comprised mainly a feeling of malaise with headache and slight stiffness of the neck.

On July 1st a further case occurred in a boy who was a member of the same class which had closed on June 21st; he had been isolated at home since that date, thus the incubation period would appear to have been at least eleven days in this case. The boy was a severe case of polio-encephalitis, dying in hospital on July 9th. The school closed for its summer vacation on July 19th. During the holidays the last case arising among the pupils of this school was in a girl notified on August 7th, the onset of illness being on August 2nd. I have little doubt that here the infection was contracted from an abortive home case, which she had visited during the last week in July; this home case had contracted the illness four-and-a-half weeks previously, and suggests that mild cases which may not have developed any signs of paralysis may be a source of infection for many weeks.

In the Harrogate Grammar School there were, therefore, 6 notified cases in all, of which 4 were due to direct spread in one boys' class.

CASES OCCURRING AT A PRIVATE SCHOOL

In a mixed day- and boarding-school comprising twenty-six boarders and fifty day-boys, a boarder was taken ill on July 6th with malaise and backache; I was informed of this on July 8th, and visited the school with a medical officer of the Ministry of Health. The boy had a slight stiffness of neck with a positive Kernig sign and a temperature of 100.2° F., and he was admitted to hospital the same day: he was an abortive case, never developing paralysis. All children were placed on routine gargling and the usual disinfection and fumigation were carried out. Advice was given regarding spacing of desks and beds at the school, and parents of all the scholars were notified of the occurrence of the case. The next day a second case developed, which had undoubtedly been incubating the disease at the time of my visit. This case, also abortive, was removed to hospital and the school holidays were advanced by a week, the school breaking up on July 15th. The school re-assembled on September 20th; on October 17th two further cases developed,

and a third on October 20th; the same precautions were adopted and no further cases appeared in the school. The five patients at this school all made complete recoveries. It would seem improbable that the first two cases which occurred three-and-a-half months previously should on returning to school after the holidays still have been carrying the virus and so infected the subsequent three cases. Experimental work to determine if either of the first two cases was still a carrier would have been of great interest.

A most valuable article entitled "Anterior Poliomyelitis, with Special Reference to its Effects on Schools" has been written by Dr. R. E. Smith (1939), the medical officer of Rugby School, dealing in particular with the steps to be taken in connection with epidemics in boarding schools. In considering the policy to be adopted towards school closure he states, "A school should not disband on the appearance of a single case or of more than one case occurring simultaneously, except under exceptional circumstances. On the appearance of the second case, parents may remove their sons or daughters, provided they can be isolated at home for three weeks."

ELEMENTARY SCHOOLS

Twenty-six children who were attending elementary schools in Harrogate contracted the disease. The fact that cases appeared in twelve of the thirteen elementary schools shows the widespread infection in the town and also the low attack rate, in that, on average, only two children per school were attacked.

SECONDARY CASES

Secondary cases arising in the same household were uncommon; in only three instances did this occur:—

Case 1.—A boy aged 11 began on June 9th with an attack of malaise and fever; two days later there were stiffness of the neck, dizziness, diplopia, and, later, pain in the right leg—this lasted only two days. The doctor was called in, attended once, and treated him for rheumatism; the patient was not isolated. On June 27th a "billettee" aged 19 developed signs of poliomyelitis, with paralysis of the left leg the following day. Enquiries at the house brought to light the history of the boy's illness, and I found definite wasting of the adductor muscles of his right leg; though the boy was then perfectly well, there could be no doubt of the nature of his recent illness. Since he had not been isolated during his illness, the incubation period in the case of the "billettee" was indeterminate.

Case 2.—On June 17th a boy aged 13½ was taken ill with a sore throat and fever. Eight days later there were stiffness and pain in the neck and pain in both lower limbs; the following day paresis of both legs developed. This boy was being treated by his doctor for juvenile rheumatism, the diagnosis not being arrived at until paresis appeared. On June 23rd, his sister, aged 12, had a sore throat five days after the onset of her brother's illness; later there was pain in the neck and spine, with weakness of the erector spinae.

Case 3.—A boy aged 2½ became ill on June 26th with a high temperature; stiffness of the neck and weakness of the right leg appeared three days later, and he was admitted to hospital on June 29th. On July 15th a girl aged 15 living in the same house had catarrhal symptoms with malaise; later she complained of her legs aching and her limbs feeling heavy. Her gait was unsteady and her knee jerks were absent. After admission to hospital her knee jerks returned, and no paralysis occurred, but there is no doubt that she was an abortive case of poliomyelitis. There was an interval of sixteen days between these two cases, and either the incubation period was unduly prolonged or there may have been an unknown source of infection.

Infectivity.—Apart from the above three instances of secondary cases in the same houses, and the limited spread of infection in the two schools, there was very little evidence of the direct spread of infection from active cases. That the attack rate of the disease is low is further borne out by the fact that none of the forty or so nurses who cared for the patients in hospital contracted the disease, nor was there any spread of infection in the general wards of the hospital to which suspected cases were admitted during the first few days of the epidemic.

As mentioned previously, 19 children, including the 8 scholars at the Grammar School, were traced who had vague inconclusive signs of the infection such as malaise, headache, and slight stiffness of the neck, often lasting only twenty-four to forty-eight hours. I am of the opinion that such cases were far more numerous than those that came to light. Such cases by the very nature of their symptoms, lacking in any salient clinical feature, must often remain undetected; they may have played an important part in the spread of infection. Of the 76 notified cases 55 were admitted to hospital, one to a nursing home, and 20 were satisfactorily isolated and nursed at home.

