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City and Port of Cardiff.

ANNUAL REPORT

FOR 1928

OF THE

Medical Officer of Health and
School Medical Officer.

CARDIFF:

S. GLOSSOP & SONS, LIMITED, PRINTERS, NEW STREET.

—
1929.

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PREFACE.

THE EVOLUTION OF THE MEDICAL SERVICES.

It is necessary to take long views in relation to the people's health. The pioneers of the 18th century in our country, obsessed with slums, cellar-dwellings, filth and gaol fever, concentrated their attention on the surroundings rather than the nurture of the people, although one of the most remarkable discoveries in individual prophylaxis—the effect of fresh foods on the disease known as scurvy—was made in that century, and its last years saw another innovation in the protection of individuals against a disease by vaccination. In the early years of the 19th century succeeding the Napoleonic wars, when the industrial revolution was gathering impetus, the appalling state of overcrowding and jerry-building in towns, accompanied by outbreak after outbreak of cholera, still further threw the bias on the side of environment. So the Royal Commission on the Health of Towns and Populous Places attributed the bulk of the ills of the people to the conditions under which they lived, and their exposures of the state of things then existing led to the series of Public Health Acts, culminating in the great Act of 1875 which is still the basis of the public health law. But some inkling of future developments may have entered the minds of those who framed these Acts when they gave local authorities power to provide and manage hospitals, a power which is only now coming to be exercised in the general sense; and about the same time (1834) the administration of the Poor Law was reformed, making better, if still very imperfect, provision for the care of the indigent sick. Surroundings were recognised as the community's responsibility and also the care of the maim, the halt and the blind, but the preliminary phases of the individual's career towards physical incapacity were regarded as his own concern.

Such was the course of development of the public services in relation to health until the disclosures of the recruiting agencies during the South African war led to the appointment of a Committee on Physical Deterioration, who urged the adoption of some steps to forestall in childhood the ravages of disease so manifest in the adolescent. The School Medical Service thus came into being and has grown since 1908 from mere inspectorial functions to a very considerable organisation for the treatment of incipient disease. Contemporaneously with these developments the failure of infant mortality to respond to environmental improvement—*i.e.*, to sanitation—as the deaths at other ages appeared to have responded, led to the notification of births, out of which the present extensive schemes for the care of mothers and children have grown; the Insurance Act, 1911, was an attempt to apply to the whole working population the same idea of early, preventive treatment, and inaugurated the large measures for institutional care of tuberculosis, the preventive aspect of which, like that of the hospital isolation of fevers, is inextricably interwoven with early and efficient treatment. Later, as a result of the Report of the Royal Commission on Venereal Diseases and the national awakening to the consequences of this most potent cause of disability in all levels of the community, the responsibility for the treatment as well as prevention of still another group of diseases fell upon the local authorities.

The legislature has been guided at every step by the principle that communal measures in relation to health should be primarily preventive and only incidentally curative, but the convergence of these two avenues to health has brought treatment to an increasing extent within the sphere of state and rate-supported effort. Marching with these events, voluntary institutions for the treatment of disease have grown in number and developed in complexity until the raising of revenue for their maintenance has come to take a very important part in the interest and activities of all sections of the people. Broadly speaking, medical treatment and research in this country until some twenty years ago were looked upon as mainly the concern of the individual himself or the function of private charity, but the rapid evolution of state medicine and the rise of the poor-law hospitals during the present century are

making it increasingly difficult to discern any clear line of demarcation between the fields of government and voluntarism.

The passage into law under a Conservative Government of the Local Government Act, 1929, is evidence of the universal recognition that preventive medicine and treatment cannot be separated into water-tight compartments, but must rather derive advantage from common organisation. In April, 1930, the City Council will take over from the Guardians a large establishment for the treatment of the sick and the care of the infirm and defective. Many of their new statutory duties will involve the same character of medical service as the voluntary hospitals already provide. It will be the responsibility of local statesmanship to see that the public loses nothing by the change or as the result of overlapping, but that, on the contrary, medical treatment, education and research and, above all, the prevention of ill-health shall receive a stimulus which will lead to progress overshadowing even the great past achievements of state medicine.

GENERAL HEALTH SERVICE.

In addition to the usual information and statistics of mortality and epidemic incidence, the Report contains some special features to which attention is directed, viz. :—

A note on the treatment received by women dying of cancer of the womb during the years 1924-1928 inclusive (Section 2, page 16).

An analysis of deaths from road accidents (Section 2, page 17).

A note by Dr. McSweeney on outbreaks of diphtheria associated with milk supplies (Section 3, page 22).

A note on the late results of epidemic encephalitis (Section 3, page 22).

Report on a case of undulant fever (Section 3, page 24).

A brief description of the Cardiff municipal hospitals (Section 5).

A record showing the lateness of notification of cases of tuberculosis (Section 6, page 42).

A note on the incidence of syphilis among pregnant women (Section 8, page 52).

A record of nursing homes registered (Section 8, page 52).

A note on the survival of artificially fed, as compared with breast-fed, infants (Section 8, page 54).

A very full report by Dr. Gibbs on treatment by artificial sunlight (Section 8, page 59).

A summary of the facts relating to the state of housing in Cardiff as revealed by routine inspections (Section 10, page 66).

A note on hand-flushed closets (Section 12, page 81).

A report on the treatment of water in the open-air swimming baths (Section 12, page 81).

Points which require the careful consideration of the Council are revealed in the continued high mortality under 5 years of age and from 25 to 65 years (Table on page 13), the increase recorded in maternal mortality during 1928 (page 13), and the failure of venereal diseases to diminish as far as can be judged from the clinic returns (page 47).

Public Education in Health.—A Health Week on a comprehensive scale was held during the week ended 19th May, 1928, and, whilst it is impossible to assess the value of the work undertaken to educate the public in health matters in this way, the Week may be regarded, on the whole, as having been successful. During the last week of September, 1928, ten lectures were delivered to women at maternity and child welfare centres by a lecturer kindly provided by the Health and Cleanliness Council. These lectures were highly appreciated by good audiences. Arrangements have been made for lectures on social hygiene to be given periodically at a local wireless training centre by a medical officer on the staff of the Department, the first having been given by Dr. McSweeney in October, 1928. Other special activities, in addition to the constant educational work conducted under the maternity and child

welfare scheme and in connection with the school medical service, were undertaken as time and opportunity permitted. It should be noted also that 5,000 copies of *Better Health*, a popular health journal, were distributed monthly, free of charge, throughout the year.

PORT SANITARY SERVICE.

Although the traffic at the Port was somewhat below normal, the work falling on the Department became very heavy towards the end of the year as the result of the coming into operation of the International Sanitary Convention, 1926. The effect of this Convention is already being observed in the increasing difficulty in obtaining live rats for Mr. Matheson's very valuable observations on the variety of rats and their parasitic fleas infesting ships and the wharves, the results of which again appear (page 107).

SCHOOL MEDICAL SERVICE.

Difficulty was met with in overtaking the prescribed number of routine inspections, because of shortage of staff and the new commitments of the Department in relation to the ascertainment and observation of defective children, as well as special investigations which were undertaken. Attention is specially directed to:—

A note by Dr. McSweeney on the results of open-air education (page 124).

A note by Dr. Sheasby on the causes of deafness in Oral School children (page 128).

A report by Miss Rosser on the classes for stammerers (page 131).

A note by Dr. Anderson on X-ray treatment of ringworm and radiography (page 135).

A note by Dr. Sheasby on the results of treatment of otorrhœa by zinc ionisation (page 138).

A report by Dr. Betenson on the work of the orthopædic scheme (page 140)

A report by Miss Brown on physical education (page 145).

Comparative figures supplied by the Anthropometric Committee of the Board of Education as the result of an anthropometric inquiry, the local observations for which were made by Dr. Betenson (page 160).

MENTAL DEFICIENCY SERVICE.

In addition to the usual annual figures, a report by Mrs. Dascombe on the work of the Occupation Centre is included (page 162).

RALPH M. F. PICKEN,

*Medical Officer of Health and
School Medical Officer.*

PUBLIC HEALTH DEPARTMENT,

CITY HALL, CARDIFF,

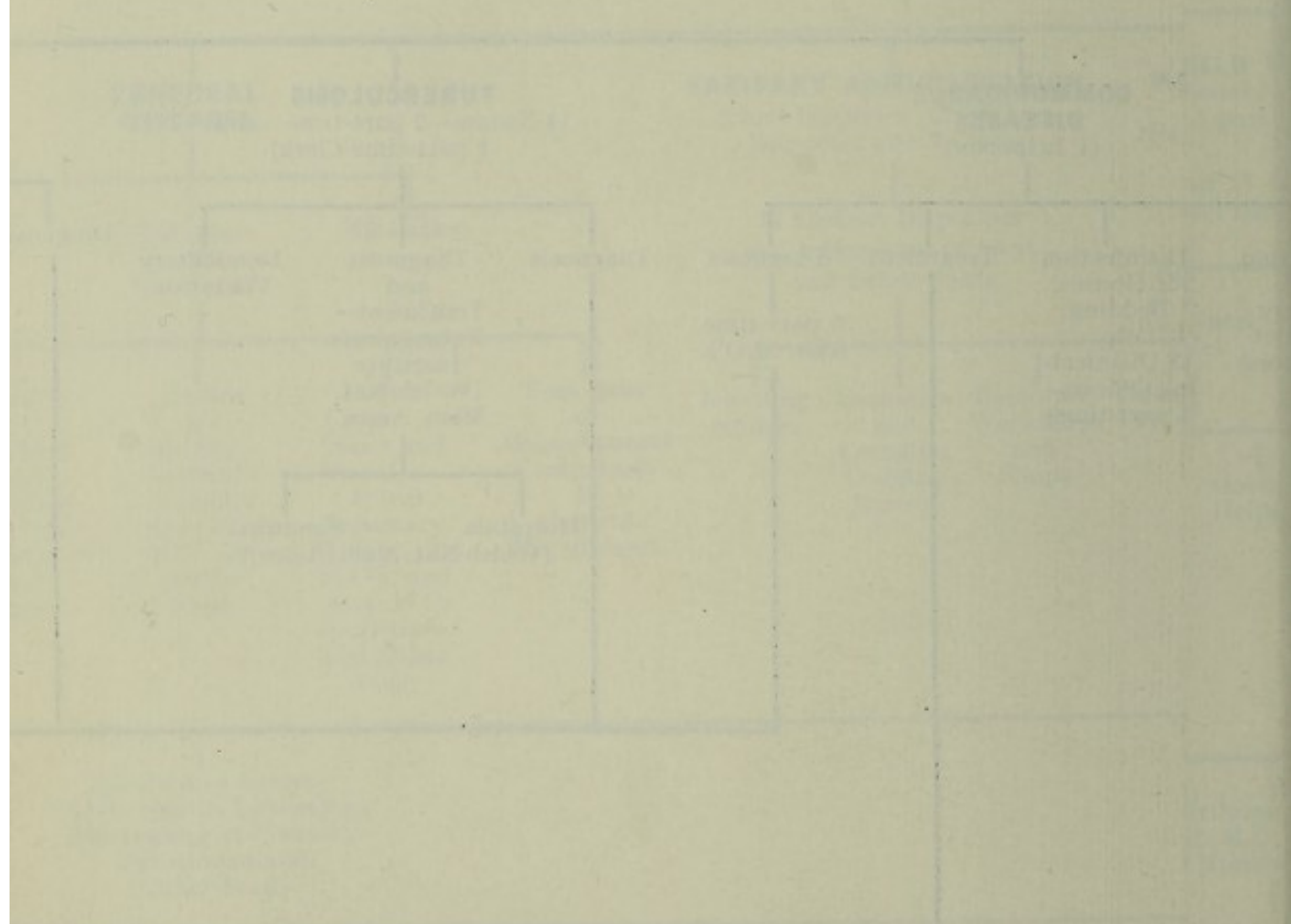
August, 1929.

CITY OF CARDIFF.
PUBLIC HEALTH DEPARTMENT.
ACTUAL EXPENDITURE, 1927-28.

Service	Gross Expenditure	Income (Excluding Government Grants)	Net Cost of Service	Government Grants.	Net Cost to the Rates	Approximate Cost in pence to the Rates
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
HEALTH SERVICES:—						
Sanitary Expenses	12,623 15 6	273 17 9	12,349 17 9	765 5 9	11,584 12 0	} 2·34
Sale of Food and Drugs Act ...	1,299 4 2	27 15 0	1,271 9 2	...	1,271 9 2	
Diseases of Animals Acts ...	376 15 11	...	376 15 11	...	376 15 11	
Midwives Acts	23 11 11	...	23 11 11	...	23 11 11	
Shops Acts	543 2 4	13 2 6	529 19 10	...	529 19 10	
Poisons and Pharmacy Acts ...	0 5 0	1 3 0	...	...	...
Blind Persons Act, 1920 ...	976 17 8	...	976 17 8	...	976 17 8	
Penylan Observatory	167 17 9	...	167 17 9	...	167 17 9	} 2·14
	16,011 10 3	315 18 3	15,696 10 0	765 5 9	14,931 4 3	
Less Poisons and Pharmacy Act— Excess Income over Expendi- ture ... ..	...	...	0 18 0	...	0 18 0	
			15,695 12 0	765 5 9	14,930 6 3	
Sanatorium (City Isolation Hospital)	14,601 11 4	2,388 0 5	12,213 10 11	...	12,213 10 11	} 2·14
Caerau Smallpox Hospital ...	1,451 1 2	11 0 0	1,440 1 2	...	1,440 1 2	
	32,064 2 9	2,714 18 8	29,349 4 1	765 5 9	28,583 18 4	4·48
PREVENTION AND TREATMENT OF TUBERCULOSIS	9,942 17 5	415 11 2	9,527 6 3	...	9,527 6 3	1·49
MATERNITY AND CHILD WELFARE SERVICE	12,095 9 11	3,634 19 4	8,460 10 7	4,121 6 10	4,339 3 9	0·68
VENEREAL DISEASES	6,120 10 1	...	6,120 10 1	4,544 8 2	1,576 1 11	0·25
SCHOOL MEDICAL SERVICE ...	10,242 0 5	413 6 9	9,828 13 8	4,914 6 10	4,914 6 10	0·77
MENTAL DEFICIENCY SERVICE ...	7,044 0 7	532 14 1	6,511 6 6	3,062 1 2	3,449 5 4	0·54
PORT SANITARY SERVICE	5,511 17 3	807 2 9	4,704 14 6	2,377 7 10	2,327 6 8	0·36
TOTALS	83,020 18 5	8,518 12 9	74,502 5 8	19,784 16 7	54,717 9 1	8·57

	s. d.
Actual Rate for Municipal and Education purposes ...	11 3
Actual Rate for Poor Law purposes	3 0
Total	14 3

Medical Officer of Health
and School Medical Officer
Deputy W.O., Clerk, and T. Clerk



GENERAL HEALTH SERVICE.

Section 1.

GENERAL STATISTICS.

Area—Including inland water, foreshore and Flatholm...	...	...	13,628 acres.
Excluding foreshore and Flatholm	...	...	11,984 „
Excluding inland water, foreshore and Flatholm	...	...	11,580 „
Population (estimated by the Registrar-General)	...	...	227,000
Number of persons per acre (exclusive of foreshore and Flatholm)	...	...	18·9
Number of inhabited houses (estimated)	...	...	42,700
Number of inhabited houses per acre	...	...	3·56
Average number of persons per occupied house	...	...	5·31
Rateable value (October, 1928)	...	...	£1,713,506
Estimated product of a penny rate	...	...	£6,300

Section 2.

VITAL STATISTICS.

BIRTHS.

The numbers of births and still-births registered during the year, arranged in wards and sub-divided according to sex and legitimacy, are shown in Table I., Appendix I. The births registered according to the Registrar-General are summarised in the following brief statement :—

	Legitimate	Illegitimate	Totals
Males	2,013	80	2,093
Females	1,923	75	1,998
Totals	3,936	155	4,091
Rate per 1,000 population	17·3	0·7	18·0

The rates for former years and for other places are given for comparison :—

	Cardiff			England and Wales 1928	107 Great Towns 1928
	1928	1927	1918-1927		
Birth-rate per 1,000	18·0	18·1	21·4	16·7	16·9

The birth-rate in each ward is given in Table IV., Appendix I.

DEATHS.

The deaths in 1928, classified according to age and cause (Registrar-General's short list), are set out in Table III., Appendix I. The ward distribution of the deaths and death-rates is included in Table V., and the causes of infant deaths in Table IV., Appendix I.

The following is the abbreviated extract of the death statistics required by the Ministry :—

	Males	Females	Total	Death-rate per 1,000
Deaths from all causes ...	1,474	1,186	2,660	11·7
Women in childbirth :—				
Sepsis ... ..	...	...	10	2·44
Other causes ... ..	...	...	14	3·42
Total	...	...	24	5·86

					Deaths	Rate per 1,000 Births
Infants under one year of age :—						
Legitimate	...	...	...	...	294	75
Illegitimate	...	...	...	...	21	135
Total					315	77

					Deaths	Rate per 1,000 Population
Measles	...	...	...	...	21	0.09
Whooping Cough	...	...	...	...	23	0.12

					Deaths	Rate per 1,000 Births
Diarrhoea (under 2 years)	...	...	...	...	46	11.2

Certain of these rates are tabulated for comparison with previous years and other places as follows :—

	Cardiff			England and Wales 1928	107 Great Towns 1928
	1928	1927	1918-1927		
Death-rate per 1,000	11.7	12.6	12.8	11.7	11.6
Infant Mortality (Deaths under 1 year per 1,000 Births)	77	80	84	65	70
Deaths of women in Childbirth per 1,000 Births :—					
Sepsis	2.44	1.71	2.14	1.79	1.85
Other Causes	3.42	2.20	2.78	2.63	2.38
Totals	5.86	3.91	4.92	4.42	4.24

Age Distribution of Population and Deaths.—The following table shows the population, deaths and death-rates at several age periods :—

Age Periods—Years	Estimated Population	Number of Deaths	Death-rate per 1,000
0—5	19,850	436	22.0
5—15	39,750	71	1.8
15—25	43,100	136	3.1
25—45	68,800	350	5.1
45—65	43,500	697	16.0
65 and upwards	12,000	970	80.8
All Ages	227,000	2,660	11.7

CANCER.

The number of deaths from cancer or malignant disease recorded in 1928 was 258, giving a death-rate per thousand of the population of 1.13 (males 1.04, females 1.23) as compared with 268 deaths and a death-rate of 1.18 per thousand (males 1.07,

females 1.30) in 1927, and with a death-rate of 1.13 (males 1.05, females 1.15) during the ten years 1918-27. The deaths during 1928 are analysed according to age, sex and localisation of the disease in the following table:—

Cancer— Malignant Disease	15-25 years		25-45 years		45-65 years		65-75 years		75 years and upwards		All Ages		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Both Sexes
Buccal Cavity ... ..	...	...	1	1	8	2	7	1	1	...	17	4	21
Pharynx, Oesophagus, Stomach, Liver and Annexa ... ..	...	...	3	2	16	23	12	13	5	6	36	44	80
Peritoneum, Intestines and Rectum ... ..	...	...	3	1	11	6	11	8	6	5	31	20	51
Female Genital Organs...	...	...	...	4	...	22	...	7	...	3	...	36	36
Breast ... ..	...	...	...	3	...	10	...	4	...	2	...	19	19
Skin ... ..	...	...	...	...	3	...	...	...	1	...	4	...	4
Other or Unspecified Organs	1	...	4	4	16	8	4	5	4	1	29	18	47
Totals	1	...	11	15	54	71	34	38	17	17	117	141	258

For comparison the cases voluntarily notified during 1928 are similarly analysed:—

Cancer—Malignant Disease	15-25 years		25-45 years		45-65 years		65-75 years		75 years and upwards		All Ages		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Both Sexes
Buccal Cavity	4	2	...	...	2	...	6	2	8
Pharynx, Oesophagus, Stomach, Liver and Annexa	1	7	6	2	3	...	1	9	11	20
Peritoneum, Intestines and Rectum	5	3	2	...	1	1	8	4	12
Female Genital Organs	1	...	7	...	1	...	...	...	9	9
Breast	3	...	1	...	...	...	...	...	4	4
Skin
Other or Unspecified Organs	1	...	1	...	6	4	...	1	...	9	4	13
Totals	1	...	1	5	22	23	4	4	4	2	32	34	66

Cardiff Royal Infirmary.—Records on the forms drafted and supplied by the Ministry of Health have been kept by the Hospital Registrar, according to an arrangement with this Department, showing in detail the history, treatment and progress of cases of cancer of the breast and of the uterus since 1st January, 1926, and of the rectum since 1st January, 1928. A very simple form of return is given here, designed for the sole purpose of indicating the length of survival of the cases. The value of these records will become apparent as years go on, for the purpose of tracing any improvement in the results of treatment, either due to earlier detection of the disease or better technique in its treatment.

CANCER OF BREAST.

	Stage of the Disease *			Totals	Percentage
	Class I.	Class II.	Class III.		
<i>Cases treated in 1926 :—</i>					
Number	8	6	16	30	...
Discharged alive	8	6	15	29	96.7
Surviving at 31st December, 1928 ...	7	4	5	16	53.3
<i>Cases treated in 1927 :—</i>					
Number	6	11	29	46	...
Discharged alive	5	11	28	44	95.6
Surviving at 31st December, 1928 ...	5	6	16	27	58.7
<i>Cases treated in 1928 :—</i>					
Number	7	3	23	33	...
Discharged alive	7	3	20	30	90.9
Surviving at 31st December, 1928 ...	7	3	17	27	81.8

CANCER OF UTERUS.

	Number	Percentage
<i>Cases treated in 1926 :—</i>		
Number	29	...
Discharged alive... ..	29	100.0
Surviving at 31st December, 1928 ...	5	17.2
<i>Cases treated in 1927 :—</i>		
Number	19	...
Discharged alive	19	100.0
Surviving at 31st December, 1928 ...	5	26.3
<i>Cases treated in 1928 :—</i>		
Number	37	...
Discharged alive... ..	37	100.0
Surviving at 31st December, 1928 ...	25	67.6

CANCER OF RECTUM.

	Number	Percentage
<i>Cases treated in 1928 :—</i>		
Number	20	...
Discharged alive... ..	17	85.0
Surviving at 31st December, 1928 ...	17†	85.0

* CLASS I.—Cases in which, so far as could be ascertained, the growth was entirely confined to the breast, the axillary glands not being invaded.

CLASS II.—Cases in which the axillary glands were already invaded but in which there was no evidence of involvement of any other neighbouring or distant organ or tissue.

CLASS III.—Cases in which either the adjacent or distant organs or tissues were involved, e.g., the pectoral muscles, the skin when ulcerated, the cervical glands, the opposite breast, etc.

(Reports on Public Health and Medical Subjects, No. 34 ; Ministry of Health.)

† As far as known at time of compilation.

Deaths of Females from Cancer of the Genital Organs.—In the Report for 1926 information bearing on the circumstances of females who died from cancer of the uterus or other genitalia during each of the years 1924-26 was given. The inquiry was continued throughout 1927 and 1928, and the complete results are shown below. It must be clearly understood that the statements of relatives were the only source of information in these cases.

INQUIRY INTO DEATHS OF FEMALES FROM CANCER OF THE GENITAL ORGANS.

	1924-26	1927	1928	Totals
1.—GENERAL.				
(a) Number of deaths	107	34	36	177
Average age of cases - years	55.3	57.4	59.4	56.5
Number married or widowed	100	32	34	166
Percentage married or widowed	93.4	94.1	94.4	93.8
Number regarding whom further information is not available	7	2	1	10
(b) Number regarding whom further information is available	100	32	35	167
Number married or widowed	95	30	33	158
Number married or widowed who had borne children	86	23	26	135
Percentage married or widowed who had borne children	90.5	76.7	78.8	85.4
Number treated by operation	35	11	9	55
Percentage treated by operation	35.0	34.4	25.7	32.9
2.—CASES TREATED BY OPERATION.				
Average interval in months between—				
Discovery and medical opinion	5.6*	3.2*	2.9	4.8*
Medical opinion and first operation	4.6†	0.9	0.6	3.1†
First operation and death	13.8†	16.8	20.9	16.5†
Discovery and death	23.9*	18.9*	24.2	24.0*
3.—CASES NOT TREATED BY OPERATION.				
Average interval in months between—				
Discovery and medical opinion	4.8‡	4.3	3.0	4.3‡
Medical opinion and death	13.7‡	18.9	13.6	14.8‡
Discovery and death	18.6§	23.2	16.6	19.2§

In 34 of the 55 cases treated by operation the period between discovery and operation was known to have been 6 months or less, and the average period between the first operation and death in these 34 cases was 16.5 months.

It will be seen that 177 deaths from this cause occurred during the five years and that fairly complete information is available with regard to 167 of them. Although cancer involving the uterus is eminently suitable for operative or radiological treatment at an early stage, in this series of cases only one-third had received such treatment—it being assumed that many of the patients whose relatives reported that they had been operated upon were really treated by radium.

* Average of 31 cases only.					
1924-26	†	"	"	32	"
	‡	"	"	61	"
	§	"	"	62	"
1927	*	"	"	10	"
	*	"	"	50	"
Totals	†	"	"	52	"
	‡	"	"	108	"
	§	"	"	109	"

Information regarding other cases not available.

DEATHS FROM ROAD ACCIDENTS.

The number of deaths from violence (excluding suicide) and the number and proportion of these due to road accidents in each year since 1923 are shown in the following table:—

Year	Total Deaths from Violence (excluding Suicide)	Deaths from Road Accidents	
		Number	Percentage
1923	100	14	14.0
1924	97	21	21.6
1925	91	23	25.3
1926	107	17	15.9
1927	103	20	19.4
1928	103	26	25.2

Clearly there has been no material increase in the number of deaths from violence, and the high percentage of these which were due to road accidents in 1928 may be attributed to chance in the absence of any marked upward tendency in recent years. The very rapid increase in mechanically propelled vehicles has not been associated with a comparable rise in the number of road accidents.

The deaths from road accidents in 1928 have been analysed in such a way as to show the type of vehicle and the class of individual involved. The results are presented in the following table:—

Vehicles	Fatal Accidents	Persons Killed					Totals
		Drivers	Motor Cyclists	Passen- gers	Cyclists	Pedestrians	
Electric tramcars	3	...	...	...	...	3	3
Heavy motor vehicles	5	...	...	...	...	5	5
Light motor cars	6	1	...	...	...	5	6
Motor cycles	3	...	2	...	...	1	3
Bicycles (non-motor)	1	...	...	...	1	...	1
Light motor cars and motor cycles	3	...	3	...	...	...	3
Heavy motor vehicles and bicycles (non-motor)	4	...	...	1	3	...	4
Light motor cars and bicycles (non-motor)	1	...	...	...	1	...	1
Totals	26	1	5	1	5	14	26

It will be seen that vehicles propelled by internal combustion engines have been responsible for the great majority of the fatalities, as might be expected since they now largely preponderate on the roads. More than half the deaths occurred among pedestrians. When motor cyclists or cyclists were involved the rider was usually the person killed.

Section 3.

ACUTE COMMUNICABLE DISEASES.

NOTIFICATIONS, ADMISSIONS TO HOSPITAL, DEATHS, AND FATALITY RATES.

Disease	Cases Notified	Cases admitted to Hospital	Deaths	Percentage Fatality of Cases Notified
Smallpox	12	12	...	0.0
Scarlet Fever	263	230	2	0.7
Diphtheria	487	450	16	3.3
Enteric Fever	2	2	2†	50.0
Pneumonia*	267	8	190	...
Puerperal Fever	32	9	10	31.2
Puerperal Pyrexia	53	2	...	...
Cerebro-Spinal Fever	6	5	3	50.0
Acute Poliomyelitis	5	1	1	20.0
Encephalitis Lethargica	6	2	6‡	83.3
Dysentery	3	...	3	100.0
Ophthalmia Neonatorum	57	...	4‡	5.2
Erysipelas	62	12	2	3.2
Malaria	3	1	...	0.0
Chickenpox	2,029	23	...	0.0

SMALLPOX.

During the year 12 cases of smallpox were notified. The infection was introduced on five different occasions, and in four instances was traced to an infected area in Monmouthshire or Glamorgan. The remaining case was not linked with any ascertained source in spite of careful investigation.

The first case was discovered in the hospital wards of Cardiff Prison where an unvaccinated man, aged 37, sickened with the disease on 30th December, 1927, and developed the rash on 2nd January, 1928. The man had been arrested at a fair held in an infected town in Monmouthshire on 17th December. The case was referred for diagnosis to the Public Health Department on 5th January and was forthwith removed to the Smallpox Hospital. One hundred and thirty-eight members of the prison population, including officials and attendants, were vaccinated or re-vaccinated on 6th and 7th January. The necessary supervision of the numerous contacts was exercised for a period of twenty-one days following the removal of the case to hospital, and prisoners discharged to Cardiff addresses during this period were kept under observation by officers of the Department. The names and addresses of those proceeding to other areas were notified to the medical officers of health concerned. No secondary cases occurred.

On 30th March a medical practitioner in Grangetown directed the attention of the Department to an unvaccinated woman of 27 years who had an unusual eruption. She had been taken ill on 23rd March and developed a rash on the 27th. She was found to be suffering from smallpox and was removed to the Smallpox Hospital forthwith. Investigation of this case revealed the fact that a girl who worked in the same mineral water factory as the patient had had a rash for some time. When this girl was visited the medical officer found her to be recovering from smallpox and, in addition, three further recent cases of smallpox were discovered in the house. The

* Only such cases of pneumonia as fall into the categories "acute primary" and "influenzal" are notifiable. Deaths from all forms of pneumonia are included in the fourth column.

† Including one death transferred to Cardiff.

‡ Including one case notified prior to 1928.

girl was obviously the source of infection of the four recent cases and it was established that she had visited an infected area in Monmouthshire towards the end of February, 1928. Within a fortnight of her return to Cardiff—probably on 11th March—she developed a rash but had continued at her work, thereby infecting the case which started the investigations. All of these cases were unvaccinated. They were removed to hospital on 30th March, as also were two contacts who later developed smallpox while under observation.

On 28th April an unvaccinated man in Canton, aged 26, who had been working in an infected area, returned to Cardiff sickening with smallpox. His rash appeared on 2nd May, but its nature was not recognised until the case was brought to the notice of the Public Health Department on 5th May, when he was at once removed to the Smallpox Hospital. This man's fiancée, living in Roath, who was also unvaccinated, developed the disease a week later.

The next case was discovered on 1st June in Cathays, where an unvaccinated girl of 19 years sickened with the disease on 24th May and developed the rash on the 29th. This was the only case which could not be linked up with any ascertained source of infection in spite of very thorough inquiries. The girl had not been out of Cardiff during the significant period and, although all her relatives and associates were carefully looked up, no trace of recent smallpox could be found amongst any of them.

After an interval of freedom lasting nearly six months another case was discovered in Cathays on 27th November. This was a man of 55 years of age who had not been vaccinated since infancy. On 9th November his duties as a railway man took him into an area in Glamorgan which was known to be infected with smallpox. He sickened with the disease in Cardiff on 22nd November and developed the rash on the 25th. The case was removed to hospital on 27th November, when the practitioner in attendance called in a medical officer of this Department to confirm the diagnosis.

These 12 cases were all of the mild type of smallpox now prevailing in South Wales. None of the patients was very seriously ill and in a few cases had not taken to bed at all. In spite of conditions in some instances favourable to the spread of the disease, secondary cases were uncommon. It would seem that this type of smallpox possesses a low degree of infectivity and that contact with susceptible persons has to be very close and perhaps prolonged before the disease is likely to be transmitted.

The following table shows the vaccinal state of these cases :—

Age Period : Years	Number of Cases	Number Unvaccinated	Number Vaccinated in Infancy	Number Vaccinated and Re-vaccinated before Infection	Number Vaccinated or Re-vaccinated after Infection
Over 40	1	...	1	...	1
20—40	4	4	...	...	4
10—20	6	6	...	...	6
Under 10	1	1	...	...	1
Totals ...	12	11	1	...	12

Vaccinal State of the Population.—The following table gives the result of the labours of the vaccination officers in connection with 4,249 children during the year :—

Successfully Vaccinated	Insusceptible	Postponed	Certificates of Exemption	Died Unvaccinated	Unaccounted for (including cases removed to other districts)
2,215	9	61	1,413	281	270

Comparison with previous years is made in the following table :—

				Percentage of Infants not returned as Vaccinated	Percentage of Certificates of Exemption
Nine years in the period 1901 and 1910				33.5	4.3
Eight „ „ „ 1911 and 1920				54.2	24.1
1921	...	...	...	42.5	29.5
1922	...	...	...	47.7	37.2
1923	...	...	...	35.5	23.5
1924	...	...	...	44.2	30.5
1925	...	...	...	48.1	31.3
1926	...	...	...	54.2	34.0
1927	...	...	...	52.2	29.5
1928	...	...	...	47.8	33.2

Chickenpox.—In order that the discovery of aberrant cases of smallpox might be facilitated, chickenpox has been compulsorily notifiable since 17th March, 1927. During 1928 the number of cases of chickenpox notified was 2,029, and all doubtful cases, all cases over ten years of age—whether vaccinated in infancy or not—and all unvaccinated cases under ten years were visited by the medical staff.

OPHTHALMIA NEONATORUM.

The following is a brief indication of the activity of the maternity and child welfare section of the Department in relation to ophthalmia neonatorum :—

Cases notified	...	...	...	...	...	...	57
Treatment—							
By Private Practitioners	...	...	...	...	...	...	21
„ „ „ assisted by District Nurses	...	...	...	...	...	...	12
At Child Welfare Centres, assisted by District Nurses	...	...	...	...	...	...	1
Institutional cases	...	...	...	...	...	...	20
Removed to City Lodge Hospital	...	...	...	...	...	...	3
„ „ Cardiff Royal Infirmary	...	...	...	...	...	...	1
Results—							
Vision unimpaired	...	...	...	...	...	...	47
Died from the disease	...	...	...	...	...	...	3*
Died from other causes	...	...	...	...	...	...	7

* In addition one case notified in 1927 died in 1928.

During the year, 41 specimens of exudate from the eyes of individual infants notified or suspected to be suffering from ophthalmia neonatorum, including most of the notified cases not inmates of public institutions, were submitted for microscopical examination for the presence of gonococci, with the following results:—

				Number		Percentage
Positive	...	...	...	11	...	26.8
Negative	...	...	...	30	...	73.2
Total	...	...	...	41	...	100

DIPHTHERIA.

Schick Testing and Active Immunisation.—Schick testing and active immunisation were continued during 1928 as far as the limitations of staff would permit. It was possible only to deal with children at three schools, and the work done is set forth in the following table:—

SCHOOL CHILDREN.

School and Department	Schick Tested	Positive		Immunised	
		Number	Percentage	Number	Percentage
Herbert Thompson C.—					
Boys	191	74	38·7	68	91·9
Girls	133	59	44·3	58	98·3
Infants	207	116	56·0	112	96·5
Albany Road C.—					
Boys	59	36	61·0	33	91·7
Girls	80	52	65·0	49	94·2
Infants	88	68	77·3	65	95·6
Ely C.—					
Mixed	60	47	78·3	45	95·7
Infants	123	94	76·4	91	96·8
Others	3	1	33·3	1	100·0
Totals	944	547	57·9	522	95·4

In addition 31 children under school age (not Schick tested) were immunised.

The following tabular statement shows the number and proportion of school children in Cardiff found to be Schick positive at various ages since the work was commenced in 1926:—

Age—Years	Boys			Girls			Totals		
	Tested	Positive	Percentage	Tested	Positive	Percentage	Tested	Positive	Percentage
3	10	7	70.0	5	5	100.0	15	12	80.0
4	84	65	77.4	66	49	74.2	150	114	76.0
5	206	148	71.8	205	149	72.7	411	297	72.2
6	256	165	64.4	307	208	67.7	563	373	66.2
7	260	154	59.2	263	163	62.0	523	317	60.6
8	232	128	55.2	274	147	53.6	506	275	54.1
9	201	86	42.8	214	114	53.2	415	200	48.2
10	120	55	45.8	131	67	51.1	251	122	48.6
11	58	26	44.8	39	18	46.1	97	44	45.3
12	48	22	45.8	26	13	50.0	74	35	47.3
13	28	6	21.4	26	11	42.3	54	17	31.5
14	...	...	...	3	2	66.6	3	2	66.6
Totals ...	1,503	862	57.3	1,559	946	60.7	3,062	1,808	59.0

Milk-borne Diphtheria.—The following is a summary of outbreaks of milk-borne diphtheria in 1928, prepared by Dr. Chris. J. McSweeney :—

“ Three outbreaks of diphtheria conveyed by milk occurred during the year 1928. In each instance attention was directed to the milk by the occurrence in rapid succession of several cases of diphtheria of an unusual age distribution and with a common milk supply.

“ The first outbreak commenced at the latter part of January, thirteen cases in a residential district of the city sickening with diphtheria between 19th January and 19th February. Eleven of them occurred within a period of three weeks and eight were aged 15 years or over. An investigation on 6th February at the retailer's premises in the city proved negative. By arrangement with the Medical Officer of Health of the district concerned, a visit was made on the same day to the farm outside the city boundaries where the milk was produced. One of the farmer's daughters was found to be suffering from an unrecognised attack of diphtheria, and her sister, who slept in the same room, was found to be a diphtheria carrier. When the necessary preventive steps were taken no further cases occurred on the milk round.

“ The second outbreak occurred between 20th and 27th September, when seven cases, only three of whom were under 10 years of age, sickened with diphtheria. By a curious coincidence the milk supply involved was the same as in the previous outbreak, and on 27th September the source of infection was again located at the producer's farm, where the farmer's daughter, who was previously a patient, was again found to be carrying diphtheria germs in her throat. This outbreak was also interesting in that virulent diphtheria bacilli were isolated in pure culture from lesions on the cows' udders which had been diagnosed by a veterinarian as cowpox. Dean and Todd¹ and later Ashby² many years ago drew attention to this mode of transmission of diphtheria, and there can be no doubt that it is a possibility which should constantly be kept in mind in investigating outbreaks of milk-borne diphtheria. A description of this small epidemic, written by Dr. Parry Morgan and myself, was published in *The Lancet* of 8th December, 1928 (1,201).

“ The first case of the third outbreak sickened on Christmas Day, and eleven cases were traced to this particular milk supply between that date and 10th January, 1929. The age distribution here was not so characteristic, only four of the cases being over 10 years of age. Investigations at the retailer's premises led to the discovery of a carrier amongst the milk roundsmen. The producer's premises were visited and the personnel examined clinically and bacteriologically without result. Cases ceased to occur as soon as this carrier was segregated.

“ No death occurred amongst these 31 cases of milk-borne diphtheria, but a few of the cases were very ill indeed and developed complications which necessitated prolonged periods of hospital detention, amounting in one case to four months.”

EPIDEMIC ENCEPHALITIS.

Encephalitis lethargica or epidemic encephalitis was made compulsorily notifiable in England and Wales on 1st January, 1919. Between this date and 31st December, 1928, 52 cases of the disease were notified to the Department as occurring within the Cardiff area, the number of cases each year being as follows :—

Year				Cases			
Year				Cases			
1919	...	...	2	1924	...	...	9
1920	...	...	7	1925	...	...	5
1921	...	...	2	1926	...	...	9
1922	...	...	1	1927	...	...	4
1923	...	...	7	1928	...	...	6
Total				...	52		

1. Dean. G., and Todd. C. : *Journal Hyg.*, 1904, ii, 194.

2. Ashby. A. : *Public Health*, 1906, xix, 145.

An effort was made in December, 1928, to ascertain the present condition of all these notified cases. Information concerning some of the cases was already available, *e.g.*, in mental deficiency and other records, but in every case where doubt existed as to the present condition a medical officer of the Department visited the homes. The results of the investigation are as follows :—

Dead	33
Suffering from Sequelæ ...	10
Recovery	4
Untraced	5
Total	52

Of those who had died, almost in every case the certified cause of death was encephalitis lethargica. All those suffering from sequelæ were incapacitated from following their employment or from carrying out their usual duties, four showing Parkinsonism without marked mental changes, and six others definite mental deterioration. Two of the latter had been certified as mentally defective; another had become uncontrollable and has become an inmate of a poor-law institution. The present whereabouts of five of the cases could not be ascertained.

NON-NOTIFIABLE ACUTE COMMUNICABLE DISEASES.

The following statement shows the number of cases of usually non-notifiable communicable diseases which came to the knowledge of the Department during 1928 compared with the four previous years :—

	1924.	1925.	1926.	1927.	1928.
Measles	802	861	1,323	756	619
German Measles ...	3	35	24	3	...
Whooping Cough...	241	335	168	180	253
Chickenpox* ...	778	303	266	943	2,029
Mumps	220	70	333	180	151

Measles.—Measles commenced to be prevalent in February, became epidemic in April and continued so until August. The number of deaths from this disease during the year was 21, giving a death-rate per 1,000 of 0·09, compared with 31 deaths and a death-rate of 0·14 in 1927.

Whooping Cough.—Whooping cough accounted for 28 deaths, corresponding to a death-rate of 0·12 per 1,000, as against 7 deaths and a rate of 0·03 per 1,000 in 1927. The difference in the two years was due rather to an exceptionally low mortality in 1927 than to any undue prevalence in 1928.

Diarrhœa.—Sixty-one deaths were certified as being due to diarrhœa, of which 46 occurred amongst infants under 2 years of age. These 46 deaths were equivalent to a death-rate of 11·2 per 1,000 births, as compared with 8·3 in 1927.

Influenza.—During the year there were 42 deaths from influenza, 19 of which occurred during the first quarter, when a relatively small outbreak of the disease occurred. Influenza did not reach epidemic proportions in 1928, as will be seen from the figures in the following table, which is given to show the effect of these recurring epidemics on the mortality from all causes and from those causes definitely connected with the respiratory system :—

* Notifiable during part of 1924 and as from 17th March, 1927.

Year	(1) Deaths from All Causes	(2) Deaths from Influenza and Respiratory Diseases	(3) Percentage of (2) in (1)
1917	2,433	471	19.4
1918	3,188	1,073	33.6
1919	2,652	666	25.1
1920	2,411	424	17.6
1921	2,452	429	17.5
1922	2,704	758	28.0
1923	2,721	484	17.8
1924	2,740	597	21.8
1925	2,916	534	18.3
1926	2,441	357	14.6
1927	2,853	639	22.4
1928	2,660	431	16.2

Undulant Fever.—In view of the reports from Scandinavia and America of cases of undulant or continuous fever, ascribed to infection with *Brucella melitensis*, it was arranged in October, 1928, that all sera submitted to the Public Health Laboratory for the Widal reaction should be tested for agglutination with this organism. On 23rd November Dr. Parry Morgan reported that one such serum had given a positive reaction in a dilution of 1 in 250 to the *Brucella melitensis*. Although the strength of this reaction was regarded as of doubtful significance, it was considered sufficiently suspicious to justify further communication with the medical attendants of the patient concerned and they readily agreed to carry out further investigations.

On receipt of a communication from the Medical Research Council early in December, stating that the Ministry of Health were interested in the problem generally, information regarding this case was sent them. In the meantime, a further sample of blood taken on 6th December was found to react much more strongly—a titre of 1 in 800 being obtained—to the strain of micro-organism known as *Brucella abortus*, which causes contagious abortion in cattle and is closely related to *Brucella melitensis*. On receipt of this information, and with the willing co-operation of the consulting physician and the practitioner in attendance, a medical inspector from the Ministry visited the patient on 18th December and a diagnosis of undulant fever of the *Brucella abortus* type was established.

Bacteriological investigations of one of the milk supplies involved*, carried out by Mr. J. H. Sugden and Dr. Parry Morgan at the Public Health Laboratory, yielded interesting results. It was not possible to grow any organism of the *Brucella* type from samples of this milk taken on 20th December, 1928, but when centrifugalised deposits from the milk were inoculated into guinea pigs it was found after a lapse of six weeks that the serum of the guinea pig agglutinated a suspension of *Brucella abortus* of bovine origin in very high dilution (1 in 1,000).

Up to April, 1929, Mr. Sugden and Dr. Parry Morgan have examined for evidence of *Brucella abortus* infection many samples of milk sent to the Public Health Laboratory for other purposes. From three such samples obtained from different animals on a farm in a neighbouring county pure cultures of *Brucella abortus* were isolated. Biological tests carried out at the Laboratory with the centrifugalised deposits from these and from other samples of milk derived from various sources have yielded strongly positive results in several instances.

These circumstances would appear to indicate that undulant fever caused by *Brucella abortus* infection of milk may be much more wide-spread in this country than has generally been supposed, although it would be wrong to create the impression that it is likely to be found of common occurrence.

* The patient concerned had been away from Cardiff during part of the period when he might have been infected and had consumed milk regularly on his travels.

Section 4.

CARDIFF ISOLATION HOSPITAL.

The number of patients admitted to the Isolation Hospital (including the temporary Smallpox Annexe), the average daily number of patients under treatment, the number of patient-days and the average duration of residence are shown in the following table :—

Disease	Patients admitted	Average daily number of patients	Patient-days	Average duration of residence in days
Smallpox	78	6	2,162	28
Scarlet Fever	231	21	7,591	33
Diphtheria	444	55	20,360	46
Other Diseases	369	31	11,278	31
All Diseases	1,122	113	41,391	37

The annual report of the Medical Superintendent is given below :—

Report for 1928 of John McGarrity, M.D., D.P.H., Resident Medical Superintendent of the Cardiff Isolation Hospital.

" During the year there were admitted to the wards 1,122 patients, including one or two members of the nursing and domestic staff who suffered from minor ailments and a number of smallpox patients from districts outside the city boundaries.

" The health of the staff was very satisfactory as regards infectious diseases; not a single nurse or maid was off duty during the year with anything worse than slight hospital sore throat. It is worthy of note that no nurse or maid contracted either diphtheria or scarlet fever in the course of their duty during the year.

" Since the beginning of 1925, 96 members of the nursing staff and 55 maids have been tested for susceptibility to diphtheria by means of the Schick test. Twenty-four of the nurses (25 per cent.) and 20 of the maids (36·4 per cent.) were Schick positive reactors. Sixteen of the nurses who were positive have been immunised and all became negative reactors. Toxoid-antitoxin was used for the prophylactic injections, a further course of injections being given if any nurse remained positive on retesting after 3 or 6 months. This was considered necessary because of the risk of waiting too long for immunity to develop, especially in the case of those nurses working in diphtheria wards. One maid—a very definite positive Schick reactor—was immunised with four 1 c.c. doses of a special diphtheria prophylactic indicating mixture. As a result of these four injections a definite positive Schick reaction became a negative one in four weeks.