Incubation Period.—Many different estimates have been published, varying from two to twenty days, probably four to eight days is the commonest time of incubation.

Clinical Features

Before giving particulars relating to the clinical character of the cases, I must make it clear that physicians of the Harrogate General Hospital are at present analysing the records of the patients under their care, and that their investigations will form the subject of future communications to the medical journals.* Thus the few remarks I intend making on the clinical aspect are tentative only; the classification of clinical types, treatment and its results, pathological findings, and the after-effects of the disease on the patients, can be dealt with more properly and in much greater detail by the hospital physicians than in my present paper. On being notified of a case or suspected case I made a personal visit in every instance to the home address, giving advice as to the steps to be taken to prevent further spread of infection, and my remarks on the clinical aspect are mainly based on the notes I made at these visits.

The clinical course of the disease may be divided into: (a) An invasive or preparalytic stage, which may or may not proceed to, (b) the paralytic stage, (c) the convalescent stage, (d) the residual stage.

Preparalytic Stage.—The duration of the preparalytic stage in this epidemic was commonly from three to six days, but varied from twenty-four hours to as long as eleven and in one case twelve days. During the later part of this stage the signs of meningeal irritation became evident. The signs and symptoms in order of frequency were pyrexia, usually from 100° to 102° F., headache, vomiting, malaise, irritability of temper, and sore throat; and towards the end of this preparalytic stage, pain and stiffness of neck and spine, pains in the muscles later to be paralysed, mild head

retraction with a positive Kernig sign, drowsiness, diminution or loss of tendon jerks, and nystagmus. No fewer than eleven cases in the series had periods of remission during the preparalytic stage, with later recrudescence—the so-called “dromedary type” of onset of symptoms. This period of remission lasted three or four days in several cases, and is a danger in the spread of the disease since such cases often return to work or school when the symptoms have so diminished. A typical history will serve as an example:—

A girl, aged 21, on August 9th complained of headache, feverishness, and general malaise. This lasted for two days, and on August 11th she felt better and returned to work; four days later she had pain in the back, and the next day, August 16th, she was feverish with stiffness of her neck and back, and vomited in the evening; she had been at work that day. She stayed at home the following day and I was called in to see her at noon. She had then a temperature of 101° F. with backache; she complained of stiffness of her neck, and said she felt unsteady in her legs; her knee-jerks were present and there was no nystagmus. She was admitted to hospital; her knee-jerks and ankle-jerks were lost, and nystagmus developed, together with paresis of her right arm and leg.

Paralytic Stage.—Of the 76 cases 19 did not progress beyond the preparalytic stage and were abortive. Among the 57 paralytic cases, in 75 per cent. one or both legs were affected, in 25 per cent. one or both arms, in 17 per cent. the spinal muscles, and in 16 per cent. a cranial nerve. The clinical types can be roughly allocated as follows:—

Abortive	...	...	...	...	19	25%
Spinal form	...	...	...	...	44	58%
Brain-stem form	...	...	...	...	6	8%
Combination of spinal and brain-stem forms	...	...	...	...	7	9%

Brain-stem involvement was more frequent in the higher age groups.

Mortality.—There were four fatal cases—a case fatality of 5.3 per cent., a lower rate than in most recorded epidemics. The risk of death is increased in patients over the age of 10 years. The fatal cases were in patients aged 10, 15, 15, and 30 years respectively. One of these died of bronchopneumonia supervening on respiratory paralysis; the other three, from medullary involvement.

The Residual Stage.—The following is a tentative estimate of the after-results in the 53 patients who developed paralysis (excluding the 4 fatal cases); this estimate may well have to be modified later:—

Incurable and total invalidity	...	...	1 case.
Crippling likely to handicap seriously the individual and his capability for work in later life	...	...	6 cases.
Residual paralysis causing some impairment in later life	...	...	12 "
Very slight paralysis that will probably recover or cause no handicap	...	...	9 "
Cases already completely recovered	...	...	25 "

The average period of in-patient hospital treatment was six weeks. In-patient cases discharged from the hospital requiring further orthopaedic treatment have received such treatment in the out-patient and massage departments of the Harrogate General Hospital.

Source of Infection.—The original source of the outbreak has not been found. None of the early cases occurred in persons who had recently become residents in Harrogate; only two cases in the epidemic arose

*MILLER, S. and WRAY, S. (1941). *Lancet*, 1, 753.

in persons who took up residence in Harrogate after the onset of the epidemic; thus the introduction of fresh susceptibles into the town during the outbreak does not appear to have played any major part in the maintenance of the epidemic.

Conclusion

(1) A brief outline of the history and epidemiology of acute poliomyelitis has been given with special reference to the Harrogate epidemic in 1940.

(2) An account of the outbreak is given, together with the steps taken to secure suitable hospital accommodation for the patients.

(3) Special mention is made of cases arising in a secondary day-school and in a private day- and boarding-school, and also of the occurrence of secondary cases in the same household.

(4) A few details are given of the clinical character

of the outbreak, together with a tentative estimate of the residual results in cases affected by the disease.

Finally I would express my warmest thanks to the medical staff of the Harrogate General Hospital for their willing and ready co-operation and also to the Regional Office of the Ministry of Health, which constantly advised and assisted me in dealing with this outbreak.

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