" Since the beginning of 1926, 79 nurses and 33 maids have been tested for susceptibility to scarlet fever by means of the Dick test. Only seven of the nurses were positive reactors and five of these were immunised. Only two maids showed a positive reaction.

" The usual lectures and tutorials have been given to the nurses during the year. Eight nurses entered for the Final State Examination in Fevers and all passed, while seven entered for the Preliminary Examination in Anatomy, Physiology, Hygiene, etc., of whom four were successful.

" The usual reports relating to the various infectious diseases treated in the hospital are given below.

"*Scarlet Fever*.—Two hundred and fifty-eight patients were treated in the wards, of whom 231 were true cases of scarlet fever; one was a case of rubella, four were patients suffering from tonsilitis, one suffered from a septic condition of the mouth following scarlet fever, one was merely a contact, while 20 were patients who were finally diagnosed as suffering from a variety of adventitious rashes. Five of the true cases of scarlet fever were sent into hospital as cases of diphtheria and five as cases of measles. Two deaths occurred among the scarlet fever patients—small children who died of septic scarlet fever; one of these children was a Mongolian type of defective. Two hundred and fifteen patients suffered from simple scarlet fever. Five, including the two who died, were septic; 10 were subseptic, while one was sub-toxic. Scarlet fever antitoxin was administered to 11 patients with, on the whole, favourable results.

"The principal complications are noted below:—

Complication.	Cases.	Percentage.
Arthritis	5	2·16
Otorrhœa	21	9·09
Rhinitis	23	9·95
Nephritis	1	0·43
Late Albuminuria	15	6·49
Late Adenitis	28	12·12
Jaundice	1	0·43
Tonsilitis	3	1·25
Diphtheria	2	0·86

Table showing age and sex of scarlet fever patients.

	0-5 years	5-10 years	10-15 years	15-25 years	25-45 years	Over 45 years	Totals
Recovered—							
Males	23	54	12	6	3	...	98
Females	37	60	16	14	4	...	131
Died—							
Males	1	...	...	...	...	...	1
Females	1	...	...	...	...	...	1
Totals	62	114	28	20	7	...	231

Hospital mortality: 0·87 per cent.

"*Diphtheria*.—Of the patients admitted to the wards (567 in number), 444 were true cases of diphtheria, while the remaining 123 patients suffered from a variety of other ailments, namely, 11 from laryngitis, 47 from tonsilitis, one from tonsilitis and chickenpox, one from ulcerative stomatitis, four from quinsy, one from tonsilitis and measles, one from tonsilitis and rheumatism, one from a septic sore throat and dermatitis, 53 were merely carriers of the diphtheria bacillus (though in three instances the diagnosis had been rendered difficult by the occurrence of broncho-pneumonia, whooping cough, and the removal of tonsils and adenoids respectively), one patient was merely a diphtheria contact, one (who died) was a case of laryngismus stridulus, and one was a child suffering from convulsions following broncho-pneumonia who also died. Five patients admitted as cases of diphtheria were really suffering from scarlet fever, while two, also admitted as cases of diphtheria, were found to be cases of measles.

Table showing type of diphtheria and mortality.

Type	Number	Died	Mortality per cent.
Faucial only	303	6	1.98
Faucial and Laryngeal	36	2	5.55
Faucial and Nasal	67	4	5.97
Faucial, Laryngeal and Nasal	1	1	100.00
Laryngeal only	19	2	10.53
Nasal only	14	...	0.00
Laryngeal and Nasal	1	...	0.00
Faucial, Laryngeal and Lip	1	...	0.00
Faucial, Laryngeal and Cheek	1	...	0.00
Faucial, Nasal and Vaginal	1	...	0.00
Totals	444	15	3.38

"The above table shows that there were 15 deaths during the year, representing a hospital mortality of 3.38 per cent., compared with 4.8 in 1927, 4.9 in 1926 and 5.3 in 1925.

"Fifty-nine patients suffered from a varying degree of laryngeal obstruction, of whom five died, representing a laryngeal mortality of 8.5 per cent. Eleven of the laryngeal patients required interference either in the shape of intubation or tracheotomy. Nine patients were subjected to intubation, of whom five made a good recovery, but four died, including one where a tracheotomy was performed later. Two of those who died, who had been intubated, were very poisoned, and the other two suffered as well from broncho-pneumonia. In addition, two patients were subjected to tracheotomy alone; one recovered and one died.

"Thirty-nine patients suffered from paralysis of various muscles, representing a paralysis rate of 8.8 per cent., compared with 6.9 in 1927, 6.3 in 1926 and 8.3 in 1925. The types of paralysis in these 39 cases were as follows:—

Type	Number of Patients
Ptosis ... ..	...
Palatal Paresis	18
Strabismus	2
Ciliary Paresis	1
Muscles of Neck	6
Pharyngeal Paralysis	2
Muscles of the Legs	28
Facial Paralysis	1
Diaphragmatic Paralysis	1
Muscles of Back	1
Muscles of Arms ... ..	...

"Circulatory failure occurred in 37 patients. Fourteen of these had only slight irregularity and weakness of the pulse and heart, but 23 had more definite signs of heart failure in the shape of vomiting, etc., accompanying a very definite change in the rate, regularity and force of the pulse and heart. Of these 23 cases, eight died, including two children who were also laryngeal cases and who were subjected to intubation and intubation followed by tracheotomy respectively. Other two patients were classified as having died of diphtheria, where the causes of death were really enteritis and pneumonia (followed by empyema) respectively. Two other children died in the diphtheria wards of (1) laryngismus stridulus and (2) convulsions following broncho-pneumonia in a debilitated child.

Table showing the diphtheria death-rate according to the day of disease on which the serum was given :—

Day of Disease on which Serum was given	Number of Patients	Number of Deaths	Number of deaths per cent.
1st	14	...	0.00
2nd	115	1	0.87
3rd	95	7	7.37
4th	80	...	0.00
5th	56	5	8.91
Later than 5th ...	84	2	2.38
Totals	444	15	3.38

Table showing age and sex of diphtheria patients :—

	0-5 years	5-10 years	10-15 years	15-25 years	25-45 years	Over 45 years	Totals
Recovered—							
Males	62	78	23	18	5	...	186
Females	61	111	28	24	16	3	243
Died—							
Males	3	5	...	...	...	...	8
Females	5	...	1	...	1	...	7
Totals	131	194	52	42	22	3	444

Hospital mortality : 3.38 per cent.

“ The above table shows, among other things, that 13 of the 15 deaths occurred among children under 10 years of age. Laryngeal obstruction was the main cause of death in the 0-5 age group and early heart failure in the 5-10 age group in very poisoned children. Paralysis of the diaphragm was the cause of death in one instance, in a child 11 years of age during the sixth week.

“ *Measles*.—One hundred and twenty-nine patients were admitted to the measles wards. Of these, 123 were true cases of measles, one was a measles contact, while five suffered from various adventitious rashes. Two patients sent in as scarlet fever were in reality suffering from measles, as were other two who were admitted as suffering from diphtheria. Five deaths occurred among the measles patients, representing a hospital mortality of 4.06 per cent. Four of the five patients died of broncho-pneumonia, in two instances present on admission. One of the four had, as well, concurrent cerebro-spinal meningitis. The fifth case was a severe case of the toxic type.

“ The principal complications, etc., are noted below :—

Complication	Number	Percentage
Laryngitis	2	1.6
Broncho-pneumonia	12	9.7
Otorrhœa	12	9.7
Adenitis	1	0.8
Conjunctivitis	3	2.4
Enteritis	1 (green stools only)	0.8

Table showing age and sex of measles patients :—

	0-1 year	1-2 years	2-3 years	3-4 years	4-5 years	5-10 years	10-15 years	Totals
Recovered—								
Males	1	9	5	7	8	23	1	54
Females	3	13	7	12	8	21	...	64
Died—								
Males	1	1	...	...	...	...	...	2
Females ... ..	...	...	1	2	...	...	...	3
Totals	5	23	13	21	16	44	1	123

Hospital mortality : 4·06 per cent.

“*Enteric Fever.*—Five patients were admitted to the wards, four of whom were true cases of the disease, while one was suffering from some form of gastro-enteritis. Of the true cases, two were patients suffering from *Bacillus Typhosus* infection and two from *Bacillus Paratyphosus B* infection. All the patients made a good recovery. One patient suffered from typhoid spine as a complication and another from several slight hæmorrhages from the bowel ; the latter patient also relapsed but recovered.

“*Erysipelas.*—Thirteen patients were admitted to the wards, of whom 12 were true cases of the disease, one merely suffering from an abscess of the face. Ten of the 12 true cases suffered from facial erysipelas and two from erysipelas of the leg. In only one instance was there a history of previous infection with the disease, *i.e.*, a man who had been in hospital a year before with facial erysipelas. Two of the patients who suffered from facial erysipelas were very seriously ill with marked septicæmia. They received injections of very large doses of polyvalent anti-streptococcal serum, and a marked improvement was noticed as a result ; both ultimately made a good recovery.

“*Meningitis.*—Twelve patients were admitted likely to be suffering from some form of the disease ; of these, five were true cases of cerebro-spinal meningitis, four of whom died, while one made a very satisfactory recovery. One patient (who died) was suffering from tuberculous meningitis, one from broncho-pneumonia, one from influenza, one merely from tonsillitis, and one (who died) from tonsillitis and streptococcal septicæmia. Two patients were small children who merely suffered from meningism.

“*Whooping Cough.*—Five patients were admitted to hospital suffering from whooping cough. All made a good recovery.

“*Chickenpox.*—Twenty-two patients were treated as possible cases of chickenpox, and all but one were true cases ; this one merely suffered from dermatitis. The chickenpox patients were admitted for the most part from the Cardiff Royal Infirmary suffering from various surgical conditions, such as severe burns, fractured femur, injuries to head, osteomyelitis and displacement of the patella.

“*Puerperal Septicæmia.*—Eleven patients were admitted to the hospital suffering from fever in the puerperium. Eight of these recovered, while two died, with pneumonia as a complication in both cases. One patient developed puerperal insanity and recovered, but one, who also developed a similar condition, had shown no improvement in her mental state on leaving hospital, and was later admitted to a mental hospital.

"*Smallpox*.—Eighty patients in all were admitted to the wards of the hospital likely to be suffering from a mild form of this disease. All but two were true cases of the disease but in many instances of a particularly mild type. Altogether, 67 of the smallpox cases were admitted from outside the city boundaries. Fifty-eight of the 78 smallpox patients had never been vaccinated. All recovered.

"*Other Diseases*.—In addition to all the above-mentioned diseases, there were treated in the wards 20 patients suffering from various ailments as follows:—Five from broncho-pneumonia, four from lobar pneumonia, three from encephalitis lethargica, one (a nurse) convalescing after the removal of tonsils and adenoids, one (a maid) from a scalded foot, one from tonsillitis, one from mumps, one from acute poliomyelitis, one from a septic throat following the removal of tonsils and adenoids, one from chronic amoebic dysentery, and one from dermatitis. All but two recovered; one of these suffered from acute poliomyelitis and one from encephalitis lethargica.

"*Laboratory Work*.—The following table contains a summary of the bacteriological examinations conducted in the hospital laboratory during the year:—

Examinations	Positive	Negative	Totals
Specimens for Diphtheria	1,105	1,787	2,892
Miscellaneous specimens, particularly of cerebro-spinal fluid, blood, etc. ... ..	...	...	71
Total ... ..	...	...	2,963

"Many examinations of urine, etc. are not included in the above table."

Section 5.

CARDIFF MUNICIPAL HOSPITALS.

Isolation Hospital.—The Isolation Hospital, known locally as the Sanatorium, is the most important of the Cardiff municipal hospitals. It is situated in the west end of the city, the site being about twelve acres in extent. The hospital and its grounds are separated from the surrounding residential area by two railway lines, and as the adjacent ground is damp and as it is liable to be flooded once or twice a year by the overflowing of the Ely River during exceptionally high tides, it is improbable that the institution will be built round during the life of the present generation. Near the entrance there is a porter's lodge, whence a long avenue bordered by chestnut trees leads to the administrative block. This block consists of two main buildings connected to one another by a corridor, one building having been erected in 1895, the other being added in 1926. In addition to a large and well-equipped kitchen and the usual administrative quarters, this building provides accommodation for sixty-one nurses and maids. The ward blocks consist of six isolated pavilions, five of these each having two main wards and a small side room in addition to the nurses' duty room and offices, while the sixth block—situated in an attractive quadrangle—provides isolation accommodation in four small separate wards. Two of the main blocks and the isolation block were opened in 1895, the others in 1900. In order to overcome the structural difficulties and the risk of dampness from the character of the site, it was necessary to raise the buildings on piers standing about six feet above the ground level. The total accommodation of the hospital, based on the Ministry of Health's standard of 1,872 cubic feet per adult, is 123 adult beds, 18 of which are provided in side rooms or in the isolation block. As, however, a large proportion of the patients is always under ten years of age, requiring only half the prescribed air space, a much larger number of patients has been under treatment from time to time in the institution than the number mentioned, as many as 205 having been accommodated at one time during the past winter.

In addition to the permanent hospital mentioned above, there exists on an adjacent site a temporary building which has been in existence longer than the main hospital. It was originally used as an isolation hospital pending the construction of the main hospital, but since the erection of the latter it has been reserved as a small-pox annexe. It provides 26 adult beds on the standard of 2,000 cubic feet per bed, and has separate nurses' quarters, kitchen, laundry, mortuary, etc., the whole unit being entirely segregated from the main hospital. When this hospital is in use a separate nursing and cleaning staff is detailed from the main hospital for the purpose. Recently it has been used as additional accommodation for other diseases than smallpox.

The staff of the Isolation Hospital consists at present of a resident medical superintendent, for whom a house is provided, a matron, a home sister, four sisters, a kitchen and laundry superintendent, five nurses and thirty-eight probationers. There are thirty maids and a male staff of ten. The staff, of course, fluctuates from time to time according to the prevalence of epidemic disease.

Cases of the following diseases are admitted to the institution when accommodation is available:—Enteric fever, scarlet fever, diphtheria, cerebro-spinal fever, epidemic encephalitis, measles, acute poliomyelitis, puerperal fever and pyrexia, and cases of whooping cough, chickenpox, mumps and other minor epidemic diseases from public institutions.

The hospital has been recognised as a training school for nurses since the inception of the examination system of the General Nursing Council for admission of fever nurses to the register, and is affiliated with hospitals at Poole and Ogmores-and-Garw to enable the nurses in these institutions to take the examination.

Caerau Hospital.—In addition to the smallpox annexe mentioned above, a new and up-to-date separate smallpox hospital has been provided recently. It is known as Caerau Hospital and was ready for the admission of patients early in 1928. This

hospital is built on an attractive site at the western boundary of the city, consisting of about twenty acres of pasture-land and woodland. The administrative block consists of a mansion purchased along with the site and slightly altered for institutional purposes. Accommodation for patients consists at present of two ward blocks, one being an up-to-date observation block with ten separate rooms, accommodation for nurses, offices, etc., while the other provides for 21 patients in four wards of 12, 6 and 2 beds and 1 bed respectively, this accommodation, of course, being based on the Ministry's requirement of 2,000 cubic feet per adult bed. On the site there is also a large, well-equipped laundry block, capable of meeting the requirements of a much larger institution, and also a disinfecting house. While this hospital is reserved for smallpox during the present exceptional prevalence of that disease, it has been designed with a view to its being used for other purposes during non-epidemic times.

Flatholm Hospital.—The City Council possess a hospital which is situated on an island in the middle of the Bristol Channel. It is a small building, known as Flatholm Hospital, and is reserved for cases of plague, cholera and yellow fever. There is accommodation for 16 patients. It was erected in 1896, during a period when considerable alarm existed as to the importation of these diseases into the country. With modern knowledge of the conveyance of such infections, however, it would appear to be unnecessary to maintain such an extreme degree of isolation, and if landing facilities of a safer character than those available were provided this hospital might serve as an admirable convalescent home for delicate children.

The Lord Pontypridd Hospital, Dulwich House.—Through the generosity of the late Lord Pontypridd and of the trustees of the James Pyke Thompson bequest, the Cardiff City Council now possess a small hospital for the accommodation of children suffering from the early phases of acute rheumatism. The hospital is situated in the western part of the city, near Llandaff Fields, in fairly extensive and very attractive grounds. Prior to being handed over to the Council by the trustees on the 1st April, 1929, it was used as a convalescent home for women and children. The hospital is administered and managed by the Public Health Department, and is financed (apart from small contributions from the parents of patients) out of funds derived from a legacy to the Council in 1927 by the late Lord Pontypridd. Accommodation is provided for 20 patients, the medical care of whom is undertaken by a medical officer on the staff of the Department. The hospital staff consists of a matron, a staff nurse, two probationer nurses, three maids and a gardener-handyman.

Section 6.

TUBERCULOSIS.

New Cases.—The following tables show the age distribution and localisation of the disease among new cases of tuberculosis coming to the knowledge of the Department during the year :—

Cases of Tuberculosis by Age and Sex.

Age Periods— Years	New Cases*					
	Pulmonary			Non-Pulmonary		
	Males	Females	Totals	Males	Females	Totals
0—1	1	...	1	4	1	5
1—5	1	1	2	10	7	17
5—10	3	2	5	12	7	19
10—15	7	6	13	3	4	7
15—20	13	22	35	4	4	8
20—25	18	34	52	8	8	16
25—35	44	54	98	12	7	19
35—45	36	18	54	6	1	7
45—55	27	10	37	3	2	5
55—65	8	9	17	...	2	2
65—75	3	3	6	...	1	1
75 and upwards ... ..	...	...	...	...	...	...
Totals	161	159	320	62	44	106

Cases of Tuberculosis by Localisation of Disease and Sex.

Form of Tuberculosis	New Cases*		
	Males	Females	Totals
Respiratory System	161	159	320
Nervous System	7	9	16
Intestines and Peritoneum	9	7	16
Vertebral Column	5	3	8
Joints	11	7	18
Other Organs	30	16	46
Disseminated Tuberculosis ... ..	...	2	2
Totals	223	203	426

Sources of Ascertainment.—The new cases of tuberculosis* were ascertained as follows :—

Source	Pulmonary	Non-Pulmonary	Totals
General Medical Practitioners	155	33	188
Welsh National Memorial Association	97	32	129
Medical Officers of Institutions	40	21	61
Other Medical Officers	5	3	8
Otherwise ascertained	23	17	40
Totals	320	106	426

* Including cases notified after death, deaths of cases not notified, and cases ascertained otherwise than by formal notification.

Home Conditions.—A detailed analysis is given below, showing the actual living and sleeping conditions within their own tenements of 266 new cases of pulmonary tuberculosis coming to the knowledge of the Department during 1928.

Living accommodation of 266 Patients in Private Houses :—

Rooms in Tenement (i.e., house or part of house occupied by one family)	Patients			Total Number of Persons in Household			
	Males	Females	Totals	Over 10 years	Under 10 years	Lodgers	Totals
1 room	4	3	7	11	5	...	16
2 rooms	7	22	29	65	33	...	98
3 rooms	13	15	28	83	48	...	131
4 rooms and over ...	104	98	202	836	201	...	1,037
Totals	128	138	266	995	287	...	1,282

In addition to the foregoing 266 cases, there were 29 cases (15 males and 14 females) in institutions and 14 males in lodging houses. Information as to the living accommodation of the remaining 11 cases (4 males and 7 females) could not be ascertained for various reasons.

Sleeping Accommodation of 266 Patients suffering from Pulmonary
Tuberculosis and living in Private Houses :—

Rooms in Tenement (i.e., house or part of house occupied by one family)	Patients				Contacts		
	With Room to Self	With Bed but not Room to Self	With neither Bed nor Room to Self	Totals	Sleeping in same Bed as Patient	Sleeping in separate Bed but in same Room as Patient	Totals
1 room	4	...	3	7	5	6	11
2 rooms	1	1	27	29	35	26	61
3 rooms	6	4	18	28	23	16	39
4 rooms and over ...	104	17	81	202	88	42	130
Totals	115	22	129	266	151	90	241

As in previous years, this table reveals a very serious state of affairs. Only 43·2 per cent. of the new cases had sleeping rooms to themselves, and the number of contacts exposed to infection in the same bedrooms was 241.

Occupational Incidence.—During 1924 a beginning was made to collate this information in such a way that some use might be made of it when it covered a sufficiently long period. The classification is obviously important in relation to our high incidence of tuberculosis. The following tables show the occupational incidence among 223 males and 203 females notified or otherwise ascertained during 1928 to be suffering from tuberculosis.

MALES.

	Pulmonary	Non-Pulmonary	Totals
Accountants ... ..	...	1	1
Insurance, Commission, etc., Agents	1	...	1
Commercial Travellers	5	1	6
Clerks	10	1	11
School Teachers and Students ... ..	...	1	1
Shopkeepers and Shop Assistants	8	2	10
Bakers and Confectioners	1	...	1
Butchers	2	...	2
Publicans and Boarding-House Keepers	3	...	3
Sailors... ..	1	...	1
Factory Workers	2	...	2
Upholsterers	1	1	2
Warehousemen, etc. ... ..	...	1	1
Postmen	1	...	1
Messengers and Porters	3	...	3
Railway Workers	4	...	4
Engineers and Fitters	3	1	4
Electricians	2	...	2
Watch Makers	2	...	2
Seamen	23*	13†	36
Masons	2	...	2
Painters	2	...	2
Plumbers and Gas Fitters	2	1	3
Carpenters and Joiners	3	...	3
Boilermakers	2	...	2
Blacksmiths	2	1	3
Colliers	1	...	1
Coal Trimmers	1	...	1
Fuel Workers	1	...	1
Chauffeurs and Motor Drivers	3	...	3
Hauliers and Van Men	2	...	2
Lawyers	2	...	2
Gardeners	2	...	2
Labourers (various)	26	2	28
Ex-Soldiers and Sailors	2	2	4
Miscellaneous	12	1	13
No occupation or unknown	15	4	19
Children of School Age	7	15	22
Children under School Age	2	14	16
Totals	161	62	223

* British, 6 ; coloured, 11 ; other foreign seamen, 6.

† British, 4 ; coloured, 9.

FEMALES.

	Pulmonary	Non-Pulmonary	Totals
School Teachers and Students	1	1	2
Clerks, Typists, etc.	8	1	9
Shopkeepers and Shop Assistants	12	2	14
Barmaids	1	...	1
Waitresses	2	...	2
Laundry Workers	3	...	3
Tailoresses	1	1	2
Dressmakers	3	...	3
Factory Workers	6	1	7
Packers ... ..	...	1	1
Domestic Servants	25	3	28
Charwomen	1	...	1
Housewives	62	12	74
Miscellaneous	4	1	5
No occupation or unknown	21	3	24
Children of School Age	8	10	18
Children under School Age	1	8	9
Totals	159	44	203

The most notable feature, as usual, is the large number of cases among seamen, which is out of all proportion to the total seafaring population.

Place of Birth of Patients and their Parents.—The purpose of this inquiry was fully explained in the report for 1926. The tables now submitted show a proportion of urban and rural patients and parentage not materially differing from the figures for 1926 and 1927.

PLACE OF BIRTH OF 307 NEW CASES OF TUBERCULOSIS COMING TO THE KNOWLEDGE OF THE DEPARTMENT DURING 1928

WITH REGARD TO WHOM THE INFORMATION WAS OBTAINABLE.

CASES		WALES				ENGLAND AND SCOTLAND		TOTALS : England, Scotland, and Wales		IRELAND	FOREIGN COUNTRIES	GRAND TOTALS
		Cardiff	Other Urban Districts	Rural Districts		Urban Districts	Rural Districts	Urban Districts	Rural Districts			
PULMONARY TUBERCULOSIS	Males ...	76	5	...		22	3	103	3	3	13	122
	Females	91	12	4		15	2	118	7	...	...	125
	Totals	167	17	4		37	5	221	10	3	13	247
	Percentage ...	67.6	6.9	1.6		15.0	2.0	89.5	4.0	1.2	5.3	100
NON-PULMONARY TUBERCULOSIS ...	Males ...	25	2	...		4	...	31	...	...	6	37
	Females	17	2	...		3	...	22	...	...	1	23
	Totals	42	4	...		7	...	53	...	...	7	60
	Percentage ...	70.0	6.7	...		11.7	...	88.3	...	...	11.7	100
ALL FORMS OF TUBERCULOSIS ...	Males ...	101	7	...		26	3	134	3	3	19	159
	Females	108	14	4		18	2	140	7	...	1	148
	Totals	209	21	4		44	5	274	10	3	20	307
	Percentage ...	68.1	6.8	1.3		14.3	1.6	89.2	3.3	1.0	6.5	100

PLACE OF BIRTH OF PARENTS OF 279 NEW CASES OF TUBERCULOSIS COMING TO THE KNOWLEDGE OF THE DEPARTMENT

DURING 1928 WITH REGARD TO WHOM THE INFORMATION WAS OBTAINABLE.

CASES		BOTH PARENTS										One Parent born in an Urban District, the other in a Rural District, of Great Britain	Other Combinations of Parentage	GRAND TOTALS
		WALES			ENGLAND AND SCOTLAND			TOTALS : ENGLAND, SCOTLAND, AND WALES		IRELAND	FOREIGN COUNTRIES			
		Cardiff	Urban Districts		Rural Districts	Urban Districts	Rural Districts	Urban Districts	Rural Districts					
PULMONARY TUBERCULOSIS	Males ...	30	7	1	4	20	4	57	5	10	8	20	105	
	Females ...	38	9	3	4	19	4	66	7	2	11	29	115	
	Totals ...	68	16	4	8	39	8	123	12	12	19	49	220	
	Percentage	30.9	7.3	1.8	3.6	17.7	3.6	55.9	5.5	5.5	8.6	22.2	100	
NON-PULMONARY TUBERCULOSIS	Males ...	13	4	...	...	6	...	23	...	4	3	8	38
	Females ...	8	4	...	...	2	...	14	...	...	...	7	21
	Totals ...	21	8	...	...	8	...	37	...	4	3	15	59
	Percentage	35.6	13.6	...	...	13.6	...	62.7	...	6.8	5.1	25.4	100
ALL FORMS OF TUBERCULOSIS	Males ...	43	11	1	4	26	4	80	5	14	11	28	143	
	Females ...	46	13	3	4	21	4	80	7	2	11	36	136	
	Totals ...	89	24	4	8	47	8	160	12	16	22	64	279	
	Percentage	31.9	8.6	1.4	2.9	16.8	2.9	57.3	4.3	5.7	7.9	22.9	100	

Known Cases of Tuberculosis.—In the following tables the number of cases of tuberculosis on the register at 31st December, 1928, is shown, and also the number of these who were under regular observation by the tuberculosis nurses :—

Pulmonary Tuberculosis. Cases on the Register at 31st December, 1928.

Municipal Wards, etc.	MALES				FEMALES				Grand Totals
	Under 5 years	5-15 years	Over 15 years	Totals	Under 5 years	5-15 years	Over 15 years	Totals	
Central	29	29	...	2	20	22	51
Lodging Houses, etc.	1	1	...	...	...	...	1
South	1	35	36	...	1	20	21	57
Lodging Houses, etc.	2	2	...	...	...	...	2
Cathays	41	41	...	...	25	25	66
Adamsdown	38	38	...	1	35	36	74
Lodging Houses, etc.	5	5	...	...	...	...	5
Riverside	2	36	38	...	1	26	27	65
Canton	50	50	...	...	37	37	87
Grangetown	34	34	...	...	29	29	63
Roath	1	29	30	...	2	26	28	58
Plasnewydd	1	35	36	...	1	28	29	65
Sploott	2	56	58	1	2	40	43	101
Penylan	32	32	...	...	18	18	50
Llandaff	1	35	36	...	...	46	46	82
Gabalfa	1	30	31	...	...	27	27	58
Institutions*	3	34	37	...	...	20	20	57
Removed and not traced	27	27	...	...	15	15	42
Total	12	549	561	1	10	412	423	984

Non-Pulmonary Tuberculosis. Cases on the Register at 31st December, 1928 :—

Municipal Wards, etc.	MALES				FEMALES				Grand Totals
	Under 5 years	5-15 years	Over 15 years	Totals	Under 5 years	5-15 years	Over 15 years	Totals	
Central	1	5	7	13	1	5	6	12	25
Lodging Houses, etc.	...	...	...	...	...	...	...	...	...
South	1	4	10	15	...	3	8	11	26
Lodging Houses, etc.	...	...	...	...	...	...	...	...	...
Cathays	1	3	10	14	1	3	10	14	28
Adamsdown ... ..	...	12	8	20	...	4	10	14	34
Lodging Houses, etc.	...	1	5	6	...	...	...	...	6
Riverside ... ..	...	3	7	10	1	5	10	16	26
Canton ... ..	...	6	6	12	...	1	5	6	18
Grangetown	1	5	10	16	1	1	6	8	24
Roath ... ..	...	4	10	14	1	3	8	12	26
Plasnewydd ... ..	...	3	7	10	...	3	5	8	18
Sploott	1	3	18	22	...	3	16	19	41
Penylan ... ..	...	1	7	8	...	3	10	13	21
Llandaff ... ..	...	10	7	17	...	7	14	21	38
Gabalfa ... ..	...	7	5	12	...	1	6	7	19
Institutions* ... ..	...	1	5	6	1	1	3	5	11
Removed and not traced ... ..	...	2	6	8	...	6	8	14	22
Totals	5	70	128	203	6	49	125	180	383

* The cases shown as being in institutions are those who permanently reside in institutions and those temporarily residing in institutions whose home addresses are unknown.

Cases of Tuberculosis under observation by Tuberculosis
Nurses at 31st December, 1928.

Municipal Wards, etc.	Pulmonary			Non-Pulmonary			Grand Totals
	Males	Females	Totals	Males	Females	Totals	
Central	28	22	50	13	12	25	75
Lodging Houses, etc.	1	...	1	...	...	...	1
South	36	21	57	15	11	26	83
Lodging Houses, etc.	2	...	2	...	...	...	2
Cathays	40	25	65	14	14	28	93
Adamsdown	37	36	73	20	14	34	107
Lodging Houses, etc.	5	...	5	6	...	6	11
Riverside	36	26	62	10	16	26	88
Canton	47	37	84	12	6	18	102
Grangetown	33	29	62	16	8	24	86
Roath	29	27	56	14	12	26	82
Plasnewydd	36	28	64	10	8	18	82
Splott	58	43	101	22	19	41	142
Penylan	32	18	50	8	12	20	70
Llandaff	34	44	78	17	21	38	116
Gabalfa	30	27	57	12	7	19	76
Totals	484	383	867	189	160	349	1,216

Cases of suspected Tuberculosis (unnotified) under observation by Tuberculosis
Nurses at 31st December, 1928.

Municipal Wards						Males	Females	Totals
Central ... ..	...	...	...	...	...	10	5	15
South ... ..	...	...	...	...	...	4	3	7
Cathays ... ..	...	...	...	...	...	3	2	5
Adamsdown ... ..	...	...	...	...	...	5	...	5
Riverside ... ..	...	...	...	...	...	4	5	9
Canton ... ..	...	...	...	...	...	5	5	10
Grangetown ... ..	...	...	...	...	...	4	6	10
Roath ... ..	...	...	...	...	...	3	6	9
Plasnewydd ... ..	...	...	...	...	...	3	2	5
Splott ... ..	...	...	...	...	...	8	10	18
Penylan ... ..	...	...	...	...	...	3	1	4
Llandaff ... ..	...	...	...	...	...	8	10	18
Gabalfa ... ..	...	...	...	...	...	5	7	12
Totals ... ..	...	...	...	...	...	65	62	127

The actual number of known cases of tuberculosis is 1,367 as compared with 1,342 last year. The last two tables reveal the very satisfactory extent to which cases and suspects are under the supervision of the Department. During the year the tuberculosis nurses made 377 first visits and 2,796 revisits to cases of tuberculosis and suspected cases.

Deaths.—According to local records, 276 deaths from tuberculosis occurred altogether, 230 of them due to the pulmonary form of the disease. They were distributed as to place of death as follows:—

Place of Death	Pulmonary	Non-Pulmonary	Totals
Tuberculosis Hospitals:—			
Glan Ely	14	2	16
Cefn Mably	3	...	3
Sanatoria	3	...	3
City Lodge (Union Hospital)	36	10	46
Cardiff Royal Infirmary	2	10	12
Royal Hamadryad Seamen's Hospital	1	1	2
Other Institutions	8	2	10
Lodging Houses... ..	2	...	2
Private Dwelling-houses	161	21	182
Totals	230	46	276

Forty-seven of the 276 deaths (17·0 per cent.) were of cases previously unknown to the Department, 28 of these being pulmonary cases (12·2 per cent.) and 19 non-pulmonary (41·3 per cent.).

The 230 deaths from pulmonary tuberculosis correspond to a death-rate of 1·01 and the 46 deaths from other forms of tuberculosis to a death-rate of 0·20 per 1,000, compared with 1·26 and 0·28 per 1,000 respectively in 1927.

The following tables show the age distribution and localisation of the disease among the deaths from tuberculosis during the year.

Deaths from Tuberculosis by Age and Sex.

Age Periods—Years	DEATHS					
	Pulmonary			Non-Pulmonary		
	Males	Females	Totals	Males	Females	Totals
0—1	1	...	1	4	1	5
1—5	2	1	3	5	4	9
5—10 ... ..	...	1	1	4	4	8
10—15	2	4	6	...	...	...
15—20	14	18	32	2	3	5
20—25	9	15	24	4	2	6
25—35	31	33	64	1	2	3
35—45	27	16	43	1	...	1
45—55	20	12	32	2	1	3
55—65	14	5	19	1	2	3
65—75	3	2	5	...	1	1
75 and upwards ... ..	...	...	...	...	2	2
Totals	123	107	230	24	22	46

Deaths from Tuberculosis by Localisation of Disease and Sex.

Form of Tuberculosis	DEATHS		
	Males	Females	Totals
Respiratory System	123	107	230
Nervous System	7	7	14
Intestines and Peritoneum	7	5	12
Vertebral Column	1	1	2
Joints ... ..	...	...	...
Other Organs	5	5	10
Disseminated Tuberculosis	4	4	8
Totals	147	129	276

Interval between Notification and Death of patients suffering from Pulmonary Tuberculosis who died in 1928.—Emphasis has repeatedly been laid in these Reports upon the extent to which lateness of notification militates against the success of the scheme for the treatment of tuberculosis. In the table below the high percentage of twelve is shown to represent the proportion of patients dying from pulmonary tuberculosis who had never been brought to the notice of the Department. That percentage only feebly indicates the degree of neglect to utilise the services provided by the Authority. In the Report for 1923 Dr. Gilchrist discussed the matter very fully. The following table has been prepared to show for all cases dying in 1928 the time which elapsed between notification and death :—

Interval between Notification and Death	Number	Percentage
Not notified	28	12.2
Under 1 week	21	9.1
1—2 weeks	6	2.6
2—3 „	5	2.2
3—4 „	4	1.7
4 weeks—2 months	20	8.7
2—3 months	12	5.2
3—4 „	12	5.2
4—5 „	13	5.6
5—6 „	5	2.2
Under 6 months	98	42.6
6—7 months	7	3.0
7—8 „	9	3.9
8—9 „	3	1.3
9—10 „	4	1.7
10—11 „	5	2.2
11 months—1 year	6	2.6
6 months—1 year	34	14.8
1 — 1½ years	16	7.0
1½ — 2 „	6	2.6
2 — 2½ „	11	4.8
2½ — 3 „	9	3.9
3 — 3½ „	3	1.3
3½ — 4 „	4	1.7
4 — 4½ „	1	0.4
4½ — 5 „	1	0.4
5 — 5½ „	4	1.7
5½ — 6 „	1	0.4
6 — 6½ „	3	1.3
6½ — 7 „	1	0.4
7 — 7½ „	2	0.9
7½ — 8 „	1	0.4
8 — 8½ „	1	0.4
8½ — 9 „	1	0.4
9 — 9½ „	2	0.9
9½ — 10 „	1	0.4
10 — 10½ „	1	0.4
12 — 12½ „	1	0.4
15 — 15½ „	1	0.4
Total	230	100

In addition to the 12.2 per cent. who were never notified, actually as many as 42.6 per cent. were notified only six months or less prior to death. That is to say, the law was complied with, but in such a way as to render quite futile the elaborate and costly procedure which has been built up in the interest of those who suffer from this disease.

Treatment.—The following tables give particulars of Cardiff cases examined and of cases treated under the scheme of the Welsh National Memorial Association during 1928.

1.—Work of the Dispensary.

Diagnosis	Pulmonary				Non-Pulmonary				Totals			
	Adults		Children		Adults		Children		Adults		Children	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
A.—New cases examined during the year (excluding contacts):—												
(a) Definitely tuberculous	78	71	4	3	8	13	10	5	86	84	14	8
(b) Doubtfully tuberculous ... ..	...	...	...	...	...	...	...	...	17	19	11	12
(c) Non-tuberculous ... ..	...	...	...	...	...	...	...	...	68	66	41	33
B.—Contacts examined during the year:—												
(a) Definitely tuberculous	14	13	...	1	1	2	1	1	15	15	1	2
(b) Doubtfully tuberculous ... ..	...	...	...	...	...	...	...	...	2	7	8	3
(c) Non-tuberculous ... ..	...	...	...	...	...	...	...	...	21	21	26	24
C.—Cases written off the Dispensary Register as:—												
(a) Cured	5	4	1	...	2	7	3	4	7	11	4	4
(b) Diagnosis not confirmed or non-tuberculous (including cancellation of cases notified in error) ... ..	...	...	...	...	...	...	...	...	106	98	75	67
D.—Number of persons on Dispensary Register on 31st Dec., 1928:—												
(a) Diagnosis completed	372	236	15	13	68	64	61	47	440	300	76	60
(b) Diagnosis not completed ... ..	...	...	...	...	...	...	...	...	19	25	21	20

1.	Number of persons on Dispensary Register on 1st January, 1928 ...	991
2.	Number of patients transferred from other areas and of "lost sight of" cases returned	26
3.	Number of patients transferred to other areas and cases "lost sight of" ...	138
4.	Died during the year	150
5.	Number of observation cases under A (b) and B (b) above in which period of observation exceeded 2 months	60
6.	Number of attendances at the Dispensary (including contacts) ...	5,528
7.	Number of attendances of non-pulmonary cases at orthopaedic out-stations for treatment or supervision	145
8.	Number of attendances at General Hospitals or other institutions approved for the purpose of patients for:—	
	(a) "Light" treatment	573
	(b) Other special forms of treatment	65
9.	Number of persons to whom dental treatment was given at or in connection with the Dispensary	—
10.	Number of consultations with medical practitioners:—	
	(a) At homes of applicants	119
	(b) Otherwise	7
11.	Number of other visits by Tuberculosis Officers to homes	114
12.	Number of visits by Nurses or Health Visitors to homes for Dispensary purposes	3,173
13.	Number of:—	
	(a) Specimens of sputum, etc., examined	496
	(b) X-ray examinations made in connection with Dispensary work	120

14.	Number of Insured Persons on Dispensary Register on 31st December 1928	...	...	...	...	...	...	511
15.	Number of Insured Persons under domiciliary treatment on 31st December, 1928	...	...	...	...	...	...	73
16.	Number of reports received during the year in respect of Insured Persons							
	(a) Form G.P. 17	...	...	...	...	...	...	51
	(b) Form G.P. 36	...	...	...	...	...	...	130

2.—RESIDENTIAL TREATMENT.

			In Institutions on 1st Jan., 1928	Admitted during year	Discharged during year	Died in Institutions	In Institutions on 31st Dec., 1928
Number of Patients	Adults	M.	37	81	72	14	32
		F.	31	79	60	8	42
	Children	M.	13	12	13	1	11
		F.	7	5	7	...	5
Number of Obser- vations	Adults	M.	...	4	4	...	...
		F.	2	2	4	...	...
	Children	M.	...	2	1	...	1
		F.	...	2	2	...	...
Totals			90	187	163	23	91

3.—IMMEDIATE RESULTS OF TREATMENT OF PATIENTS AND OF OBSERVATION OF DOUBTFUL CASES DISCHARGED FROM RESIDENTIAL INSTITUTIONS DURING 1928.

(a) Sanatorium (Pulmonary Cases).

(i) Tuberculous Cases :—

Condition at time of Discharge	Duration of Residential Treatment												Totals
	Under 3 Months			3-6 Months			6-12 Months			More than 12 Months			
	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	
Quiescent ... ..	...	1	...	7	13	...	1	1	1	...	...	2	26
Improved	2	2	...	16	6	2	3	4	...	2	...	...	37
No material improvement	...	1	1	...	3	2	...	1	...	...	1	...	9
Died in Institution	...	1	...	...	...	...	1	...	...	...	...	...	2

(ii) .Observation Cases :—

[illegible]

Section 7.

VENEREAL DISEASES.

The following is a summary of the returns from treatment centres established under the Public Health (Venereal Diseases) Regulations, 1916 :—

	Cardiff Royal Infirmary	Royal Hamadryad Seamen's Hospital*	Auxiliary Centre for Mothers and Children	Institutions outside Cardiff	Totals
A. Number of persons residing in Cardiff dealt with during the year for the first time and found to be suffering from :—					
Syphilis	233	205	81	3	522
Soft Chancre	8	83	1	...	92
Gonorrhœa	385	344	99	3	831
Conditions other than Venereal ...	239	14	92	4	349
Totals	865	646	273	10	1,794
B. Number of attendances of all patients residing in Cardiff	11,037	15,437	3,531	57	30,062
C. Aggregate number of "in-patient days" of all patients residing in Cardiff ...	115	3,195	...	...	3,310
D. Number of doses of arsenobenzene compounds given to patients residing in Cardiff	1,380	1,030	470	8	2,888

Examination of pathological material from patients residing in Cardiff :—

	For detection of			For Wassermann Reaction
	Spiro- chetes	Gonococci	Other Organisms	
Specimens examined at Treatment Centres :—				
Cardiff Royal Infirmary ... ..	...	412	...	820
Royal Hamadryad Seamen's Hospital ...	81	161	...	...
Specimens examined at the Cardiff and County Public Health Laboratory from :—				
Treatment Centres—				
Royal Hamadryad Seamen's Hospital* ...	...	3	...	303
Auxiliary Centre for Mothers and Children ...	1	351	2	170
Public Health Department ... ..	...	87	...	846
Other sources ... ..	...	284	...	524
	1	725	2	1,843
Totals	82	1,298	2	2,663

* The figures relate to seamen only, whether residents of Cardiff or not.

Results of Treatment.—The following summaries relating to *all persons* treated during 1928 have been prepared from the annual returns of the clinical officers, showing the conditions under which patients ceased treatment at the treatment centres during the year:—

Cardiff Royal Infirmary.

	Syphilis		Soft Chancres		Gonorrhœa		Conditions other than Venereal Disease		Totals			Per- centage
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Both Sexes	
(1) Number of cases under treatment or observation at the beginning of the year (including cases marked off in a previous year and which returned during the year suffering from the same infection)	210	129	5	1	247	44	6	2	468	176	644	38.5
(2) Number of cases dealt with for the first time	172	101	6	3	384	79	226	57	788	240	1,028	61.5
Totals	382	230	11	4	631	123	232	59	1,256	416	1,672	100
(3) Number of cases that ceased to attend—												
(a) Before completing the first course of treatment	66	27	...	...	147	22	...	...	213	49	262	18.9
(b) After one or more courses but before completion of treatment	95	41	...	...	...	...	...	...	95	41	136	9.8
(c) After completion of treatment but before final tests as to cure ... ..	...	...	4	1	118	22	...	...	122	23	145	10.5
(4) Number of cases transferred to other treatment centres after treatment... ..	...	...	...	...	...	...	...	...	...	...	...	...
(5) Number of cases discharged after completion of treatment and observation	41	4	3	...	135	21	...	...	179	25	204	14.7
(6) Number of cases remaining under treatment or observation at the end of the year	180	158	4	3	231	58	2	1	417	220	637	46.0
Totals	382	230	11	4	631	123	2	1	1,026	358	1,384	100

Royal Hamadryad Seamen's Hospital (Seamen only).

	Syphilis	Soft Chancre	Gonorrhœa	Conditions other than Venereal Disease	Totals	Per- centage
(1) Number of cases under treatment or observation at the beginning of the year (including cases marked off in a previous year and which returned during the year suffering from the same infection) ...	68	8	55	...	131	16.9
(2) Number of cases dealt with for the first time...	205	83	344	14	646	83.1
Totals ...	273	91	399	14	777	100
(3) Number of cases that ceased to attend:—						
(a) Before completing the first course of treatment ...	76	6	121	...	203	26.6
(b) After one or more courses but before completion of treatment ...	28	...	...	...	28	3.7
(c) After completion of treatment but before final tests as to cure ...	38	...	21	...	59	7.7
(4) Number of cases transferred to other treatment centres after treatment ...	31	6	84	...	121	15.9
(5) Number of cases discharged after completion of treatment and observation ...	54	68	118	...	240	31.4
(6) Number of cases remaining under treatment or observation at the end of the year ...	46	11	55	...	112	14.7
Totals ...	273	91	399	...	763	100

Auxiliary Centre for Mothers and Children.

	Syphilis		Soft Chancre		Gonorrhœa		Conditions other than Venereal Disease		Totals			Per- centage
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Both Sexes	
(1) Number of cases under treatment or observation at the beginning of the year (including cases marked off in a previous year and which returned during the year suffering from the same infection) ...	26	91	...	...	...	148	19	69	45	308	353	56.4
(2) Number of cases dealt with for the first time ...	20	61	...	1	...	99	7	85	27	246	273	43.6
Totals ...	46	152	...	1	...	247	26	154	72	554	626	100
(3) Number of cases that ceased to attend—												
(a) Before completing the first course of treatment ...	2	12	...	...	...	40	...	...	2	52	54	9.1
(b) After one or more courses but before completion of treatment ...	2	5	...	...	...	...	...	...	2	5	7	1.1
(c) After completion of treatment but before final tests as to cure ...	...	...	...	...	...	...	...	...	...	...	...	...
(4) Number of cases transferred to other treatment centres after treatment ...	...	4	...	...	...	2	...	...	...	6	6	1.0
(5) Number of cases discharged after completion of treatment and observation ...	...	1	...	...	...	4	...	...	...	5	5	0.8
(6) Number of cases remaining under treatment or observation at the end of the year ...	42	130	...	1	...	201	18	106	60	438	498	87.1
Totals ...	46	152	...	1	...	247	18	106	64	506	570	100

The number of doses of arsenobenzene compounds supplied to medical practitioners, other than at treatment centres, during the year was 738.

Section 8.

MATERNITY AND CHILD WELFARE.

Notification of Births and Still-births.—The following statement shows the numbers of births and still-births notified during the year :—

			Births.		Still-births.
By Medical Practitioners	...	...	45	...	6
By Midwives	...	...	2,966	...	138
By Queen's Nurses	...	...	631	...	30
By Parents	...	...	41	...	...
From Cardiff Royal Infirmary	...	...	436	...	75
From City Lodge	...	...	89	...	12
Totals	...	...	4,208	...	261

Child Welfare Consultations.—The following is a record of the attendances at the several centres :—

Centre	Consultations	First Attendances	Total Attendances
Central ...	43	211	1,943
South ...	46	143	1,391
Glossop Terrace ...	90	429	3,988
Canton ...	89	392	3,686
Grangetown ...	90	372	3,627
Sploot ...	89	340	3,505
Gabalfa ...	90	235	2,884
Llandaff North ...	43	42	664
Ely ...	55	257	2,592
Totals ...	635	2,421	24,280

The following tabular statement shows the conditions found by medical officers in 2,026 infants under one year and 314 children between one and five years who were examined for the first time during 1928, and also the diseases or defects discovered subsequent to the first examination of children attending the consultations for the first time during 1928 or previously :—

	Examined for first time		Diseases or Defects found in Children not attending for the first time	
	Under 1 year	1 year and over	Under 1 year	1 year and over
Number examined :—				
Normal	1,323	78	...	...
Individual cases found with Diseases or Defects	703	236	...	...
Diseases or Defects found :—				
Injury at Birth	1	...	...	1
Congenital Malformation or Defect	48	5	11	6
Prematurity	36	...	...	...
Congenital Debility	47	1	...	...
Malnutrition (cause not specified)	...	...	...	...
or Debility (not congenital)	90	28	26	61
Anæmia (cause not specified)	4	10	4	11
Diseases or defects of :—				
Skin (Non-syphilitic) :				
Systemic	54	10	114	66
Contagious	32	21	70	134
Irritative	46	7	100	48
Eye : Ophthalmia Neonatorum	22	...	...	...
Squint	3	7	7	24
Other	19	8	41	39
Ear : Otorrhœa	23	11	55	43
Other	5	1	10	10
Nose and Throat :				
Enlarged Tonsils and/or Adenoids	3	30	29	100
Other	9	8	35	53
Heart and Circulation : Congenital	5	1	1	1
Rheumatic	...	...	...	2
Other	...	...	3	1
Respiratory System (non-tuberculous)	63	23	290	136
Digestive System : Hernia—Umbilical	64	6	32	5
Other	23	5	34	9
Other Diseases	94	18	309	164
Nervous System : Chorea	...	...	...	2
Other	1	2	4	5
Genito-Urinary System : Phimosis	74	6	27	6
Other	4	5	9	21
Tuberculosis : Pulmonary—				
Definite	...	...	...	...
Suspected	1	2	1	1
Non-Pulmonary	3	6	4	7
Defective Teeth	3	57	4	157
Rickets	13	30	24	50
Other Deformities	4	6	4	20
Rheumatism (not Cardiac or Nervous)	...	...	...	1
Syphilis	8	1	1	3
Other Diseases or Defects	62	25	67	83

Ante-natal Consultations.—The record of attendances at the ante-natal clinics is given in the following statement:—

Clinic					Consultations	First Attendances	Total Attendances
anton	...	...	...	...	47	267	854
abalfa	...	...	...	...	44	114	410
lossop Terrace	...	...	...	...	96	690	2,672
Totals	...	...	...	...	187	1,071	3,936

An analysis of new cases (definitely pregnant) attending the clinics and who were confined during 1928 is given below.

Type of case:—

Primiparæ	...	...	...	...	259
Multiparæ	...	...	...	...	605
Total	...	...	...	...	864

Of these 864 cases, 421 were found to be suffering from 570 diseases, abnormalities or defects, as follows:—

Albuminuria	...	...	...	...	41
Alopecia	...	...	...	...	2
Anæmia	...	...	...	...	16
Arthritis	...	...	...	...	2
Chorea	...	...	...	...	1
Contracted pelvis	...	...	...	...	11
Dental defects requiring treatment	...	...	...	...	175
Enlargement of spleen	...	...	...	...	1
„ „ thyroid	...	...	...	...	15
Epilepsy	...	...	...	...	4
Hæmorrhage	...	...	...	...	20
Hæmorrhoids	...	...	...	...	2
Heart conditions	...	...	...	...	18
Hernia	...	...	...	...	6
Herpes	...	...	...	...	1
Hydrometra	...	...	...	...	5
Malposition requiring version	...	...	...	...	22
Mastitis	...	...	...	...	1
Nystagmus	...	...	...	...	1
Otorrhœa	...	...	...	...	1
Oxyuris	...	...	...	...	1
Paralysis of arm	...	...	...	...	1
Prolapse of uterus	...	...	...	...	4
Respiratory diseases	...	...	...	...	13
Skin diseases	...	...	...	...	6
Spinal deformity	...	...	...	...	2
Syphilis	...	...	...	...	28
Tonsilitis	...	...	...	...	2
Tumour	...	...	...	...	1
Vaginal discharge	...	...	...	...	114
Varicose veins and œdema	...	...	...	...	52
Vomiting	...	...	...	...	1
Total	...	...	...	...	570

Place of confinement :—

Private dwelling-houses	...	...	...	440
Maternity Hospital...	...	...	...	358
City Lodge	...	...	...	15
Private Maternity Homes	...	...	...	3
Outside Cardiff	...	...	...	12
Not traced	...	...	...	36
Total				864

Since June, 1925, pregnant women attending the ante-natal clinics have been subjected to a blood examination for syphilis. The usual technique has been considerably simplified, the Wassermann reaction being done with 1 c.c. of blood serum only. The specimen is collected in a Wright's capsule after applying a tourniquet below the knuckle and pricking the patient's thumb near the nail bed. The operation is simple, easy to perform and not alarming to the patients, who readily consent to it. The results to the end of 1928 show that of 1,967 such routine tests, 61, or 3.1 per cent., were positive. Patients found at the ante-natal clinics to be suffering from syphilis are referred for treatment to the auxiliary treatment centre for women and children, which is conducted in close co-operation with the maternity and child welfare section of the Department.

Maternity Hospital.—The numbers of expectant mothers in necessitous circumstances, or suffering from abnormalities of pregnancy, and emergency cases admitted to the Cardiff Royal Infirmary (Maternity Branch) were as follows :—

Complicated cases sent by General Practitioners...	55
Cases admitted through Ante-natal Clinics	372
Other Cardiff cases	7
Total	434

Maternity and Nursing Homes.—The number of registered maternity homes in Cardiff as at 30th June, 1928 (*i.e.*, the day before the coming into force of the Nursing Homes Registration Act, 1927) was 18, with accommodation for 93 patients altogether. At 31st December, 1928, there were 23 registered nursing homes, 10 providing for maternity cases only, 7 providing for surgical and/or medical cases only and 6 providing for both maternity and other cases. The total number of beds in the registered nursing homes was 183, of which 82 were available for maternity cases. All the homes for which application for registration was made were duly registered after careful inspection and remedy of defects.

Extra-Domiciliary Confinement.—In the report for 1927 statistics were given as to the number and proportion of births registered as having occurred away from private dwelling-houses in each of the years 1912 to 1927. Corresponding figures for 1928 are given below :—

Place of Birth	Number	Number per 1,000 Births
Cardiff Royal Infirmary	325	80
City Lodge Hospital	66	16
Private Maternity Homes	140	34
Totals	531	130

The proportion of births belonging to Cardiff which occurred in the two institutions mentioned and in private maternity homes in 1919 (*i.e.*, the first complete year since the Maternity Branch of the Cardiff Royal Infirmary has been open) was 49 per 1,000 births. The proportion rose each year to a maximum of 142 in 1926, but it has since dropped to 132 and 130 per 1,000 births in 1927 and 1928 respectively.

Dental Clinic.—The following is a record of the year's work :—

	Mothers	Children	Totals
Inspected	174	204	378
Treated	349	186	535
Attendances	697	387	1,084
Teeth extracted	1,053	747	1,800
Teeth filled	27	13	40
Dressings	14	1	15
Scalings	29	...	29
Anæsthetics administered :—			
General	210	177	387
Local	32	...	32
Supplied with dentures	60	...	60

Dentures supplied :—

Full upper	42
Partial upper	13
Full lower	27
Partial lower	18
Cost of dentures	£82 15s. 0d.
Amount reclaimed from patients	£21 7s. 0d.
Amount recovered from patients	£10 9s. 6d.

Domiciliary Visits by Health Visitors.—The following is a summary of the visits by the health visitors in connection with maternity and child welfare :—

Births—First visits	3,722
Births and infant deaths—Combined visits	96
Infant deaths investigated	182
Still-births investigated	144
Routine visits	7,768
{ Infants under one year	13,123
{ Children over one year	160
Expectant mothers	35
{ First visits	
{ Re-visits	

Infectious Diseases.—

Ophthalmia Neonatorum	62
{ First visits	129
{ Re-visits	4
Puerperal Fever	—
{ First visits	548
{ Re-visits	65
Measles	216
{ First visits	9
{ Re-visits	
Whooping Cough	479
Financial inquiry—Visits	3,627
Other visits	
Total	30,369

Supply of Free Milk.—Milk was supplied free of charge in necessitous cases and on medical certificate to the following extent:—

	Fresh Milk		Dried Milk	
	Individual Cases	Pints of Milk Granted	Individual Cases	Pounds Granted
Children	688	21,093	217	1,363
Mothers	628	19,145	...	...
Totals	1,316	40,238	217	1,363

Feeding of Infants.—With the object of ascertaining the effects of breast feeding as compared with artificial feeding of infants, the following table has been prepared from the records of the Department. It refers to certain infants born in 1927, and shows the type of feeding and the numbers of infants who survived or died before reaching the end of the first year of life.

	Number	Living at end of 1 year from birth	Died under 1 year of age
Entirely breast fed—			
For 6-9 months	522	520	2
Beyond 9 months ... ..	...	...	...
For 3-6 months	676	669	7
For 0-3 months	884	771	113
	2,082	1,960	122
Partially breast fed—			
For 6-9 months	7	7	...
Beyond 9 months	20	20	...
For 3-6 months	17	16	1
For 0-3 months	877	835	42
	921	878	43
Artificially fed from birth	220	196	24
Record incomplete	318	227	91
Totals	3,541	3,261	280

It is difficult to draw any conclusion as to the survival of infants in relation to breast feeding, since the group so fed for a short period inevitably includes the large number of infants who die from causes mainly congenital during this period. The crude fact remains, however, that among the children artificially fed from birth the mortality was as high as 10·9 per cent., whereas it reached only 5·9 per cent. in the totally breast-fed and 4·7 per cent. in the partially breast-fed.

Training of Midwives.—Three free studentships were awarded to women by the City Council for attendance at the courses of lectures given at the Welsh National School of Medicine, and one woman selected by examination was provided with a scholarship for practical training at the Queen's Institute of District Nursing.

Midwives Practising in Cardiff.—The number of midwives practising in Cardiff at the end of the year was 139. These may be classified as follows :—

According to qualifications :—

<i>Bona fide</i>	13
Certificate of London Obstetrical Society	4
Certificate of Central Midwives Board	122
Total	139

According to type of practice :—

Attached to public institutions	36
Conducting private maternity homes	13
Dealing with less than five cases per annum	20
Monthly nurses	10
Others	60
Total	139

Officers of the Department made 272 visits of inspection of midwives, and midwives' appliances, etc., were disinfected in 4 instances.

The following is a record of the work of midwives in Cardiff during the year in relation to the births which were the subject of visits by the health visitors :—

Attendances at births by midwives* as ascertained by health visitors :—

(a) Alone	2,420
(b) With a medical practitioner	995

Attendances at still-births by midwives* :—

(a) Alone	37
(b) With a medical practitioner	137

Medical Practitioners called in by Midwives in Emergency.—During the year the number of instances in which medical practitioners were called in by midwives in emergency was 778, and claims for emergency fees were made by practitioners in 451 cases. The fees claimed totalled £701 4s. 0d. and in 99 instances fees amounting to £124 12s. 4d. were reclaimed from patients. The sum actually recovered during the year was £54 4s. 3d. (including sums reclaimed in 1927). The proportion recovered of the amount paid to practitioners was 7·7 per cent.

* Other than those engaged in midwifery at the Cardiff Royal Infirmary and the City Lodge.

The following statement gives the reasons for medical help being summoned by midwives :—

MEDICAL HELP REQUIRED FOR THE MOTHER.

Pregnancy.—

Miscarriage (including abortion)	...	...	...	59
Deformed pelvis	...	...	...	3
Hæmorrhage	...	...	...	21
Albuminuria	...	...	...	9
Œdema	...	...	...	5
Other abnormalities	...	...	...	5
				— 102

Labour.—

Abnormal presentation	...	...	...	45
Premature labour	...	...	...	13
Obstructed labour	...	...	...	27
Delayed labour	...	...	...	206
Placenta prævia	...	...	...	7
Hæmorrhage—				
Ante-partum	...	...	...	36
Post-partum	...	...	...	19
Placenta—				
Retained	...	...	...	17
Adherent	...	...	...	8
Retained membranes	...	...	...	—
Ruptured perineum	...	...	...	93
Eclampsia	...	...	...	6
Other conditions	...	...	...	34
				— 511

Lying-in.—

Pyrexia	...	...	...	20
Secondary post-partum hæmorrhage	...	...	...	—
Phlegmasia alba dolens	...	...	...	—
Other conditions	...	...	...	5
				— 25

MEDICAL HELP REQUIRED FOR THE INFANT.

Injury at birth	...	...	...	2
Debility	...	...	...	49
Malformation	...	...	...	4
Umbilical sepsis or hæmorrhage	...	...	...	1
Inflammation of, or discharge from, the eyes	...	...	...	47
Asphyxia	...	...	...	3
Pemphigus	...	...	...	2
Other conditions	...	...	...	32
				— 140

Total ... 778

Deaths due to Conditions of Pregnancy or Parturition.—During the year, according to local records, 23 deaths were registered as being due to conditions of pregnancy or parturition. The following is a classification according to the type of assistance engaged or employed in these cases :—

	Sepsis	Other Causes	Totals
(1) No medical practitioner or midwife engaged ...	4	3	7
(2) Medical practitioner engaged—			
(a) Treated or confined at home	1	2	3
(b) Transferred to institution	3	3	6
	— 4	— 5	— 9
(3) Midwife only engaged—			
(a) No medical aid sought ... ..	...	1	1
(b) Medical aid sought ... ..	...	1	1
(c) Transferred to institution	1	2	3
	— 1	— 4	— 5
(4) Admitted to institution by previous arrangement ...	1	1	2
Totals	10	13	23

Pemphigus Neonatorum.—During 1928 eight cases of pemphigus neonatorum came to the knowledge of the Department. Four were mild in character, one was mild and complicated by other congenital conditions, two were severe, and one was severe with complications. All the cases recovered. They occurred in the practices of three midwives, and in one instance the midwife concerned, in whose practice five of the cases occurred (four about the same time), ceased to practise for a few days, by arrangement with the Department, and was compensated for her loss of income during the period. Thorough disinfection of the appliances and personal effects of the midwives was carried out.

Home Nursing.—The following is a record of the work done by the Queen's Institute of District Nursing for the Department :—

Cases referred to the Institute during 1928 :—

Ophthalmia neonatorum	13
Ophthalmia (other than ophthalmia neonatorum) ...	15
Other eye diseases	21
Impetigo	37
Otitis media	3
Otorrhœa	49
Puerperal pyrexia	5
Other diseases	97
Total	240

Visits during 1928 :—

To cases referred during 1928	4,704
" " " 1927	236
Total	4,940

Home Helps.—"Home Helps" were provided by the Department in 56 cases in which mothers confined at home were without adequate domestic help and without means of obtaining it.

Crippling Defects and Orthopædics.—A report by Dr. Betenson dealing with the work of the orthopædic scheme is included in the Annual Report on the School Medical Service (page 140) and only such records regarding children under school age as are not included there are dealt with in this part of the Report. The clinic and the facilities for treatment exist both for school children and for children under school age. A classification of new cases under 5 years of age examined for the first time during 1928 is given on page 140.

The following is a summary of the work carried out at the orthopædic clinic during 1928 :—

	Children under School Age.				
<i>Consultation Clinic :—</i>					
Examined for first time	107
Recommended for treatment for first time	74
Previously treated, recommended for additional treatment	35
<i>Recommendations for :—</i>					
Treatment in Hospital	16
Treatment at Clinic	48
Appliances	9
Alterations to appliances	—
Special boots	—
Alterations to boots	27
Other forms of treatment	9
Treated at Clinic for first time	11
Attendances at Clinic	388
<i>Routine Treatment (massage, electricity, exercises, etc) :—</i>					
Treated at Clinic for first time	41
Attendances for routine treatment	811

The following statement relates to treatment at and provision of appliances etc., through the Prince of Wales' Hospital, Cardiff, during 1928 :—

	Children under School Age.				
<i>Hospital Treatment :—</i>					
Admitted to Prince of Wales' Hospital—					
(a) Day cases	—
(b) Other cases	18
Under treatment at Prince of Wales' Hospital at end of 1928					
...	1
On Prince of Wales' Hospital waiting list at end of 1928—					
(a) Day cases	—
(b) Other cases	7
<i>Other treatment or provision (including appliances, etc., provided following hospital treatment)—</i>					
Appliances provided	17
Appliances altered	—
Special boots provided	4
Alterations to boots	15
Other forms of treatment provided	2

Venereal Diseases.—Tabular statements relating to the work of the auxiliary treatment centre for mothers and children are included in the section dealing with venereal diseases (page 46).

Artificial Light Treatment.—In February, 1928, steps were taken to provide artificial light treatment for delicate children under five years of age, and within a few months three 20-ampere carbon-arc lamps and other necessary equipment were provided at the Central Clinic in premises rather inadequate as regards accommodation. The room used for treatment has to be used at other times as a waiting room in connection with a child welfare consultation and school clinic. The apparatus is, however, so constructed and fitted that it is completely out of reach of patients and others when treatment is not actually being carried out. A medical officer on the staff of the Department (Dr. Gibbs) is responsible for the treatment, and the following is her report on the work of the clinic from the time of its commencement to the end of the year :—

Report by Dr. Nancy K. Gibbs on the Artificial Light Treatment Clinic.

“The clinic commenced on 19th May, 1928, and from that date met twice weekly throughout the year except during the month of August and Christmas week.

“*Diseases Treated :—*

Disease	Boys	Girls	Totals
Rickets	16	11	27
Dermatitis	1	...	1
Malnutrition and Anæmia	5	6	11
Malnutrition	3	4	7
Post-Measles Debility	1	2	3
Unresolved Pneumonia ... ..	...	4	4
Hypertrophic Tonsils (no Sepsis) ... ..	...	1	1
Totals	26	28	54

“*Routine Course of Dosage and Departures from it.*—It was decided to aim at a mild erythema, sometimes called a reactionary erythema, at each exposure. In the majority of cases, for various reasons, this ideal was not regularly attained. In order to obtain this reactionary erythema the following rules were observed :—

(i) At the first attendance the child was examined by the medical officer in charge, and if found in a suitable state of health an exposure of ten minutes (five minutes to the front of the body and five minutes to the back) was given at a distance of three feet from the lamps.

(ii) (a) At the second visit, provided there had not been an interval of more than one week, the dose was increased by 50 per cent. if there had been no skin reaction and if the general condition of the patient allowed this, viz., satisfactory state of appetite, temper, sleep and weight. Each child is supposed to attend twice weekly. If more than two weeks have elapsed since treatment the child begins at the first dose.

(b) If at the second visit erythema was reported to have occurred on the trunk, the general condition being satisfactory, an increase of four minutes (two to each side of the body) was given.

(c) If desquamation or soreness had followed the previous dose, the same dose was administered.

(d) If any signs of skin reaction (other than pigmentation) were seen, no treatment was given until the skin had recovered.

(iii) The subsequent doses were assessed in the same way ; where no skin reaction had resulted the dose was increased 50 per cent. if the general condition was satisfactory, or as in (ii) (b), (c) and (d).

(iv) After an exposure of one hour had been reached and an increase was indicated, instead of prolonging the time, the distance from the lamps was reduced to 2 feet 9 inches, and if necessary later on to 2 feet 6 inches.

"Many departures from this plan have been made. In certain cases of markedly marasmic children under one year, six or eight minutes have been given for a first exposure and an increase of two minutes only (if any) made regardless of skin reaction (unless that was present with such small doses and increases), but judging entirely by general signs, chiefly loss or gain in weight. Diarrhœa appeared to be a definite result of too rapid increase in dosage in these young children, especially in cases of active rickets where there was usually a history of intestinal catarrh. It was noted that the children suffering from rickets, who were already in the healing stage when beginning treatment, attained most rapidly the maximum dose; they gained weight, ate and slept well, became lively and energetic and lost the clinical signs in the bones.

"Average Duration of Treatment. —

(i) In rickets at least one month's treatment was given for each year or part of a year of the child's life.

(ii) In malnutrition (and malnutrition plus anæmia) light treatment was given until a reasonable degree of improvement was seen—usually two or three months.

(iii) In post-measles debility a similar plan was followed; treatment was given until the appetite, colour, muscle tone and weight had improved.

(iv) The cases of unresolved pneumonia were given exposures according to their general condition rather than to the disappearance of the local signs (see below).

*"Temperature, Pulse and Blood Pressure.—*Systematic records of temperature and pulse of every patient before and after exposure were not taken. This would be impossible without an unreasonably large staff. A certain number of children was selected for observation, viz., several cases of typical rickets, all chest cases, certain cases of severe malnutrition, or where the pulse was unusually rapid. Also each child's parent was carefully questioned before giving treatment, and where there was any doubt about fitness, such as a history of cough or cold, lack of appetite, diarrhœa or vomiting, the temperature and pulse were taken before giving treatment. Up to the present no blood pressure observations have been made.

"Total Number of Cases Treated.—

	Boys	Girls	Totals
Treatment completed	10	11	21
Ceased attendance after partial treatment (due to to illness, failure to return, etc.)... ..	11	9	20
Remaining under treatment at end of year ...	5	8	13
Totals	26	28	54

*"Records of Height and Weight, etc.—*For the first three months a medical officer was present at each administration. Thereafter each child was seen weekly by the medical officer, and weekly records were made of the weight and of any improvement or otherwise in the child's condition. All the children who completed the prescribed course grew except one. The height was recorded at the first and final attendances; the amount of growth varied from $\frac{1}{2}$ in. to $2\frac{1}{2}$ in., the latter in ten weeks, and the average was just over 1 in.

“General Opinion as to Brightness and Alertness.”—The increase in the brightness and alertness of the treated children was the first and perhaps the most striking change. This was very obvious at the clinic. A child who had been listless or fretful and crying became lively and energetic or screamed and kicked; the mother's voluntary statements accorded with my observations.

“Observations on Skin and Pigmentation.”—In regard to pigmentation I am at present inclined to the view that the parts of the body already sensitised to light by exposure to the sun, *i.e.*, the face, and in children the arms, thighs and legs, react more to artificial light than the trunk, which is ordinarily covered. My reasons for thinking this are two: first, because at the end of even short exposures practically every child has a flushed face (of all parts the most accustomed to sun), while few even after one hour's exposure show a pink flush on the trunk; secondly, because even now, in the middle of winter,* most of these children's arms and legs are well pigmented, while the majority of the children attending the infant welfare centres have lost their summer 'sunburn.'

“Practically every child at some period of his or her course of treatment showed erythema of the trunk within twenty-four hours of exposure. Certain cases showed a pinkish glow on the trunk at the end of an exposure. Both these reactions were seen most often in fair-skinned and fair-haired children. The relationship of this glow to the erythema which occurred after the usual latent period is not obvious. The dose is assessed on the latter, and the child who showed a glow was not always reported to have shown erythema, although one expected it. The frequency of reports that erythema occurred after the latent period evidently varied with the mother's intelligence, judging from the pigmentation which eventually followed, as some children who were seldom reported to have shown erythema pigmented as much or more than others of his or her complexion who had been repeatedly stated to have exhibited skin reaction.

“In no case was the body pigmentation marked or comparable to that seen on the exposed parts of these children or on most children in the summer; nor was it comparable to the body pigmentation of children at the Open-Air School who were exposed to the sun last summer. The pigmentation usually began as a mottling on the sides of the abdomen, extending towards the axillæ and posteriorly over the shoulders and upper part of the back.

“Improvement in Particular Cases.”—Without doubt the greatest improvement was seen in the cases of rickets, and in certain of these the advantage of this form of treatment over the administration of cod-liver oil or other preparations containing the necessary vitamins was clearly apparent. One child (C.H.) demonstrated this. This boy, a first child, was seen at an infant welfare centre for the first time when eleven months old. He was well nourished but very flabby and irritable; his head measured 19 $\frac{3}{4}$ in.; the anterior fontanelle was almost 2 in. in length and his head was square, showing marked frontal bosses; the ribs showed a well-developed rosary, the wrists and ankles felt thick and, in addition, there was a history of frequent attacks of diarrhœa. The child had never been breast fed but had had many patent foods, and for many months condensed milk alone. The mother sought advice because she thought he ought to have more food, 'but nothing agreed with him.' The condition was explained to the mother and a suitable diet constructed, which included Grade A. milk and cod-liver oil; if the latter caused diarrhœa ostelin was to be tried instead. The mother lived some distance from a clinic, so she was to give the recommended diet a month's trial before returning. At the end of the month the child had not improved, neither vitamin-containing preparation could be tolerated, and even after milk there was frequent enteritis, so artificial light treatment was begun. Although the doses could not be increased at the average speed, on account of diarrhœa occurring within twenty-four hours of treatment, improvement soon showed. At the end of two months the report on the card was 'Full of life (used to be most fretful), firm, eating well, no enteritis for the last five

* This report was prepared in January, 1929.

weeks, is now taking ostelin, the anterior fontanelle is smaller and all bony signs are less marked.'

"All the cases of rickets were X-rayed before and after the course of treatment, the wrist being the joint selected for examination.

"As far as possible all cases were given cod-liver oil or some such preparation during treatment, in order to give each child the maximum chance, and the diet was investigated to ensure that an adequate amount of suitable food was being taken to guard against undue metabolic stimulation in the presence of lack of nourishment. All the cases of rickets gained weight, and on the whole more than the other groups treated.

"Next in order the children suffering from post-measles debility showed quickest progress, *e.g.*, G.J., aged two years and four months. On 28th August this child weighed twenty-three pounds, ten ounces, and on 26th October twenty-seven pounds, ten ounces. On beginning treatment he had slight blepharitis, bronchial catarrh, loss of appetite and marked irritability; he was pale and his muscles lacked tone. A sister of his, D.J., aged eleven months, who had also had measles, was in a similar state, but in addition she had nasal catarrh and sore anterior nares; in the same period she gained three pounds. At the end of two months' treatment they were both lively, firmer, and eating well; the blepharitis and nasal and bronchial catarrhs had cleared up, and both had a good colour.

"The groups of malnutrition, or malnutrition plus anæmia, were composed of children of whom the majority had been attending welfare centres for long periods, and in spite of dietetic corrections and moderately good home conditions they had failed to respond. In no case was any recognisable disease present, although every effort had previously been made to establish a cause. Examples of this group are: Q.B., aged two years and nine months; weight fifteen pounds, fifteen ounces. She had moderately well-marked active rickets (confirmed by X-ray); she was able to walk, her colour was pallid, almost yellow; there was no enlargement of the spleen or liver, and the blood gave a negative Wassermann reaction (as did her mother's); and her heart, lungs and throat and abdomen were without signs of disease. In the first three weeks after light treatment was begun she gained one pound, but since that she has lost ounce by ounce, and now she is her original weight. This child is still attending, having had eleven exposures, but her biggest dose has been twenty-two minutes owing to her unsatisfactory weight chart. Her temperature has been usually 97.6 or 97.8 before exposure and 97.8 to 98.2 after, *i.e.*, it tends to rise. Her pulse has hardly varied. So far the temperature and pulse findings are not correlated with the final result. Another child, J.P., illustrates the opposite in regard to the temperature with a beneficial end result. A noteworthy feature in his case is that there was little immediate physical progress, but this followed a few months later. J.P. was an intelligent, very active little boy, aged three years and one month; his weight was twenty-four pounds, twelve ounces; he was thin, pale and easily tired, but showed no signs of disease. His mother was very worried about his weight, so a course of artificial light was decided upon. The child attended the light clinic regularly for two months; he gained one pound, two ounces. After exposure it was noted his temperature always became lower; it altered from 98 or 98.2 to 97.6 and once or twice it fell to 97, and his pulse was three or four beats slower also. The treatment was then discontinued as benefit was hardly apparent. Five months later he was seen in the nursery class of a church school; he was described by his teachers as being particularly intelligent and interested, but it was noticed he slept soundly in the afternoons when put to lie down in one of the cots provided. At this time his weight was thirty-five pounds, eight ounces in light indoor clothing, without boots; the clinic weight was without clothing when prepared for treatment.

"Another type of case in this very difficult group was D.C., aged two years and eight months, who was eight pounds under average weight and known to be gaining and losing most irregularly, the net result being gradual loss. Her mother was at this time, and had been for some time, under observation by Dr. Gilchrist, the Tuberculosis Physician, for suspected pulmonary tuberculosis, and the child had

also been examined by Dr. Gilchrist recently as a contact, but the findings were entirely negative. This child was pale and had a long narrow body, she stood with drooping shoulders and was very still and quiet. The note at the end of her course of treatment was 'Little physical benefit apparent; she has gained only one pound but she has more colour and stands better and is brighter; her parents report she eats and sleeps better.' Her trunk was slightly but fairly generally pigmented. This child has been seen from time to time at an infant welfare clinic. Five weeks after discontinuing treatment she walked into the room (she was usually carried); her eyes looked bright, her cheeks were round and pink, and she had gained a couple of pounds. This happy state continued for nearly six months, but she was seen in January, after an attack of bronchitis, and was in much the same condition as when she began light treatment. Her lack of animation was again marked, and she had lost the weight she had gained. (The mother was again examined by Dr. Gilchrist with a negative result except for loss in weight.)

"Another group with interesting results was that of the children with signs of unresolved pneumonia. They were children of several years old, and the signs had persisted after definite attacks of pneumonia. The signs were local dullness on percussion, marked diminution of breath-sounds, impaired vocal resonance, and absence of adventitious sounds. Two of these cases were examined by Dr. Gilchrist at my request to exclude tuberculosis definitely (such as hilum glands) in view of the family history. On discharge, though improved in general health, two cases still showed local physical signs but less marked; in one the local condition had completely cleared up, and one is still attending.

"Type of Lamp and Amperage.—We have three 20-ampere carbon-arc lamps, burning plain carbons, each lamp taking 60 volts. The carbons are 12in. in length and burn away at the rate of 1in. per hour. About 9½in. to 10in. of each carbon can be conveniently burnt; beyond that point the formation of the arc tends to be imperfect. As there are six carbons, 6in. of carbon are used per hour, or roughly the equivalent of one carbon per session, as the lamps are burning rather less than two hours.

"Current and Voltage.—The current used is alternating. The voltage is 200, and as only 180 volts are consumed by the lamps there is a resistance to take the excess. The cost of the current is 1½d. per unit, and the total cost of current per hour works out at 4½d.

"Average Cost of a Patient's Treatment.—Taking everything into consideration, i.e., staff-time, proportion of rent of premises, running costs and depreciation, the average cost of a patient's treatment is £1 17s. 2d."

Section 9.

LABORATORY WORK.

Cardiff and County Public Health Laboratory.—The following statement shows the work carried out for Cardiff during 1928.

Bacteriological Examinations :—

Water Supplies ...	...	...	...	449
Milks for Tubercle Bacilli ...	...	...	...	170
Milks for other Organisms ...	...	...	...	423
Diseased Meat ...	...	...	...	7
Sputa for Tubercle Bacilli ...	...	...	...	893
Urines for Tubercle Bacilli ...	...	...	...	22
Rodents for Plague ...	...	...	...	1,401

Specimens for—

Diphtheria ...	...	...	...	2,965
Typhoid Fever ...	...	...	...	33
Malaria ...	...	...	...	3
Gonorrhœa ...	...	...	...	725
Syphilis (Wassermann Re-action) ...	...	...	...	1,843
Syphilis (Spirochæta Pallida) ...	...	...	...	1
Ringworm ...	...	...	...	11
Fæces for Organisms ...	...	...	...	26
Cerebro-spinal Fluids ...	...	...	...	13
Other Examinations ...	...	...	...	89

Chemical Examinations :—

Water Supplies ...	...	...	...	201
Milk and Milk Products ...	...	...	...	423
Sea Water ...	...	...	...	23
Air of Cinemas ...	...	...	...	30
In connection with Atmospheric Pollution ...	...	...	...	12
In connection with Ultra-violet Radiation ...	...	...	...	366
Other Examinations ...	...	...	...	15

Total ... 10,144

The number of specimens and samples examined (10,144) exceeded the number examined in 1927 by 2,472.

The number of specimens examined for suspected disease in patients resident in Cardiff, together with results of such examinations, are shown below :—

Suspected Disease	Positive Results	Negative Results	Totals	Percentage of Positive Results
Diphtheria ...	383	2,582	2,965	12.9
Typhoid Fever ...	8	25	33	24.2
Tuberculosis ...	225	668	893	25.2
Gonorrhœa ...	88	637	725	12.1
Syphilis—				
Wassermann Reaction ...	235	1,608	1,843	12.8
Spirochæta Pallida ...	...	1	1	0.0

The above figures relate to specimens and samples actually examined during 1928.

Section 10.

HOUSING.

The following is a statement in the form required by the Ministry in relation to housing :—

Number of New Houses erected during the Year :—

(a) Total (including numbers given separately under (b)) ...	428
(b) With State assistance under the Housing Acts :—	
(i) By the Local Authority ...	26
(ii) By other bodies or persons ...	275

1. *Inspection of Dwelling-houses during the Year :—*

(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts) ...	6,806
(2) Number of dwelling-houses (included under sub-head (i) above) which were inspected and recorded under the Housing Consolidated Regulations, 1925 ...	846
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation ...	14
(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 ...	1,663

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 ...	1,585
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3. *Action under Statutory Powers during the Year :—*

A.—Proceedings under section 3 of the Housing Act, 1925.

(1) Number of dwelling-houses in respect of which notices were served requiring repairs ...	23
(2) Number of dwelling-houses which were rendered fit after service of formal notices :—	
(a) By owners ...	10
(b) By Local Authority in default of owners ...	1
(3) Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close ...	—

B.—Proceedings under Public Health Acts :—

(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied ...	96
(2) Number of dwelling-houses in which defects were remedied after service of formal notices :—	
(a) By owners ...	99
(b) By Local Authority in default of owners ...	—

C.—Proceedings under sections 11, 14 and 15 of the Housing Act, 1925.

(1) Number of representations made with a view to the making of Closing Orders	...	...	...	...	...	9
(2) Number of dwelling-houses in respect of which Closing Orders were made	...	...	...	...	...	9
(3) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	...	...	...	...	...	—
(4) Number of dwelling-houses in respect of which Demolition Orders were made	...	...	...	...	...	—
(5) Number of dwelling-houses demolished in pursuance of Demolition Orders	...	...	...	...	...	—

House Inspection.—The results of all recorded house inspections during the year have been summarised in the following table, with the object of showing the various conditions found to exist in working-class property.

The figures relating to overcrowding, dampness, ash-bins, flushing cisterns and food storage serve to indicate the lines along which future action should be directed.

Structurally separate dwellings inspected and recorded...	846
Number overcrowded :—	
Air-space* ...	39
Sex† ...	28
Registrar-General's standard‡ ...	71
Number with :—	
One family ...	475
Two families ...	310
Three families ...	52
More than three families ...	9
Without through ventilation ...	17
Without satisfactory washing accommodation ...	80
Without satisfactory cooking arrangements ...	10
Without proper food pantries ...	604
Without troughs ...	270
Dampness from :—	
Roofs, shutes or downpipes ...	440
Outside plastering or joints ...	112
Lack of, or defective, damp-proof course ...	19
Without Corporation water ...	—
With earth or pail closets ...	—
Drained to cesspools ...	—
Without flushing cisterns ...	526
With flushing cisterns out of repair ...	34
With covered galvanised iron ash-bins ...	71
Found to be not reasonably fit for human habitation ...	234
Found to be unfit for human habitation ...	14

During the year a census has been taken of unfit houses in the city with a view to scheduling them for future action. The results show that approximately 100 houses come within this category, and, although this number cannot be considered complete, it gives some idea of the extent of the problem. Fortunately, Cardiff has no large insanitary areas, and therefore slum clearance does not assume the same magnitude as in many towns. A beginning has already been made in the closing of unfit houses

* At least 300 c. ft. per adult and 150 c. ft. per child under 10 years of age.

† Where two persons of the opposite sex, each over 13 years of age, excluding married couples, occupy the same room for sleeping purposes.

‡ More than two persons per room. Both living and sleeping rooms are included in the total number of rooms, and all children are counted as adults.

under the Housing Act, 1925, nine having been dealt with up to the end of the year. The progress of the work under Section 3 of the Housing Act, 1925, has been very satisfactory, and the Section has proved invaluable in securing the remedy of various dilapidations to property which could not be brought within the scope of nuisances. In cases where the owners have proved difficult, the ground landlords have readily brought pressure to bear, and this has usually resulted in the immediate compliance with the notices.

Enumeration of Dwellings.—An enumeration of dwellings in Cardiff was made by the Department in June, 1928, and the results are given in the following table. Corresponding figures for June, 1926, when a similar enumeration was made, are also given for purposes of comparison.

Wards	1921	1926	1931	1936	1941	1946	1951	1956	1961	1966	1971	1976	1981	1986	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051	2056	2061	2066	2071	2076	2081	2086	2091	2096	2101	2106	2111	2116	2121	2126	2131	2136	2141	2146	2151	2156	2161	2166	2171	2176	2181	2186	2191	2196	2201	2206	2211	2216	2221	2226	2231	2236	2241	2246	2251	2256	2261	2266	2271	2276	2281	2286	2291	2296	2301	2306	2311	2316	2321	2326	2331	2336	2341	2346	2351	2356	2361	2366	2371	2376	2381	2386	2391	2396	2401	2406	2411	2416	2421	2426	2431	2436	2441	2446	2451	2456	2461	2466	2471	2476	2481	2486	2491	2496	2501	2506	2511	2516	2521	2526	2531	2536	2541	2546	2551	2556	2561	2566	2571	2576	2581	2586	2591	2596	2601	2606	2611	2616	2621	2626	2631	2636	2641	2646	2651	2656	2661	2666	2671	2676	2681	2686	2691	2696	2701	2706	2711	2716	2721	2726	2731	2736	2741	2746	2751	2756	2761	2766	2771	2776	2781	2786	2791	2796	2801	2806	2811	2816	2821	2826	2831	2836	2841	2846	2851	2856	2861	2866	2871	2876	2881	2886	2891	2896	2901	2906	2911	2916	2921	2926	2931	2936	2941	2946	2951	2956	2961	2966	2971	2976	2981	2986	2991	2996	3001	3006	3011	3016	3021	3026	3031	3036	3041	3046	3051	3056	3061	3066	3071	3076	3081	3086	3091	3096	3101	3106	3111	3116	3121	3126	3131	3136	3141	3146	3151	3156	3161	3166	3171	3176	3181	3186	3191	3196	3201	3206	3211	3216	3221	3226	3231	3236	3241	3246	3251	3256	3261	3266	3271	3276	3281	3286	3291	3296	3301	3306	3311	3316	3321	3326	3331	3336	3341	3346	3351	3356	3361	3366	3371	3376	3381	3386	3391	3396	3401	3406	3411	3416	3421	3426	3431	3436	3441	3446	3451	3456	3461	3466	3471	3476	3481	3486	3491	3496	3501	3506	3511	3516	3521	3526	3531	3536	3541	3546	3551	3556	3561	3566	3571	3576	3581	3586	3591	3596	3601	3606	3611	3616	3621	3626	3631	3636	3641	3646	3651	3656	3661	3666	3671	3676	3681	3686	3691	3696	3701	3706	3711	3716	3721	3726	3731	3736	3741	3746	3751	3756	3761	3766	3771	3776	3781	3786	3791	3796	3801	3806	3811	3816	3821	3826	3831	3836	3841	3846	3851	3856	3861	3866	3871	3876	3881	3886	3891	3896	3901	3906	3911	3916	3921	3926	3931	3936	3941	3946	3951	3956	3961	3966	3971	3976	3981	3986	3991	3996	4001	4006	4011	4016	4021	4026	4031	4036	4041	4046	4051	4056	4061	4066	4071	4076	4081	4086	4091	4096	4101	4106	4111	4116	4121	4126	4131	4136	4141	4146	4151	4156	4161	4166	4171	4176	4181	4186	4191	4196	4201	4206	4211	4216	4221	4226	4231	4236	4241	4246	4251	4256	4261	4266	4271	4276	4281	4286	4291	4296	4301	4306	4311	4316	4321	4326	4331	4336	4341	4346	4351	4356	4361	4366	4371	4376	4381	4386	4391	4396	4401	4406	4411	4416	4421	4426	4431	4436	4441	4446	4451	4456	4461	4466	4471	4476	4481	4486	4491	4496	4501	4506	4511	4516	4521	4526	4531	4536	4541	4546	4551	4556	4561	4566	4571	4576	4581	4586	4591	4596	4601	4606	4611	4616	4621	4626	4631	4636	4641	4646	4651	4656	4661	4666	4671	4676	4681	4686	4691	4696	4701	4706	4711	4716	4721	4726	4731	4736	4741	4746	4751	4756	4761	4766	4771	4776	4781	4786	4791	4796	4801	4806	4811	4816	4821	4826	4831	4836	4841	4846	4851	4856	4861	4866	4871	4876	4881	4886	4891	4896	4901	4906	4911	4916	4921	4926	4931	4936	4941	4946	4951	4956	4961	4966	4971	4976	4981	4986	4991	4996	5001	5006	5011	5016	5021	5026	5031	5036	5041	5046	5051	5056	5061	5066	5071	5076	5081	5086	5091	5096	5101	5106	5111	5116	5121	5126	5131	5136	5141	5146	5151	5156	5161	5166	5171	5176	5181	5186	5191	5196	5201	5206	5211	5216	5221	5226	5231	5236	5241	5246	5251	5256	5261	5266	5271	5276	5281	5286	5291	5296	5301	5306	5311	5316	5321	5326	5331	5336	5341	5346	5351	5356	5361	5366	5371	5376	5381	5386	5391	5396	5401	5406	5411	5416	5421	5426	5431	5436	5441	5446	5451	5456	5461	5466	5471	5476	5481	5486	5491	5496	5501	5506	5511	5516	5521	5526	5531	5536	5541	5546	5551	5556	5561	5566	5571	5576	5581	5586	5591	5596	5601	5606	5611	5616	5621	5626	5631	5636	5641	5646	5651	5656	5661	5666	5671	5676	5681	5686	5691	5696	5701	5706	5711	5716	5721	5726	5731	5736	5741	5746	5751	5756	5761	5766	5771	5776	5781	5786	5791	5796	5801	5806	5811	5816	5821	5826	5831	5836	5841	5846	5851	5856	5861	5866	5871	5876	5881	5886	5891	5896	5901	5906	5911	5916	5921	5926	5931	5936	5941	5946	5951	5956	5961	5966	5971	5976	5981	5986	5991	5996	6001	6006	6011	6016	6021	6026	6031	6036	6041	6046	6051	6056	6061	6066	6071	6076	6081	6086	6091	6096	6101	6106	6111	6116	6121	6126	6131	6136	6141	6146	6151	6156	6161	6166	6171	6176	6181	6186	6191	6196	6201	6206	6211	6216	6221	6226	6231	6236	6241	6246	6251	6256	6261	6266	6271	6276	6281	6286	6291	6296	6301	6306	6311	6316	6321	6326	6331	6336	6341	6346	6351	6356	6361	6366	6371	6376	6381	6386	6391	6396	6401	6406	6411	6416	6421	6426	6431	6436	6441	6446	6451	6456	6461	6466	6471	6476	6481	6486	6491	6496	6501	6506	6511	6516	6521	6526	6531	6536	6541	6546	6551	6556	6561	6566	6571	6576	6581	6586	6591	6596	6601	6606	6611	6616	6621	6626	6631	6636	6641	6646	6651	6656	6661	6666	6671	6676	6681	6686	6691	6696	6701	6706	6711	6716	6721	6726	6731	6736	6741	6746	6751	6756	6761	6766	6771	6776	6781	6786	6791	6796	6801	6806	6811	6816	6821	6826	6831	6836	6841	6846	6851	6856	6861	6866	6871	6876	6881	6886	6891	6896	6901	6906	6911	6916	6921	6926	6931	6936	6941	6946	6951	6956	6961	6966	6971	6976	6981	6986	6991	6996	7001	7006	7011	7016	7021	7026	7031	7036	7041	7046	7051	7056	7061	7066	7071	7076	7081	7086	7091	7096	7101	7106	7111	7116	7121	7126	7131	7136	7141	7146	7151	7156	7161	7166	7171	7176	7181	7186	7191	7196	7201	7206	7211	7216	7221	7226	7231	7236	7241	7246	7251	7256	7261	7266	7271	7276	7281	7286	7291	7296	7301	7306	7311	7316	7321	7326	7331	7336	7341	7346	7351	7356	7361	7366	7371	7376	7381	7386	7391	7396	7401	7406	7411	7416	7421	7426	7431	7436	7441	7446	7451	7456	7461	7466	7471	7476	7481	7486	7491	7496	7501	7506	7511	7516	7521	7526	7531	7536	7541	7546	7551	7556	7561	7566	7571	7576	7581	7586	7591	7596	7601	7606	7611	7616	7621	7626	7631	7636	7641	7646	7651	7656	7661	7666	7671	7676	7681	7686	7691	7696	7701	7706	7711	7716	7721	7726	7731	773
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ENUMERATION OF DWELLINGS, 1926 AND 1928.

Ward	Structurally Separate Dwellings, including Shops, Offices, etc., with Dwellings attached								Structurally Separate Flats								New Dwellings in course of erection		Totals							
	Occupied by Private Families				Occupied for Business Purposes only				Vacant				Occupied by Private Families				Occupied for Business Purposes only				Vacant				1926	1928
	1926		1928		1926		1928		1926		1928		1926		1928		1926		1928		1926	1928				
	1926	1928	1926	1928	1926	1928	1926	1928	1926	1928	1926	1928	1926	1928	1926	1928	1926	1928								
Central ...	2,524	2,494	364	353	37	70	22	43	...	...	7	4	21	...	2,975	2,964	...	...	...	...	...	...	...	...
South ...	2,113	2,087	204	150	33	24	6	9	...	...	...	3	3	...	2,359	2,273	...	...	...	...	...	...	...	...
Cathays...	3,400	3,370	13	10	8	11	...	1	...	...	2	...	8	...	3,431	3,392	...	...	...	...	...	...	...	...
Adamsdown ...	2,543	2,631	58	52	15	12	38	36	5	...	...	...	...	2,659	2,731	...	...	...	...	...	...	...	...	...
Riverside ...	3,375	3,287	48	7	30	16	...	3	...	...	1	6	...	3,454	3,319	...	...	...	...	...	...	...	...	...
Canton ...	3,541	3,499	17	12	13	27	...	...	...	...	...	...	...	3,597	3,538	...	...	...	...	...	...	...	...	...
Grangetown ...	2,603	2,702	12	13	1	39	...	1	...	...	...	...	...	2,616	2,755	...	...	...	...	...	...	...	...	...
Roath ...	3,286	3,319	24	1	22	49	2	...	...	...	...	...	...	3,366	3,374	...	...	...	...	...	...	...	...	...
Plasnewydd ...	3,262	3,234	65	63	35	36	4	7	...	...	...	...	...	3,366	3,340	...	...	...	...	...	...	...	...	...
Splott ...	3,388	3,668	23	19	7	42	...	...	...	...	...	...	...	3,470	3,760	...	...	...	...	...	...	...	...	...
Penylan ...	3,010	3,219	36	33	64	99	...	...	...	...	...	...	...	3,167	3,398	...	...	...	...	...	...	...	...	...
Llandaff ...	3,773	5,166	8	18	37	64	5	30	...	...	...	...	...	4,328	5,417	...	...	...	...	...	...	...	...	...
Gabalfa ...	3,435	3,781	5	3	40	56	2	6	...	...	...	1	62	3,577	3,909	...	...	...	...	...	...	...	...	...
Totals ...	40,253	42,457	877	734	342	545	79	136	5	...	10	14	284	42,365	44,170	...	...	...	...	...	...	...	...	...

Section 11.

FOOD INSPECTION.

Meat Inspection at Municipal Abattoirs.—The following tables set out in detail the work done in connection with meat inspection during the year.

Animals slaughtered and whole carcasses found diseased which were surrendered and destroyed or otherwise dealt with by arrangement with the owners :—

	ROATH ABATTOIR		CANTON ABATTOIR		TOTALS	
	Slaughtered	Diseased or unsound and destroyed	Slaughtered	Diseased or unsound and destroyed	Slaughtered	Diseased or unsound and destroyed
Bulls	184	2	22	...	206	2
Cows	1,094	41	277	6	1,371	47
Heifers	3,105	10	355	1	3,460	11
Steers	2,678	4	402	1	3,080	5
Calves	11,574	18	808	3	12,382	21
Sheep and Lambs	48,553	106	11,526	41	60,079	147
Pigs	35,645	81	7,073	55	42,718	136
Totals	102,833	262	20,463	107	123,296	369

Instances in which tuberculosis was found :—

	ROATH ABATTOIR		CANTON ABATTOIR		TOTALS	
	Number	Percentage	Number	Percentage	Number	Percentage
Cattle :—						
Bulls	31	16.8	1	4.5	32	15.5
Cows	260	23.8	45	16.2	305	22.2
Heifers	104	3.3	11	3.1	115	3.3
Steers	58	2.2	15	3.7	73	2.4
Calves	20	0.2	1	0.1	21	0.2
All Cattle	473	2.5	73	3.9	546	2.7
Pigs	174	0.5	120	1.7	294	0.7

Causes of destruction of carcasses :—

Cause	Beef	Mutton and Lamb	Veal	Pork	Totals
Tuberculosis	59	...	11	102	172
Dropsy ... ..	...	31	...	...	31
Emaciation	3	41	1	9	54
Dropsy and Emaciation	3	52	...	2	57
Johne's Disease ... ..	...	...	...	...	...
Moribund ... ..	...	1	2	...	3
Found dead ... ..	...	...	...	...	...
Decomposition ... ..	...	1	...	...	1
Other Causes ... ..	...	21	7	23	51
Totals	65	147	21	136	369

Approximate weight of diseased or unsound meat surrendered and destroyed or otherwise dealt with by arrangement with the owners:

				Tons	cwt.	lb.
Carcases of—						
Beef	...	...	...	15	13	26
Veal	...	...	...	0	15	99
Mutton and Lamb	...	...	...	3	1	31
Pork	...	...	...	5	18	93
Part carcases of—						
Beef	...	...	...	2	0	104
Veal	...	...	...	0	0	18
Mutton and Lamb	...	...	...	0	1	70
Pork	...	...	...	0	15	6
Offals of—						
Beasts	...	...	...	21	14	108
Calves	...	...	...	0	6	56
Sheep and Lambs	...	...	...	3	19	40
Pigs	...	...	...	3	19	54
Total				58	7	33

Meat Inspection at Private Slaughter-houses.—The numbers of animals slaughtered were as follows:—

Cows	...	...	...	...	2
Calves	...	...	...	...	1
Sheep and Lambs	...	...	...	...	798
Pigs	...	...	...	...	1,772
Total				...	2,573

Nine carcasses of pork and one carcass of beef were destroyed as being unsound, the cause in each case being tuberculosis. Tuberculosis was found in carcasses of pork in 36 instances, the proportion being 2.0 per cent.

The total weight of unsound meat surrendered at private slaughter-houses and destroyed by arrangement with the owners was 1 ton 14 cwt. 23lb.

Imported Meat.—The consumption of imported meat appears to be increasing and, for the purpose of obtaining an idea of the quantity sold, an inquiry was made at the various butchers shops in July, 1928. The result shows that of the whole of the meat consumed in Cardiff 38.4 per cent. is imported. This proportion is of course subject to considerable fluctuation. It should be borne in mind also that only approximate numbers could be obtained on which to base the percentage.

Caseous Lymphadenitis.—The prevalence of caseous lymphadenitis in consignments of mutton from Australia and South America has thrown a considerable amount of additional work on the Department. In addition to carcasses arriving at the port, all consignments received from other towns have been examined, and in most instances the presence of the disease has made it necessary for each individual carcass to be thoroughly inspected. Although recently there has been a decrease in the proportion of diseased carcasses found, it is still sufficiently high to prevent any relaxation in the thoroughness of inspection.

Handling, Storage and Preparation of Food.—In accordance with modern public health policy, increasing attention has been paid to this aspect of food inspection, particularly in relation to restaurant kitchens, cafes, and other places where food is prepared. Food hawkers have also been watched, and their storage arrangements inspected. This has been a very necessary precaution, as in many instances it was found that the accommodation provided for the storage of fruit and vegetables was also used for stabling or other purposes incompatible with safety.

Unsound Food exposed or intended for Sale.—The following is a record of the work done by the sanitary inspectors in connection with inspection of food exposed or intended for sale during the year :—

Number of inspections of shops stores, etc. :—

Butchers' shops	...	...	...	2,677
Provision shops	...	...	...	274
Markets	...	...	...	407
Wholesale stores	...	...	...	1,070
Fish and fruit shops	...	...	...	875
Butter factories	...	...	...	106
Margarine stores (wholesale)	...	...	...	71
Food vehicles	...	...	...	220
Railway stations	...	...	...	56
Other premises	...	...	...	236
Total				5,992

Approximate weight of diseased or unsound food found in shops and stores and destroyed or disposed of by the owners otherwise than as food for human consumption:

					Tons	cwt.	lb.
Beef	...	...	...	...	0	4	55
Veal, etc.	...	...	...	...	0	0	12
Mutton, lamb, etc.	...	...	...	...	1	4	36
Pork, etc.	...	...	...	...	0	1	13
Rabbits	...	...	...	...	0	1	49
Fish	...	...	...	...	2	12	72
Poultry	...	...	...	...	0	1	17
Ham and bacon	...	...	...	...	0	1	68
Butter	...	...	...	...	0	4	9
Other provisions	...	...	...	...	9	11	67
Fruit	...	...	...	...	2	17	43
Offal	...	...	...	...	0	7	6
Vegetables	...	...	...	...	0	12	63
Total				...	17	19	62

Milk Inspection.—The following is a statement showing the distribution of the milk business in Cardiff and the amount of milk sold per day in December, 1928 :—

Character of Business	Number of Vendors	
	Totals	Selling 6 Gallons or less per day
(1) From retail premises other than shops, with or without rounds	63	4
(2) By rounds direct from farms within the city boundary ...	13	...
(3) By rounds direct from farms or premises beyond the city boundary	87	15
(4) From shops (not entirely bottled milk) with or without rounds	138	83
(5) From shops (bottled milk only)	249	128
(6) By rounds only	92	3
(7) Under the Milk (Special Designations) Order, 1923 :—		
Grade A.	4	...
Grade A. (T.T.)	29	2
Totals	675	235

Approximate number of gallons sold per day by all vendors :—10,597 (including 43 gallons of Grade A, 456 gallons of Grade A (T.T.) and 10 gallons of Certified milk).

INSPECTION OF COWS BY VETERINARY SURGEON.

	Cowsheds in City	Cowsheds beyond City Boundary
Dairymen whose premises were visited	24	4
Visits to such premises	278	4
Cows in milk examined	315	175
Examinations of cows	3,393	175
Cows found diseased	2	15
Cows excluded from dairy herds at time of inspection	2	1
Cows not in milk examined	56	29
Examinations of cows	484	29
Cows found diseased	1	1

Condition of cows examined :—

	Cowsheds in City		Cowsheds beyond City Boundary	
	Cows in Milk	Cows not in Milk	Cows in Milk	Cows not in Milk
Suffering from—				
Tuberculosis of Udder ... ..	...	...	...	...
Other Forms of Tuberculosis ... ..	...	...	...	...
Acute Inflammation of Udder	1	1	2	1
Other Chronic Diseases of Udder	1	...	7	...
Other Diseases ... ..	...	...	6	...
Healthy	313	55	160	28
Totals	315	56	175	29

Tubercle Bacilli in Milk.—The number of routine samples examined for tubercle bacilli was 84, four of which were found to be positive. The record of sampling from the commencement is shown in the following table :—

Year	Number of Samples	Number containing Tubercle Bacilli
1911	9	—
1912	45	5
1913	42	1
1914	39	—
1915	45	—
1916	41	1
1917	32	—
1918	19	1
1919	13	—
1920	14	1
1921	27	2
1922	43	2
1923	51	2
1924	53	1
1925	55	2
1926	55	1
1927	62	6
1928	84	4

The milk was produced outside Cardiff in each of the four instances in which tubercle bacilli were found during 1928, and action was taken under Section 4 of the Milk and Dairies (Consolidation) Act, 1915. Cows infected with tuberculosis were traced in each instance; they were excluded from the dairy herds and dealt with under the Tuberculosis Order, 1925.

Routine Bacteriological Examination of Milk.—The following record is given for comparison with similar tables contained in previous Reports :—

Month	Number of Samples examined	Number containing not more than 200,000 bacteria in 1 c.c.	Number with <i>B. Coli</i> absent in 1/100 c.c.	Number attaining Grade A. standard by both tests	Percentage attaining Grade A. standard
January	11	11	9	9	82
February	8	7	6	6	
March	12	11	10	10	
April	7	6	7	6	
May	6	5	5	5	54
June	10	6	7	6	
July	10	6	9	6	
August	8	6	3	3	
September	8	7	6	6	70
October	13	7	5	4	
November	14	13	13	13	
December	9	9	8	8	
Totals	116	94	88	82	71

These are samples of ordinary commercial milk, the results of the bacteriological examination being shown in such a way as to reveal what proportion attained the standard prescribed by the Milk (Special Designations) Order, 1923, for Grade A milk. Throughout the year, 71 per cent. reached this standard, as compared with 81 per cent. in 1927 and 58 in 1926. The percentage in the warm months was 54, against 67 in 1927 and 32 in 1926.

Graded Milks.—The following is a statement of the number of licences for the various grades of milk under the Milk (Special Designations) Order, 1923, each year since 1923 :—

Description of Licences	Number in force on 31st December					
	1923	1924	1925	1926	1927	1928
(1) Producers' licences to use the designation "Grade A" ...	...	1	1	1	1	1
(2) Dealers' licences to use the designation "Certified" ...	...	...	...	2	...	2
(3) Dealers' licences to use the designation "Grade A (Tuberculin Tested)"—						
(a) Bottling establishments ...	...	...	...	3	5	17
(b) Shops ...	...	...	...	...	...	17
(c) Supplementary ...	...	...	...	...	1	1
(4) Dealers' licences to use the designation "Grade A"—						
(a) Bottling establishments ...	3	3	6	6	9	2
(b) Shops ...	...	...	...	2	8	2
(c) Supplementary ...	...	2	2	2	1	1
(5) Dealers' licences to use the designation "Pasteurised"—						
(a) Pasteurising establishments ...	1	1	1	...	...	...
(b) Shops ...	...	...	...	...	...	...

The sudden increase of the Grade A (T.T.) establishments is very striking. It will be noticed that it is associated with a large reduction in the number of Grade A licences. This movement was expected and its accomplishment appears to justify the Ministry's policy in adopting a grade in all respects similar to Grade A. (T.T.) except that tuberculin testing is not obligatory. The experience in Cardiff is that the Grade A tradesman tends to change over sooner or later to Grade A (T.T.).

The following tables show the proportion of samples of Grade A and Grade A (Tuberculin Tested) milk which conformed with the standard laid down by the Order. In every instance of a sample being below standard steps were taken to ascertain the cause and remedy the defect.

(a) Samples from Producers' Supplies (before bottling).

Month	Number of Samples examined	Number containing not more than 200,000 bacteria in 1 c.c.	Number with <i>B. Coli</i> absent in 1/100 c.c.	Number attaining Grade A. standard by both tests	Percentage attaining Grade A. standard
January ...	5	5	5	5	88
February ...	3	3	3	3	
March ...	2	1	2	1	
April ...	4	4	4	4	
May ...	3	3	2	2	100
June ...	4	4	4	4	
July ...	2	2	2	2	
August ...	3	3	3	3	
September ...	2	2	2	2	100
October ...	3	3	3	3	
November ...	3	3	3	3	
December ...	3	3	3	3	
Totals ...	37	36	36	35	95

The results of the examination of 20 samples of Grade A (Tuberculin Tested) milk are included in the above table, 19 of which attained the required standard by both tests.

(b) Samples from Dealers' Supplies (after bottling).

Month	Number of Samples examined	Number containing not more than 200,000 bacteria in 1 c.c.	Number with <i>B. Coli</i> absent in 1/100 c.c.	Number attaining Grade A. standard by both tests	Percentage attaining Grade A. standard
January	19	19	19	19	92
February	20	19	19	19	
March	22	21	20	20	
April	22	21	22	21	
May	20	17	19	16	93
June	22	22	21	21	
July	23	21	22	21	
August	23	22	22	21	
September	24	23	23	22	96
October	23	21	23	21	
November	25	25	25	25	
December	24	24	24	24	
Totals	267	255	259	250	94

The results of the examination of 223 samples of Grade A (Tuberculin Tested) milk are included in the above table, 203 of which attained the required standard by both tests.

Three samples of Certified milk were examined, one of which fell below the required standard in respect of the bacterial count.

Sale of Food and Drugs Acts.—Samples submitted to the Public Analyst for analysis :—

Description	Formal or Informal	Number	Genuine	Adulterated
Apricots	Informal	13	13	...
Asorax	"	3	3	...
Brawn	"	4	4	...
Butter	"	20	20	...
Candied Peel	"	8	8	...
Chicken and Ham Roll	"	2	2	...
Cider	"	3	3	...
Corned Beef	"	2	2	...
Cream	"	22	22	...
Cream of Tartar	"	9	9	...
Flour	"	1	1	...
Fruit, Dried mixed	"	5	5	...
Gelatine	"	1	1	...
Ham	"	3	3	...
Margarine	"	12	12	...
Milk	"	281	268	13
Milk, Skimmed	Formal	6	6	...
Milk, Skimmed	Informal	1	...	1
Milk, Evaporated	Formal	1	1	...
Milk, Condensed	"	4	4	...
Milk, Condensed	Informal	5	5	...
Non-Alcoholic Drinks	"	21	21	...
Peaches, Dried	"	7	7	...
Pears, Dried	"	13	13	...
Prunes, Dried	"	4	4	...
Polonies	"	5	5	...
Potted Meat	"	1	1	...
Raisins	"	7	7	...
Sauce	"	20	19	1
Sausages	"	26	26	...
Sultanas	"	7	7	...
Coffee	"	1	1	...
White Pudding	"	1	1	...
Totals		519	504	15

Samples of milk analysed and proportion adulterated:—

	Samples Analysed	SAMPLES ADULTERATED					
		Number	Per- centage	Added Water	Deficient Fat	Preserva- tives	Coloured with Annatto
Wholesale:—							
Taken at Railway Stations ...	...	...	...	...	...	...	...
Retail—							
Taken in Shops, from carts, etc.	288	14	4.9	4	10	...	...
Totals	288	14	4.9	4	10	...	...

The extent of adulteration in the 13 adulterated samples of milk was as follows:

No. of Sample	Formal or Informal	Extent of Adulteration
37	Formal	18.0 per cent. deficient fat
38	"	18.7 " " " "
129	"	4.3 " " " "
146	"	8.6 " " added water
152	"	1.5 " " " "
163	"	5.0 " " deficient fat
164	"	2.3 " " " "
169	"	5.3 " " " "
187	"	5.7 " " " "
202	"	6.0 " " " "
203	"	6.0 " " " "
229	"	6.5 " " added water
251	"	1.0 " " " "

The adulterated sample of skimmed milk (No. 42—Informal) was deficient in milk-solids (excluding fat) to the extent of 1.0 per cent., and the adulterated sample of sauce (No. 218—Informal) contained 0.87 grain of salicylic acid per pint.

The average composition of samples of ordinary milk, excluding those returned as adulterated, is shown below. It will be seen that the quality of the samples analysed was well above the legal standard.

Number of Samples	Composition		Legal Standard	
	Milk-fat (Percentage)	Milk-solids excluding Fat (Percentage)	Milk-fat (Percentage)	Milk-solids excluding Fat (Percentage)
268	3.25	8.90	3.00	8.50

Legal Proceedings.—The following is a summary of the legal proceedings taken during the year in connection with food inspection:—

Acts, etc., under which Proceedings were taken	Number	Fined	Cautioned	To pay costs only	Dismissed	With- drawn	Amount of Fines and Co
Sale of Food and Drugs Acts ...	15	9	...	2	2	2	£ s. d. 18 8 0
Milk and Dairies Order, 1926 ...	24	23	1	...	...	...	17 0 0
Public Health (Meat) Regulations, 1924	6	3	...	3	...	...	7 12 0
Totals	45	35	1	5	2	2	£43 0 0

Section 12.

GENERAL SANITATION.

Statements as to the nature and extent of the work done during 1928 in connection with the general sanitary inspection of the district are given below. A summary of legal proceedings, and particulars with regard to disinfection, baths at the Cleansing Station and bodies removed to the Mortuary are also included.

GENERAL SANITARY INSPECTION.

Complaints of nuisances received 1,618.

	Inspections or Visits	Intimation Notices		Statutory Notices	
		Served	Complied	Served	Complied
House Inspections for Nuisances	2,192	1,663	1,585	96	99
" " in connection with infectious diseases	3,364	...	...	...	...
" " for vermin	172	...	...	...	...
" " " other conditions	232	...	...	...	...
Houses inspected and "recorded"	846	...	...	...	...
Re-inspections of houses	10,308	...	...	...	...
Owners and contractors interviewed	1,325	...	...	...	...
Backyards	29	11	11	...	...
Slut-houses	784	13	13	...	...
Milkshops, etc.	2,150	11	14	...	...
Sheds	111	32	30	...	...
Offensive trades	148	22	20	...	...
Workshops—					
Bakehouses	361	37	30	...	...
Bootmakers	203	7	9	...	...
Dressmakers and milliners	181	6	5	...	...
Laundries	91	10	10	...	...
Tailors	317	14	10	...	...
Miscellaneous	923	47	40	...	...
Factories—					
Bakehouses	277	24	18	...	...
Bootmakers	57	1	...	...	...
Laundries	42	2	1	...	...
Tailors	129	2	3	...	...
Miscellaneous	806	46	42	...	...
Workplaces	487	31	32	...	...
Millers' outworkers	24	2	2	...	...
Men's lodging houses (day)	1,032	113	108	...	...
" " " (night)	55	...	...	...	...
Common lodging houses (day)	177	7	9	...	...
" " " (night)	25	...	...	...	...
Houses-let-in-lodgings	230	28	29	...	...
Sheds, vans, sheds and similar structures	140	25	25	...	...
Amusement places	253	12	6	...	...
Public houses	144	14	12	...	...
Shools	37	...	...	...	...
Wimming baths	97	...	...	...	...
Water supplies	33	...	...	...	...
Water courses	196	14	14	...	...
Refuse tips	365	9	9	...	...
Accumulations	356	46	44	...	...
Wells	199	...	...	...	...
Rains	1,175	...	...	...	...
Public urinals	243	26	26	...	...
Spools	161	...	...	...	...
Back lanes	471	13	13	...	...
Infestation	909	68	60	...	...
Remises where swine or other animals are kept	269	14	6	...	...
Marine store hawkers	25	...	...	...	...
Noise and grit observations	169	20	18	...	...
Visits not classified	3,357	...	...	...	...

NUISANCES ABATED, REPAIRS EXECUTED, ETC.

Houses :—

Walls repaired	...	...	...	157
Outside plastering repaired	...	...	...	209
Inside plastering repaired	...	...	...	280
Damp-proof courses inserted	...	...	...	6
Floors renewed or repaired	...	...	...	257
Floors ventilated	...	...	...	36
Roofs renewed or repaired	...	...	...	856
Shutes, downpipes or gutters renewed or repaired	...	...	...	663
Chimneys repaired	...	...	...	108
Ceilings repaired	...	...	...	163
Doors and frames repaired	...	...	...	98
Lighting and ventilation of rooms improved	...	...	...	13
Window sashes or frames renewed or repaired	...	...	...	252
Window cords renewed	...	...	...	267
Staircases repaired	...	...	...	18
Grates or ovens repaired or renewed	...	...	...	117
Boilers provided or repaired	...	...	...	79
Food stores provided or improved	...	...	...	1
Washhouses provided or improved	...	...	...	13
Outbuildings repaired	...	...	...	7
Walls or ceilings cleansed and redecorated	...	...	...	126
Bedding cleansed or destroyed	...	...	...	31
Rooms treated for vermin	...	...	...	291
Overcrowding abated	...	...	...	6
Yard paving relaid or repaired	...	...	...	267
Nuisances from animals abated	...	...	...	17
Accumulations removed	...	...	...	63
Ash-bins provided	...	...	...	20
Water supply provided	...	...	...	41
Water taps or pipes repaired	...	...	...	13
Water samples taken for analysis	...	...	...	5
Wells abolished	...	...	...	1
Miscellaneous repairs and nuisances abated	...	...	...	106

Drainage :—

Drains tested (smoke)	...	...	...	275
" " (chemical)	...	...	...	1,099
New drains constructed	...	...	...	31
Drains reconstructed	...	...	...	53
Drains repaired	...	...	...	271
Drains under houses abolished	...	...	...	10
Drains cleansed	...	...	...	231
Inspection or intercepting chambers provided or repaired	...	...	...	35
Intercepting traps fixed	...	...	...	7
Soilpipes or ventilating shafts fixed or repaired	...	...	...	31
Gullies fixed	...	...	...	66
Troughs provided	...	...	...	14
Troughs trapped or waste pipes repaired	...	...	...	40
Bath waste pipes trapped or repaired	...	...	...	11
Lavatory basins trapped or waste pipes repaired	...	...	...	3
Drain inlets inside houses abolished	...	...	...	4
Additional w.c's provided	...	...	...	7
W.c's reconstructed	...	...	...	30
Lighting and ventilation improved	...	...	...	2

NUISANCES ABATED, REPAIRS EXECUTED, ETC.—(contd).

New pans and traps fixed	...	...	...	152
W.c. pans cleansed	...	...	...	59
Flushing apparatus provided	...	...	...	26
Flushing apparatus repaired	...	...	...	53
Miscellaneous repairs	...	...	...	82
Cesspools :—				
Constructed	...	...	...	2
Abolished and house connected to sewer	...	...	...	8
Other repairs	...	...	...	3
Seamen's Lodging Houses :—				
Limewashing or cleansing carried out	...	...	...	76
Bedding renewed	...	...	...	98
Verminous rooms treated	...	...	...	7
Bedsteads cleansed or repaired	...	...	...	6
Overcrowding abated	...	...	...	1
Additional w.c. accommodation provided	...	...	...	1
W.c's repaired	...	...	...	3
Other repairs	...	...	...	22
Common Lodging Houses :—				
Limewashing or cleansing carried out	...	...	...	20
Bedding renewed	...	...	...	57
Verminous rooms treated	...	...	...	28
Bedsteads cleansed or repaired	...	...	...	506
W.c's repaired	...	...	...	1
Accumulations removed	...	...	...	2
Other repairs	...	...	...	8
Urinals :—				
Flushing apparatus fixed or repaired	...	...	...	2
Floors repaired	...	...	...	2
Other repairs	...	...	...	5
Earth or Pail Closets :—				
Provided	...	...	...	2
Abolished	...	...	...	1
Cleansed or repaired	...	...	...	4
Tents, Vans or Sheds :—				
Removed	...	...	...	86
Amusement Places :—				
W.c's repaired	...	...	...	5
Cleanliness improved	...	...	...	7
Other repairs	...	...	...	9
Dairies, Cowsheds and Milkshops :—				
New dairies constructed	...	...	...	9
Existing dairies improved	...	...	...	2
Existing cowsheds improved	...	...	...	1
Drainage improved	...	...	...	1
Paving repaired	...	...	...	6
Lighting or ventilation improved	...	...	...	1
Limewashing or cleansing carried out	...	...	...	137
Water supply provided	...	...	...	9
Sterilisers fixed	...	...	...	7
Accumulations of manure removed	...	...	...	9
Other repairs	...	...	...	12

NUISANCES ABATED, REPAIRS EXECUTED, ETC.—(contd).

Ice Cream Premises :—

Unsuitable premises discontinued	...	...	1
Limewashing or cleansing carried out	...	...	82
Accumulations removed	...	...	1
Other repairs	...	...	5

Food Shops, Kitchens, etc. :—

Communicating sleeping places abolished	...	...	5
Communicating w.c's abolished	...	...	1
Accumulations removed	...	...	12
Cleanliness improved	...	...	111
Storage arrangements improved	...	...	9
Lighting or ventilation improved	...	...	5
Ash-bins provided	...	...	59
Other sources of contamination removed	...	...	21
W.c's repaired	...	...	13
Inside drain inlets abolished	...	...	6
Washing-up arrangements improved	...	...	13

Food Vehicles :—

Warnings regarding general cleanliness of vehicle, person or covering	13
--	-----	-----	----

Fried Fish Shops :—

New ranges fitted	...	...	1
Cleansing carried out	...	...	10
Storage accommodation provided or improved	...	...	1
Drainage improved	...	...	2
Accumulations removed	...	...	1
Other repairs	...	...	11

Houses-Let-in-Lodgings :—

Limewashing or cleansing carried out	...	...	15
Overcrowding abated	...	...	1
Other repairs	...	...	50

Offensive Trades :—

Accumulations removed	...	...	10
Cleanliness improved	...	...	11
Floors or walls repaired	...	...	3
Other repairs	...	...	11
Impervious receptacles provided	...	...	3

Knackers' Yards :—

Accumulations removed	...	...	7
Cleanliness improved	...	...	4

Stables :—

Manure receptacles provided or repaired	...	...	10
Accumulations of manure removed	...	...	38
Paving repaired or renewed	...	...	1
Limewashing carried out	...	...	1

Back Lanes :—

Accumulations removed	...	...	1
Surfaces repaired	...	...	1

Miscellaneous repairs or nuisances abated	6
---	-----	-----	---

Rat Destruction.—The following statement shows the numbers of purchases of rat poison from the Department and of baits laid and eaten in public sewers and elsewhere :—

Purchases of rat poisons from Public Health Department ...	80
Amount of poisons sold	156 tins and 11b.
Number of baits laid in public sewers	18,426
Number of baits eaten	4,306
Number of baits laid elsewhere	7,964
Number of baits eaten	2,781
Total number of baits laid	26,390
Total number of baits eaten	7,087

At the request of Mr. C. Matheson, Keeper of Zoology, National Museum of Wales, an attempt has been made to obtain a regular supply of live rats from premises in the city for identification and for examination of their parasitic fleas, for comparison with those submitted from ships and docks. This effort has been fairly successful, in spite of the fact that the services of an official rat-catcher are not available, and from the beginning of March, when the experiment was commenced, to the end of the year, 748 live rats were submitted.

Flushing Cisterns to Water-closets.—One of the problems which urgently requires consideration is the provision of flushing cisterns to all hand-flushed closets. There are approximately 14,000 hand-flushed closets in the city, and in spite of the fact that the sanitary inspectors are securing the repair of all defective cisterns found, it will be very difficult to prevent an increase in the number each succeeding year. An attempt is being made to test our existing powers for dealing with the problem and to obtain new powers at the first opportunity, so that we may be in a position to deal with the matter as soon as economic conditions permit.

Conservancy System Closets.—During 1928 one privy was converted to the water-carriage system and one was replaced by an earth-closet. The numbers remaining on the conservancy system at the end of the year were as follows :—

Earth closets	5
Privies	143
Total	148

Mosquito Control.—All likely breeding places for mosquitoes were kept under observation during the summer months, and any signs of mosquito activity were immediately dealt with. Allotment holders were requested to empty their water butts or to treat the water stored, and stagnant pools and ditches on the Splott lands were regularly treated with disinfectant or paraffin. The measures of control were particularly effective at Splott.

Ventilation of Cinemas.—During the year a series of observations in connection with the ventilation of cinemas was carried out. Particulars of these observations are being given in a paper to be read by the Chief Sanitary Inspector at the Annual Conference of the Sanitary Inspectors' Association, and copies will be circulated among the members of the Health and Port Sanitary Committee.

Open-Air Swimming Baths.—Since the baths at Llandaff and Splott have been open to the public the Department has taken active steps in collaboration with the Parks Department to make the water as attractive as possible for the bathers and to minimise the risk of transmission of disease. For this purpose arrangements have

Date	Clear or Turbid	Parts per 100,000				Number of Organisms per c.c. at 37° C.	Coliform bacilli present in					Remarks
		Chlorine	Nitrates	Organic ammonia	Sediment (volume)		50 c.c.	10 c.c.	2 c.c.	$\frac{1}{2}$ c.c.	$\frac{1}{10}$ c.c.	
1928.												
19th May	Rather turbid	2.0	.56	.0148	.6	20	+					— CuSO ₄ treatment 20th May.
26th "	Rather turbid	1.9	.58	.0196	.6	62	+					—
2nd June	Fairly turbid	2.1	.52	.0232	6.0	10,000	+					—
9th "	Turbid	2.1	Consid'le	.0334	2.4	212	+	+				CuSO ₄ treatment 3rd June.
16th "	Turbid	2.2	"	.0566	2.0	22	—					Voxsan treatment 8th June.
23rd "	Turbid	2.2	...	.0380	1.0	82	—					Voxsan treatment 11th, 13th and 15th June.
30th "	Turbid	2.5	Consid'le	.0508	3.0	22	+					CuSO ₄ treatment 17th June.
7th July	Turbid	2.4	.38	.0450	3.5	840	—					Voxsan treatment 18th, 20th and 22nd June.
14th "	Turbid	2.9	.52	.0396	2.8	40	+					CuSO ₄ treatment 1st July.
21st "	Fairly turbid	Nil	...	.0540	4.8	1,640	+	+				Voxsan treatment 2nd, 4th and 6th July.
28th "	Clear	2.0	.62	.0052	.6	10,000	+	+	+			Voxsan treatment 9th July.
4th Aug.	Rather turbid	2.1	.44	.0210	.9	370	—					CuSO ₄ treatment 15th July.
												Bath emptied and cleaned 23rd July.
												CuSO ₄ treatment 29th July.
												Voxsan treatment 30th July, and 1st and 3rd Aug.
11th "	Turbid	2.1	.46	.0204	1.8	140	—					Voxsan treatment 6th and 8th Aug.
18th "	Turbid	2.2	...	.033	5.5	50	—					CuSO ₄ treatment 12th Aug.
25th "	Rather turbid	2.4	...	.0284	4.8	46	+					Voxsan treatment 13th, 15th and 17th Aug.
1st Sept.	Turbid	2.5	.42	.043	2.8	840	+	+	+	+		Voxsan treatment 20th and 22nd Aug.
												CuSO ₄ treatment 26th Aug.
8th "	Turbid	2.7	.45	.073	10.0	96	+	+				Voxsan treatment 31st Aug.
15th "	Turbid	2.8	.32	.106	12.0	76	+	+				Voxsan treatment 3rd, 5th and 7th Sept.
22nd "	Turbid	2.7	...	.108	3.5	14	+	+				—
29th "	Rather turbid	2.7	...	.078	6.0	142	+	+	+	+		—

A fortnightly treatment with copper sulphate was applied from 20th May until 26th August. The bath was emptied and cleaned on 23rd July. The results indicate that whilst the periodical treatment by no means prevented algal growth, yet this was apparently considerably inhibited. The volume of sediment in samples rarely exceeded 5.0 parts per 100,000 and the average would be from 2.0 to 3.0. The figures compare favourably with those for 1927, and in view of the fact that the summer of 1928 had much greater sunshine, it is probable that the amount of sediment would have increased to much higher figures than the highest figures for 1927 had there been no treatment up to 23rd July (the time of emptying). The rapid increase during September confirms this opinion. Apart from the question of cost, a periodical cleaning out would appear to be better even than copper treatment, since with the latter method some of the dead products of algal growth still remain.

been made for the chlorination and regular bacteriological examination and chemical analysis of the water in both ponds. During 1928 a good deal of trouble arose as the result of excessive growth of algæ in the Llandaff pond, and, as a special measure, treatment with small quantities of copper sulphate was tried throughout the season. The forms of treatment and the results are set out on page 82. It will be seen that the results of treatment are fairly satisfactory from the public health standpoint, but æsthetically they fall far short of adequate measures for making the ponds attractive to bathers. No measures of this kind can be regarded as any substitute for such means as might be adopted for producing a water which would be at all times perfectly clear and sparkling.

1.—INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.

PREMISES.	Number of		
	Inspections	Written Notices	Prosecutions
Factories (including Factory Laundries)	1,311	75	...
Workshops (including Workshop Laundries)	2,076	121	...
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	487	31	...
Totals	3,874	227	...

2.—DEFECTS FOUND IN FACTORIES, WORKSHOPS AND WORKPLACES.

PARTICULARS	Number of Defects	
	Found	Remedied
Nuisances under the Public Health Acts :—		
Want of Cleanliness	191	190
Want of Ventilation	3	4
Overcrowding ... ..	...	...
Other Nuisances	56	62
Sanitary accommodation { insufficient	9	8
unsuitable or defective... ..	53	63
not separate for sexes	3	2
Breach of special sanitary requirements for bakehouses (Sec. 97 to 100) ... ..	...	...
Totals	315	329

3.—HOME WORK.

NATURE OF WORK	OUTWORKERS' LISTS, SECTION 107.							OUTWORK IN UNWHOLESOME PREMISES, Section 108		OUTWORK IN INFECTED PREMISES, Sections 109, 110	
	Lists received from Employers.						Notices served on Occupiers as to keeping or sending lists	In- stances	Notices served	In- stances	Orders made (S. 110)
	Sending twice in the year.			Sending once in the year							
	Outworkers			Outworkers							
	Lists	Con- tractors	Work- men	Lists	Con- tractors	Work- men					
Wearing Apparel—											
(1) Making, etc. ...	42	...	118	4	...	53	46	2	2	...	...
(2) Cleaning & washing	...	...	...	...	...	...	...	...	...	...	...

4.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the Year										Number
Bakers ...	...	...	...	...	...	...	...	...	...	126
Bootmakers ...	...	...	...	...	...	...	...	...	...	180
Dressmakers and Milliners	...	...	...	...	...	...	...	...	...	97
Laundries ...	...	...	...	...	...	...	...	...	...	48
Tailors ...	...	...	...	...	...	...	...	...	...	174
Miscellaneous...	...	...	...	...	...	...	...	...	...	491
Total Number of Workshops on Register										1,116

5.—OTHER MATTERS.

Class	Number
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (Sec. 133) ...	...
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts but not under the Factory Act :—	
Notified by H.M. Inspector ...	39
Reports (of action taken) sent to H.M. Inspector ...	41
Other (Notices of Occupation of Workshops received from H.M. Inspector) ...	51
Underground Bakehouses in use at the end of the year ...	1

SHOPS ACTS AND SANITARY INSPECTION OF SHOPS.

Closing Orders in operation	15
Observations of shops under Closing Orders	1,319
Observations of shops as to weekly half-holiday	3,890
Inspections of shops	1,413
Infringements of Shops Acts	76
Notices requiring sanitary defects to be remedied :—	
Served	82
Complied with	72

SUMMARY OF LEGAL PROCEEDINGS.

Acts, etc., under which Proceedings were taken	Number	Fined	Cautioned	To pay costs only	Dismissed	With-drawn	Amount of Fines and Costs
Shops Act, 1912	76	48	18	7	1	2	£ s. d. 11 6 6
Public Health Act, 1875 (Sec. 96)	6	...	...	6	...	...	3 15 0
Public Health Act, 1925 (Sec. 73)	1	1	...	...	...	...	0 5 0
Housing Act, 1925 (Sec. 3)	1	...	...	1	...	...	0 6 6
Totals	84	49	18	14	1	2	£15 13 0

DISINFECTION.

Houses disinfected	1,371
Articles of bedding, clothing, etc., disinfected ...	7,415
“ “ “ “ destroyed ...	184

CLEANSING STATION.

Baths for scabies, pediculosis, etc.	429
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MORTUARY.

Bodies admitted	67
(55 males and 12 females)	
Post-mortem examinations	19

APPENDIX I.

STATISTICAL TABLES OF BIRTHS, DEATHS,
COMMUNICABLE DISEASES, ETC.

TABLE I.

BIRTHS AND STILLBIRTHS REGISTERED IN AND BELONGING TO CARDIFF, 1928.

Municipal Wards	Legitimate				Illegitimate				Totals	
	Live		Dead		Live		Dead		Live	Dead
	M.	F.	M.	F.	M.	F.	M.	F.		
Central	114	109	10	7	7	7	...	1	237	18
South	143	132	9	8	6	2	...	...	283	17
Cathays	121	122	5	8	4	4	1	...	251	14
Adamsdown	165	152	10	7	8	9	1	2	334	20
Riverside	116	97	6	6	7	7	1	...	227	13
Canton	144	132	11	5	5	10	...	1	291	17
Grangetown	147	171	16	3	6	5	...	...	329	19
Roath	99	112	7	2	5	4	...	...	220	9
Plasnewydd	119	99	4	6	2	3	1	...	223	11
Splott	214	234	13	10	7	9	...	1	464	24
Penylan	97	85	6	5	...	3	...	1	185	12
Llandaff	333	291	10	10	6	5	1	2	635	23
Gabalfa	172	162	12	7	5	2	...	...	341	19
	1,984	1,898	119	84	68	70	5	8	4,020	216
Totals	3,882		203		138		13		...	...

TABLE II.

SUMMARY OF REGISTERED BIRTHS (LIVE) BELONGING TO CARDIFF.*

	Legitimate		Illegitimate		Totals
	Male	Female	Male	Female	
Registered in Cardiff	1,984	1,898	68	70	4,020
Transferred to Cardiff	28	15	4	1	48
Totals	2,012	1,913	72	71	4,068

* Compiled from detailed weekly returns supplied by the local Registrars of Births and Deaths, duly corrected for inward and outward transfers. The figures differ slightly from those supplied by the Registrar-General, viz., Males, 2,093; Females, 1,998; Total, 4,091.

TABLE III.

CAUSES OF AND AGES AT DEATH, 1928.*

CAUSES OF DEATH	ALL AGES			AGE PERIODS									
	M.	F.	Totals	Under 1 yr.	1-2 yrs.	2-5 yrs.	5-15 yrs.	15-25 yrs.	25-45 yrs.	45-65 yrs.	65-75 yrs.	75 yrs. and upwards	
Enteric Fever	2	...	2	...	...	...	...	1	...	1	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...	...	...	...	...
Measles	10	11	21	2	6	9	4	...	...	...	...	...
Scarlet Fever	1	1	2	...	...	2	...	...	...	...	...	...
Whooping Cough	14	14	28	15	8	5	...	...	...	...	...	...
Diphtheria	8	8	16	2	3	5	5	...	1	...	...	...
Influenza	22	20	42	2	...	1	...	3	9	11	8	8	
Encephalitis Lethargica ...	3	3	6	...	...	...	...	2	2	2	...	...
Meningococcal Meningitis ...	2	1	3	...	1	...	1	...	1	...	...	...
Tuberculosis of Respiratory System	122	107	229	1	1	2	7	56	106	51	5	...	
Other Tuberculous Diseases	24	22	46	5	2	7	8	11	4	6	1	2	
Cancer, Malignant Disease...	117	141	258	...	...	...	...	1	26	125	72	34
Rheumatic Fever	8	6	14	...	...	1	3	5	3	1	1	...
Diabetes	13	14	27	...	...	1	1	1	2	6	11	5
Cerebral Hæmorrhage, etc....	40	58	98	...	...	...	...	...	3	25	35	35
Heart Disease	216	190	406	...	...	...	7	11	41	134	121	92
Arterio-sclerosis	89	81	170	...	...	...	...	...	2	29	77	62
Bronchitis	106	67	173	15	5	...	...	...	6	40	38	69
Pneumonia (all forms) ...	120	70	190	49	21	6	4	4	23	45	25	13	
Other Respiratory Diseases	15	11	26	2	...	1	...	...	7	8	6	2
Ulcer of Stomach or Duo- denum	16	3	19	...	...	...	...	2	5	11	1	...
Diarrhœa, etc.	32	29	61	42	4	4	3	1	2	1	2	2	
Appendicitis and Typhlitis	11	5	16	...	...	...	1	5	3	7	...	...
Cirrhosis of Liver	6	4	10	...	...	...	...	...	...	6	4	...
Acute and Chronic Nephritis	73	45	118	1	...	...	3	1	12	49	30	22
Puerperal Sepsis ... ..	...	10	10	...	...	...	...	3	7	...	...	...
Other Accidents & Diseases of Pregnancy and Partu- rition ... ..	...	14	14	...	...	...	...	2	12	...	...	...
Congenital Debility and Mal- formation, Premature Birth	64	50	114	112	1	1	...	...	...	...	...	...
Suicide	24	5	29	...	...	...	...	3	4	22	...	...
Other Deaths from Violence	84	19	103	7	3	8	12	12	15	22	9	15	
Other Defined Diseases ...	232	177	409	60	8	5	12	12	54	95	72	91	
Causes ill-defined or un- known ... ..	...	...	...	...	...	...	...	...	...	...	...	...
Totals	1,474	1,186	2,660	315	63	58	71	136	350	697	518	452	
Included above :—													
Tuberculosis of Nervous System	7	7	14	3	2	4	5	...	...	...	...	...
Acute Poliomyelitis	1	...	1	...	...	1	...	...	...	...	...	...

* Compiled from figures supplied by the Registrar-General.

TABLE IV.

DEATHS FROM VARIOUS CAUSES UNDER ONE YEAR OF AGE, 1928.*

Causes of Death	Under 1 week	1—2 weeks	2—3 weeks	3—4 weeks	Total under 4 weeks	4 weeks —3 months	3—6 months	6—9 months	9—12 months	Totals
Measles ...	...	...	...	...	...	...	...	1	1	2
Whooping Cough ...	...	...	...	...	...	3	4	4	4	15
Diphtheria ...	...	...	...	...	...	1	...	...	1	2
Influenza ...	...	...	...	...	...	...	...	1	1	2
Tuberculosis of Nervous System	...	...	...	...	...	...	1	1	...	2
Tuberculosis of Intestines and Peritoneum ...	...	...	...	...	...	...	1	...	...	1
Other Tuberculous Diseases ...	...	...	...	...	...	...	1	1	1	3
Syphilis ...	...	...	...	...	...	1	2	2	...	5
Meningitis ...	...	...	1	...	1	...	...	2	2	5
Convulsions ...	...	1	1	...	2	1	2	1	...	6
Bronchitis ...	...	1	2	2	5	5	2	2	1	15
Pneumonia ...	...	2	1	2	5	9	13	14	10	51
Other Respiratory Diseases ...	...	...	...	...	...	...	...	...	3	3
Inflammation of the Stomach ...	...	...	...	...	...	1	...	1	...	2
Diarrhœa and Enteritis ...	1	1	...	3	5	15	15	11	2	48
Hernia, Intestinal Obstruction	1	...	...	...	1	...	...	1	...	2
Congenital Malformations ...	12	1	1	2	16	6	1	...	...	23
Congenital Debility & Sclerema	4	1	4	1	10	5	2	2	...	19
Icterus ...	1	1	...	...	2	...	...	...	...	2
Premature Birth ...	50	5	3	5	63	3	1	...	...	67
Injury at Birth ...	2	...	...	...	2	...	...	...	...	2
Disease of Umbilicus ...	2	1	1	...	4	...	...	...	...	4
Atelectasis ...	8	...	...	...	8	1	...	...	...	9
Suffocation in Bed, and not stated ...	...	...	...	1	1	1	...	...	...	2
Other Causes ...	3	1	1	...	5	9	7	2	1	24
Totals ...	84	15	15	16	130	61	52	46	27	316
Percentage of Total Deaths under one year ...	26·6	4·7	4·7	5·1	41·1	19·3	16·5	14·6	8·5	100

Deaths of:—

Legitimate Infants ... 295

Illegitimate Infants ... 21

* Compiled from weekly returns supplied by the local Registrars of Births and Deaths, duly corrected for inward and outward transfers.

TABLE V.

ANALYSIS OF AREA, POPULATION, BIRTHS, DEATHS, DEATHS UNDER ONE YEAR, AND DEATHS FROM CERTAIN CAUSES, TOGETHER
WITH BIRTH- AND DEATH-RATES PER 1,000 IN THE WHOLE CITY AND IN MUNICIPAL WARDS, 1928.*

Localities	Area: Estimated Acres	Live Births			Deaths: All Causes			Deaths under One Year			Deaths from Zymotic Diseases, Tuberculosis, Influenza, and Respiratory Diseases.																				
		Number	Birth-rate	Number	Death-rate	Number	Number per 1,000 births	Enteric Fever		Measles		Scarlet Fever		Whooping Cough		Diphtheria		Diarrhoea, etc. (under 2 years)		Tuberculosis: Respiratory		Tuberculosis: Other Forms		Influenza		Respiratory Diseases					
								Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate	Number	Death-rate		
Central Lodging Houses, etc. ...	535	237	16.9	208	17.7	24	101	...	...	...	0.14	...	...	...	...	0.14	2	...	...	0.14	5	21.1	17	1.50	4	...	0.28	1	0.07	41	3.56
South Lodging Houses, etc. ...	1,073	283	20.5	189	14.0	30	106	...	...	...	...	...	...	...	...	0.22	1	...	...	0.07	3	10.6	21	1.59	2	...	0.14	5	...	32	2.39
Cathays ...	338	251	12.9	210	10.8	20	80	...	...	...	0.05	...	...	...	...	0.10	2	...	...	0.10	2	7.9	13	0.67	5	...	0.26	5	...	1	1.80
Adamsdown Lodging Houses, etc. ...	1,320	334	25.3	235	19.9	24	72	...	...	...	0.23	...	...	...	...	0.07	...	...	...	...	3	9.0	23	2.35	4	...	0.53	3	...	42	3.49
Riverside ...	320	227	13.8	211	12.8	15	66	...	...	...	0.06	...	...	...	...	0.06	...	...	...	...	4	17.6	17	1.03	2	...	0.12	2	...	29	1.76
Canton ...	247	291	16.1	202	11.2	24	82	...	...	...	...	...	...	...	...	0.22	1	...	...	0.05	7	24.0	15	0.83	4	...	0.22	1	...	29	1.61
Grangetown ...	949	329	21.5	190	12.4	31	94	...	...	...	0.13	...	...	...	...	0.13	4	...	...	0.26	8	24.3	20	1.31	1	...	0.06	1	...	31	2.02
Roath ...	754	220	12.9	170	9.9	19	86	...	...	...	0.06	...	...	...	...	0.17	...	...	...	...	3	13.6	12	0.70	3	...	0.17	4	...	21	1.23
Plasnewydd ...	233	223	14.0	164	10.3	13	58	...	...	...	0.06	...	...	...	...	...	...	...	...	...	1	4.5	11	0.69	2	...	0.12	4	...	21	1.31
Sploitt ...	1,912	464	22.9	233	11.5	25	54	...	...	...	0.14	...	...	...	...	0.20	1	...	...	0.05	5	10.8	27	1.33	3	...	0.14	9	...	47	2.32
Penylan ...	1,765	185	12.1	138	9.0	12	65	...	...	...	...	...	...	...	...	0.06	...	...	...	...	9	...	9	0.59	4	...	0.26	2	...	14	0.91
Llandaff ...	2,719	635	26.4	239	9.9	58	91	...	...	...	0.16	...	...	...	...	0.08	3	...	...	0.12	10	15.7	19	0.79	5	...	0.21	...	...	36	1.50
Gabalfa ...	1,463	341	18.8	158	8.7	20	55	...	...	...	0.11	...	...	...	...	0.16	2	...	...	0.11	1	2.9	11	0.60	2	...	0.11	5	...	21	1.16
Institutions, etc. ...	...	48	...	38	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	11	...
Cardiff ...	13,628	4,068	17.9	2,659	11.7	316	77	2	0.01	20	0.09	2	0.01	28	0.12	16	0.07	52	12.8	230	1.01	46	0.20	43	0.19	425	1.87	...	...	...	...

* The statistics of births and deaths are compiled from weekly returns supplied by the local Registrars of Births and Deaths, duly corrected for inward and outward transfers.

TABLE VI.

NOTIFIED CASES OF ACUTE COMMUNICABLE DISEASES BY AGE AND SEX, 1928.

Disease	Under 1 year		1—2 years		2—3 years		3—4 years		4—5 years		5—10 years		10—15 years		15—20 years		20—25 years		25—35 years		35—45 years		45—65 years		65 years and over		All Ages			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Totals	
Smallpox	1	...	3	1	...	2	...	1	1	1	...	1	...	...	...	7	5	12		
Scarlet Fever	...	2	2	6	6	1	6	8	8	22	63	75	12	21	4	8	4	4	3	5	2	...	...	1	...	...	110	153	263
Diphtheria	...	5	7	7	12	15	20	20	19	29	94	119	24	33	13	19	7	9	2	10	4	10	...	3	1	...	208	279	487	
Enteric Fever	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	
Pneumonia	...	5	9	4	7	13	9	11	4	2	4	20	11	3	6	10	3	6	4	22	15	17	15	33	16	7	11	153	114	267
Puerperal Fever	5	...	3	...	17	...	7	...	...	...	...	...	32	32	
Puerperal Pyrexia	2	...	19	...	24	...	8	...	...	...	...	...	53	53	
Cerebro-Spinal Fever	1	...	...	...	...	1	2	...	...	...	...	1	...	1	...	...	...	...	...	...	...	3	3	6	
Acute Poliomyelitis	2	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	5	
Encephalitis Lethargica	2	1	...	...	...	...	1	1	...	1	...	...	3	3	6	
Dysentery	2	...	1	...	...	...	2	1	3	
Ophthalmia Neonatorum	...	29	28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29	28	57
Erysipelas	...	2	...	...	1	1	1	...	...	1	1	...	1	...	...	4	1	2	...	4	7	5	7	12	7	5	28	34	62
Malaria	2	...	...	...	1	...	...	...	...	...	3	...	3	
Chickenpox	...	36	33	38	48	61	60	68	63	143	131	651	553	40	72	6	8	5	4	4	...	1	...	...	...	...	1,053	976	2,029

TABLE VII.

NOTIFIED CASES OF ACUTE COMMUNICABLE DISEASES IN MUNICIPAL WARDS AND CASES REMOVED TO HOSPITAL, 1928.

Municipal Wards	Smallpox	Scarlet Fever	Diphtheria	Enteric Fever	Pneumonia	Puerperal Fever	Puerperal Pyrexia	Cerebro-Spinal Fever	Acute Poliomyelitis	Encephalitis Lethargica	Dysentery	Ophthalmia Neonatorum	Erysipelas	Malaria	Chicken-pox
Central ...	1	18	20	...	24	...	...	...	...	...	...	3	1	...	166
South ...	...	8	17	...	9	1	1	...	...	1	...	3	3	...	114
Cathays ...	1	22	38	...	31	2	5	1	...	...	...	1	8	...	183
Adamsdown ...	...	6	15	...	12	3	6	...	...	...	2	6	5	...	91
Riverside ...	1	21	17	...	16	2	3	1	...	1	...	3	2	...	67
Canton ...	...	26	36	...	17	1	1	...	...	1	...	3	6	...	84
Grangetown ...	6	21	22	...	7	1	5	...	1	...	...	10	7	...	104
Roath ...	1	9	25	...	19	1	2	...	...	...	...	3	1	...	133
Plasnewydd ...	...	12	20	...	28	3	3	...	1	2	...	4	3	1	155
Splott ...	...	11	36	...	29	5	4	1	2	1	...	5	2	...	205
Penylan ...	...	6	25	...	20	...	1	...	...	...	...	...	6	...	175
Llandaff ...	1	45	135	...	16	2	7	...	...	...	...	9	4	...	366
Gabalfa ...	...	45	56	2	20	4	7	1	1	...	1	4	8	...	177
Institutions ...	1	13	25	...	19	7	8	2	...	...	...	3	6	2	9
TOTALS ...	12	263	487	2	267	32	53	6	5	6	3	57	62	3	2,029
Cases removed to Hospital	12	230	450	2	8	9	2	5	1	2	...	...	12	1	23

APPENDIX II.

METEOROLOGICAL OBSERVATIONS TAKEN AT PENYLAN,
CARDIFF, DURING 1928.

TABLE I.

BAROMETRIC PRESSURE AND RELATIVE HUMIDITY

Month	Attached Thermo- meter (Mean)	Mean Barometric Pressure*		Hygrometer*		
		Uncorrected	Reduced to Mean Sea Level and Temp. 32° F.	Dry Bulb (Mean)	Wet Bulb (Mean)	Mean Relative Humidity
	°F.	Inches	Inches	°F.	°F.	%
January	44	29.680	29.896	42.2	41.0	92
February	45	29.877	30.092	42.2	40.8	88
March	46	29.564	29.774	42.0	40.6	88
April	50	29.598	29.797	46.9	44.2	81
May	56	29.766	29.946	52.4	48.8	76
June	60	29.771	29.938	55.8	52.4	79
July	64	29.971	30.126	60.2	56.9	80
August	63	29.800	29.957	59.2	56.4	83
September	62	29.983	30.147	55.7	52.8	81
October	55	29.640	29.822	51.6	49.7	86
November	50	29.618	29.817	46.7	45.0	87
December	44	29.822	30.042	38.8	37.7	89
Means	53	29.757	29.946	49.4	47.2	85

* From observations at 9 a.m. and 9 p.m.

TABLE II.

TEMPERATURE.

Month	Absolute Maximum	Absolute Minimum	Mean of Maximum	Mean of Minimum	Mean Temperature	Difference from Average (39 years)
	°F.	°F.	°F.	°F.	°F.	°F.
January	52	19	47.6	36.6	42.2	+ 2.3
February	53	31	48.3	37.6	42.9	+ 2.5
March	62	18	48.1	37.1	42.6	+ 0.2
April	69	31	54.7	40.9	47.8	+ 1.4
May	75	34	60.7	45.3	53.0	+ 0.2
June	72	41	63.0	49.1	56.1	- 1.1
July	77	45	68.6	53.8	61.3	+ 0.5
August	76	46	66.7	53.3	60.0	- 0.2
September	77	41	63.7	48.0	55.9	- 0.3
October	66	34	57.4	45.9	51.7	+ 1.4
November	57	31	51.3	42.8	47.1	+ 3.1
December	54	24	43.9	34.3	39.2	- 1.7
	77	18	56.1	43.7	49.9	+ 0.6

TABLE III.

TERRESTRIAL RADIATION, UNDERGROUND TEMPERATURE, SOLAR RADIATION
AND SUNSHINE.

Month.	Temperatures				Bright Sunshine	
	Grass Minimum (Mean)	Underground (Mean)		Solar Maximum (Mean)	Total Duration	Difference from Average (20 years)
		1ft.	4ft.			
	°F.	°F.	°F.	°F.	Hours	Hours
January ...	31.5	39.9	43.4	68.4	65.1	+ 14.4
February ...	33.8	41.6	43.7	73.4	84.0	+ 10.8
March ...	33.8	43.1	44.4	85.6	80.2	— 31.9
April ...	36.2	47.6	46.7	106.8	156.3	— 18.1
May ...	40.4	54.2	50.7	115.4	172.7	— 39.9
June ...	45.8	59.0	54.6	120.9	196.2	— 24.6
July ...	49.5	62.6	57.6	122.0	241.9	+ 35.5
August ...	49.5	61.5	59.0	120.1	188.0	+ 3.1
September ...	42.7	58.5	58.6	112.5	197.4	+ 54.3
October ...	42.0	52.2	54.8	94.8	122.4	+ 17.1
November ...	40.0	47.4	51.2	79.7	72.9	+ 5.7
December ...	30.5	40.9	46.9	61.2	49.3	— 0.1
	39.6	50.7	50.9	96.7	1,626.4*	+ 26.3

* 36.8% of possible duration and a daily average of 4.44 hours

TABLE IV.

RAINFALL.

Month.	Total	Difference from Average (39 years)	Greatest Fall in 24 hours.*		Number of Rain-days (0.01 inch or more)
			Amount	Day	
	Inches	Inches	Inches		
January ...	9.07	+ 5.20	1.27	1st	27
February ...	4.79	+ 1.71	.98	4th	18
March ...	4.42	+ 1.30	.80	29th	21
April ...	1.40	— 1.26	.35	14th	14
May ...	0.94	— 1.59	.43	5th	9
June ...	2.68	+ 0.05	.66	6th	21
July ...	2.44	— 0.45	.67	31st	11
August ...	3.98	— 0.27	.66	27th	17
September ...	0.70	— 2.47	.20	28th	8
October ...	7.48	+ 2.65	.88	26th	25
November ...	4.83	+ 1.26	.79	15th	21
December ...	4.77	+ 0.20	1.24	27th	18
	47.50	+ 6.33	1.27	1st Jan.	210

* 24 hours ended 9 a.m. next day.

APPENDIX III.

ATMOSPHERIC POLLUTION.

OBSERVATIONS MADE IN CARDIFF DURING 1928.

Month	Rain-fall (mm.)	Grammes per Square Dekametre (Metric Tons per Hundred Square Kilometres).								
		Insoluble Matter			Soluble Matter		Total Solids	Included in Soluble Matter		
		Tar	Carbon-aceous other than Tar	Ash	Loss on Ignition	Ash		Sulphates (SO ₃)	Chlorine (Cl)	Ammonia (NH ₃)
January ...	217	12	156	186	258	566	1,178	259	159	3
February ...	98	10	103	197	107	282	699	118	74	1
March ...	140	11	238	303	172	383	1,107	179	89	4
April ...	42	9	156	231	128	104	628	44	23	3
May ...	15	7	125	211	52	59	454	27	9	0
June ...	62	5	112	148	100	143	508	60	23	0
July ...	63	5	65	113	63	152	398	44	24	0
August ...	99	7	121	186	84	217	615	54	54	0
September ...	20	5	82	144	55	110	396	36	16	0
October ...	165	7	116	154	130	306	713	93	85	1
November ...	107	9	149	184	182	701	1,225	125	298	0
December ...	121	12	189	258	97	277	833	92	56	1
Total ...	1,149	99	1,612	2,315	1,428	3,300	8,754	1,131	910	13
Mean ...	96	8	134	193	119	275	729	94	76	1

COMPARISON OF OBSERVATIONS AT CARDIFF WITH THOSE AT OTHER PLACES
FOR WHICH THE RECORDS ARE AVAILABLE THROUGHOUT
THE YEAR 1928.

	Rainfall (mm)		Grammes per Square Dekametre (Metric Tons per Hundred Square Kilometres).							
			Insoluble Matter		Soluble Matter			Total Solids		
	Total during year	Monthly Mean	Total during year	Monthly Mean	Total during year	Monthly Mean	Total during year	Monthly Mean	Total during year	Monthly Mean
Birmingham— West Heath ...	725	60	1,904	158	2,673	223	4,577	381		
CARDIFF ...	1,149	96	4,026	335	4,728	394	8,754	729		
Newcastle-on-Tyne— City Road ...	679	57	24,733	2,061	8,059	672	32,792	2,733		
Southport— Hesketh Park ...	1,112	93	2,153	179	4,247	354	6,400	533		
Stoke-on-Trent ...	847	71	5,528	461	3,579	298	9,107	759		
Wakefield— Clarence Park ...	838	70	2,385	199	4,986	415	7,371	614		

ULTRA-VIOLET RADIATION.

OBSERVATIONS MADE IN CARDIFF (PENYLAN) DURING 1928.

						Mean Daily Radiation Units.*
January ...	...	...	...	...	...	0.6
February ...	...	...	...	...	...	0.8
March ...	...	...	...	...	...	1.2
April ...	...	...	...	...	...	2.2
May ...	...	...	...	...	...	3.9
June ...	...	...	...	...	...	4.8
July ...	...	...	...	...	...	5.2
August ...	...	...	...	...	...	3.8
September ...	...	...	...	...	...	3.9
October ...	...	...	...	...	...	3.0
November ...	...	...	...	...	...	1.6
December ...	...	...	...	...	...	1.0

COMPARISON OF OBSERVATIONS MADE AT CARDIFF WITH THOSE AT
OTHER PLACES FOR WHICH THE RECORDS ARE AVAILABLE
THROUGHOUT PART OF THE YEAR 1928.

			Total Radiation Units.*							
			May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
CARDIFF ...	...	...	121	144	161	118	117	93	48	31
† London—										
Kingsway ...	...	...	50	90	212	134	72	27	11	5
Hampstead ...	...	...	146	204	491	316	183	59	27	15
† Hull—										
Central ...	...	...	54	66	85	65	46	20	13	6
Surburban ...	...	...	52	77	98	81	61	28	13	6

* Acetone-Methylene Blue standard.

† Records complete only from May, 1928.

APPENDIX IV.

WELFARE OF THE BLIND.

REGISTRATION AS AT 31ST DECEMBER, 1928.

TABLE I.

Age Period—Years.						Males.		Females.		Totals.
0—5	...	...	...	...	...	—	...	—	...	—
5—16	...	...	...	...	...	12	...	4	...	16
16—21	...	...	...	...	...	6	...	2	...	8
21—30	...	...	...	...	...	13	...	20	...	33
30—40	...	...	...	...	...	25	...	18	...	43
40—50	...	...	...	...	...	35	...	28	...	63
50—60	...	...	...	...	...	40	...	24	...	64
60—70	...	...	...	...	...	46	...	33	...	79
70—	...	...	...	...	...	47	...	39	...	86
Totals	...	...	...	...	...	224	...	168	...	392

TABLE II.

AGES AT WHICH BLINDNESS OCCURRED.

Age Period—Years.						Males.		Females.		Totals.
0—1	...	...	...	...	...	43	...	31	...	74
1—5	...	...	...	...	...	8	...	12	...	20
5—10	...	...	...	...	...	15	...	11	...	26
10—20	...	...	...	...	...	9	...	11	...	20
20—30	...	...	...	...	...	20	...	15	...	35
30—40	...	...	...	...	...	23	...	10	...	33
40—50	...	...	...	...	...	21	...	20	...	41
50—60	...	...	...	...	...	35	...	29	...	64
60—70	...	...	...	...	...	29	...	20	...	49
70—	...	...	...	...	...	21	...	9	...	30
Totals	...	...	...	...	...	224	...	168	...	392

TABLE III.

(a) EMPLOYMENT—Age Period 16 and upwards.

						Males.		Females.		Totals.
Employed	...	...	...	...	...	83	...	31	...	114
Trained but unemployed	...	...	...	...	...	1	...	—	...	1
Under training	...	...	...	...	...	22	...	8	...	30
No training but trainable	...	...	...	...	...	—	...	—	...	—
Unemployable	...	...	...	...	...	109	...	126	...	235
Totals	...	...	...	...	...	215	...	165	...	380

(b) OCCUPATIONS OF EMPLOYED.

Agents, Collectors, etc. ...	...	...	...	...	5
Basket and Cane Workers...	...	...	...	...	40
Boot Repairers ...	...	...	...	...	3
Dealers (Tea Agents, Shop-keepers, etc.)	...	...	...	...	4
Hawkers ...	...	...	...	...	1
Home Teachers ...	...	...	...	...	2
Knitters ...	...	...	...	...	7
Labourers ...	...	...	...	...	1
Musicians and Music Teachers	...	...	...	...	2
Mat Makers ...	...	...	...	...	14
Newsvendors ...	...	...	...	...	3
School Teachers ...	...	...	...	...	2
Tuners ...	...	...	...	...	8
Miscellaneous ...	...	...	...	...	22
Total ...					114

TABLE IV.

PHYSICALLY AND MENTALLY DEFECTIVE.

			Males.		Females.		Totals.
(a) Mentally Defective*	...	...	11	...	7	...	18
(b) Physically Defective	...	...	13	...	10	...	23
(c) Deaf ...	...	...	18	...	19	...	37
Combinations of (a), (b) and (c)	...	...	—	...	4	...	4
Totals	...	...	42	...	40	...	82

TABLE V.

SCHOOL AGE PERIOD (5-16) ACCORDING TO MENTAL OR
PHYSICAL DEFECTS.

				Males.		Females.		Totals.
At School :—								
Normal ...	...	...	...	12	...	3	...	15
Physically Defective	...	...	...	—	...	—	...	—
Not at School :—								
Normal ...	...	...	...	—	...	1	...	1
Physically Defective	...	...	...	—	...	—	...	—
Totals	...	...	...	12	...	4	...	16

* Including persons suffering from epilepsy, fits and serious nervous disability.

PORT SANITARY SERVICE.

Section 1.

TRAFFIC AT THE PORT.

The following tables give particulars of vessels and tonnage, foreign and coastwise, entering the Cardiff Port Sanitary District (including Penarth), compiled partly from the records of the Department and partly from information kindly supplied by H.M. Collector of Customs, and show the number of vessels inspected, the number found defective, their nationality, etc.

NUMBER OF ARRIVALS OF VESSELS AND TONNAGE.

Years	NUMBER OF ARRIVALS			TONNAGE		
	Foreign	Coastwise*	TOTALS	Foreign	Coastwise	TOTALS
1901-10 (mean)	2,741	8,982	11,723	3,206,425	3,072,287	6,278,712
1911-20 (")	3,433	6,823	10,256	3,674,015	3,272,709	6,946,724
1921	1,656	5,042	6,698	2,066,973	1,689,474	3,756,447
1922	2,818	5,356	8,174	3,437,294	2,342,461	5,779,755
1923	3,282	5,026	8,308	3,961,631	2,343,827	6,305,458
1924	3,424	5,145	8,569	3,689,057	2,352,124	6,041,181
1925	3,405	4,686	8,091	3,399,249	1,920,546	5,319,795
1926	2,204	3,517	5,721	2,208,168	1,218,551	3,426,719
1927	3,451	5,847	9,298	3,593,633	3,013,405	6,607,038
1928	3,205†	4,530	7,735	3,389,525†	1,695,890	5,085,415

DETAILS OF VESSELS INSPECTED.

		Number	Tonnage	Number Inspected by		Number reported defective	Number of Vessels on which defects were remedied
				Medical Officer	Sanitary Inspector		
Foreign	{ Steamers ...	2,472	3,242,700	152	2,472	530	518
	{ Motor ...	75	31,870	2	75	1	1
	{ Sailing ...	248	23,705	...	248	4	4
	{ Fishing ...	417	46,804	...	417	...	...
	Total Foreign...	3,212†	3,345,079†	154	3,212	535	523
Coastwise	{ Steamers ...	2,334	1,472,523	54	2,334	167	153
	{ Motor ...	233	21,738	1	233	1	1
	{ Sailing ...	205	12,814	...	205	...	...
	{ Fishing ...	...	...	...	...	...	...
	Total Coastwise	2,772	1,507,075	55	2,772	168	154
Total Foreign and Coastwise ...		5,984	4,852,154	209	5,984	703	677

* Including tugboats, sand barges, pleasure steamers, etc.

† Figures in the first table supplied by H.M. Collector of Customs; those in the second table compiled from records of the Port Sanitary Department.

NUMBER OF VESSELS DEALT WITH BY THE DEPARTMENT MONTHLY.

Month.					Foreign	Coastwise	Totals.
January	...	...	...	...	271	237	508
February	...	...	...	...	248	247	495
March	...	...	...	...	259	274	533
April	...	...	...	...	273	246	519
May	...	...	...	...	270	253	523
June	...	...	...	...	293	203	496
July	...	...	...	...	310	229	539
August	...	...	...	...	269	245	514
September	...	...	...	...	267	200	467
October	...	...	...	...	262	218	480
November	...	...	...	...	252	211	463
December	...	...	...	...	238	209	447
Totals					3,212	2,772	5,984

NATIONALITY OF VESSELS DEALT WITH BY THE DEPARTMENT.

Nationality.				Steam	Motor	Sailing	Totals.
American	...	...	...	19	...	...	19
Argentine	...	...	...	...	...	2	2
Belgian	...	...	...	24	1	...	25
British	...	...	...	3,871	279	220	4,370
Chilean	...	...	...	1	...	...	1
Danish	...	...	...	94	2	...	96
Dutch	...	...	...	49	3	...	52
Esthonian	...	...	...	5	...	...	5
Finnish	...	...	...	2	...	1	3
French	...	...	...	387	16	230	633
German	...	...	...	45	1	...	46
Greek	...	...	...	143	...	...	143
Italian	...	...	...	68	1	...	69
Japanese	...	...	...	2	...	...	2
Latvian	...	...	...	8	1	...	9
Norwegian	...	...	...	215	3	...	218
Peruvian	...	...	...	1	...	...	1
Portuguese	...	...	...	7	...	...	7
Roumanian	...	...	...	8	...	...	8
Russian	...	...	...	6	...	...	6
Spanish	...	...	...	164	...	...	164
Swedish	...	...	...	85	1	...	86
Yugo-Slavonic	...	...	...	19	...	...	19
Totals				5,223	308	453	5,984

IMPORTS AND EXPORTS.

Years.	Imports (tons and loads)	Exports (tons)
1911-20 (mean)	1,879,138	12,372,330
1921	1,043,000	5,912,485
1922	1,561,622	10,659,227
1923	2,183,601	12,610,305
1924	2,141,486	11,367,604
1925	1,940,836	9,798,810
1926	2,003,654	4,358,411
1927	2,073,680	10,188,499
1928	1,730,940	8,970,143

COUNTRIES TRADING WITH CARDIFF AND NATURE OF TRADE.

Country.	Imports.	Country.	Exports.
Spain ...	Iron ore, pitwood, wine, onions and fruit.	All countries and local ports.	Coal. Coke. Patent fuel. Flour. Iron and steel rails and ironwork. General merchandise.
France ...	Pitwood, potatoes, wine, apples, onions and canned goods.		
Canada ...	Grain, flour, fruit, dairy produce, canned goods, sugar, timber and cattle.		
U.S. America ...	Grain, flour, fruit, dairy produce and canned goods.		
Australia ...	Grain, frozen meat, canned goods and dairy produce.		
Ireland ...	Grain, pitwood, potatoes, canned goods, stout, dairy produce and burnt ore.		
Local ports ...	Grain, flour, canned goods, dairy produce, burnt ore and pitch.		
North Africa ...	Iron ore.		
Baltic ports ...	Timber.		
Portugal ...	Pitwood, fruit and wine.		
River Plate ...	Frozen meat and grain.		

Passenger Traffic.—The number of inward passengers during 1928 was 1,308. Of these, 1,158 came on two vessels from U.S.A. and Canada to attend conferences; the remaining 150 came on cargo boats. The number of outward passengers was 149; these were persons who travelled to Hamburg, returning to Cardiff via Southampton.

Section 2.

PREVENTION OF INFECTIOUS DISEASES.

The tables in this section show, in accordance with the requirements of the Ministry of Health, the occurrence of cases of sickness of all kinds on board ships, arriving or otherwise dealt with by the port sanitary staff, as well as those which definitely fall into the category of infections.

These cases are reported to the inspectors who board every vessel arriving. Warning messages are sometimes received from Lloyd's signal stations at Barry Island and Penarth, but there is no arrangement for receiving wireless intimations of approaching infectious disease. The nearest receiving station for wireless messages is Milford Haven, over one hundred miles distant.

Enquiries have continued as to the number of vessels carrying wireless installations, and these are shown in the following table:—

	Vessels arriving		Totals
	Foreign	Coastwise	
With Wireless ...	1,320	423	1,743
Without Wireless ...	359	208	567
Totals ...	1,679	631	2,310

NOTE.—These figures do not include vessels under 500 tons N.R.T.

Thirty-one cases of infectious sickness were landed from 28 vessels during the year, classified as follows:—

Disease	Cases	Average number of cases for last 5 years
Chickenpox ...	...	0.2
Diphtheria ...	1	1.8
Dysentery ...	...	1.2
Erysipelas ...	2	1.2
Malaria ...	6	14.4
Pneumonia, Influenzal ...	...	0.6
Pneumonia, Primary ...	7	3.2
Scarlet Fever ...	...	0.2
Tuberculosis ...	10	7.2
Typhoid Fever ...	5	3.4

In addition to the foregoing 31 cases, a number of seafaring men suffering from infectious diseases were dealt with by the port sanitary staff, who were ascertained after inquiry to fall properly within the province of urban administration. The following 27 cases were referred for this reason to their respective districts:—

Disease	Cardiff City	Barry
Dysentery ...	1	1
Malaria ...	2	...
Pneumonia ...	2	3
Scarlet Fever ...	1	...
Tuberculosis ...	11	6
Totals ...	17	10

On 22nd December, 1928, a case of diphtheria was notified from the s.s. "Stanja," and the patient was removed to the City Isolation Hospital. On the same day the throats of 19 members of the crew were swabbed; on bacteriological examination one swab proved to be positive for diphtheria bacilli, and the carrier concerned was removed to the City Isolation Hospital on 23rd December.

Fifty-four cases of infectious sickness occurred on 25 vessels during the voyage but were disposed of prior to arrival. The following were the diseases concerned:—

Disease	Cases	Average number of cases for last 5 years
Smallpox	1	2.6
Diphtheria	1	0.2
Dysentery	12	6.6
Malaria	25	17.6
Pneumonia, Primary	4	3.6
Tuberculosis	6	6.4
Typhoid Fever	5	3.8

Disinfection.—Infected quarters on board vessels are fumigated by the Port Sanitary Authority. Bedding, clothing and effects are removed to the City Disinfecting Station, and are disinfected by steam. Articles of clothing to the number of 342 were disinfected during the year, and 3,072 verminous or infected beds were destroyed.

Hospital Accommodation.—The hospital at Flat Holm Island, where accommodation is provided for sixteen patients suffering from cholera, yellow fever or plague, and for staff, administration, cremation, etc., has not been in use during the year. It has, however, been kept in good order and readiness for use in any emergency. Cases of infectious disease other than cholera, yellow fever, plague or smallpox arriving at the port are conveyed in the port sanitary motor ambulance to the City Isolation Hospital. Usually cases of malaria are treated at the Royal Hamadryad Seamen's Hospital. Routine throat swabbing of the crew is practised when a case of diphtheria is discovered on arrival, the swabs being examined at the Cardiff and County Public Health Laboratory. Members of the crew giving positive swabs are usually removed to the City Isolation Hospital. Cases of smallpox are removed to the Cardiff Smallpox Hospital, and contacts are at once vaccinated or revaccinated and kept under observation for the necessary period. When members of a ship's crew suspected to have been in contact with infectious disease are paid off at Cardiff they are supervised at their lodgings ashore. Information is sent to the responsible local authorities should any of the crew leave Cardiff.

Prevention and Treatment of Venereal Diseases.—The work of the venereal disease clinic at the Royal Hamadryad Seamen's Hospital is mentioned here, although it ranks for grant under the venereal disease scheme and not as a part of port sanitary administration. The clinic is strictly confined to *bona fide* seafaring men, and there is therefore close co-operation between the clinic and the Port Sanitary Department.

NUMBER OF CASES DEALT WITH AT THE SEAMEN'S CLINIC SINCE
THE COMMENCEMENT.

Years	Number of Persons Attending for the First Time	Total Attendances	Aggregate Number of In-patient Days
16th April, 1917	572	7,191	2,692
1918	790	4,361	5,297
1919	972	17,040	6,281
1920	1,234	12,872	4,679
1921	868	12,242	3,352
1922	786	12,856	3,775
1923	821	13,704	3,722
1924	615	16,212	2,697
1925	616	16,008	3,104
1926	565	12,702	2,536
1927	640	13,995	2,426
1928	646	15,437	3,195

Forty-three cases of venereal disease were reported to inspectors and recommended for specialist treatment. Leaflets in various languages relating to the treatment centre are distributed by the inspectors on arrival of vessels.

Scabies.—During the year thirty-eight cases of scabies amongst seamen were treated at the Corporation Cleansing and Disinfecting Station.

Bugs.—Vigorous action is taken for the eradication of bugs, which are a constant source of irritation and discomfort in the crew quarters. Two hundred and forty-four vessels were reported as being verminous, and upon inspection being made notices were served on the masters requiring them to take steps to eradicate the bugs. In most cases berths, etc., were sprayed with a vermicide, and in others in which there was no time for action supplies of vermicide were taken to sea. On the return of the vessels investigation was made as to the results, and in most cases these have been satisfactory. In cases where the results have been unsatisfactory it has been found that the spray had not been used efficiently or with sufficient frequency.

Measures against Rodents.—The steps taken for the detection of rodent plague are as follows:—Rats caught by the rat-catcher in ships and on quays, wharves, in warehouses, etc., and rats found dead after fumigation of vessels are submitted to the Cardiff and County Public Health Laboratory for examination for the detection of plague. During the year 1,414 rats were submitted for such examination, viz., 1,003 caught in ships, 118 caught in warehouses, etc., and 293 from ships after fumigation. Eight hundred and ninety-nine rats (included in the number examined for the detection of plague) were submitted to the Department of Zoology of the National Museum of Wales for identification and classification (*vide* report by Mr. Colin Matheson, M.A., B.Sc., Keeper of Zoology, page 107).

Quays, wharves, warehouses, etc., in the vicinity of the port are visited weekly by inspectors with a view to the discovery of places infested with rats. To prevent the passage of rats between ships and the shore, rat-guards are fixed on mooring ropes; the head and foot of gangways and the ropes are tarred, and gangways are raised at night-time where possible.

The methods of deratisation of ships are trapping, poison baits, and fumigation. The dock owners employ men for laying poison baits around the docks. Baits are also laid continuously by firms occupying premises at the docks. This work is carried out under the supervision of port sanitary inspectors who visit all such premises weekly. Rat poison (barium carbonate) is sold at cost price by the Department, the amount sold during the year being 22 lb.

When the existence of rats on board ship is reported to the boarding inspector on arrival, the report is followed up by a day inspector. If the existence of rats is confirmed, notices are served under the Rats and Mice (Destruction) Act, 1919, and, if the vessel has come from a plague-infected area, fumigation is urged unless inspection reveals the fact that the vessel is free from rat-infestation. Sixty-three notices were served under the Act during the year, and 15 letters were written to masters in cases where notices were not served. Day inspectors also inspect ships for rats regardless of reports as to rat infestation, and ships are often found to be badly infested although masters have stated that they are not so. When premises in the vicinity of the docks are reported to be infested, an inspector visits and indicates to the responsible occupier the best means of eradicating the rats.

Widespread adoption of the International Sanitary Convention of 1926 led to a very great increase in the work of rat destruction toward the end of the year, as the tables on page 106 reveal. Altogether, 74 vessels were fumigated and 35 internationally recognised certificates issued, as well as 4 exemption certificates, compared with 28 vessels fumigated and 20 certificates according to the requirements of the American Government in 1927. The time devoted to this work has been given partly to the detriment of routine shipping inspections.

In most instances warehouses are reasonably rat-proof, with concrete floors, iron doors, etc. Wharves with large amounts of pitwood and timber of course afford harbourage for rats, and poison baits are laid around the stacks of timber, etc.

Masters of vessels are advised as to practical means of rat-proofing when their vessels are undergoing repairs, and at other times as occasion demands. The Port Sanitary Authority legally have no jurisdiction on shore, but, if action were necessary, the unification of the health services in the City and Port would make it an easy matter to take it. However, no extension of rat-proofing arrangements would seem to be necessary in the various stores and warehouses abutting on dock sides. Stacks of pitwood and timber cannot under present circumstances be rendered rat-proof.

During 1928, 6,586 rats were destroyed; of these, 3,088 were caught on ships, 385 in warehouses, etc., and 3,113 were found dead on ships after fumigation. In addition, 35,729 baits were laid on and around dock premises, and 7,271 rats and 1,650 mice were found dead as the result of these measures.

RATS DESTROYED DURING 1928.

(a) On Vessels.

Number of	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total in Year
Black rats	...	699	549	529	593	657	461	467	432	420	265	478	6,201
Brown rats
Rats examined	...	99	89	197	127	95	107	84	40	203	131	57	1,296
Rats infected with plague

(b) In Docks, Quays, Wharves and Warehouses.

Number of	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total in Year
Black rats	33	32	41	50	51	30	32	22	8	32	30	24	385
Brown rats	...	...	...	...	...	...	...	...	...	...	...	...	...
Rats examined	9	17	14	14	20	6	15	6	...	6	10	1	118
Rats infected with plague	...	...	...	...	...	...	...	...	...	...	...	...	...

(c) Baits laid around Dock Premises and Numbers of Rats and Mice found dead.

Number of	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total in Year
Baits laid	2,224	4,198	3,127	2,209	3,205	2,971	1,963	2,957	2,963	3,509	3,630	2,773	35,729
Rats found dead	362	621	615	417	621	645	288	973	1,009	606	696	418	7,271
Mice found dead	111	126	126	102	21	208	108	177	195	91	254	131	1,650

PARTICULARS RELATING TO PLAGUE "INFECTED" OR "SUSPECTED" VESSELS ARRIVING IN THE PORT DURING 1928.

Name of Vessel 1.	Date of Arrival 2.	Whether "infected" or "suspected" 3.	Methods of Rat Destruction employed 4.	Number of Dead Rats recovered 5.	Whether a Certificate of Deratisation was issued 6.	Remarks 7.
—	—	—	—	—	—	—

MEASURES OF RAT DESTRUCTION ON VESSELS FROM PLAGUE INFECTED PORTS (OTHER THAN THOSE INCLUDED IN THE ABOVE TABLE) ARRIVING IN THE PORT DURING 1928, AND NUMBER OF CERTIFICATES ISSUED IN RESPECT OF SUCH VESSELS.

Total Number of Vessels arriving from plague infected Ports 1.	Number of such Vessels fumigated by SO ₂ 2.	Number of dead Rats recovered 3.	Number of such Vessels fumigated by HCN. 4.	Number of dead Rats recovered 5.	Number of such Vessels on which trapping, poisoning, etc., were employed 6.	Number of dead Rats recovered 7.	Number of such Vessel on which measures of rat destruction were not carried out 8.	Number of Fumigation Certificates issued on Form "Port 11"†		Number of other Certificates issued 11.
								Deratisation 9.	Exemption 10.	
20	10*	386	—	—	6	398†	4	4	—	6

MEASURES OF RAT DESTRUCTION ON VESSELS (OTHER THAN THOSE INCLUDED IN THE ABOVE TABLES) AND NUMBER OF CERTIFICATES ISSUED IN RESPECT OF SUCH VESSELS DURING 1928.

Number of Vessels fumigated by SO ₂ 1.	Number of dead Rats recovered 2.	Number of Vessels fumigated by HCN. 3.	Number of dead Rats recovered 4.	Number of Vessels on which trapping, poisoning, etc., were employed 5.	Number of dead Rats recovered 6.	Number of Certificates issued on Form "Port 11"†		Number of other Certificates issued 9.
						Deratisation 7.	Exemption 8.	
64	2,714	—	—	58	2,703	31	4	29

* Trapping also employed in 4 of these cases—not included in Column 6.

† Including rats recovered by trapping on 4 vessels which were also fumigated with SO₂.

‡ Form Port 11 is issued only by the Port Medical Officers of Health of Ports approved by the Minister of Health for the issue of Deratisation and Deratisation Exemption Certificates in accordance with the provisions of Article 28 of the International Sanitary Convention of 1926.

RATS AND THEIR PARASITIC FLEAS FROM SHIPS AND DOCKS AT CARDIFF DURING 1928.

BY COLIN MATHESON, M.A., B.Sc., KEEPER OF ZOOLOGY,
NATIONAL MUSEUM OF WALES.

One hundred and ninety-one samples comprising a total of 899 rats were received between January 1st and December 31st, 1928. Of these, 152 samples (809 rats) were from ships and 39 samples (90 rats) from warehouses at the docks. The identifications of these, and of their parasitic fleas, are tabulated below. In order to save space, samples taken from the same ship in the same month have been added together instead of being listed separately as hitherto.

C.f.—*Ceratophyllus fasciatus*.

X.c.—*Xenopsylla cheopis*.

RATS FROM SHIPS.

ORIGIN. Name of Ship and where from	<i>Rattus rattus</i>	<i>Rattus rattus alexan- drinus</i>	<i>Rattus rattus frugi- vorus</i>	<i>Rattus norveg- icus</i>	Fleas	Num- ber	Date
s.s. "Leandros" ... Trieste, Corfu and Algiers	6	...	...	...	C.f.	9	12th Jan.
s.s. "Trevalgan" ... San Nicolas, St. Vincent and Rotterdam	1	...	1	...	...	...	13th Jan.
s.s. "Joannis Pateras" ... Santa Fe and Antwerp	5	3	2	...	C.f.	1	16th and 23rd Jan.
s.s. Lady Charlotte" ... Bombay and Antwerp	11	...	2	...	...	...	23rd Jan.
s.s. "American Transport" ... Monte Video, St. Vincent and Antwerp	2	...	3	...	...	...	24th Jan.
s.s. "William Balls" ... Beira, Durban and Glasgow	5	1	1	...	C.f.	1	30th Jan.
s.s. "Southborough" ... Rosario, Buenos Ayres and Hamburg	1	...	2	...	X.c.	1	16th Feb.
s.s. "Katina" ... Rosario, Falmouth and Belfast	9	...	13	...	X.c.	2	25th, 27th and 28th Feb.
s.s. "Grelisle" ... Bimlipatam, Marseilles and Hamburg	...	...	1	...	...	...	28th Feb.
s.s. "Maria N. Roussos" ... Rosario, Rio de Janeiro and St. Vincent	6	...	...	...	X.c.	9	29th Feb.
s.s. "Gydavore" ... Rosario, Landskrona and Trondhjem	...	...	4	...	...	...	29th Feb.
s.s. "John Shaw" ... Port Talbot and Nantes	...	...	1	...	...	...	2nd March
s.s. "Aghios Georgios" ... San Nicolas, St. Vincent and Amsterdam	7	...	8	...	...	...	2nd and 3rd March
s.s. "Albino" ... Venice and Melilla	49	3	21	...	C.f. X.c.	72 5	5th, 6th, 7th, 8th and 9th March

ORIGIN. Name of Ship and where from	Rattus rattus rattus	Rattus rattus alexan- drinus	Rattus rattus frugi- vorus	Rattus norveg- icus	Fleas	Num- ber	Date
s.s. "Maria N. Roussos" ... Rosario, Rio de Janeiro and St. Vincent	1	2	...	..	...	...	8th March
s.s. "Vassilios A. Polemis" ... Sulina, Syra and Antwerp	32	12	...	..	...	...	15th and 16th March
s.s. "Possidon" ... Rosario, St. Vincent and Lisbon	...	...	1	...	X.c.	5	19th March
s.s. "Dorington Court .. Vancouver, Norfolk (Va.), and Antwerp	...	...	26	...	C.f.	6	19th, 20th, 21st, 26th, 28th & 29th March
s.s. "Llantwit Major" ... Bordeaux	39	...	...	...	C.f.	3	29th, 30th and 31st March
s.s. "Dorington Court" ... Vancouver, Norfolk (Va.) and Antwerp	...	...	1	...	...	...	2nd April
s.s. "Llantwit Major" ... Bordeaux	10	...	...	...	C.f.	1	2nd and 3rd April
s.s. "Penmorvah" ... Rosario, Dakar and Liverpool	1	2	...	...	X.c.	1	5th April
s.s. "Ravenstone" ... Rosario, Dakar and Lisbon	...	...	1	...	...	...	11th April
s.s. "Brookvale" ... Buenos Ayres, Monte Video, St. Vincent and Rotterdam ...	5	...	13	...	X.c.	3	13th, 17th, 18th, 19th, 20th, & 23rd April
s.s. "Skaraas" ... Santa Fe and St. Vincent	13	8	31	...	...	...	23rd, 24th, 25th, 26th and 30th April
s.s. "Breaksea Light" ... Santos, San Nicolas, St. Vincent and Barcelona	11	...	2	...	X.c.	2	25th, 26th, 27th and 30th April
s.s. "Breaksea Light" ... Santos, San Nicolas, St. Vincent and Barcelona	2	...	...	...	...	...	3rd May
s.s. "Caldy Light" ... Rosario, Dakar and London	3	...	...	...	...	...	4th May
s.s. "Oria" ... Rufisque and Bremen	1	1	2	...	...	...	4th May
s.s. "Joannis Carras" ... Rosario and St. Vincent	...	1	18	...	C.f. X.c.	5 94	8th, 9th, 10th, and 11th May
s.v. "Herzogin Cecilie" ... Melbourne and Port Lincoln	4	...	1	...	C.f. X.c.	1 12	8th, 9th and 10th May
s.s. "Antonios Vrondisis" ... Piræus and Oran	3	...	2	...	C.f.	5	1st and 4th June
s.s. "Barrhill" ... La Plata and Antwerp	10	...	6	...	C.f. X.c.	5 96	1st, 4th, 5th & 7th June
s.s. "Sandgate" ... Rosario and Amsterdam	4	...	1	...	C.f. X.c.	1 6	4th, 5th and 6th June

ORIGIN. Name of Ship and where from	Rattus rattus	Rattus rattus alexan- drinus	Rattus rattus frugi- vorus	Rattus norveg- icus	Fleas	Num- ber	Date
s.s. "Novington" ... Yxpila and Jacobstad	4	...	3	...	...	...	20th, 21st and 22nd June
Mtr. "Oregon" ... Las Palmas, Kallundberg and Oslo	10	...	...	...	C.f. X.c.	1 1	4th, 5th and 9th July
s.s. "Narkissos" ... Bahia Blanca and Barcelona	4	5	6	...	C.f.	1	9th, 10th, 11th & 12th July
s.s. "Vassilios Pandelis" ... Buenos Ayres, Las Palmas and London	2	...	...	...	C.f. X.c.	1 3	9th July
s.s. "Bedeburn" ... Casablanca and Bremen	12	3	3	...	C.f.	2	16th, 17th, 18th, 19th, 20th, 21st and 23rd July
s.s. "Agire Mendi" ... Rosario and Antwerp	3	...	7	...	X.c.	42	19th 20th, 23rd, and 26th July
s.s. "Min" ... Karachi and Oran	...	1	2	...	X.c.	1	21st and 23rd July
s.s. "King Howell" ... La Plata, St. Vincent and Manchester	2	3	1	...	C.f. X.c.	1 10	25th and 26th July
s.s. "Breynton" ... San Nicolas and Belfast	17	...	1	...	C.f. X.c.	5 12	25th, 26th and 30th July
s.s. "Harperley" ... River Plate ports via Hull	5	...	1	...	X.c.	22	1st and 2nd Aug.
s.s. "Charlbury" ... Bahia Blanca, Las Palmas and London	3	...	...	...	C.f.	1	13th Aug.
s.s. "Sudbury" ... Jamnagar, Genoa and Nantes	1	...	5	...	...	...	17th, 18th and 21st Aug.
s.s. "King Edward" ... Vancouver, Lisbon and Leixoes	12	...	3	...	X.c.	5	18th, 20th and 24th Aug.
s.s. "Whitegate" ... Bahia Blanca, Las Palmas and London	...	...	2	...	...	...	18th Aug.
s.s. "New Georgia" ... Burutu, Freetown, Teneriffe and Hamburg	...	...	4	...	...	...	22nd and 29th Aug.
s.s. "Michalios Xilas" ... Piræus	15	...	...	...	...	...	2nd, 3rd and 4th Oct.
s.s. "Fulham" ... Kilia, Galatz, Constanza, Malta and Plymouth	56	...	1	...	C.f. X.c.	7 51	9th, 10th, 11th, 12th & 15th Oct.
s.s. "Charterhythe" ... Diamante, St. Vincent and Sharpness	2	...	2	...	X.c.	2	12th Oct.
s.s. "Deansway" ... Buenos Ayres, Rosario, Las Palmas and St. Vincent	36	...	6	...	X.c.	11	22nd, 23rd, 24th, 25th & 26th Oct.

ORIGIN. Name of Ship and where from	Rattus rattus rattus	Rattus rattus alexan- drinus	Rattus rattus frugi- vorus	Rattus norveg- icus	Fleas	Num- ber	Date
s.s. "Penmorvah" ... Kingston, Buenos Ayres, Dakar, Barcelona and Palamos	1	1	15	...	X.c.	90	25th, 26th and 29th Oct.
s.s. "Dimitrios N. Bogiazides" ... Rosario, Dakar and Musel	3	...	1	...	X.c.	7	27th, 29th and 30th Oct.
s.s. "Datchet" ... Mariupol, Gibraltar and Rouen	12	4	...	...	...	...	31st Oct.
s.s. "Datchet" ... Mariupol, Gibraltar and Rouen	14	...	1	...	...	...	1st and 2nd Nov.
s.s. "Penmorvah" ... Kingston, Buenos Ayres, Dakar, Barcelona and Palamos	...	...	1	...	X.c.	4	1st Nov.
s.s. "Cookham" ... Montreal, Sydney, C.B., and Lisbon	26	...	5	...	X.c.	9	20th and 21st Nov.
s.s. "Charterhulme" ... Rosario, Oran, Venice and Algiers	6	5	...	...	X.c.	5	23rd and 27th Nov.
s.s. "Beckenham" ... Vladivostock, Norfolk, Va., and London	...	1	2	...	...	...	24th Nov.
s.s. "Breynton" ... Villa Constitucion, Buenos Ayres and Dieppe	3	...	...	...	X.c.	1	26th and 27th Nov.
s.s. "Cefnbryn" ... Constanza, Oran and Hamburg	9	...	...	...	C.f. X.c.	2 6	10th and 11th Dec.
s.s. "Trevilly" ... Capetown, Dakar, Brixham and Rotterdam	...	...	1	...	X.c.	2	11th Dec.
s.s. "Highgate" ... Mariupol, Venice, Gibraltar and Brest	2	7	6	...	X.c. C.f.	3 1	21st Dec.

RATS FROM WAREHOUSES.

Queen Alexandra Dock.

ORIGIN.	Rattus rattus rattus	Rattus rattus alexan- drinus	Rattus rattus frugi- vorus	Rattus norveg- icus	Fleas	Num- ber	Date
"B" Warehouse ...	1	...	...	...	C.f.	1	23rd Feb.
"A" do. ...	...	...	1	...	X.c.	1	2nd March
"Cold Stores" Warehouse ...	2	...	...	...	...	...	18th April
Do. do. ...	1	2	1	...	C.f.	6	23rd "
"G" Warehouse ...	10	...	2	...	C.f.	22	9th May
"G" do. ...	4	...	1	...	...	...	10th "
"B" do. ...	1	...	...	...	...	...	23rd "
"A" do. ...	1	...	...	...	...	...	31st "

Queen Alexandra Dock—continued.

ORIGIN.	Rattus rattus rattus	Rattus rattus alexan- drinus	Rattus rattus frugi- vorus	Rattus norveg- icus	Fleas	Num- ber	Date
" G " Warehouse	3	...	...	...	C.f.	2	24th July
" F " do.	3	...	...	...	X.c.	2	31st "
" A " do.	1	...	...	...	...	...	21st Aug.
" Cold Stores " Warehouse ... ..	...	...	1	...	C.f.	1	10th Oct.
" F " Warehouse ... ..	...	...	1	...	...	...	24th "
" B " do. ... ..	...	...	2	...	C.f.	2	6th Nov.
" B " do.	1	...	...	...	...	...	7th "
" B " do.	1	...	1	...	...	...	8th "
" A " do.	1	...	...	...	C.f.	1	14th Nov.

Roath Dock.

" W " Warehouse	1	1	...	...	...	...	6th Mar.
" W " do.	3	1	...	...	X.c.	2	7th "
" W " do.	1	...	...	...	C.f.	2	8th "
" N " do.	1	1	...	...	C.f.	2	16th "
" N " do.	1	...	...	...	X.c.	20	11th June
" W " do.	2	...	...	...	...	...	13th "
" Cold Stores " Warehouse	2	...	...	...	...	...	25th "
" W " Warehouse ... ..	...	...	1	...	...	...	29th Aug.
" Cold Stores " Warehouse	5	...	...	...	C.f.	2	12th Sept.
" W " Warehouse	2	...	...	...	...	...	22nd Nov.
" N " do.	2	...	...	...	X.c.	2	29th "

East Dock.

" Stuart " Warehouse ... ..	...	...	2	...	X.c.	1	27th Mar.
Do. do. ... ..	...	...	2	...	...	...	30th "
Do. do. ... ..	...	1	...	...	...	...	28th June
Do. do.	1	...	...	...	...	...	29th "
Do. do.	2	...	...	...	...	...	2nd July
Do. do.	1	...	...	...	...	...	11th Dec.

West Dock.

" Coast Lines " Warehouse	1	...	...	...	...	...	2nd May
Do. do. do.	1	...	1	...	C.f.	1	7th "
Do. do. do.	6	...	1	...	C.f.	6	10th July
Do. do. do.	4	...	...	...	C.f.	1	12th "
Do. do. do.	1	...	...	...	C.f.	6	16th "

The numbers of each Variety of Rat are as follows :—

Origin	<i>Rattus rattus rattus</i>	<i>Rattus rattus alexandrinus</i>	<i>Rattus rattus frugivorus</i>	<i>Rattus norvegicus</i>	TOTALS
Ships	501	63	245	...	809
Warehouses	67	6	17	...	90
Totals	568	69	262	...	899

Comparison of numbers of each Variety of Rat submitted during the years 1922 to 1928. :—

Year	<i>Rattus rattus rattus</i>	<i>Rattus rattus alexandrinus</i>	<i>Rattus rattus frugivorus</i>	<i>Rattus norvegicus</i>	TOTALS
1922	53	45	72	3	173
1923	26	14	42	1	83
1924	86	64	61	3	214
1925	131	30	108	17	286
1926	169	40	60	51	320
1927	202	58	153	2	415
1928	568	69	262	...	899
Totals	1,235	320	758	77	2,390

It will be seen that *Rattus rattus rattus*, for the fifth year out of the seven in which these papers have appeared, is the most numerous, *Rattus rattus frugivorus*, for the fourth year out of the seven, comes second, and *Rattus rattus alexandrinus*, for the sixth year out of the seven, is considerably less numerous than either.

Fleas.—Two species of fleas were obtained, viz. :—*Xenopsylla cheopis*, “the plague flea,” and *Ceratophyllus fasciatus*.

The total number of samples* was as follows :—

Origin	<i>Xenopsylla cheopis</i>	<i>Ceratophyllus fasciatus</i>
Ships	62	33
Warehouses	6	14
Totals	68	47

Of the 68 *X. cheopis* samples, only 6, or barely one-eleventh, came from warehouses; of the 47 *C. fasciatus* samples, 14 (almost one-third) came from warehouses. Expressed in another way, out of the 95 flea samples from ships, only 33 (34.74 per cent.) were composed wholly or partly of *C. fasciatus*, whereas out of 20 samples from warehouses, 14 (70 per cent.) were composed wholly or partly of *C. fasciatus*. This state of affairs is paralleled in each of the three preceding years, as may be seen from the following table. (The figures for 1922-1924 are omitted as being too small to base any suggestion upon.)

* The word “sample” throughout this report means one lot of rats or fleas, not individual specimens. The actual numbers of individual specimens of each species are given in subsequent tables.

Year	Source	<i>X. cheopis</i>	<i>C. fasciatus</i>
1925	Ships	21	21
	Warehouses ... ..	...	9
1926	Ships	17	23
	Warehouses ... ..	...	5
1927	Ships	62	30
	Warehouses	3	3
1928	Ships	62	33
	Warehouses	6	14

The question arises for future decision whether the proportion of *C. fasciatus* to *X. cheopis* is consistently higher among warehouse rats than among ship rats.

Percentage of Rat Samples having Fleas.—Of the total number of samples received from both ships and warehouses—191—the number having fleas was 97, or 50·79 per cent. Of the 152 samples from ships, the number having fleas was 77, or 50·66 per cent. Of the 39 samples received from warehouses at the docks, the number having fleas was 20, or 51·28 per cent. That is to say, the percentage of flea-infested samples is slightly higher among the warehouse samples than among the ship samples. In the comparative tables of the percentage of flea-infested samples among ship and warehouse samples respectively published in last year's report, it was pointed out that although up to that year the percentage of samples having fleas was usually higher among ship rats than among warehouse rats, the number of samples and of specimens per sample in the case of warehouse rats was too small in each year to make it safe to draw definite conclusions. The need for this caution is evidenced by the 1928 results, when the number of samples (and of rats per sample) from warehouses was larger than in any previous year, though still small in comparison with the number from ships. Since information as to the relative degree of flea infestation among ship rats and warehouse rats may prove to be of practical importance, the writer would express the hope, not only that the satisfactory increase in the number of ship samples may be maintained, but that it may be possible to increase still further the number from warehouses.

Seasonal Distribution of Fleas.—The proportion of flea infestation among the ship rats for each month of the year was again worked out, and this information should prove of considerable value from a practical standpoint as indicating when the potential carriers of plague are most abundant on the rats on ships at Cardiff Docks. The figures for 1927 are given also for comparison.

Monthly Distribution of Rats and Fleas from Ships during 1927 and 1928.

Year		Jan.	Feb.	Mar.	Apl.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1927	Total number of rats ...	23	51	26	25	74	19	28	17	45	68	10	11
	Total number of fleas ...	4	8	7	34	68	120	48	45	48	92	49	14
	Average number of fleas per rat ...	0·17	0·16	0·27	1·36	0·92	6·32	1·71	2·65	1·12	1·35	4·90	1·27
1928	Total number of rats ...	43	36	204	98	33	33	82	36	...	155	64	25
	Total number of fleas ...	11	12	91	7	112	113	80	28	...	168	19	14
	Average number of fleas per rat ...	0·26	0·33	0·45	0·07	3·39	3·42	0·98	0·78	...	1·08	0·29	0·56

These figures give additional support to certain suggestions made in last year's report, and indicate that the average number of fleas per rat is low in the earlier months of the year, rises considerably at the beginning of summer, and tends to keep at a fairly high level throughout the summer and autumn. In both years the highest monthly average per rat occurs in June. A curve of monthly distribution, however, based on the above figures, shows certain irregularities which would no doubt tend to disappear if fuller data were available. The great increase, for example, in the figures for November, 1927, is probably wholly fortuitous, as is suggested by the November figures for 1928, when a much larger number of rats was examined. On this account, and in view of the practical importance of this aspect of the subject, it is to be hoped that it will be possible to maintain a high total of rats collected for each individual month.

Monthly distribution of numbers of *X. cheopis* and *C. fasciatus*
found on Rats from Ships during 1927 and 1928.

Year	Species	Jan.	Feb.	Mar.	Apl.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1927	<i>X. cheopis</i> ...	3	6	5	15	53	88	47	43	44	87	48	...
	<i>C. fasciatus</i> ...	1	2	2	19	15	32	1	2	4	5	1	14
1928	<i>X. cheopis</i> ...	...	12	10	6	106	102	69	27	...	161	19	11
	<i>C. fasciatus</i> ...	11	...	81	1	6	11	11	1	...	7	...	3

Section 3.

MEDICAL INSPECTION OF ALIENS.

Aliens arriving at the port*		Number of temporary visitors, i.e., aliens whose stay in this country will not exceed three months			Number of aliens who intend to settle permanently or remain in this country for more than three months		
Total number	Number subjected to medical inspection†	Total number	Number subjected to medical examination‡	Number of certificates issued	Total number	Number subjected to medical examination‡	Number of certificates issued
1,308	13	1,275	...	...	33	13	...

Aliens in transit.			Transmigrants	
Total number	Number subjected to medical examination‡	Number of certificates issued	Total number	Number subjected to medical examination‡
19

PARTICULARS RELATING TO DETAILED EXAMINATION OF ALIENS.

Aliens who were subjected to detailed medical examination and were not certified by Medical Inspector 13

Number of each of the following certificates issued by the Medical Inspector of Aliens :—

(a) Certificate that an alien is a lunatic, idiot, or mentally deficient	} Nil
(b) Certificate that, for medical reasons, it is undesirable that an alien should be permitted to land	
(c) Certificate that an alien is suffering from some disease, defect or deformity, which may interfere with his capacity to support himself or his dependents	
(d) Certificate that an alien is suffering from one of the acute infectious diseases	
(e) Certificate that, for the purposes of an adequate medical examination, it is necessary for the alien to land in order that he may be examined ashore	

TRANSMIGRANTS.

Number of certificates of the cleansing of verminous transmigrants given by the Medical Inspector of Aliens to the Immigration Officer	} Nil
Number of medical certificates in respect of transmigrants suffering from trachoma, favus, etc., given to the Immigration Officer	

PARTICULARS RELATING TO ALIEN TRAFFIC.

Total number of passenger vessels carrying aliens which arrived during the year	...	...	...	...	2
Number dealt with by Medical Inspector of Aliens	...	...	...	...	2
Total number of cargo vessels carrying alien passengers which arrived during the year	...	...	...	...	91
Number dealt with by Medical Inspector of Aliens	...	...	...	...	Nil
Any other vessels in connection with which the Medical Inspector has had to take action in regard to aliens	...	...	...	...	1

* Including all aliens in transit and transmigrants but not alien seamen.

† The term *Inspection* relates to the preliminary inspection of aliens as they pass before the Medical Inspector.

‡ The term *Medical Examination* relates to detailed medical examination.

Section 4.

INSPECTION OF SHIPPING FOR DEFECTS OF SANITATION.

During the year, 5,984 vessels, with a tonnage of 4,852,154, were inspected on arrival. The number of persons in the crews carried by these vessels numbered 98,992. In addition, 3,915 re-inspections were made of ships in dock. One hundred and four informal notices were served and 625 verbal orders were given to masters and others in connection with nuisances and sanitary defects on board ships.

The lighters carrying grain, patent fuel, etc., in the docks have been periodically examined, cleansed, disinfected and repaired during the year, and the fishing boats and fish wharves have been regularly visited, cleansed and disinfected.

CLASSIFICATION OF NUISANCES.

Nationality of Vessel	Number inspected during 1928	Defects of original construction		Structural defects through wear and tear		Dirt, vermin and other conditions prejudicial to health	
		Found	Remedied	Found	Remedied	Found	Remedied
British	4,370	...	...	156	150	434	425
Other Nations	1,614	6	4	128	120	168	150

Water Supplies.—During the year, 273 samples of drinking water from ships were submitted for examination; the results are summarised in the following table :—

Number	Satisfactory	Moderate Purity	Doubtful Purity	Contaminated
273	214	34	12	13

Twenty-five notices were served on masters of vessels having contaminated water, or water of doubtful purity, requiring the tanks to be emptied and cleansed, and fresh supplies were taken on board. The water supply for the port and shipping is derived from the Cardiff Corporation supply by means of hydrants installed at convenient points. Water boats are not used.

Section 5.

FOOD INSPECTION.

FOODSTUFFS IMPORTED FROM FOREIGN DURING 1928.

Articles	Tons	cwt.	lb.	Bags	Bales	Barrels	Boxes	Cases	Miscellaneous
Almonds ...	25	0	0	150	...	...	440	...	...
Apples, Canned ...	...	...	...	...	...	...	...	5	...
Apples, Dried ...	1	2	0	...	...	...	...	...	...
Apple Juice ...	...	...	...	...	...	...	880	...	...
Bacon and Hams ...	...	...	...	...	17,591	...	...	...	...
Baking Powder ...	...	...	...	...	...	...	160	...	...
Barley, Malting ...	185	0	0	...	...	...	...	...	...
Barley, Edible ...	...	...	...	297	...	...	...	...	...
Beef, Salted ...	...	...	...	...	...	10	...	...	...
Biscuits ...	...	4	0	...	...	...	178	...	238 skips
Bread ...	...	8	0	...	...	...	5	...	...
Butter ...	28	0	0	...	...	...	3,189	...	...
Catsup ...	...	...	64	...	...	...	1,502	...	...
Cheese ...	...	...	...	...	...	...	47,189	...	123 crates
Coffee ...	...	...	...	12	...	...	12	...	...
Confectionery ...	6	2	0	...	...	726	837	240	150 pails
Cream ...	3	4	0	...	...	...	6,788	...	...
Eggs ...	...	...	...	...	...	...	107	...	...
Fat, Edible ...	...	...	...	...	...	112	4,819	...	...
Fish, Canned ...	21	12	76	...	...	...	1,072	...	...
Fish, Fresh ...	7,476	1	0	...	...	...	...	...	...
Fish, Salted... ..	...	10	0	...	...	45	...	...	...
Fish, Dried ...	21	9	1	...	30	...	120	...	...
Flour ...	...	...	...	19,757	...	...	30	...	...
Fruit, Canned ...	358	13	56	...	...	...	2,405	...	...
Fruit, Dried ...	130	9	28	...	...	...	11,893	...	...
Fruit, Fresh (Various) ...	5	11	84	...	...	109,420	126,445	...	...
Fruit Pulp ...	1	19	0	...	...	...	158	42	...
Glucose ...	...	...	...	...	...	552	...	...	...
Herbs ...	...	...	...	5	...	...	...	...	...
Honey ...	...	...	...	...	...	...	10	...	...
Lard ...	...	...	...	...	...	...	145,858	...	...
Macaroni ...	2	13	1	...	...	...	3,698	...	...
Malt ...	2	0	0	376	...	...	...	...	...
Margarine ...	...	...	...	...	...	1	12,117	...	...
Meat, Canned ...	...	...	4	...	...	...	11,762	...	...
Meat, Salted ...	...	...	...	...	...	805	...	...	...
Milk, Condensed ...	5	4	0	...	...	345	187,040	...	...
Molasses ...	...	...	...	...	...	...	75	...	...
Nuts ...	...	7	0	737	...	...	...	...	...
Oats, Rolled ...	...	...	...	2,067	...	...	29,900	...	...
Offal ...	...	...	...	62	...	35	...	...	...
Olives ...	...	1	84	...	...	...	...	...	...
Olive Oil ...	1	1	0	...	...	...	963	...	...
Onions ...	881	11	0	43,751	...	...	62,068	...	...
Peas and Beans ...	2	18	0	2,833	...	...	50	...	...
Peas, Canned ...	...	...	...	...	...	...	794	...	...
Pepper ...	...	6	50	...	...	...	...	...	...
Pork, Pickled ...	...	...	...	...	...	253	...	...	...
Potatoes ...	25,755	18	0	195,785	...	...	4,360	...	...
Preserves ...	...	...	...	...	...	...	221	...	...
Provisions, Canned... ..	2	9	0	...	...	...	2,496	...	...
Rice ...	11	8	0	8,230	...	...	...	...	...
Sago ...	...	...	...	10	...	...	...	...	...
Salt ...	...	...	...	4,126	...	...	...	...	...
Semolina ...	...	...	...	60	...	...	...	...	...
Spices ...	...	7	2	...	...	...	...	...	...
Sugar ...	6,664	4	0	99,176	...	...	2,900	...	...
Tomatoes, Canned ...	7	3	0	...	...	...	79,006	...	...
Tomatoes, Fresh ...	...	...	...	...	...	...	26,005	...	...
Vegetables, Fresh ...	4	7	0	27,716	...	...	946	...	...
Vegetables, Canned ...	...	17	0	...	...	...	2,245	...	...
Vegetables Dried ...	...	6	4	...	...	...	...	...	...
Vegetables, Salted ...	...	...	...	...	...	481	...	...	...
Wheat ...	165,495	15	0	...	...	...	...	...	...
Wheat Products ...	...	...	...	...	...	...	1,950	...	...
Yeast Cakes ...	...	3	0	...	...	...	32	...	...

FROZEN MEAT LANDED AT THE PORT.

Date	Ship	Where from	Beef		Mutton	Lamb
			Quarters	Pieces	Carcases	Carcases
1928 24th May	s.s. "Cornwall" ...	Wellington, N.Z., via London and Avonmouth	808	...	...	17,342
13th Sept.	s.s. "Port Wellington"	Melbourne via London and Hamburg	2,496	410	500	...
6th Nov.	s.s. "Port Melbourne"	Fremantle via Hamburg, London and Avonmouth	2,772	200	1,000	...
		Totals ...	6,076	610	1,500	17,342

Public Health (Imported Food) Regulations, 1925.—The following table shows the kinds and quantities of food withheld from human consumption during the year :—

	Tons	cwt.	lb.
Apples ...	3	12	18
Apricot Pulp, Canned	—	—	10
Beef, Canned	—	8	88
Beef, Frozen	—	8	35
Brawn, Canned	—	—	6
Carrots, Cabbage and Parsnips	16	16	—
Cheese ...	—	—	50
Fruit (Mixed), Canned	—	—	61½
Grapes ...	1	10	55
Lard ...	—	—	19
Lemons ...	2	1	—
Margarine...	—	—	5
Melons ...	2	3	56
Milk, Condensed	1	10	2
Milk, Evaporated	—	—	70
Onions ...	3	—	84
Oranges ...	52	12	56
Pine Apple, Canned	—	—	26¼
Plums, Canned	—	—	12
Potatoes ...	2	14	56
Rice ...	—	14	40
Tomatoes, Canned	3	11	74¼
Tongue, Canned	—	—	6
Tripe, Canned	—	—	32
Wheat ...	70	16	35
Total ...	162	3	1

Public Health (Imported Milk) Regulations, 1926.—No fresh milk arrives by sea at the Port of Cardiff.

Public Health (Preservatives, etc., in Food) Regulations, 1927.—No occasion for action arose under these regulations during the year.

Public Health (Shellfish) Regulations, 1916.—There are no shellfish beds or layings within the jurisdiction of the Port Sanitary Authority.

Samples of Food Examined.—No samples of food were submitted to a bacteriologist for examination during the year. In January, 1928, two samples of American apples were examined by the Public Analyst of Cardiff for the presence of arsenic and the amount of arsenious oxide in each case fell below the one-hundredth grains per pound limit. In November, 1928, one sample of Jaffa oranges, one sample of South African oranges, one sample of Spanish oranges and one sample of Italian lemons were examined by the Public Analyst for the presence of boric acid and/or formaldehyde; in each case with negative results.

1. Description of boats for pleasure and fishing	25
2. Number of boats on register	14
3. Number of boats registered during the year	12
4. Number of boats removed from register	2
5. Number of boats believed to be in the Port Sanitary Authority's jurisdiction	14
(a) Motor propelled boats	12
(b) Not propelled by motor	2
6. Number of boats that cannot be traced	0
7. Boats with accommodation for two or more	14
8. Boats with accommodation for three or more	12

The sanitary condition of the boats is on the whole satisfactory.

Section 6.

DISEASES OF ANIMALS ACTS, 1894 to 1926.

The Canine Animals Order, 1909, and the Importation of Dogs Orders, 1914-26.—During the year eight foxes, one jackal and 614 dogs were imported from foreign countries either directly or indirectly. The ships were visited regularly during their stay in port to see that the requirements of the Orders were carried out.

Foreign Animals Orders, 1910-26, and the Importation of Horses, Asses and Mules (Great Britain) Order, 1921.—During the year 13 vessels arrived at the port with animals on board from scheduled countries either directly or indirectly, viz., 4 cattle, 5 sheep, 3 goats, 9 swine and 2 horses—Total 23. These vessels were visited regularly to see that the Orders were carried out, and when any of the ships left for other ports in Great Britain the port sanitary authorities concerned were notified.

Legal proceedings were taken against masters for infringements of Article 2 of the Foreign Animals Order, 1910, in three instances, and fines and costs amounting to £1 18s. 0d. were imposed.

Section 7.

CANAL BOATS.

ANNUAL REPORT FOR 1928 OF S. J. HOLBOURN, INSPECTOR OF CANAL BOATS.

1. Inspections of canal boats	...	...	...	...	...	115
Infringements	...	...	...	...	...	10
Occupants of canal boats	...	...	...	...	...	Males
Women and children sleeping in canal boats	...	...	...	...	...	Nil
2. Infringements :—						
(a) Marking	...	...	...	...	...	Nil
(b) Painting	...	...	...	...	...	10
3. Legal proceedings taken in respect of infringements	...	...	...	...	...	Nil
4. Any other steps taken to secure compliance with the Acts and Regulations	...	...	...	...	Verbal notices	
5. Detention of boats for cleansing and disinfecting	...	...	...	...	...	Nil
6. Number of boats on register	...	...	...	...	...	14
7. Number of boats registered during the year	...	...	...	...	...	Nil
8. Removal from register	...	...	...	...	...	Nil
9. Number of boats believed to be in use or serviceable :—						
(a) Motor propelled boats	...	...	...	...	...	Nil
(b) Not propelled by motor	...	...	...	...	...	14
10. Number of boats that cannot be traced	...	...	...	...	...	Nil
11. Boats with accommodation for two males	...	...	...	...	...	14
12. Boats with accommodation for three males	...	...	...	...	...	Nil

The sanitary condition of the boats is on the whole satisfactory.

SCHOOL MEDICAL SERVICE.

CHANGES IN THE STAFF.

Dr. Cecil W. Anderson and Dr. Nancy K. Gibbs were appointed on the permanent medical staff in July, 1928, the latter having previously held a temporary appointment in place of Dr. Lilian M. Griffiths who resigned in October, 1927. The proportion of medical staff time devoted to the School Medical Service (three and two-elevenths) was not affected by these two appointments. Mr. A. Mason Jones, Aural Surgeon (part-time), died in June, 1928, his place being taken temporarily by Mr. R. D. Owen, Surgeon to the Ear, Nose and Throat Department of the Cardiff Royal Infirmary. Dr. Erie Evans, Anæsthetist (part-time), resigned in December, 1928, the vacancy being filled temporarily by the appointment of Dr. H. Gordon Greaves, Anæsthetist to the Cardiff Royal Infirmary. One of the school dentists (Mr. F. Lake) resigned in May, 1928, and Mr. W. A. Sutherland was appointed to fill the vacancy. Miss M. J. Sampson was appointed temporarily as a school nurse in January, 1928, in place of Mrs. I. P. Ebbett who was transferred to the staff of Greenhill Open-Air School. Mrs. Partington, a dental clerk-attendant, resigned in March, 1928, Miss M. Waters being appointed to the post.

SCHOOL HYGIENE.

In the course of their duties in connection with routine medical inspections at schools, medical officers pay attention to the sanitary condition of school premises, and defects are reported by the School Medical Officer to the appropriate authorities to be remedied. Constant attention is paid to the sanitary condition and structural suitability of all schools in the area by the Superintendent of Works, and necessary repairs are carried out as soon as possible.

MEDICAL INSPECTION.

The numbers of children medically inspected at routine and special inspections and the numbers of re-inspections are set out in Table I. of the Appendix.

Altogether, 9,527 elementary school children were inspected at routine inspections, as compared with 10,076 in 1927, while the number of secondary and high school children inspected was 2,906, as against 2,923 in 1927.

The number of children specially inspected was 4,797, compared with 4,464 in the previous year. The children dealt with at special inspections were those suspected to be suffering from diseases or defects and referred by medical officers, head teachers, school attendance officers, parents and others; 713 of them were inspected at school and 4,084 at the school clinics. In addition, 3,810 individual children were re-inspected during the year, the actual number of re-inspections being 6,666, as against 3,879 and 7,385 respectively in 1927.

It will be noticed that fewer children were dealt with at routine inspections than in 1927. This was due to pressure of special work, especially medical work in connection with the Open-Air School, radiography, and more systematic medical supervision of children attending the Special School for Mental Defectives. Owing to the rapid growth in volume, variety and intricacy of the work of the School Medical Service and to the inability of the present staff to deal with the clinical problems arising out of the routine inspections, the latter as well as the former have had to suffer.

FINDINGS OF MEDICAL INSPECTION.

The diseases and defects found at routine and special inspections to require treatment or to be kept under observation are shown in detail in Table II. A of the Appendix. Of the 9,527 elementary school children inspected at routine inspections, 1,317, or 13.82 per cent., and of 2,906 secondary and high school children, 314, or

10-80 per cent., were found to be suffering from one or more defects (excluding dental disease and uncleanness) requiring treatment. Of the 4,764 elementary school children specially inspected, 2,531, or 53·13 per cent., and of 33 secondary and high school children dealt with in this way, 11, or 33·33 per cent., were found to require treatment for diseases or defects other than dental disease and uncleanness.

The following table shows the number and proportion of cases in which diseases or defects of various kinds were discovered :—

	Defects found at Routine Inspections		Defects found at Special Inspections	
	Number	Percentage	Number	Percentage
Malnutrition	91	0·73	77	1·60
Uncleanliness	139	1·11	8	0·17
Skin Diseases	79	0·63	1,125	23·45
Defective Vision and Squint	735	5·89	442	9·21
External and Other Eye Diseases	50	0·40	105	2·19
Otitis Media	90	0·72	111	2·31
Other Ear Diseases	86	0·69	79	1·65
Enlarged Tonsils only	671	5·38	283	5·90
Adenoids only	57	0·46	35	0·73
Enlarged Tonsils and Adenoids	72	0·58	80	1·67
Other Nose and Throat Defects	54	0·43	81	1·69
Enlarged Cervical Glands	27	0·22	18	0·37
Defective Speech	31	0·25	10	0·21
Dental Diseases (found by Medical Officers)	1,354	10·85	203	4·23
Heart Disease	129	1·03	27	0·56
Anæmia	28	0·22	69	1·44
Lung Diseases—Non-Tuberculous	215	1·72	70	1·46
Tuberculosis (All forms, including suspects)	1	0·01	13	0·27
Nervous Diseases	3	0·02	54	1·12
Deformities	292	0·34	38	0·79
Other Defects and Diseases	95	0·76	307	6·40

Entrants.—The above table and the more detailed returns in the Appendix, Table II. A, refer to children in all groups. Table II. B of the Appendix shows the proportion of children entering school who required treatment, and a special table (II. C) is again included showing those who required treatment or to be kept under observation for defects of various kinds. The proportion of entrants found at routine inspections who suffered from such defects as required immediate treatment (exclusive of uncleanness, pediculosis and dental diseases) amounted to 9·5 per cent., as compared with 9·2 last year, while the percentage is increased to 28·5 if all defects requiring either treatment or observation are taken into consideration. This latter figure compares with 27·1 per cent. last year. Thirty-two per cent. of the defects recorded were affections of the nose and throat, of which the majority were enlarged tonsils and adenoids.

The following table, compiled from information supplied by parents or guardians, shows the medical history of 5,023 school children (2,578 boys and 2,445 girls) prior to medical inspection as entrants :—

Diseases	Males		Females		Totals	
	Number	Percentage	Number	Percentage	Number	Percentage
Measles	1,602	62·1	1,533	62·7	3,135	62·4
Whooping Cough	1,034	40·1	1,130	46·2	2,164	43·1
Chickenpox	699	27·1	651	26·6	1,350	26·9
Scarlet Fever	53	2·0	69	2·8	122	2·4
Diphtheria	51	2·0	46	1·9	97	1·9
Rheumatism	20	0·8	13	0·5	33	0·6
Chorea	3	0·1	4	0·2	7	0·1
Tuberculosis	7	0·3	4	0·2	11	0·2
Bronchitis	109	4·2	98	4·0	207	4·1
Pneumonia	127	4·9	96	3·9	223	4·4
Other Diseases	346	13·4	269	11·0	615	12·2

Enlargement of the Thyroid Gland.—Records have again been kept of children approaching puberty who were found to have enlargement of the thyroid gland (simple goitre). Among 5,447 children (2,775 boys and 2,672 girls) who had attained the age of 12 years at the beginning of 1928 and who were examined during the year, 200 (11 boys and 189 girls) were found to have enlargement of the gland. This gives a percentage incidence of 3·67 (0·39 per cent. of boys and 7·07 of girls).

RE-INSPECTION OF CHILDREN FOUND DEFECTIVE.

A survey was again made by the medical staff of cases in certain categories referred for treatment or observation during the previous year. The total number of children overtaken in this survey was 1,413, showing 1,431 defects (see Appendix, Table VI.). Such defects as malnutrition, uncleanliness and infectious skin diseases, which are continuously under supervision because of exclusion from school, and dental diseases, regarding which fairly full knowledge is obtained through the clinic organisation, were omitted from this enquiry. Many of the children previously found defective had left school or were absent at the time of re-inspection.

Of the 1,431 defects in children re-inspected, 656 had not been treated, this number including some cases of such a serious nature as heart disease, anæmia, lung diseases, and deformities. The condition of the defects on re-inspection, classified according to whether or not they had received treatment, may be shown as follows :—

	Percentage			
	Cured or improved	Not improved	Worse	Totals
Treated at School Clinic	91·2	8·8	...	100
Treated elsewhere	88·3	11·7	...	100
Not treated	25·0	69·5	5·5	100
All cases	60·7	36·8	2·5	100

EXCEPTIONAL CHILDREN.

Physically Defective Children.—The numbers of children found to be physically defective are recorded in detail in the Appendix (Table III.).

Greenhill Open-air School.—A full description of the Open-air School was given in the Report for 1927. Accommodation was originally provided for 90 children, but at the end of 1928 the number of physically defective children on the register was 98 (48 boys and 50 girls). Arrangements were therefore made for increasing the accommodation by 30 places as from the commencement of 1929. The children in attendance are kept under close medical supervision by the Department and a report by Dr. McSweeney, Deputy School Medical Officer, is given below.

Report by Dr. Chris. J. McSweeney on the Open-Air School from the Medical Aspect.

“The medical supervision of children attending the Open-Air School has been continued along the lines described in the Report for 1927. During 1928—the first complete year of the school’s existence—52 children were discharged. Of these, 4 were children who had attended for very short periods, varying from 10 days to 2 months, withdrawal from the school being due to such causes as the family leaving the district, the admission of the child to a residential school for physically defective children, etc. The other 48 were, almost without exception, children who formed part of the original batch admitted when the school was opened. The reasons for the admission of this group were as follows :—

Condition	Number	Remarks
Anæmia (alone)	8	Many in these groups had signs of old rickets or were round-shouldered and flat-chested. Two children had marked bronchitis or asthma.
Malnutrition (alone)	4	
Anæmia and Malnutrition	17	
Pre-tuberculous	4	Delicate—tuberculosis contacts.
Organic Disease of Lungs	7	Healed empyemas, thickened pleuras, post-pneumonic fibroses.
Cervical Adenitis	7	Usually tuberculous but quiescent, with some degree of anæmia and/or malnutrition.
Healed Tuberculous Peritonitis...	1	With anæmia and malnutrition.
Total	48	

“ Sixteen of the 48 children at some or other period of their lives had shown clinical signs which were sufficiently suggestive to warrant an examination by the Tuberculosis Physician. In 19 cases a history of tuberculosis was obtained in the fathers, mothers, sisters or brothers of these children. On an average 309 day attendances were put in by these 48 children before they were considered sufficiently recovered to be re-admitted to ordinary elementary schools. The average gain in weight per child during this period was 6.34 lb. and the average gain in height 1.5 inches. With the exception of 3 children (who will again be referred to) all gained noticeably in physical development and on discharge differed but little, if at all, in appearance from normal, healthy children. In 34 children whose hæmoglobin content was tested on admission and discharge the average gain was 8 per cent. A similar number of children were assessed scholastically and intellectually on admission by Dr. C. W. Anderson immediately prior to their return to elementary schools, and the results were as follows :—

*Average progress of 34 children after 10 months’
attendance at the Open-Air School.**

Reading	... ..	5.3 months.
Spelling	... ..	1.9 months.
Arithmetic	... ..	0.6 months.
General Intelligence	... ..	7.7 months.

“ These results indicate that the children have, in the aggregate, not advanced in educational subjects nearly as much as they have in general intelligence, and particularly is this the case in spelling and arithmetic. Even in general intelligence the average progress is sub-normal. It must be remembered, however, that most of the children admitted to a school for physical defectives have missed a great deal of schooling through ill-health. Nearly all of them are, in fact, very backward, and not a few are dull as well, so that a normal rate of scholastic or intellectual progress cannot be expected. One of the children discharged was certified as feeble-minded and sent to the Special School for Mentally Defective Children. By eliminating in greater part the element of physical deficiency, which has prevented regular schooling, the Open-Air School makes it possible for the majority of these children to derive the maximum benefit in the future from instruction in elementary schools.

* Binet-Simon tests used.

" A very important feature in the Open-Air School routine is the manual work. The children receive instruction in the theory and practice of gardening and take part in the production of vegetables for use in the school meals. The older boys learn the rules of surveying and learn to draw accurate plans. The children have made several useful articles of school furniture and many of the children become highly skilled in basket-making. The older girls help in the preparation and serving of meals and are taught various aspects of housewifery. The value of this practical knowledge is considerable, although it is not reflected in any increased proficiency in school subjects.

" A study of the children whose physical state did not respond favourably to open-air school treatment shows that they were easily the most irregular children attending the school. One of these children came from a poor home and was actually very neglected. Her attendances during the six months in which her name was on the register were less than 50 per cent. and at the end of this period the whole family went into the City Lodge (Cardiff Union). The other two 'failures' were boys who were known to be subject to attacks respectively of chronic bronchitis and asthma. Their admission to the school was largely experimental and at the request of the parents. It is interesting to note that one of these boys is up to the present the only child who had actually lost weight on leaving the school. He was allowed to remain for seven months at Greenhill during which period he lost 2 lb. in weight and gained nothing in height. His attendances were 158 out of a possible 434. He was sent back to an ordinary school, and on re-examination six months later was found to have grown $1\frac{1}{2}$ inches and to have put on 3 lb. in weight since his discharge from the Open-Air School, although frequent asthmatic attacks had continued during this period. The other boy was a chronic bronchitic who had put in only 103 out of a possible 166 attendances during his four months at the school. He also failed to grow but put on $1\frac{1}{4}$ lb. during his stay. Re-examined nine months after discharge to an elementary school, he was found to have grown 2 inches and to have gained $2\frac{1}{4}$ lb. in weight since leaving Greenhill. He also had greatly improved in health, although he still was subject to bronchial attacks. These and other cases give the impression that open-air school treatment is not suitable for children who are prone to develop frequent attacks of bronchitis or asthma.

" Our early experience in Cardiff has been that the children who do best at the Open-Air School are those who suffer from a frank anæmia or malnutrition or both. Of those discharged in 1928, nine children who gained most in weight (putting on between $10\frac{1}{2}$ lb.— $13\frac{1}{2}$ lb.) were all of this type. It is interesting to note that not one of these children had ever been suspected of possessing any tendencies towards any form of tuberculosis. The anæmia and malnutrition had been severe or of long standing in all these cases, and 2 of them were marked as 'extremely emaciated' on admission. There can be little doubt that the regular and adequate feeding at the school is a very material adjunct to the influence of open air. Six of the 9 cases above mentioned gained 3 inches in height during their 10 months' stay, each putting on approximately 12 lb. in weight during this time. Of the 7 children who gained least in weight, 6 had been under observation for pulmonary or glandular tuberculosis at some time in their lives. In only one of the 7 cases were the actual attendances under 80 per cent. of the possible total, so that mere irregularity cannot be held responsible for the marked failure of these children to increase in height and weight.

" The measurement of hæmoglobin content by Von Fleischel's method, while useful, has not proved as satisfactory as was hoped. Dr. N. K. Gibbs has made a practice of examining the blood of as many children as possible on admission and again just prior to their discharge. The results of these examinations, expressed as a percentage of the normal, were found not always to correlate accurately with the clinical findings. Nevertheless, the greatest gains in hæmoglobin content—in one case amounting to 50 per cent.—were mainly obtained by those children who, judged by increase in height and weight and improvement in general appearance, derived the greatest benefit from open-air treatment. Again, the 3 children who

definitely failed to improve at the school were found to have unaltered hæmoglobin percentages. Two of the 4 children who had gained least in weight of the 45 'successful' children showed unaltered hæmoglobin indices; one actually went down 32½ per cent. and the other increased by 2½ per cent. only. The impression obtained from the use of this method is that, while it does reveal gross changes in hæmoglobin content, it fails to measure slighter deviations. In this respect the method is not entirely suitable for the periodical examination of physically defective children in many of whom any changes in hæmoglobin content tend to be slight.

"Since the inception of this work the need for some tests of physiological fitness to supplement the findings of medical examination has been felt. Reliable assessment of physical fitness and of the degree of unfitness is necessary in selecting for admission to the Open-Air School the type of child who will derive the maximum benefit therefrom. As fitness is the capacity to accomplish the work of life with the freedom from risk to health enjoyed by the ordinary person, it is obvious that the standard reaction to any tests in use must first be very carefully defined by assessing a large group of healthy children. The work already done by Woolham, Lamb and Simpson is very helpful in this respect. Through the kind co-operation of the Physiological Department of the Welsh National School of Medicine, it is hoped in the near future to devise a modification of the Flack tests which will be of assistance in the assessment of physical fitness in children requiring and undergoing treatment at the Open-Air School.

"Children discharged from the school are periodically re-examined at a special clinic held for the purpose. While sufficient time has not yet elapsed to enable any conclusions to be drawn as to the permanent character of the benefits derived from open-air school treatment, it is possible to say that the great majority of the first Greenhill 'leavers' are continuing fit and well at the elementary schools to which they have been discharged."

Mentally Defective Children.—The number of known mentally defective children of special school age (7-16 years) at 31st December, 1928, who were not transferable to the Mental Deficiency Authority, was 128, of whom 100 were in attendance at the Special Day School.

During the year 83 children were specially examined or re-examined for suspected mental deficiency. Of these, 1 was regarded as normal, 33 were found to be merely dull and backward, 35 were certified as feeble-minded and suitable for education in a special school, 1 was suffering from epilepsy, and 11 (9 imbeciles and 2 idiots) were transferred to the care of the Mental Deficiency Authority; in 2 instances classification was postponed. In addition to the 11 cases mentioned, 20 children (15 feeble-minded and 5 imbeciles) formerly attending the Special School were notified to the Mental Deficiency Authority.

The following is a classification, in a form prescribed by the Board of Education, of the 31 cases notified during 1928 to the Mental Deficiency Authority:—

Diagnosis										Boys	Girls	Totals
(1)	i.	Idiots ...	...	...	...	...	...	...	...	1	1	2
	ii.	Imbeciles ...	...	...	...	...	...	...	...	7	7	14
	iii.	Children incapable of receiving benefit or further benefit from instruction in a Special School ...								...	...	...
	iv.	Children unable to be instructed in a Special School without detriment to the interests of other children ...								...	...	...
	v.	Moral imbeciles or moral defectives ...								...	...	...
(2)	Feeble-minded children notified on leaving a Special School on or before attaining the age of 16 ...									5	10	15
(3)	Feeble-minded children notified under Art. 5 of the 1914 Regulations or under Art. 3 of the 1928 Regulations, i.e., "special circumstances" cases ...									...	...	...
(4)	Children who in addition to being mentally defective were blind or deaf ...									...	...	...
Totals ...										13	18	31

The numbers of children of special school age known to be mentally defective at 31st December, 1928, whether under the Education Authority or the Mentally Deficiency Authority were as follows :—

Diagnosis	Education Authority Cases				Mental Deficiency Authority Cases		Totals
	Attending Special Day School	In Special Residential School	Not attending Special School	Attending Elementary Schools	In Institutions or under Guardianship	Under Supervision at Home	
Feeble-minded ...	100	1	24*	3	3	6	137
Imbeciles ...	...	...	...	...	14	48	62
Idiots ...	...	...	...	...	3	17	20
Totals ...	100	1	24*	3	20	71	219

Blind Children.—The number of blind children of special school age in Cardiff at the end of the year was 13, 12 of whom were in attendance at the School for Children with Defective Sight.

Partially Blind Children.—The number of school children of special school age suitable for training in a school or class for the partially blind at the end of 1928 was 62. Thirty-nine of these were attending the School for Children with Defective Sight, where special provision has been made for the education of partially blind children. Of the 39 children attending the special class, 14 suffer from myopia, the remaining 25 having other forms of defective vision. Of the 23 partially blind children not attending the special class, 16 suffer from myopia and 7 from other defects of vision.

Deaf Children.—The number of deaf children of special school age at the end of the year was 21, 19 of them being in attendance at the Oral School for Deaf Children.

During the year an inquiry was made by Dr. Sheasby into the causes of deafness in children attending this special school.

Note by Dr. H. Sheasby on the Causes of Deafness in Children attending the Oral School for Deaf Children.

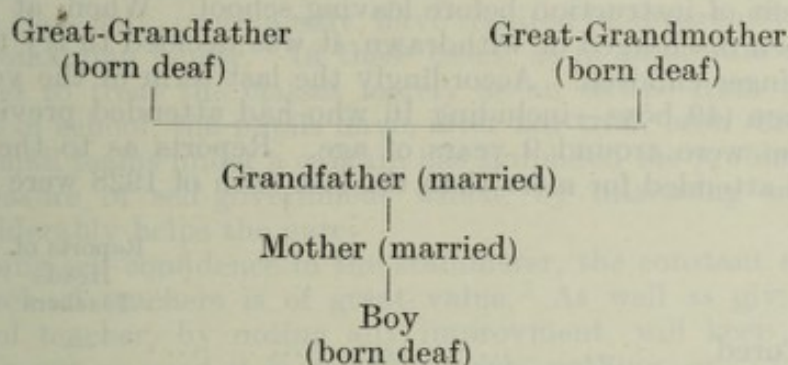
"This school had at the time of the inquiry 29 pupils on the register (15 boys and 14 girls) with ages ranging from 6 to 16 years. Of this number, 10 children (5 boys and 5 girls) were not resident in the city but attended the school from outside areas, leaving 19 children who live in Cardiff. Therefore, out of an average attendance at elementary and special schools of 31,100 in 1928, there were 19 children so deaf that they required special education in a school for the deaf. Stated as the rate per thousand, this is 0.61, as compared with 1.11, the rate for London in 1927, and with 0.81 the rate for England and Wales in the same year.

"The statements obtained from the parents when they brought the children to the school in the first instance had to be relied on as to the cause of deafness in most of the cases. Additional evidence was available in those children showing congenital stigmata of syphilis and chronic otitis media. Had it been possible to perform a Wassermann reaction on each of the children some of the others might have turned out to be syphilitic; this, however, was found to be impracticable, owing to the difficulty of obtaining the consent of all the parents to the test. The findings obtained in this way are tabulated below :—

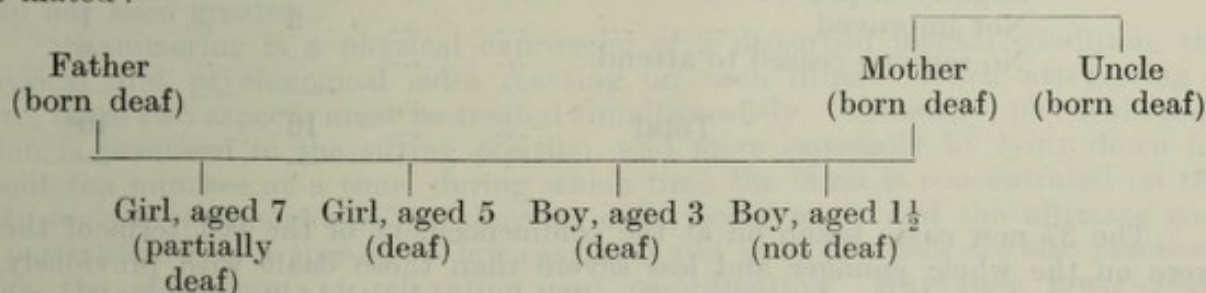
* Six attending private schools and 18 absent from the Special School pending arrangements for their admission or because of illness or physical defect.

Cause of Deafness							Boys	Girls	Totals
Born Deaf	...	...	...	...	...	...	8	6	14
Meningitis	...	...	...	...	...	...	3	2	5
Syphilis	...	...	...	...	...	...	2	...	2
Otitis Media	...	...	...	...	...	...	1	1	2
Scarlet Fever	...	...	...	...	...	...	...	2	2
Measles	...	...	...	...	...	...	...	1	1
Accident (fall)	...	...	...	...	...	...	1	1	2
Cause unknown	...	...	...	...	...	...	...	1	1
Totals							15	14	29

"The 'born deafs' are the largest group, forming 50 per cent. of all the children. From the information available, it is not possible to assign the exact cause of the deafness, but presumably there is in most of the cases some congenital defect of the auditory apparatus. Syphilis is not likely to play a large part or some other signs, such as keratitis, Hutchinson's teeth, etc., would be present. Injury to the skull at birth may be a factor. Heredity is certainly a well-marked feature in this group of born-deaf children. Thus, there are in the school two foreign children (brother and sister) who have a deaf cousin. Another boy has the following family history:—



"A more striking example is seen in a pair of former pupils of the school who mated:—



"There is also another congenitally deaf boy in the school who had a deaf brother there a few years ago.

"*Prevention.*—Theoretically, about half of the causes in this group of deaf mutes and semi-mutes is preventable, but it is doubtful whether under the best conceivable conditions this will ever be achieved. The closer attention now being given at the ionisation clinic to otitis media may cause this group to disappear, and possibly the syphilitics may be eliminated as the result of treatment of infected persons at the venereal diseases clinics. More effective nursing in measles, scarlet fever and meningitis may have its effect, but there is likely still to be a residuum of acquired cases which, with the hereditary and sporadic hereditary cases, will have to be educated by the local authority."

Partially Deaf Children.—Fifteen children attending ordinary elementary schools who might be suitable for training in a school or class for the partially deaf were known to the Department at the end of the year.

Stammerers.—The number of school children known to the Department as stammerers at 31st December, 1928, was 469 (360 boys and 109 girls). The special classes for the cure of stammering which were commenced in September, 1927, have been conducted successfully during the year. As mentioned in the last Report, there are five classes, each class meeting for one hour a day on two days a week. To the end of July, 1928, 63 children (62 boys and 1 girl) had attended the classes for varying periods, of whom 47 had been discharged or had ceased to attend for the following reasons :—

Provisionally cured	...	...	...	...	...	23
Very much improved	...	...	...	...	...	5
Unsuitable	...	...	...	...	...	7
Withdrawn by parents	...	...	...	...	...	5
Left school	...	...	...	...	...	7
Total	...	...	...	...	...	47

Prior to July, in selecting cases to attend the classes, preference was given to senior scholars suffering from severe forms of stammering in order that they should have the benefit of instruction before leaving school. When, at the end of July, all but 16 had been discharged or withdrawn, it was decided to try the effect of instruction upon younger children. Accordingly the last term of the year was commenced with 53 children (49 boys—including 16 who had attended previously—and 4 girls), many of whom were around 9 years of age. Reports as to the progress of the 16 boys who had attended for more than the last term of 1928 were as follows :—

						Reports of Head Teachers	Reports of Instruc- tress
Cured	...	...	...	...	...	—	1
Practically cured	...	...	...	...	...	—	—
Very much improved	...	...	...	...	...	6	6
Slightly improved	...	...	...	...	...	7	5
Not improved	...	...	...	...	...	3	1
No report—ceased to attend	...	...	...	...	...	—	3
Total	...	...	...	...	...	16	16

The 37 new cases taken on at the commencement of the last term of the year were on the whole younger and less severe than those dealt with previously, and generally they made good progress, as will be seen by the following reports made at the end of the year :—

						Reports of Head Teachers	Reports of Instruc- tress
Cured	...	...	...	...	...	—	—
Practically cured	...	...	...	...	...	2	3
Very much improved	...	...	...	...	...	16	12
Slightly improved	...	...	...	...	...	15	22
Not improved	...	...	...	...	...	4	—
Total	...	...	...	...	...	37	37

A report by the instructress of the classes is given below.

Report by Miss Hester Rosser, Instructress of the Special Classes for Stammerers.

"In many ways this year has been experimental. There has been much to learn as to the best way of presenting the treatment to Cardiff children who may differ in temperament from those in other parts. Except in about six cases that have joined the classes, both parents and children have been enthusiastic, and it has been impressed on the children from the beginning that they come voluntarily, that each is responsible for his own cure, and that he must persevere in class and in home practice. Many shoulder their responsibility easily, whereas others need constant support. It is impossible to foretell how any child will improve. Some children, in spite of the fact that they are not carrying out the instructions elsewhere, appear to make good progress in the special classes. It is also impossible to foretell any child's rate of progress, which depends on intelligence, general health, time elapsed since the stammering began, direct cause (*e.g.*, shock, persistent fear), its continuance or cessation, home and school influences, etc. Frequently the milder cases take longer than the more severe.

"An important condition for the cure is that those attending the class should feel happy there, and that a spirit of friendliness should exist between the children themselves and between them and the instructress. This relationship has been easily established, and in many cases the marked change of expression and bearing after a short time has been most gratifying. There is a suspicion that their enjoyment of the class may, occasionally, have resulted in apparently slow progress, with a view to remaining longer. In these cases, as in those rare ones when the boys have seemed to treat the classes merely as an escape from the necessarily stricter discipline of school, the pupils have, after fair trial, been discharged. The arrangement of small teams under a captain has simplified the problem of discipline and given a measure of self-government which, by increasing self-control and self-respect, considerably helps the cure.

"In developing self-confidence in the stammerer, the constant encouragement of parents and school teachers is of great value. As well as giving a terminal report, the school teacher, by noting any improvement, will keep a child up to standard. When not so good it is better to say nothing or 'You did better yesterday. Try again.' Head teachers and class teachers have been invited to visit the classes; the response was most encouraging, and after such visits their help has been greater.

"Stammering is a physical expression of a disturbed mental condition, the physical and psychological sides reacting on each other. When attempting a cure, these two aspects must be treated simultaneously. Primarily, physical relaxation is practised in the sitting position, and more especially by lying down for about ten minutes at a time, during which time the mind is concentrated on the auto-suggestive thought of the progress daily being made and the ultimate goal of perfect instinctive speech. A few easy arm and body exercises are also practised from the standpoint of relaxation and co-ordination. Rhythmic lower-costal breathing is taught, together with a well-controlled movement of the muscles in the epigastric region, which gives control of the breath during expiration. Besides their physical value, these exercises give the stammerer something definite to think of to distract his attention from the words themselves and, unlike the use of a marble in the mouth sometimes advocated, can be used without attracting attention and finally can be used automatically. Temporary methods for distracting the attention from the speech and for increasing self-confidence are adopted, such as the use of simple movement synchronising with the words spoken (*e.g.*, holding up fingers when saying numbers) and the acting of simple stories. Reciting poems is good practice and the rhythm in them is beneficial.

"When considering results, one must remember that one cannot really judge until pupils have left the class a little while but, as far as immediate results are

concerned, those discharged up to July, 1928, showed a satisfactory proportion of 'provisionally cured' and 'very much improved' cases. Most of them had attended for three terms; not more than three for one term only. The question has arisen as to how long a child shall be kept, provided his efforts to improve are sincere and his attendance regular. It is impossible to set a time-limit, and the decision must be left to those who are in close touch with the work. Most cases which were kept on after July have proved worth while (two have since been discharged as 'provisionally' cured) and even those whose improvement seems very little may make better progress later on when they realise their handicap. There is one instance of a boy who seemed unsuited to class treatment but who, despite his having been discharged in July, when seen in school in December, appeared to have improved. Most of those discharged in July who have since been seen are doing well, but two have been taken back to the class for a short while as they had gone back a little. As progress so frequently alters after leaving the classes, it is most important to keep in touch with the children. Therefore we shall in future have terminal reports from head teachers as long as the children remain in school and, if it could be arranged for the instructress to visit the homes of those who have left school a year later, it would be a better test of results.

"The relative value of class work and individual treatment is important. Undoubtedly class work helps all children, but it is becoming more evident that regular periodical attention alone (obtained by dismissing the other members of the class a few minutes early) is essential. With the older boys (15 and 16 years old) there should perhaps be a more equal division of class and individual work. At these ages they are more self-conscious and the habit is of longer duration. Yet we are inclined to expect quicker results from them than from the younger ones.

"Many of the new cases enrolled in September, 1928, have progressed very well, and four seemed fit for discharge in December. On further consideration it was decided to keep them a little longer in order to establish the cure. Three months is a very short time in which to break down a bad habit of several years' standing and to replace it by a good one, even in comparatively slight cases. A number of the cases were less severe than those of the previous year and a greater proportion than formerly were 9 years of age. Their progress so far is good. The advantage of taking them younger lies in the fact that they are more plastic mentally and physically and the habit is not so deeply rooted. On the other hand, they do not understand the method as well as older boys and, should there be a relapse or a recurrence, they are not so capable of making use of the exercises without further help. Until there are more statistics it cannot be decided which age generally gives the best results.

"From September, 1927, to July, 1928, there was only one girl in the classes—a perfectly fair proportion of the number of girl stammerers, but there are now four, rather younger.

"The results of the year's work, as a first year, are satisfactory, and there is every hope that the results of the succeeding year will show definite improvement."

COMMUNICABLE DISEASES.

The numbers of school children notified during the year as suffering from various communicable diseases were as follows:—

Smallpox	...	...	...	...	...	3
Scarlet Fever	...	...	...	...	...	173
Diphtheria	...	...	...	...	...	308
Enteric Fever	...	...	...	...	...	1
Pneumonia	...	...	...	...	...	40
Cerebro-Spinal Fever	...	...	...	...	...	3
Erysipelas	...	...	...	...	...	1
Tuberculosis—Respiratory	...	...	...	...	...	13
" Other Forms	...	...	...	...	...	22
Chickenpox	...	...	...	...	...	1,452

The following cases of non-notifiable communicable diseases were intimated by head teachers or school attendance officers, or were otherwise ascertained :—

Measles	...	...	...	...	619
Whooping Cough	...	...	...	...	253
Mumps	...	...	...	...	151

Vaccinal State of the School Population.—The following table shows the vaccinal state of 12,433 children and young persons (elementary, secondary and high schools) inspected during 1928. The proportion vaccinated was 60·9 per cent., compared with 60·8 in 1927. During recent years the highest proportion of all children inspected at routine inspections found to be vaccinated was 66·5 per cent. in 1924.

Age—Years	Vaccinated	Unvaccinated	Totals	Percentage Vaccinated
3	160	89	249	64·2
4	750	497	1,247	60·1
5	998	791	1,789	55·8
6	559	584	1,143	48·9
7	281	260	541	51·9
8	180	171	351	51·3
9	777	557	1,334	58·2
10	41	26	67	61·2
11	168	97	265	63·4
12	1,870	923	2,793	66·9
13	855	406	1,261	67·8
14	423	225	648	65·3
15	297	148	445	66·7
16	139	73	212	65·5
17	59	14	73	80·8
18	12	3	15	80·0
Totals	7,569	4,864	12,433	60·9

“ FOLLOWING UP ” AND THE WORK OF SCHOOL NURSES.

Following Up.—The number of new cases visited by the nurses was 5,977, compared with 4,947 in 1927, and the number of visits made 7,963, as against 7,042 last year. These were distributed as follows :—

	First Visits	Revisits	Totals
Defects of Vision	1,170	327	1,497
„ „ Teeth	1,200	363	1,563
„ „ Ear, Throat and Nose	946	329	1,275
Other Defects	2,661	967	3,628
Totals	5,977	1,986	7,963

Cleanliness Surveys.—The nurses paid 481 special visits to schools, making 58,529 examinations of children for uncleanness. The number of children found to be harbouring vermin was 727, and 2,684 were found to have nits only. The number of children previously found unclean who were re-examined was 2,141; of these, 317 were found to be free from vermin and 510 to be free from vermin and nits. The proportion found to be verminous was 1·2 per cent., as compared with 1·5 per cent. in 1927. The improvement in the cleanliness of children's heads during recent years is highly satisfactory, the proportion found to be verminous in 1928 being the lowest recorded. Since 1924 the proportion found in a verminous condition has dropped from 3·8 per cent. to 1·2 per cent.

Other Work of School Nurses.—The school nurses have, as usual, rendered useful service in assisting medical officers at routine and special inspections and in carrying out their school clinic duties, which comprise the treatment of minor ailments, assisting medical officers at the special clinics for the treatment of ear, nose and throat diseases, defective vision, and in the X-ray treatment of ringworm. Nursing assistance has also been rendered to the school dentists during the treatment of children under anæsthetics. In certain instances the nurses have themselves cleansed verminous children and children suffering from scabies at the Cleansing Station, and during 1928 the number of individual children dealt with in this way was 91, the number of baths given being 229.

MEDICAL TREATMENT.

Arrangements have been made for medical and other treatment of school children at school clinics as follows :—

- (i) Treatment of minor ailments.
- (ii) X-ray treatment of ringworm of the scalp.
- (iii) Zinc ionisation for otorrhœa.
- (iv) Operative treatment of nose and throat defects.
- (v) Correction of errors of refraction.
- (vi) Orthopædic treatment.
- (vii) Dental treatment.

Minor Ailments.—Table IV, Group I, in the Appendix, gives details of the treatment of minor ailments (skin diseases, minor eye and ear defects, etc.), from which it will be seen that altogether 1,347 such defects were treated at the school clinics, as compared with 1,171 in 1927.

The nurses of the Queen's Institute of District Nursing have, as usual, rendered useful assistance in the treatment of minor ailments. One hundred and three cases were referred to them for treatment, and they paid 1,843 visits to the homes of children to administer treatment. Details of this work are given below :—

Disease or Defect	Cases Carried over from 1927		Cases Referred for Treatment during 1928		Totals	
	Cases	Visits	Cases	Visits	Cases	Visits
Skin :—						
Ringworm	1	13	...	...	1	13
Impetigo	6	167	42	491	48	658
Other Skin Diseases ... ..	...	...	5	170	5	170
Minor Eye Defects	1	14	5	278	6	292
Minor Ear Defects ... ..	...	...	11	184	11	184
Miscellaneous	1	4	40	522	41	526
Totals	9	198	103	1,645	112	1,843

First-Aid Outfits.—To enable teachers to render first aid in the many minor accidents which occur at schools, first-aid outfits, contained in metal boxes, have been supplied. New supplies of dressings, etc., required to replenish the outfits are supplied by the Department on the application of head teachers. The contents of these first-aid boxes are as follows :—

1. Dressings, etc :—

1 Triangular Bandage.
 Roller Bandages :—
 6 one-inch.
 6 two-inch.
 3 three-inch.
 6 packets of Boracic Lint.
 1 roll plain Gauze.

1 roll Cotton Wool.
 Burn Dressings :—
 3 large.
 3 small.
 1 spool Adhesive Plaster.
 Safety Pins.

2. *Instruments* :—

Pair of Scissors.
 Camel-hair Brush.
 Rubber tubing for Tourniquet.

3. *Bottles* :—

Ol. Ricini (Castor Oil).
 Tr. Iodi (Tincture of Iodine).
 Boracic Powder.

A copy of the following common first-aid rules is supplied with each outfit :—

Wounds.—Wash immediately in running water and then in Iodine Solution (one teaspoon of the Tincture to a pint water). Paint around wound with Tincture of Iodine. Cover with sterile dressing (gauze or lint) and bandage.

Bruises.—Cold water dressings relieve pain. If there is also a wound, treat as above.

Burns.—Put on burn dressings and apply bandage at once. It is not necessary to wash a burn before dressing.

To Stop Hæmorrhage (Bleeding) :—

1. From small cuts, firm pressure with sterile pad on wound.
2. If more severe, pressure on suitable pressure point (see below).
3. Hæmorrhage below the knee or elbow is promptly stopped by bending the knee or elbow joint as far as possible and elevating the limb.

4. *Hæmorrhage from a Main Artery (evidenced by rhythmic spouting of blood)*.—Do not waste time searching for pressure points. Grasp the limb firmly above the wound, send for the rubber band (tourniquet) and apply it tightly around the limb, tying the second knot over a pencil, stick or pocket-knife handle. Twist the pencil, etc., so as to tighten the tourniquet. A responsible person must stay with the child until a doctor sees him.

N.B.—The tourniquet should always be kept on the top of the contents of the box.

Foreign Bodies in Eye (grit, dust, etc.) :—

1. Pull upper eyelid well down over lower and let go suddenly.
2. If this is unsuccessful, standing behind patient invert upper eyelid over a match laid horizontally along the outside of it and wipe off foreign body with corner of handkerchief.
3. If still unsuccessful drop in some Ol. Ricini (Castor Oil) and cover the eye with gauze pad and bandage.

PRESSURE POINTS.

Exact knowledge of these may be gained by practising compression of one's own or another person's arteries. In thin persons throbbing can be seen and the pressure point is at once evident. The artery must be pressed against the adjacent bone firmly until all pulsation stops. Examples of pressure points readily accessible :—

1. Pressure on the cheek bone in front of the ear opening will control bleeding from the front two-thirds of the scalp. Bleeding from the back of the head is best treated by direct firm pressure on the wound.
2. Pressure on the lower jaw bone at a point two fingers breadth ($1\frac{1}{2}$ ") in front of the angle will control bleeding from the face.
3. In the upper third of arm, pressure against the bone along the inner margin of the biceps muscle in a backward and slightly outward direction will stop bleeding below this point.
4. Direct backward pressure on a point in the middle of the fold of the groin will stop hæmorrhage in the thigh.

Ringworm.—Two hundred and thirty-four cases of ringworm were treated by or under the supervision of the medical staff of the Department. Of this number 95 were cases of ringworm of the scalp, 56 of whom were treated by X-rays. The X-ray apparatus is used both for the treatment of ringworm and for radiography, and the work done in this connection is dealt with by Dr. Anderson in the following notes :—

Notes by Dr. Anderson on X-ray Treatment of Ringworm of the Scalp and on Radiography.

" During 1928, 56 cases of ringworm of the scalp received treatment by X-rays. A complete cure, followed by a good growth of healthy hair, was obtained in 52 cases, and there has been no recurrence of the disease in these cases. The remaining 4 cases gave less satisfactory results. It may be of interest to deal with each of these cases individually. By doing this some of the difficulties met with during

treatment are brought to light, and some of the causes of the failure to cure are explained.

"*Case I.*—R. S., age 3½ years. Large ringworm of vertex with several smaller infected areas on frontal and left parietal regions requiring treatment of the whole head. An irritating cough, coupled with extreme fretfulness and restlessness of the child during irradiation permitted treatment of only three areas. Infection of non-irradiated areas persisted.

"*Case II.*—I. S., age 6 years. Extensive ringworm of whole scalp requiring treatment of whole head. After the first area was treated, the child became restless and sobbed so much that it was quite impossible to continue irradiation. Infection of non-irradiated areas persisted.

"*Case III.*—J. C., age 8 years. Two infected areas on vertex. Remainder of scalp appeared healthy. Mother unwilling for whole head to be irradiated. Vertex irradiated. Two weeks after irradiation of above area, fresh infection of right parietal region detected.

"*Case IV.*—A. H., age 5 years. Diffuse ringworm of whole scalp. Whole head irradiated. Child showed extreme 'bossing' of both parietal bones. Some difficulty was therefore met with in mapping out the five areas necessary to cover the whole head. Although given an X-ray dose equal to that given to other cases treated satisfactorily on the same day, epilation of the vertex was incomplete and infection persisted there.

"The average period of exclusion from school after X-ray treatment for the 52 cases successfully treated was found to be 31 days. Further details of the exclusion period in the series of cases are given in the following table:—

Number of Days of exclusion from School after X-ray treatment	Number of Cases	Percentage
15—20	3	5·77
21—25	9	17·31
26—30	18	34·61
31—35	12	23·08
36—40	6	11·54
Above 40	4	7·69
Total	52	100

"It is interesting to note that this table agrees very closely with the table included in the Report for 1927 showing the exclusion period of a similar number of cases of ringworm of the scalp treated by X-rays.

"As in previous years, school holidays and intercurrent illness in the home have led to the children's absence from supervision at the critical stage of the defluvium. This has led in some instances to prolongation of the exclusion period from school after irradiation. A more important point, however, is the apathy shown by some parents during the defluvium. In many cases the number of days exclusion from school after treatment could have been reduced considerably if the parents had carried out the simple written and verbal instructions given to them. Even after an adequate dose of the rays has been given, a few infected stumps may not fall out easily. The necessity to remove these manually was impressed upon all parents, but, in spite of this, children were frequently brought up to the clinic after treatment with little evidence to show that any attempt had been made to assist epilation.

"Partial treatment was carried out in 14 cases. With the exception of the case mentioned (*Case III*) all were cured and no re-infection was observed. It would appear that, provided the case be an early one and the disease localised to one or possibly two areas, partial treatment may be expected to give a good proportion of cures, but the risk of the spread of infection to healthy hairs during the defluvium and also the possibility of overlooking minute infected areas in apparently

healthy parts of the scalp must always be borne in mind. For these reasons, complete irradiation at the first sitting tends to save time and trouble, while it assures eradication of the disease.

"The ages of patients treated have varied from 3 to 14 years.

"Some difficulty is still met with in making parents realise the advantage of early X-ray treatment. Their arguments against its application are usually (1) that the child will not 'look nice' with the hair off and (2) that, as they have cured ringworm of the skin of the face or body or limbs in two weeks by the daily application of a little Tincture of Iodine, then it should be possible to cure ringworm of the scalp in the same way. The latter statement is very common.

"In several cases, heads, which when first seen at the clinic could probably have been cured by partial epilation, have been cured after the loss of several months of school attendance only by complete epilation of the whole scalp for ringworm which had become extensive. As an illustration of the great loss of school attendances resulting from ringworm of the scalp, and, at the same time, emphasising the great value of X-rays as a method of treatment, the following case is worthy of note:—

"*Case V.*—D. H., age 7 years. Suffered from chronic diffuse ringworm of the scalp since December, 1924. Had been excluded from school since then. Refused X-ray treatment. Various ointments tried with little or no effect. X-ray treatment accepted in November, 1928. Whole head irradiated 21st November, 1928, resulting in complete epilation. Child free from infection and returned to school on 17th December, 1928. The disease which had lasted four years, during which time the child had been excluded from school, was cured by X-rays in 26 days.

"*General and Dental Radiography.*—The co-operation existing between the X-ray department and all branches of the School Medical Service continues. Most cases are referred for X-ray examination from the orthopædic branch, but many cases are also referred from the minor ailment and dental clinics and routine inspections. Since the opening of the artificial light clinic in connection with the Maternity and Child Welfare Service cases of rickets are referred for X-ray examination from that source, both before and after treatment. One session a week is devoted to radiography and on an average four cases attend per session. Altogether, 120 radiographic examinations were made during the year (81 School Medical Service and 39 Maternity and Child Welfare cases)."

Visual Defects.—The record of treatment of visual defects is shown in Table IV, Group II (a) and (b), in the Appendix. Altogether, 1,217 children were dealt with at the clinics, of whom 1,010 required examination for errors of refraction. The examination of 885 was completed during the year, spectacles being prescribed in 819 instances, and by the end of the year 631 children were known to have obtained them. The number of children examined for defects other than errors of refraction, was 105 and appropriate treatment was given in each case. In addition, 57 children examined for errors of refraction were also treated for other eye defects.

The following table, prepared by Dr. Sheasby, showing the visual diseases and defects found in children treated at the special clinic, amplifies the information given in the tables contained in the Appendix:—

Diseases or Defects					Boys	Girls	Totals
Squint	...	...	...	...	89	58	147
Errors of refraction—							
Hypermetropia	...	...	...	...	171	117	288
Myopia	...	...	...	...	71	70	141
Astigmatism—							
Hypermetropic	...	...	...	...	146	168	314
Myopic	...	...	...	...	59	53	112
Mixed	...	...	...	...	45	52	97

Diseases or Defects	Boys	Girls	Totals
Conjunctivitis	21	34	55
Phlyctenular conjunctivitis	10	17	27
Blepharitis	39	45	84
Cataract—			
Congenital	4	3	7
Traumatic	1	...	1
Optic neuritis and choroiditis	3	3	6
Keratitis	5	7	12
Nebulae	25	13	38
Leucoma adhaerens	2	1	3
Corneal ulcer	1	1	2
Nystagmus	3	2	5
Persistent pupillary membrane	1	1	2
Injury to eye	2	...	2
Meibomian cyst ... ..	...	1	1
Cellulitis of eyelid	2	3	5
Foreign body	1	...	1
Persistent hyaloid artery	1	...	1
Sebaceous cyst	1	...	1
Totals	703	649	1,352

Ear, Nose and Throat Defects.—Particulars of operative and other forms of treatment of ear, nose and throat defects carried out at the clinics are given in the Appendix, Table IV, Group III (a) and (b), from which it will be seen that 1,085 nose and throat cases were examined, and that 594 received operative treatment, 44 operative and other forms of treatment, and 203 other forms of treatment only. The number of cases of serious ear defects dealt with was 221, of whom 200 received appropriate treatment.

A note by Dr. Sheasby on the treatment of otorrhœa by zinc ionisation is given below.

Note by Dr. H. Sheasby on the Treatment of Otorrhœa by Zinc Ionisation.

“The following tables show the results of treatment during 1928 :—

(a) Otorrhœa of Both Ears :—

	Boys	Girls	Totals
Cured	3	9	12
One ear cured ; other ear no change ... ..	...	2	2
No change	1	1	2
Totals	4	12	16

(b) Otorrhœa of One Ear :—

	Boys	Girls	Totals
Cured	32	28	60
Much improved	3	1	4
No change	6	8	14
Still under treatment	4	...	4
Totals	45	37	82

“The figures are very similar to those of last year, 73·4 per cent. being discharged as cured, as compared with 73·3 per cent. It should be borne in mind that all cases of otorrhœa seen at the clinics are not ionised, many of the earlier

cases being treated with drops and cleared up without ionisation. Forty of the children had suffered from otorrhœa for periods varying from 1 year to 10 years, the remaining 58 having had the discharge for periods varying from 1 month to 1 year. Of 35 children who showed various degrees of impairment of hearing up to inability to hear the loud, spoken voice at a distance of six yards, 23 were normal when discharged, 3 had improved and 9 showed no improvement in hearing.

"The ascribed causes of the disease, as given by parents, were:—

Operative treatment of enlarged tonsils and/or adenoids	...	...	2	Blow on head	...	...	1
Teething	...	...	2	Scarlet fever	...	...	4
Fall	...	...	1	Measles	...	...	5
Colds	...	...	5	Diphtheria	...	...	2
				Bathing	...	...	4

"In the remaining cases no cause was given.

"Treatment by zinc ionisation has now been in operation for three years, and, altogether, 249 cases have been treated, 149 of whom have been discharged as cured; so that any recurrences of the otorrhœa should now begin to present themselves. A special note was made of those that returned for treatment. So far, only 5 such cases have come under observation, but no special search or following up has been undertaken. One of these returned with recurrent otorrhœa after 6 months, one after 11 months, two after 1 year and one (as the result of bathing) after 2 years. Four of these cases became dry again after ionisation, but one did not improve.

"Experience leads to the impression that zinc ionisation is a very valuable part of school medical work. It is preventive in nature in that it removes the risk of the serious sequelæ of otorrhœa. It is work that the family doctor has neither time nor facilities to carry out, while out-patient departments of hospitals are already so crowded that it is difficult for the work to be undertaken by them."

Crippling Defects and Orthopædics.—The number of non-tuberculous crippled children of school age known to the Department at the end of the year was 326. Of these, 308 were attending elementary schools, 2 were at residential schools, while 16 were at no school or institution.

The following is a summary of the work carried out at the orthopædic clinic during 1928:—

				Children of School Age
<i>Consultation Clinic:—</i>				
Examined for the first time	...	...	...	318
Recommended for treatment for first time	...	...	...	227
Previously treated, recommended for additional treatment	...	...	...	125
<i>Recommendations for:—</i>				
Treatment in Hospital	...	...	...	51
Treatment at Clinic	...	...	...	124
Appliances	...	...	...	22
Alterations to appliances	...	...	...	6
Special boots	...	...	...	4
Alterations to boots	...	...	...	86
Other forms of treatment	...	...	...	61
Treated at Clinic for first time	...	...	...	6
Attendances at Clinic	...	...	...	935
<i>Routine Treatment (massage, electricity, exercises, etc.):—</i>				
Treated at Clinic for first time	...	...	...	82
Attendances for routine treatment	...	...	...	2,548

The following statement relates to treatment at and provision of appliances, etc., through the Prince of Wales' Hospital, Cardiff, during 1928 :—

	Children of School Age.
<i>Hospital Treatment :—</i>	
Admitted to Prince of Wales' Hospital—	
(a) Day cases	1
(b) Other cases	43
Under treatment at Prince of Wales' Hos- pital at end of 1928	1
On Prince of Wales' Hospital waiting list at end of 1928—	
(a) Day cases	2
(b) Other cases	17
<i>Other treatment or provision (including appliances, etc., provided following hospital treatment)—</i>	
Appliances provided	63
Appliances altered	7
Special boots provided	8
Alterations to boots	57
Other forms of treatment provided	14

The following report by Dr. Betenson deals with the work of the orthopædic scheme during 1928, as regards both children under and of school age. The clinic exists both for school children and for those under school age, the local education authority, of course, being responsible only for the cost of the former.

Report by Dr. W. F. W. Betenson on the Orthopædic Scheme.

"During the year much time has been spent in exploring the position of what is really a fresh subject for us to take up—spinal deformities—and in attempting to add something to our present knowledge of the epidemics of poliomyelitis in Cardiff. Even now the matter given on these two questions is felt to be very incomplete and not up to the standard of what it had been hoped to present.

"The general working of the orthopædic scheme and detailed classification of the physically defective children were dealt with at some length in the Report last year and it is not proposed, nor is it considered necessary, to go into such detail again. The report will therefore be confined to (1) new cases seen at the clinic, (2) cases discharged from the clinic, (3) cases seen by the specialist, (4) treatment given at the clinic, and (5) nurses' visits.

"*New Cases seen at the Clinic.*—These have been divided into three categories—slight, moderate and severe. These terms apply to the extent of handicap which it is thought any case of a particular type would present after leaving school. For example, taking two extremes, it is not intended to imply that a severe case of post-adenoids* would be equally severely handicapped as a case of severe poliomyelitis.

Children under School Age—New Cases.

Complaint	Slight	Moderate	Severe	Totals
Poliomyelitis	1	4	1	6
Spastic Paralysis	4	...	...	4
Birth and Facial Palsy	1	1	...	2
Congenital Defects	14	3	3	20
Trauma	9	...	...	9
Rickets	14	5	4	23
Tibial Curves	8	...	...	8
Flat Feet	7	...	...	7
Others	20	7	1	28
Totals	78	20	9	107

*These are cases referred for breathing exercises after operative treatment of adenoids.

"No attempt has been made to classify children under school age as regards educational fitness. Unfortunately, up to the present, it has not been possible to combine orthopædic massage and artificial light treatment in as many cases as could have been hoped for. It is not reasonable to expect mothers to bring their children twice a week for massage and again the requisite number for light treatment, and the combination of both on the same day is difficult to fit into the time table of the orthopædic nurse. In my opinion, there is no doubt that the ideal treatment should combine both methods if it could be arranged.

School Children—New Cases.

Complaint	Slight	Moderate	Severe	Totals
Poliomyelitis	9	3	1	13
Spastic Paralysis	6	3	...	9
Birth and Facial Palsy	3	3	...	6
Congenital Defects	8	5	2	15
Trauma	19	3	...	22
Rickets	4	...	1	5
Tuberculosis—Non-Active ... ..	...	2	1	3
Scoliosis	12	3	...	15
Kypho-Lordosis	87	8	5	100
Round Shoulders	13	1	1	15
Flat Feet	19	2	2	23
Post-Adenoids*	11	...	2	13
Others	72	7	...	79
Totals	263	40	15	318

"All the new cases of school children have been in every instance fit for elementary school life, with the exception of one girl, aged 5, who is attending school with very severe poliomyelitis. For this case residential institutional education will be necessary at a later date.

"The number of kypho-lordosis cases has greatly increased from last year, as this has been a subject of special investigation.

New cases seen in 1927 and 1928.

Year	Children under School Age	School Children	Totals
1927	103	209	312
1928	107	318	425

"The great increase of school children over those of younger ages is to be accounted for by (1) the very large number of kyphosis cases seen and (2) the opening of the artificial light clinic which has caused the cases of rickets to be diverted to that clinic.

"*Cases discharged from the Clinic.*—Under this heading are all children who have been struck off the attendance diary (i.e., they will not be sent for again unless by special request) but the parents of these have been encouraged and told to bring them again should they feel at any time dissatisfied with their condition.

"The tables include all those cured and improved who have received any kind of treatment, operative or other, connected with the department. Under the heading 'other reasons' come bad attendance, over school age, left the district, death, etc. In these tables no case is counted more than once. Thus, for instance, any case who improved at all is counted under that heading even though the case may have been discharged ultimately for other reasons.

* These are cases referred for breathing exercises after operative treatment of adenoids.

Children under School Age Discharged.

Complaint	Cured	Much improve- ment	Some improve- ment	No improve- ment	No abnor- mality detected	Other reasons	Totals
Poliomyelitis ...	...	...	...	...	...	1	1
Birth and Facial Palsy ...	1	1	...	...	...	1	3
Congenital Defects	3	1	...	...	1	3	8
Trauma ...	3	...	...	...	...	...	3
Rickets ...	7	1	1	...	...	10	19
Tibial Curves ...	5	3	1	1	...	4	14
Round Shoulders	...	1	...	...	...	...	1
Flat Feet ...	...	...	...	...	...	3	3
Others ...	1	1	...	1	2	6	11
Totals ...	20	8	2	2	3	28	63

School Children Discharged.

Complaint	Cured	Much improve- ment	Some improve- ment	No improve- ment	No abnor- mality detected	Other reasons	Totals
Poliomyelitis ...	...	2	3	...	1	14	20
Spastic Paralysis ..	...	...	2	...	...	7	9
Birth and Facial Paralysis ...	...	...	...	...	1	2	3
Congenital Defects	1	...	1	...	...	3	5
Trauma ...	3	1	...	...	6	5	15
Rickets ...	...	...	...	...	1	3	4
Scoliosis ...	5	1	2	...	8	3	19
Kypho-Lordosis ...	7	10	5	1	5	18	46
Round Shoulders	3	1	1	2	...	6	13
Flat Feet ...	...	3	...	...	1	4	8
Post Adenoids* ...	1	...	...	...	1	4	6
Others ...	6	1	5	...	12	27	51
Totals ...	26	19	19	3	36	96	199

“Specialist Clinics.”—These were few during the year owing to the unfortunate illness of Mr. Alwyn Smith. In May, however, cases accumulated for whom specialist advice was considered necessary and Mr. Haycraft came. When Mr. Parker started duty in Cardiff, owing to certain differences in technique from what had been usually done hitherto, it was deemed advisable to get up for him all cases who had been put on the waiting-list for in-patient treatment since May and these clinics were very full and the attendance satisfactory.

						Number sent for	Number attended
January to April (no clinics) ...	...	...	...	...	...	...	...
May (Mr. Haycraft) ...	...	...	...	...	...	30	17
June to September (no clinics) ...	...	...	...	...	...	...	...
October (Mr. Parker) ...	...	...	...	...	...	31	25
November (Mr. Parker) ...	...	...	...	...	...	30	24
December (Mr. Parker) ...	...	...	...	...	...	28	26
Total ...	...	...	...	...	...	119	92

*These are cases referred for breathing exercises after operative treatment of adenoids.

" *Routine Treatment at the Clinic.*—During the year 175 children attended for routine treatment and made 3,359 attendances, compared with 152 and 3,117 respectively in 1927. The average number of attendances for treatment per case worked out at 19·2, compared with 20·5 in 1927.

Children	Improvement shown				Totals	Attendances for Treatment
	None	Some	Marked	Cured		
Under School Age	15	13	9	16	53	811
Of School Age	42	27	25	28	122	2,548
Totals	57	40	34	44	175	3,359

Analysis of the 57 cases that showed no improvement.

	Under School Age	Of School Age	Totals
Refused to continue attendance	6	17	23
Unable to attend—distance too far	3	3	6
Unable to attend—owing to illness	1	4	5
Left school or left Cardiff ... ..	...	2	2
Other reasons	3	11	14
Still under treatment	2	5	7
Totals	15	42	57
Number of treatments given	137	343	480
Average number of treatments per case	9·1	8·2	8·4

" *Visits made by the Nurses (Orthopædic).*—As usual, all cases discharged from the Prince of Wales' Hospital in plaster have been visited each week. It has been very rare to find a child who has any sore developing under the plaster. However, the liability of such to occur has to be kept in mind and for this reason the regular visits are necessary.

Visits made to :—

Children under School Age	146
School Children	446
Total	592

" *General.*—In conclusion, it appears to me that the function of an orthopædic clinic conducted by a local authority must tend in the future to specialise in the correction of postural defects in school children. During the latter half of 1928 much attention was given by me at the routine inspections to the proportion of postural defect, but the whole problem seems much more involved than was originally thought to be the case. The difficulty is enhanced by the fact that such an authority as Sir Robert Jones confesses his inability to define a normal back. There is, however, one point which demands attention, and that is whether it would not be better to have children suffering from postural defects up daily to the clinic for exercises for a month in preference to the present system of twice a week for about three months. This would, unfortunately, with the present available accommodation, seriously inconvenience other cases attending for treatment,

"During the year the importance of an orthopædic clinic for gauging the real extent of past epidemics of poliomyelitis was exploited. Inquiries were made in every known case on the register for date of, and place of abode at, onset. This was easy up to a point, but when one came to inquire into the precise month of onset, as to whether a doctor was called in at the time, and when the paralysis was first noticed, most parents found difficulty in being certain in their replies.

"It is a matter of great regret that the results of these two inquiries are incomplete, and I do not feel justified in putting the information obtained in this report."

Dental Inspection and Treatment.—Details of dental inspection and treatment are given in the Appendix (Table IV, Group IV). There has been a further increase in the number of children examined and treated. The total number of children inspected by the dentists was 18,103, of whom 14,471 were found to require treatment. The number of new cases treated was 5,701 and 3,248 were re-treated as the result of periodical examination. In addition to new cases, an increasing number of children who have been previously treated have been found on re-inspection to require further attention. Since 1925 we have aimed at following up throughout their school-life all the children treated in infancy, so that the dentists are dealing with a steadily increasing population. For instance, the number of such children brought back for treatment as the result of re-examination has increased from 1,201 in 1926 and 1,427 in 1927 to 3,248 in 1928. Combination of the new and old cases in each of the three years during which the present establishment has been in full working order reveals very substantial growth in the number of children dealt with, as shown by the following table:—

	1926.	1927.	1928.
Number of children treated for the first time	4,182	4,583	5,701
Number of children re-treated	1,201	1,427	3,248
Total	5,383	6,010	8,949
Number of Attendances	12,007	13,719	16,492

PROVISION OF MEALS.

The following statement of the meals given during the years 1921-8 has been kindly supplied by the Superintendent School Attendance Officer:—

	Number of Canteens	Number of Meals Supplied	Average Weekly Number of Meals	Average Weekly Number of Children fed
1921	13	594,411	11,655	1,148
1922	12	182,094	3,501	434
1923	8	35,700	686	144
1924	7	27,378	526	110
1925	7	52,960	1,018	169
1926	8	119,572	2,299	292
1927	8	143,633	2,762	316
1928	11	225,415	4,335	479

PHYSICAL EDUCATION.

Miss Maud M. Brown, Chief Organiser of Physical Education, has submitted the following report on physical education in elementary schools during 1928 :—

" I beg to submit the following report on the work of Physical Education in the City of Cardiff Primary Schools.

" During 1928, 185 visits have been paid to girls', mixed, infants' and special schools, to swimming baths, playing fields and parks. Twenty-two teachers' classes have been held. Seven demonstrations have been arranged, and 182 sessions given to the work of organisation.

" The classes in physical education in the schools continue to vary considerably, and it is very marked that the children taught by teachers who have shown real interest in the work by attending up-to-date training classes arranged by the Committee are gaining benefit and increased happiness in their school work, because physical education must form part of education as a whole. The recognition of this by the teacher in practice has a beneficial effect upon the whole of school work, and the girls who have the advantage of daily exercise are those who gain success in school awards.

" *Teachers' Classes.*—A class for organised games, attended by 45 teachers, was held during the summer term. Forty-seven teachers attended a course of lessons in physical education during the autumn term. The attendance at both these courses was a good average, and much enthusiasm was shown by the teachers who formed the classes.

" *Net Ball Competition.*—The first net ball competition was held during the summer term, the matches being played in Sophia Gardens Field. Fourteen teams were entered. The final match between the two highest scorers was played on Tuesday, July 24th, when Miss A. Rogers, Organiser of Physical Education for the Glamorgan Education Committee, kindly umpired.

The result was as follows :—

Herbert Thompson C. Girls' School (A. Team)	...	...	...	18 points.
Maindy C. Girls' School (A. Team)	...	...	...	15 "
Maindy C. Girls' School (B. Team)	...	...	...	13 "
Viriamu Jones C. Girls' School (A. Team)	...	...	...	11 "
Lansdowne Road C. Girls' School	...	...	...	9 "
Adamsdown C. Girls' School	...	...	...	7 "
St. David's R.C. Girls' School	...	...	...	7 "
St. John's National Girls' School	...	...	...	5 "
St. Patrick's R.C. Mixed School (A. Team)	...	...	...	3 "
St. Patrick's R.C. Mixed School (B. Team)	...	...	...	2 "
Ely C. Mixed School	...	...	...	Withdrew.
St. Alban's R.C. Mixed School	...	...	...	"
Viriamu Jones C. Girls' School (B. Team)	...	...	...	"
Herbert Thompson C. Girls' School (B. Team)	...	...	...	"

Final Match :—

Herbert Thompson C. Girls' School (A. Team)	...	...	...	16 goals.
Maindy C. Girls' School (A. Team)	...	...	...	10 goals.

" Miss Rogers complimented the two final teams on their good play; she said it was a very encouraging first final match and she hoped they would go ahead and improve so that with years of experience they will play a really excellent game. The teachers who trained the girls are to be complimented on their good training work. It was a pleasure to see the activity and keen spirit shown by all the teams in the competition. The matches were close contests, each team having to play hard in order to win. There are a number of points to improve the game, such as greater speed when not holding ball, quicker to pass to a free player, to get free into open spaces, accurate throwing for goal, especially from circle, and stronger defence.

Rounders Competition.—The following are the results of competition matches:—

Adamsdown C. Girls' School	...	...	...	22 points.	
Allensbank C. Girls' School	...	...	...	22	"
Maindy C. Girls' School	...	...	...	19	" (3 drawn matches)
Lansdowne Road C. Girls' School	...	...	...	18	" (4 " ")
St. John's National Girls' School	...	...	...	17	" (3 " ")
Llandaff C. Mixed School	...	...	...	16	" (2 " ")
Marlborough Road C. Girls' School	...	...	...	16	"
Viriamu Jones C. Girls' School	...	...	...	16	" (6 drawn matches)
St. Alban's R.C. Mixed School	...	...	...	13	" (3 " ")
Canton National Girls' School (B. Team)	...	...	...	8	" (2 " ")
Canton National Girls' School (A. Team)	...	...	...	6	"
St. Francis' R.C. Mixed	...	...	...	5	" (5 drawn matches)
Eleanor Street C. Mixed School	...	...	...	4	" (2 " ")
Herbert Thompson C. Girls' School	...	...	...	4	" (2 " ")

The drawn matches were due to wet weather.

The final match was played on Saturday, July 21st, the score being—

				<i>Adamsdown.</i>	<i>Allensbank.</i>
1st Innings.	...	...	...	53 points.	171 points.
2nd "	...	...	...	92 "	61 "
Total				145 "	232 "

" Allensbank Girls' School are thus the holders of the Frederick Evans' challenge cup for the second year, while Adamsdown Girls' School are the holders of the picture of Peter Pan. Eighteen teams entered the competition; an increase of eleven. The general standard of play has improved during the year, especially the fielding, and the team captains are placing their field more effectively. The increase in the number of matches played has raised the question of transport on trams and buses, which has been a great difficulty for most schools. It would be an incentive to a larger entry in future years, and give equal opportunities to each school, to have free transit to and from school and playing fields by arrangement with the Tramways Committee. No extra expense would be entailed because the children could use the ordinary service.

" *Swimming.*—Each season a larger number of children learn to swim, and at the Cardiff Schools Gala it was noted the style of strokes had improved during the year. At a test given in September 30 girls gained certificates for swimming 100 yards, while 3 gained certificates for 200 yards. The Corporation Swimming Bath is being kept open during the winter months. It would be an advantage for the schools to continue their swimming lessons during the whole year, as more effective teaching can be given during the winter owing to the small numbers of the general public attending during school hours.

" *Demonstrations.*—During Cardiff Health Week the following schools took part in the various programmes at the Assembly Hall, City Hall, and on the green outside:—Allensbank C. Girls, Birchgrove C. Mixed, Canton National Girls', Ely C. Mixed, Hawthorn C. Mixed, Herbert Thompson C. Girls', Kitchener Road C. Girls', Llanishen National Mixed, Marlborough Road C. Girls', Roath Park C. Girls', St. David's R.C. Girls', St. David's R.C. Infants', St. John's National Girls', and Wood Street C. Girls'. The work shown on the whole was good and should be a means of raising the standard of physical education in the Cardiff schools. The active work which is being done in the schools was demonstrated by the girls and boys under the direction of their teachers. This part of the programme was very enthusiastically received by large audiences, and the children are to be commended on their efforts and their very neat and uniform appearance.

"A display of dancing was given on June 12th at the Cardiff Juvenile Organisations' Demonstration at Cardiff Arms Park, when 632 children danced country dances to the jolly tunes played by the Mellingriffith Band. The children were drawn from the following schools:—Adamsdown C., Allensbank C., Court Road C., Grangetown C., Hawthorn C., Herbert Thompson C., Lansdowne Road C., Llanishen National, Ninian Park C., Severn Road C., St. John's National, St. Joseph's R.C., Viriamu Jones C. and Wood Street C. The dancing of these girls and boys was delightful, and their teachers are to be congratulated on the good work. This is an indication of the type of training being given in the schools that took part.

"*General.*—The work in physical education during 1928 has shown marked progress. A greater number of teachers have shown interest in this branch of education, thus helping the children to attain a higher standard of mental and physical development."

EMPLOYMENT OF CHILDREN AND YOUNG PERSONS.

During the year, 22 children (20 boys and 2 girls) who had left school were examined by medical officers of the Department at the request of the Juvenile Employment (Education) Officer and reports were sent for his guidance.

The following report relating to the employment of children of school age and young persons has kindly been supplied by the Juvenile Employment (Education) Officer, Mr. Ben Williams:—

"A child under the age of 12 years cannot now be legally employed. The approximate number of child employees under the old conditions was 2,000. They were from 10 years of age and upwards, and worked anything up to 36 hours a week, before, between and after school hours.

"The hawking of newspapers is illegal except for boys over the age of 15 years. Boys between 15 and 16 years need a licence for this work.

"Fifteen hours per week is the maximum number of hours which a child may be employed under the provisions of the Bye-Laws made under the Employment of Children Act, 1903, as amended by the Education Act, 1918, excepting in the delivery of milk and newspapers, where two hours employment is allowed on Sunday mornings, which makes a maximum of 17 hours per week for these two employments.

Ages of School Children Employed out of School Hours.

	12 years	13 years	14 years	Totals
Boys	40	128	30	198
Girls ... ..	...	...	...	...
Totals	40	128	30	198

Nature of Employment of School Children Employed out of School Hours.

Nature of Employment	Boys	Girls	Totals
Delivery of Bread	9	...	9
Delivery of Milk	5	...	5
Errands	96	...	96
Miscellaneous	88	...	88
Totals	198	...	198

**Number of Hours of Employment per Week (including Saturday and Sunday)
of School Children Employed out of School Hours.**

Number of Hours per Week						Boys	Girls	Totals
1
2	2	...	2
3
4
5	8	...	8
6
7	5	...	5
8
9
10	1	...	1
11
12	25	...	25
13	18	...	18
14	16	...	16
15	105	...	105
16	4	...	4
17	14	...	14
Totals						198	...	198

“Entertainment Section.”—The number of children licensed by the Education Committee and examined by medical officers of the School Medical Officer's Department during 1928, was 51, and 38 children visited Cardiff on licence from other areas.”

MEDICAL EXAMINATION OF TEACHERS.

All teachers newly appointed under the Education Committee and other teachers sent for special reasons are examined by the medical staff, and appropriate reports are forwarded to the Director of Education. During the year 32 teachers (18 males and 14 females) were examined, the actual number of examinations made being 34.

APPENDIX.

YEAR ENDED 31st DECEMBER, 1928.

TABLE I.

RETURN OF MEDICAL INSPECTIONS.

A.—ROUTINE MEDICAL INSPECTIONS.

	Elementary Schools			Secondary and High Schools		
	Boys	Girls	Totals	Boys	Girls	Totals
Entrants	2,578	2,445	5,023	...	...	...
Intermediates	1,161	481	1,642	...	...	...
Leavers	1,444	1,418	2,862	...	...	...
Other Routine Inspections ...	...	...	...	1,525	1,381	2,906
Totals	5,183	4,344	9,527	1,525	1,381	2,906

B.—SPECIAL INSPECTIONS.

			Elementary Schools			Secondary and High Schools		
			Boys	Girls	Totals	Boys	Girls	Totals
Special inspections	{ At School ...	...	428	285	713	...	...	...
		{ At School Clinic	1,818	2,233	4,051	12	21	33
	Totals ...	...	2,246	2,518	4,764	12	21	33
Re-inspections	{ At School ...	...	841	693	1,534	...	...	...
		{ At School Clinic	2,489	2,546	5,035	47	50	97
	Totals ...	...	3,330	3,239	6,569	47	50	97

TABLE II.

A.—RETURN OF DEFECTS FOUND BY MEDICAL INSPECTION.

DISEASE OR DEFECT	ROUTINE INSPECTIONS				SPECIAL INSPECTIONS			
	Elementary Schools		Secondary and High Schools		Elementary Schools		Secondary and High Schools	
	Requiring Treatment	To be kept under Observation	Requiring Treatment	To be kept under Observation	Requiring Treatment	To be kept under Observation	Requiring Treatment	To be kept under Observation
Malnutrition	39	52	...	...	55	22	...	...
Uncleanliness	131	...	8	...	8	...	...	...
Skin :—								
Ringworm :—								
Scalp	6	...	...	...	90	...	1	...
Body	3	...	1	...	128	...	...	...
Scabies	11	...	...	...	104	...	...	...
Impetigo	33	...	...	...	626	...	...	...
Other Diseases (Non-Tuberculous) ...	22	2	...	1	169	6	1	...

TABLE II. A—continued.

DISEASE OR DEFECT	ROUTINE INSPECTIONS				SPECIAL INSPECTIONS			
	Elementary Schools		Secondary and High Schools		Elementary Schools		Secondary and High Schools	
	Requiring Treatment	To be kept under Observation	Requiring Treatment	To be kept under Observation	Requiring Treatment	To be kept under Observation	Requiring Treatment	To be kept under Observation
Eye :—								
Blepharitis ...	35	...	3	...	58	...	3	...
Conjunctivitis ...	2	1	...	...	21	...	...	...
Keratitis ...	...	...	...	...	2	...	...	...
Corneal Opacities ...	...	...	...	...	1	...	...	...
Defective Vision (excluding Squint) ...	402	90	176	6	358	19	3	...
Squint ...	59	1	1	...	62	...	...	...
Other Conditions ...	5	3	1	...	17	2	1	...
Ear :—								
Defective Hearing ...	48	...	11	1	60	...	...	...
Otitis Media ...	73	3	14	...	110	1	...	...
Other Ear Diseases ...	19	1	6	...	18	1	...	...
Nose and Throat :—								
Enlarged Tonsils only ...	370	243	43	15	260	22	...	1
Adenoids only ...	30	20	4	3	34	1	...	...
Enlarged Tonsils and Adenoids ...	49	13	10	...	80	...	...	...
Other Conditions ...	31	13	10	...	77	4	...	...
Enlarged Cervical Glands (Non-Tuberculous) ...	10	14	3	...	16	2	...	...
Defective Speech ...	11	14	4	2	5	5	...	...
Teeth :—								
Dental Diseases ...	921	...	433	...	202	...	1	...
Heart and Circulation :—								
Heart Disease :—								
Organic ...	3	22	1	3	15	5	...	1
Functional ...	4	89	...	7	...	5	...	1
Anæmia ...	15	11	2	...	50	19	...	1
Lungs :—								
Bronchitis ...	28	71	...	...	22	13	...	...
Other Non-Tuberculous Diseases ...	10	100	...	6	8	27	...	...
Tuberculosis :—								
Pulmonary :—								
Definite ...	...	...	...	...	...	...	...	...
Suspected ...	...	1	...	...	...	4	...	...
Non-Pulmonary :—								
Glands ...	...	...	...	...	8	...	...	...
Spine ...	...	...	...	...	...	...	...	...
Hip ...	...	...	...	...	...	...	...	...
Other Bones and Joints ...	...	...	...	...	...	1	...	...
Skin ...	...	...	...	...	...	...	...	...
Other Forms ...	...	...	...	...	...	...	...	...
Nervous System :—								
Epilepsy ...	...	...	...	...	1	7	...	...
Chorea ...	...	2	1	...	36	9	1	...
Other Conditions ...	...	...	...	...	...	...	...	...
Deformities :—								
Rickets ...	3	2	...	...	1	...	...	...
Spinal Curvature ...	1	...	...	...	...	...	1	...
Other Forms ...	150	70	55	11	35	1	...	...
Other Defects and Diseases	30	54	8	3	187	119	1	...

TABLE II.

B.—NUMBER OF INDIVIDUAL CHILDREN FOUND AT ROUTINE AND SPECIAL INSPECTION TO REQUIRE TREATMENT (EXCLUDING UNCLEANLINESS AND DENTAL DISEASES).

	Elementary Schools			Secondary and High Schools		
	Number of Children		Percentage of Children found to require treatment	Number of Children		Percentage of Children found to require treatment
	Inspected	Found to require treatment		Inspected	Found to require treatment	
Entrants	5,023	475	9.46	...	...	...
Intermediates	1,642	251	15.28	...	...	...
Leavers	2,862	591	20.65	...	...	...
Others ... ..	...	...	...	2,906	314	10.80
Totals	9,527	1,317	13.82	2,906	314	10.80
Specials... ..	4,764	2,531	53.13	33	11	33.33
Grand totals	14,291	3,848	26.93	2,939	325	11.06

TABLE II.

C.—ENTRANTS FOUND SO DEFECTIVE AS TO REQUIRE TREATMENT OR TO BE KEPT UNDER OBSERVATION, SHOWING THE NUMBER OF INSTANCES IN WHICH THEY SUFFERED FROM MORE THAN ONE DISEASE OR DEFECT.

Referred for Treatment or Observation as suffering from	No. of Entrants found defective	NUMBER OF DEFECTS REFERRED FOR TREATMENT OR OBSERVATION											Total No. of Defects	
		Tuber- culosis— Pulmonary	Tuber- culosis —Non- Pulmonary	Heart	Anaemia	Respira- tory—Not Tuber- culosis	Vision	Ears	Nose and Throat	Eyes (external and other)	Skin	Teeth		Other Defects
Tuberculosis—Pulmonary ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculosis—Non- Pulmonary ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Defects of Heart ...	74	...	...	74	3	...	...	...	3	2	...	4	3	89
Anemia ...	16	...	...	...	16	2	...	...	2	...	...	3	4	27
Respiratory Defects (Not Tuberculosis) ...	156	...	...	...	...	156	1	2	21	2	2	14	9	207
Defects of Vision ...	15	...	...	...	...	...	15	...	3	...	...	2	...	20
“ Ears ...	46	...	...	...	...	...	...	46	8	1	...	3	2	60
“ Nose and Throat ...	451	...	...	...	...	...	...	...	451	2	1	42	30	526
“ Eyes (external and other) ...	65	...	...	...	...	...	...	...	...	65	1	6	7	79
“ Skin... ...	46	...	...	...	...	...	...	...	...	...	46	2	4	52
“ Teeth ...	346	...	...	...	...	...	...	...	...	...	...	346	27	373
Other Defects ...	215	...	...	...	...	...	...	...	...	...	...	...	215	215
TOTALS ...	1,430	...	...	74	19	158	16	48	488	72	50	422	301	1,648

Total number of entrants examined : 5,023.

Number found to be normal : 3,593.

TABLE III.

RETURN OF ALL EXCEPTIONAL CHILDREN IN THE AREA.

			Boys	Girls	Totals
Blind (including partially blind).	(i) Suitable for training in a school or class for the totally blind.	Attending Certified Schools or Classes for the Blind	10	2	12*
		Attending Public Elementary Schools ...	—	—	—
		At other Institutions	—	—	—
		At no School or Institution	—	1	1
	(ii) Suitable for training in a school or class for the partially blind.	Attending Certified Schools or Classes for the Blind	18	21	39
		Attending Public Elementary Schools ...	6	15	21
		At other Institutions	—	—	—
		At no School or Institution	1	1	2
Deaf (including deaf and dumb and partially deaf).	(i) Suitable for training in a school or class for the totally deaf or deaf and dumb.	Attending Certified Schools or Classes for the Deaf	8	11	19†
		Attending Public Elementary Schools ...	—	—	—
		At other Institutions	—	—	—
		At no School or Institution	—	2	2
	(ii) Suitable for training in a school or class for the partially deaf.	Attending Certified Schools or Classes for the Deaf	—	—	—
		Attending Public Elementary Schools ...	10	5	15
		At other Institutions	—	—	—
		At no School or Institution	—	—	—
Mentally Defective.	Feeble-minded (cases not notifiable to the Local Control Authority).	Attending Certified Schools for Mentally Defective Children	61	39	100
		Attending Public Elementary Schools ...	1	2	3
		At other Institutions	1	—	1
		At no School or Institution	16	8	24‡
	Notified to the Local Control Authority during the year.	Feeble-minded	5	10	15
		Imbeciles	7	7	14
		Idiots	1	1	2
	Epileptics.	Suffering from severe epilepsy.	Attending Certified Special Schools for Epileptics	1	2	3
In Institutions other than Certified Special Schools			—	—	—
Attending Public Elementary Schools ...			1	—	1
At no School or Institution			2	4	6
Suffering from epilepsy which is not severe.		Attending Public Elementary Schools ...	12	9	21
		At no School or Institution	1	1	2

* In addition 2 boys not residing in the area are in attendance.

† In addition 4 boys and 3 girls not residing in the area are in attendance.

‡ Including 3 boys and 3 girls attending private schools.

TABLE III.—continued.

			Boys	Girls	Totals
Physically Defective.	Infectious pulmonary and glandular tuberculosis.	At Sanatoria or Sanatorium Schools approved by the Ministry of Health or the Board	3	—	3
		At other Institutions	—	—	—
		At no School or Institution	3	2	5
	Non-infectious but active pulmonary and glandular tuberculosis.	At Sanatoria or Sanatorium Schools approved by the Ministry of Health or the Board	—	—	—
		At Certified Residential Open-Air Schools	—	—	—
		At Certified Day Open-Air Schools	—	—	—
		At Public Elementary Schools	4	1	5
		At other Institutions	—	—	—
		At no School or Institution	5	5	10
	Delicate children (<i>e.g.</i> , pre- or latent tuberculosis, malnutrition, debility anæmia, etc.).	At Certified Residential Open-Air Schools	—	—	—
		At Certified Day Open-Air Schools	48	50	98
		At Public Elementary Schools	83	65	148
		At other Institutions	—	—	—
		At no School or Institution	7	5	12
	Active non-pulmonary tuberculosis.	At Sanatoria or Hospital Schools approved by the Ministry of Health or the Board	7	4	11
		At Public Elementary Schools	36	15	51
		At other Institutions	—	—	—
		At no School or Institution	5	7	12
	Crippled children (other than those with active tuberculous disease) <i>e.g.</i> , children suffering from paralysis, etc., and including those with severe heart disease.	At Certified Hospital Schools	—	—	—
		At Certified Residential Cripple Schools	—	2	2
		At Certified Day Cripple Schools	—	—	—
		At Public Elementary Schools	205	235	440*
		At other Institutions	—	—	—
		At no School or Institution	19	23	42†

* Comprising :—

	Boys	Girls	Totals
Cripples	155	153	308
Severe Heart Disease	47	79	126
Chorea	3	3	6

† Comprising :—

	Boys	Girls	Totals
Cripples	9	7	16
Severe Heart Disease	9	10	19
Chorea	1	6	7

TABLE IV.

RETURN OF DEFECTS TREATED.

TREATMENT TABLE.

GROUP I.—Minor Ailments (excluding Uncleanliness, for which see Group V.)

Disease or Defect	Number of Defects Treated or under Treatment during the Year					
	Elementary Schools			Secondary and High Schools		
	Under the Authority's Scheme	Otherwise	Totals	Under the Authority's Scheme	Otherwise	Totals
SKIN :—						
Ringworm—Scalp ...	94	1	95	1	...	1
" Body ...	139	...	139	...	...	...
Scabies ...	104	1	105	...	...	...
Impetigo ...	639	5	644	...	...	...
Other Skin Diseases ...	163	5	168	1	...	1
MINOR EYE DEFECTS (External and other but excluding cases falling in Group II.)	42	2	44	4	...	4
MINOR EAR DEFECTS ..	16	3	19	...	...	...
MISCELLANEOUS (e.g., minor injuries, bruises, sores, chil-blains, etc.) ...	142	4	146	2	...	2
Totals ...	1,339	21	1,360	8	...	8

GROUP II. (a)—Defective Vision and Squint (excluding Minor Eye Defects treated as Minor Ailments—Group I.).

	Number of Defects dealt with							
	Elementary Schools				Secondary and High Schools.			
	Under the Authority's Scheme	Submitted to Refraction by Private Practitioners or at Hospital	Other-wise	Totals	Under the Authority's Scheme	Submitted to Refraction by Private Practitioners or at Hospital	Other-wise	Totals
Errors of Refraction ...	743	1	14	758	142	16	4	162
Other Defect or Disease of the Eyes (excluding those recorded in Group I.)...	154	...	...	154	8	...	...	8
Totals ...	897	1	14	912	150	16	4	170

GROUP II. (a)—continued.

	Elementary Schools	Secondary and High Schools
Number of Children for whom Spectacles were prescribed :—		
(a) Under the Authority's Scheme	688	131
(b) Otherwise	14	20
Number of Children who obtained or received Spectacles :—		
(a) Under the Authority's Scheme	526*	105
(b) Otherwise	14	20

GROUP II. (b)—Additional Particulars with reference to the Treatment of Visual Defects.

	Elementary Schools	Secondary and High Schools
Examined at the Special School Clinic	1,068	149
(a) Examined for Errors of Refraction	874	136
(1) Examination completed	743	142
(2) For whom glasses were prescribed	688	131
(3) For whom glasses were provided :—		
(a) By parents only under Local Authority's scheme	400	105
(b) With assistance of Local Authority	1	...
(c) Free of charge	125	...
(4) For whom glasses were not prescribed	55	11
(5) Failed to attend for completion of examination	117	4
(6) Other treatment required :—		
(a) Glasses also prescribed—included in (2)	40	3
(b) Not requiring glasses—included in (4)	12	2
(7) Received other treatment	52	5
(8) Old cases (1927) for whom glasses were provided in 1928 :—		
(a) By parents only under Local Authority's scheme	1	...
(b) With assistance of Local Authority ... ..	...	...
(c) Free of charge ... ..	...	...
(b) Examined for Defects other than Errors of Refraction	102	3
(1) For whom treatment was recommended	102	3
(2) Received treatment	102	3
(3) For whom no treatment was considered necessary ... ..	...	...
(c) Number of attendances of Vision Cases at the School-Clinic	2,518	375

* Including 1 at half cost and 125 free of charge.

GROUP III. (a)—Treatment of Defects of Nose and Throat.

	Elementary Schools	Secondary and High Schools
At Special School Clinic :—		
Examined	1,028	57
Received operative treatment...	579	15
Received operative and other forms of treatment	44	...
Received other forms of treatment only	180	23
Attendances of nose and throat cases	2,796	115
By Private Practitioners or at Hospital :—		
Received operative treatment...	2	1
Received operative and other forms of treatment	...	...
Received other forms of treatment only	...	...

GROUP III. (b)—Treatment of Serious Ear Defects.

	Elementary Schools	Secondary and High Schools
At Special School Clinic :—		
Examined	206	15
Received operative treatment...	...	...
Received operative and other forms of treatment	...	...
Received other forms of treatment only	185	15
Attendances of serious ear cases	500	36
By Private Practitioners or at Hospital :—		
Received operative treatment...	...	1
Received operative and other forms of treatment	...	...
Received other forms of treatment only	...	...

GROUP IV.—Dental Defects.

					Elementary Schools	Secondary and High Schools	
(1) Number of Children who were :—							
(a) Inspected by the Dentists :							
Aged :							
Routine Age Groups	...	{	4	36	...
			5	1,473	...
			6	1,658	...
			7	2,384	...
			8	2,248	...
			9	1,862	...
			10	1,545	...
			11	1,537	...
			12	1,572	...
			13	659	...
			14	201	...
			15	10	...
16	...	...	3	...		
Totals					15,188	...	
Specials	...	...	...	2,403	512	
Grand Totals					17,591	512	
(b) Found to require treatment					13,966	505	
(c) Actually treated ...					5,392	309	
(d) Re-treated during the year					2,942	306	
(2) Half-days devoted to :—							
Inspection					92	...	
Treatment					1,269	...	
Total					1,361	...*	
(3) Attendances made by children for :—							
Inspection					4,015	151	
Treatment					11,256	1,070	
Totals					15,271	1,221	
(4) Fillings :—							
Permanent teeth					3,606	733	
Temporary teeth					631	32	
Totals					4,237	765	
(5) Extractions :—							
Permanent teeth					3,190	346	
Temporary teeth					16,876	108	
Totals					20,066	454	
(6) Administrations of general anæsthetics for extractions by :—							
Dentists ...					3,758	234	
Medical Officers					2,103	18	
Totals					5,861	252	
(7) Other Operations :—							
Permanent teeth					1,134	192	
Temporary teeth					58	3	
Totals					1,192	195	

Known treatment of dental defects by private dentists :—

					Elementary Schools	Secondary and High Schools
Children treated	...	...	...	...	36	97

* Not differentiated from half-days devoted to inspection and treatment of elementary school children.

GROUP V.—Uncleanliness and Verminous Conditions.

Elementary Schools.

(i) Average number of visits per school made during the year by the school nurses	...	...	...	...	...	...	3.9
(ii) Total number of examinations of children in the schools by school nurses	...	...	...	...	...	...	58,529
(iii) Number of individual children found unclean :—							
With vermin	...	...	...	...	727		
With nits only	...	...	...	...	2,684		
					—		3,411
(iv) Number of children cleansed under arrangements made by the Local Education Authority :—							
Previously verminous	...	...	...	221			
Previously with nits only	...	...	...	289			
Previously verminous found to be free from vermin but not free from nits...				317			
				—			827*

GROUP VI.—Known Treatment of other Defects.

Disease or Defect	Defects treated.		
	By Private Practitioners, at Hospital, or Tuberculosis Dispensary	Otherwise	Totals
Enlarged Cervical Glands	2	...	2
Diseases of Lungs (non-tuberculous)	6	1	7
Diseases of Nervous System	1	...	1
Other Diseases and Defects	6	...	6

TABLE V.

A.—AVERAGE HEIGHTS AND WEIGHTS OF CHILDREN INSPECTED
(Elementary Schools).

Age—Years	Boys			Girls		
	Number	Average Height	Average Weight	Number	Average Height	Average Weight
3	141	in.	lb.		in.	lb.
4	639	37.6	34.0	100	37.1	33.2
5	921	40.1	37.3	563	39.8	36.5
6	548	42.1	40.7	805	41.8	39.3
7	258	44.3	44.1	576	44.1	42.7
8	207	46.2	47.7	271	46.4	46.2
9	954	48.6	55.1	144	48.6	53.2
12	1,025	50.0	58.4	357	49.5	55.9
13	356	55.3	75.9	1,145	56.3	77.9
		56.5	80.3	251	57.2	82.8

* Including cases actually cleansed by the school nurses, cases dealt with at the Corporation Cleansing Station, and cases cleansed by parents on advice given by the nurses.

TABLE V.

B.—ANTHROPOMETRIC INQUIRY.

SPECIAL AREA REPORT SUPPLIED BY THE ANTHROPOMETRIC COMMITTEE
OF THE BOARD OF EDUCATION.

BOYS.

Area : Cardiff.

Samples used from this area : Boys, 360.

Mean Age, Boys ... 10.0 years.

Mean Height ... 50.1 inches.

"Expected"* Height ... 51.0 inches.

Difference ... — 0.9 inches.

Standard Error ... \pm 0.29.

The actual mean height is significantly below the standard.

Mean Weight ... 58.2 lb.

Expected"* Weight ... 61.5 lb.

Difference ... — 3.3 lb.

Standard Error ... \pm 0.84.

The actual mean weight is significantly below the standard.

GIRLS.

Area : Cardiff.

Samples used from this area : Girls, 360.

Mean Age, Girls... 10.0 years.

Mean Height ... 50.1 inches.

"Expected"* Height ... 51.1 inches.

Difference ... — 1.0 inches.

Standard Error ... \pm 0.31.

The actual mean height is significantly below the standard.

Mean Weight ... 57.9 lb.

"Expected"* Weight ... 62.0 lb.

Difference ... — 4.1 lb.

Standard Error ... \pm 0.96.

The actual mean weight is significantly below the standard.

* The "Expected" values are based upon the reduction of the whole of the data received from all areas: they are not to be regarded as either ideal values or even as averages of the whole child population of England and Wales

TABLE VI.

RESULTS OF MEDICAL RE-INSPECTION OF 1,413 CHILDREN FOUND DURING 1927 TO REQUIRE TREATMENT OR TO BE KEPT UNDER OBSERVATION.

	Treated at School Clinic			Treated Elsewhere			Not Treated			Totals			Total Number of Defects
	Cured or Improved	No Improvement	Worse	Cured or Improved	No Improvement	Worse	Cured or Improved	No Improvement	Worse	Cured or Improved	No Improvement	Worse	
Eye Diseases	240	7	...	7	1	...	32	185	21	279	193	21	493
Ear Diseases	53	6	...	...	...	...	3	17	...	56	23	...	79
Diseases of Nose and Throat ...	173	17	...	5	...	...	86	174	14	264	191	14	469
Enlarged Cervical Glands ...	3	...	...	...	...	...	1	3	...	4	3	...	7
Defective Speech	1	...	...	1	...	...	...	1	...	2	1	...	3
Heart Diseases	16	6	...	...	1	...	7	10	...	23	17	...	40
Anæmia	5	2	...	3	...	...	2	2	...	10	4	...	14
Lung Diseases (Non-Tuberculous) ...	90	8	...	...	1	...	15	17	...	105	26	...	131
Tuberculosis { Pulmonary Non-Pulmonary	...	...	...	...	...	...	...	...	...	...	...	...	...

Nervous Diseases	1	...	...	...	...	...	...	...	...	1	...	...	1
Deformities	18	11	...	2	...	...	1	12	...	21	23	...	44
Other Defects and Diseases ...	52	6	...	35	4	...	17	35	1	104	45	1	150
Totals	652	63	...	53	7	...	164	456	36	869	526	36	1,431

MENTAL DEFICIENCY SERVICE.

The continued and increasing shortage of institutional accommodation for mental defectives has hampered the work of this section of the Department as in previous years. It is obviously futile for us to go out of our way to ascertain defectives with whom we are unable to deal satisfactorily. In this connection it may be recorded that the Glamorgan County Council's scheme for an institution at Hensol Castle made some progress during the year, but in its present form holds out little prospect of relief to Cardiff. Nothing short of 200 places for this city alone can be regarded as adequate.

The usual statistical tables giving detailed information as to the age, sex, classification and condition of mental defectives under the care of the Mental Deficiency Committee are submitted. On reference to these tables it will be seen that at 31st December the total number of defectives under the care of the Committee was 354, as compared with 315 at the end of 1927. Of these, the number in institutions or under statutory guardianship was 132—an increase of 17 over the number at the end of the preceding year. The numbers at home under statutory supervision and voluntary supervision were 135 and 84 respectively.

Early in 1929 an inquiry was made into the condition of mental defectives who had attended and left or had been discharged from the Special (Day) School. The results of this inquiry are given in Table VIII. It will be noted that the present condition of most of the cases who had left or had been discharged from the school since the coming into force of the Mental Deficiency Act, 1913, is definitely known.

The Occupation Centre for the training of ineducable mentally defective children, which was established in June, 1925, has continued in full activity during the year. The successful working of the Centre is largely due to the ability and enthusiasm of the supervisor, Mrs. A. Dascombe, a report by whom is given below.

Report on the Occupation Centre by Mrs. A. Dascombe.

"Aims.—(a) To train children in exercising control through physical exercises and manual activities. (b) To encourage good habits. (c) To encourage usefulness and to keep children in touch with their environment.

"Attendance.—There are 24 children on the register, with an average attendance of 22. Twenty are punctual in their attendance, but the remaining four have still to make big efforts to overcome inherent laziness.

"Physical Exercises.—The majority of children have benefited by physical training and country dancing, being more alert and responsive to commands, but persistent effort is necessary in correcting faulty posture.

"Mid-day Meal.—The mid-day meal has been very beneficial, particularly to those children of unemployed fathers. There is a distinct improvement in the condition of five children who were obviously suffering from malnutrition. The meals are prepared more carefully, and children now compete with each other in clean preparation of vegetables.

"Domestic Work.—Each day children wash up dishes, saucepans, boiler, spoons, etc., and sweep and dust the room. On Fridays they are given special domestic work, i.e., cleaning of spoons, saucepan lids, tap, etc., and washing of floor, towels and dusters.

"Sense Training.—(1) Tasting of simple things, e.g., salt and sugar. (2) Touching of articles while blindfolded; the Montessori blocks are found very helpful in retaining interest. (3) Smell; children distinguish different scents of flowers and household goods. (4) Hearing; recognition of sounds of objects dropped on floor and of musical sounds; the band instruments (bells, tambourine, triangles, etc.) thus serve a twofold purpose. (5) Sight; sorting patterns and matching colours.

“Handwork.”—Children are divided into two sections (upper and lower). The upper section are engaged in making rugs, cane and raffia baskets, rush stools, trays, canvas and raffia bags, and the weaving of egg and tea cosies and shopping bags. These articles find a ready sale amongst mothers and friends of the children. The girls are doing better in edu-craft stitchery and they make simple articles, such as iron-holders, linen bags, etc. The work of the lower section is simple weaving with braid in primary colours and raffia winding for serviette rings and dinner mats. These children are trained in dressing themselves by the use of tying, lacing, buttoning and buckling frames. Both sections have small boxes of hammers, nails and strip wood, from which they make model ladders and simple toys. Some of the boys show originality in making articles, and the tool boxes have been very helpful in the cultivation of constructive to the elimination of destructive instincts.

“Eurhythmics.”—Marching, walking and dancing are done to varied rhythm—to semibreve, crotchet, quaver, etc. The sense of rhythm in many of the children is quite good and grotesque movements of others are slowly becoming less ugly.

“Reading.”—Very elementary word-building has been attempted, such as the reading of two-letter and three-letter words from a reading sheet. The children are gradually improving in conversation and lessons with pictures, and are making better attempts to see and talk about things for themselves; they now indulge less in ‘parrot-like’ repetition. Articulation is clearer in most cases and more effort is made in sounding final consonants.

“Writing.”—Script writing only is attempted. Seven children can now write their names without a copy, two succeed with a copy, but others can only manage individual letters with constant supervision.

“Counting.”—Simple exercises with coins, counters, etc., are taken with simple shopping exercises and clock lessons. All the children find the three ‘r’s’ very difficult; the work is laborious for them, requiring infinite patience. Owing to difficulty in getting children to concentrate long enough to obtain results, these subjects have not taken a prominent place in the curriculum; individual attention is to be given this year to any children showing aptitude for these subjects.

“Drawing.”—Children have drawing lessons on blackboards of squares, triangles, oblongs, etc. The children take a great interest in stencilling, which is more within their capacity of attainment than free-hand drawing. The stencilling, however, inspires confidence for ordinary drawing.

“Hygiene.”—Very simple health talks and toilet lessons (cleaning of teeth and nails, brushing of hair, etc.) are given. Children are encouraged to compete with each other in pride of personal appearance, and their general appearance has improved. Persistence in handkerchief drill has resulted in the majority providing themselves with their own handkerchiefs.

“General.”—This year has shown a change for the better in the attitude of parents, and there is more readiness to co-operate in training children in punctual and regular habits. The children themselves are eager to attend regularly. They are kinder and less selfish in their attitude towards each other and respond more readily to the demands of their own little community at the Centre.”

MENTAL DEFICIENCY—STATISTICAL TABLES.

TABLE I.

SUMMARY OF THE YEAR'S WORK.

	Males.	Females.	Totals.
(1) Cases examined for the first time :—			
Idiots	2	2	4
Imbeciles	9	9	18
Moral defectives	—	—	—
Feeble-minded	9	12	21
Unclassified	1	1	2
Not mentally defective	1	5	6
	—	—	—
Totals	22	29	51
	—	—	—
(2) Cases re-examined	61	49	110
(3) Failed to keep appointment for examination	1	3	4
(4) Visits paid by Visiting Officer ... ..	...	...	1,999
(5) Removed from list of ascertained cases under supervision at home :—			
(i) Placed in Institutions at instance of Local Authority—			
(a) Obligatory	8	4	12
(b) Permissive	—	—	—
(ii) Removed to "place of safety"	—	2	2
(iii) Deceased	—	—	—
(iv) Left Cardiff	1	—	1
(v) Removed to Institutions at instance of Guardians of Cardiff Union	2	—	2
	—	—	—
Totals	11	6	17
	—	—	—
(6) Removed to Institutions (not previously under supervision at home)	4	2	6
(7) Total number removed to Institutions during the year at the instance of the Local Authority	12	6	18
(8) Cases in Institutions that ceased to be chargeable during 1928 :—			
(i) Deceased	1	1	2
(ii) Dealt with under Lunacy Order	—	1	1
(iii) Escaped and still at liberty	1	—	1
	—	—	—
Totals	2	2	4
	—	—	—
(9) Transferred from one Institution to another	8	7	15

TABLE II.

SOURCE OF ASCERTAINMENT OF NEW CASES.

Source of Ascertainment	Idiots	Imbeciles	Moral Defectives	Feeble-minded	Unclassified	Not Mentally Defective	Totals
Local Education Authority ...	2	14	...	14	...	...	30
Cardiff Board of Guardians ...	...	2	...	3	...	...	5
Public Health Department ...	1	1	...	2	1	1	6
After-Care Committee ...	...	...	...	...	...	1	1
Parents, Guardians or Relatives ...	...	...	...	1	1	1	3
Police ...	...	...	...	1	...	1	2
Mental Hospital ...	1	1	...	...	...	1	3
School Attendance Officers ...	...	...	...	...	...	1	1
Totals ...	4	18	...	21	2	6	51

TABLE III.

POSITION AT 31ST DECEMBER, 1928.

	Males.	Females.	Totals.
(1) Obligatory cases :—			
(a) In Institutions	65	53	118*
(b) Under Guardianship ...	1	1	2
(c) Escaped and still at liberty	1	—	1
(2) In “ places of safety ”	—	1	1
(3) Cases in regard to whom the Local Authority contributes under permissive powers :—			
(a) In Institutions	5	3	8
(b) Under Guardianship ...	—	—	—
(4) Cases removed by parents or guardians in regard to whom the Local Authority does not contribute :—			
(a) In Institutions	2	—	2
(b) Under Guardianship ...	—	—	—
Totals (1) to (4) ...	74	58	132
(5) Cases at home—ascertained to be defective :—			
(a) Under Statutory Supervision	71	64	135
(b) Under Voluntary Supervision	32	52	84
Totals	103	116	219
(6) Cases in Mental Hospitals—ascertained to be defective	1	7	8
(7) Attending Occupation Centre— included in (5) :—			
(a) Under Statutory Supervision	15	6	21
(b) Under Voluntary Supervision	3	—	3
Totals	18	6	24
(8) “ Subject to be dealt with ” but action not yet taken :—			
(a) Notified by Education Authority	1	1	2
(b) Otherwise ascertained ...	—	1	1
Totals	1	2	3
(9) Under consideration but not ascertained to be defective	7	2	9

*Including nine cases (five males and four females) maintained by the Board of Control.

TABLE IV.

CLASSIFICATION OF KNOWN CASES.

	In Institutions or under Guardianship			Under Supervision at Home		
	Males	Females	Totals	Males	Females	Totals
Idiots	6	6	12	11	13	24
Imbeciles	28	15	43	48	50	98
Moral Defectives	1	1	2	...	1	1
Feeble-minded	37	33	70	38	47	85
Unclassified or not examined ...	1	3	4	13	10	23
Totals	73	58	131	110	121	231

TABLE V.

AGES OF CASES IN INSTITUTIONS OR UNDER GUARDIANSHIP.

Age : years	Idiots		Imbeciles		Moral Defectives		Feeble-minded		Unclassified		Totals
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
6	2	...	...	...	...	...	...	2
9	2	1	...	...	...	...	...	...	3
10	1	...	...	...	...	...	...	...	1
11	1	...	...	...	1
12	1	1	...	1	...	...	...	...	...	...	3
13	2	...	...	...	1	...	...	...	3
14	1	...	2	1	...	...	...	...	...	...	4
15	4	1	...	...	1	...	...	...	6
16	...	1	...	1	...	...	1	...	...	...	3
17	...	1	...	...	...	...	3	1	...	...	5
18	...	1	1	1	...	...	1	1	...	...	5
19	1	...	3	...	...	...	2	...	1	...	7
20	1	1	...	...	8	1	...	...	11
21	2	...	1	1	...	1	2	2	...	...	9
22	...	1	3	...	1	...	2	1	...	...	8
23	3	...	...	1	1	...	...	5
24	3	7	...	1	11
25	4	2	...	...	6
26	2	1	...	...	3	4	...	...	10
27	3	...	...	3
28	1	2	...	1	4
29	2	...	...	...	2	1	...	...	5
30	1	...	...	1
31	...	1	...	...	...	...	1	...	...	...	2
32	1	...	...	...	...	2	...	...	3
34	1	...	...	...	...	...	...	1	2
36	1	...	...	1
37	1	...	...	...	...	1	...	...	2
39	1	...	1	...	...	...	...	...	...	...	2
42	1	...	...	...	...	...	...	1
43	1	...	...	1
47	1	...	...	1
Totals	6	6	28	15	1	1	37	33	1	3	131

TABLE VI.

AGES OF CASES UNDER SUPERVISION AT HOME.

Age : years	Idiots		Imbeciles		Moral Defectives		Feeble-minded		Unclassified		Totals
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
3	...	...	1	...	...	...	...	...	...	1	2
4	1	...	...	1	...	...	...	...	1	...	3
5	...	...	...	1	...	...	...	...	2	...	3
6	...	1	...	...	...	...	...	1	2	2	6
7	...	1	2	3	...	...	...	...	...	...	6
8	2	1	3	3	...	...	...	...	...	...	9
9	1	1	4	1	...	...	1	...	...	...	8
10	...	3	2	3	...	...	...	...	...	...	8
11	1	3	4	1	...	...	...	...	...	...	9
12	...	1	2	3	...	...	1	...	...	...	7
13	3	...	3	1	...	...	1	...	...	...	8
14	...	...	4	3	...	...	2	...	...	...	9
15	...	...	5	1	...	...	1	...	...	...	7
16	1	1	4	10	...	...	3	7	1	1	28
17	1	...	2	1	...	...	7	3	...	...	14
18	...	...	4	1	...	...	1	1	1	2	10
19	...	...	...	1	...	...	3	...	...	...	4
20	...	...	1	1	...	...	1	5	...	1	9
21	...	...	1	1	...	...	1	6	2	...	11
22	1	...	1	1	...	...	2	...	2	...	7
23	...	...	1	2	...	1	4	3	1	...	12
24	...	...	1	...	...	...	1	5	1	...	8
25	...	...	...	...	...	...	1	2	...	...	3
26	...	1	1	1	...	...	...	3	...	...	6
27	...	...	1	1	...	...	1	1	...	...	4
28	...	...	...	2	...	...	2	2	...	...	6
29	...	...	...	1	...	...	1	...	...	...	2
30	...	...	...	2	...	...	1	1	...	...	4
31	...	...	...	1	...	...	...	2	...	...	3
32	...	...	...	...	...	...	...	1	...	2	3
33	...	...	...	1	...	...	1	...	...	...	2
34	...	...	1	...	...	...	1	...	...	...	2
35	...	...	...	1	...	...	1	...	...	1	3
40	...	...	...	1	...	...	...	...	...	...	1
47	...	...	...	...	...	...	...	1	...	...	1
48	...	...	...	...	...	...	...	1	...	...	1
50	...	...	...	...	...	...	...	1	...	...	1
65	...	...	...	...	...	...	...	1	...	...	1
Totals	11	13	48	50	...	1	38	47	13	10	231

TABLE VII.

CASES IN INSTITUTIONS OR UNDER GUARDIANSHIP AT 31ST DECEMBER, 1928.

(a) Obligatory Cases.

NAME OF INSTITUTION, Etc.	Idiots	Imbeciles	Moral Defectives	Feeble-minded	Unclassified	Totals
Allerton Priory R.C. Special School, Nr. Liverpool	1	1
Besford Court Catholic Mental Welfare Home, Worcester	1	...	1
Brentry Certified Institution, Westbury-on-Trym	1	...	...	...	1
Brighton Guardianship Society ...	1	...	...	...	...	1
Calderstones Institution, Whalley, Lancashire	1	...	...	...	1
Cardiff Poor Law Institution, Ely, Cardiff ...	4	5	1	26	1	37
Carnarvon Poor Law Institution, Bodvan, Carnarvon	2	...	...	...	2
Caterham Mental Hospital, Caterham, Surrey ...	3	1	...	2	...	6
Central Association for Mental Welfare, London	1	...	...	...	1
Darenth Training Colony, Dartford, Kent	1	...	...	...	1
Drymma Hall, Skewen, Nr. Neath	1	...	1
Falmouth Poor Law Institution, Falmouth	2	...	...	...	2
Ford House, Devonport	1	...	1	...	2
Girls' Village Homes, Barkingside, Essex	1	...	1
House of Help, Bath	2	...	2
Leavesden Mental Hospital, Abbots Langley, Herts.	1	...	...	...	1
Monkton Hall Home, Jarrow-on-Tyne	2	...	2
Newtown and Llanidloes Poor Law Institution, Caersws, N. Wales ...	1	2	...	...	...	3
Pield Heath House, Hillingdon, Uxbridge	2	...	...	...	2
Prudhoe Hall Colony, Prudhoe-on-Tyne	2	...	2
Rampton State Institution, Retford	2	1	5	1	9
Rock Hall House, Combe Down, Bath	1	...	...	...	1
Ross Poor Law Institution, Ross	2	...	1	...	3
Royal Earlswood Institution, Redhill	1	...	1
Ruthin Poor Law Institution, Denbigh	2	...	3	...	5
St. Elizabeth's Home for Epileptics, Much Hadham, Herts.	1	...	1
St. Francis R.C. Special School, Buntingford	1	...	3	...	4
St. Joseph's Home, The Croft, Sudbury	1	...	1
St. Teresa's Home, Lewisham	1	...	1
Seaford House, Seaford, Nr. Liverpool	4	...	4
Shotley Bridge Colony, Shotley Bridge, Durham	6	...	6
Stoke Park Colony, Stapleton, Bristol	10	...	2	1	13
Tonbridge Poor Law Institution, Pembury, Nr. Tunbridge Wells	1	...	1
West Hylands Institution, Cuckfield, Nr. Lewes	1	...	1
Totals ...	9	38	2	68	4	121

(b) Permissive Cases.

NAME OF INSTITUTION, Etc.	Idiots	Imbeciles	Moral Defectives	Feeble-minded	Totals
Brentry Certified Institution, Westbury-on-Trym ...	...	1	...	...	1
Cardiff Poor Law Institution, Ely, Cardiff ...	1	1	...	...	2
Caterham Mental Hospital, Caterham, Surrey ...	1	...	...	...	1
Falmouth Poor Law Institution, Falmouth ...	...	1	...	...	1
Newtown and Llanidloes Poor Law Institution, Caersws, N. Wales ...	1	...	...	...	1
Prudhoe Hall Colony, Prudhoe-on-Tyne ...	...	...	...	2	2
Royal Earlswood Institution, Redhill ...	...	2	...	...	2
Totals ...	3	5	...	2	10

TABLE VIII.

PRESENT CONDITION OF MENTAL DEFECTIVES WHO HAVE ATTENDED AND LEFT OR BEEN DISCHARGED FROM THE SPECIAL (DAY) SCHOOL.

Present Condition	YEAR OF LEAVING OR DISCHARGE FROM THE SPECIAL SCHOOL.																1914-28 inclusive
	1900-13	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	
MALES :—																	
In Institutions	6	1	2	2	2	2	3	3	...	1	1	5	2	2	...	3	29
Attending Occupation Centre	...	...	...	...	...	...	...	...	1	...	...	3	...	1	...	2	9
Employed	6	2	...	...	3	1	...	4	1	...	...	1	1	1	2	3	19
Employed casually	1	...	...	...	1	...	...	1	...	1	2	...	...	...	1	...	7
Employable but unemployed	4	...	...	...	1	...	1	1	...	1	2	...	1	...	3	2	4
Unemployable	5	...	...	...	...	1	...	3	...	...	...	3	...	...	...	...	16
Dead	9	1	...	...	1	...	...	...	...	1	...	...	...	...	1	...	3
Left Cardiff	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	2
Condition unknown	34	...	1	1	2	2	2	...	...	...	...	...	1	...	...	1	10
Totals	66	4	3	3	10	6	6	14	2	5	5	12	6	4	7	12	99
FEMALES :—																	
In Institutions	4	1	1	2	3	2	...	1	1	...	2	2	...	...	1	1	17
Attending Occupation Centre	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	1	3
Domestic work at home—																	
Married	1	...	...	...	2	...	...	...	2	...	1	...	...	...	...	...	5
Single	2	...	1	1	...	...	...	3	...	...	3	4	...	...	2	5	19
Employed	1	1	...	...	...	...	...	...	...	...	1	1	...	...	1	...	3
Employed casually	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Employable but unemployed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	4
Unemployable	...	...	...	1	...	...	1	...	...	...	...	1	...	...	...	...	1
Dead	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Left Cardiff	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Condition unknown	20	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	2
Totals	35	3	2	4	5	2	1	5	3	...	7	10	...	...	4	10	56
Grand Totals	101	7	5	7	15	8	7	19	5	5	12	22	6	4	11	22	155