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Borough of



Cheltenham.

ANNUAL REPORT
OF THE
SANITARY ❖ CONDITION

ETC., ETC., OF THE

BOROUGH OF CHELTENHAM.

FOR THE YEAR 1913.

BY

J. H. GARRETT, M.D., D.P.H.,

MEDICAL OFFICER OF HEALTH.

Together with the Report of the Chief Sanitary Inspector
by Mr. A. E. Hudson.

ALSO THE

Annual Meteorological Report by Mr. A. C. Saxby.

—
"Salus Populi Suprema Lex."
—

PRINTED BY ORDER OF THE SANITARY AUTHORITY.

—
CHELTENHAM :

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BOROUGH OF CHELTENHAM.

PUBLIC HEALTH COMMITTEE.

THE MAYOR (W. N. SKILLICORNE, Esq., J.P.)
(*Chairman*).

MR. ALDERMAN C. H. MARGRETT, J.P.

MR. COUNCILLOR J. H. BLAKENEY, M.R.C.S.

MR. COUNCILLOR E. C. GREEN.

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MR. COUNCILLOR R. STEEL.

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MR. COUNCILLOR J. P. WINTERBOTHAM.

MR. COUNCILLOR W. J. F. WOOD.

Town Clerk—MR. R. OWEN SEACOME.

Borough Surveyor—MR. J. S. PICKERING.

MEDICAL OFFICER'S DEPARTMENT.

Chief Inspector of Nuisances—A. E. HUDSON.

Assistant Inspectors—

C. W. CLIFFORD. C. E. HOLIFIELD.

Disinfector—W. TOWNSEND.

Clerk and Assistant Inspector—F. R. JEFFORD.

Junior Clerk—L. H. SURMAN.

Medical Officer of Health—J. H. GARRETT, M.D., D.P.H.

*To the Mayor and Members of the Sanitary
Authority of the Borough of Cheltenham.*

GENTLEMEN,

I beg leave to present my Annual Report for the year 1913.

Some of the points to which I may direct your special attention in this Report are the close approximation of the birth-rate and death-rate, the former having remained at the abnormal low point touched in the year 1912 and the latter being 1.3 points above the average rate of the previous 10 years.

The sub-epidemic occurrence of Scarlet Fever, which caused a good deal of work and a large increase in the expenditure of the Health Department for maintenance of cases in the Delancey Hospital.

The occurrence of an outbreak of Polyomyelitis, fortunately of limited extent.

The prevalence, for a period, of infectious non-Diphtheritic sore-throat.

The appeal to the Charity Commissioners by the Board of Trustees of the Delancey Hospital to formulate a new scheme of management, and the probable early arrangement of a public form of government for this Hospital by the Sanitary Authorities interested in its use.

The result of the first year of compulsory notification of all cases of Tuberculosis in the town, the numbers notified being quite up to expectation.

The somewhat peculiar position of this town in regard to its dependence upon the Gloucestershire County Council and the desirability of endeavouring to secure a more complete autonomous government by extending the boundary of the borough to include the populous parts of Charlton Kings and Prestbury, and so to acquire the status of a County Borough.

The enhanced death-rate from Cancer and the frequency of this disease amongst elderly persons.

I have to acknowledge as usual the ready assistance rendered me during the past year by all my fellow officials.

I have the honour to be, Gentlemen,

Your obedient Servant,

J. H. GARRETT,

March 9th, 1914.

Medical Officer of Health.

INDEX.

	PAGE
Address to the Mayor and Members of the Sanitary Authority	5
Natural and Social Conditions of the District:—	
Geology	9
Topography and Altitude	9
Climate	10
Quality of the Populace	10
Population	12
Table showing numbers in Population of both sexes at various ages in Cheltenham and Gloucester at Census 1911	14
Vital Statistics:—	
Summary for 1913.. .. .	14
Births and the Birth-Rate	15
Births, Deaths, and Natural Increase in the last 30 years	15
Important effects of diminishing Birth-Rate	16
The Infant Death-Rate	18
Illgitimacy	18
Total Deaths and the General Death-Rate	19
The Zymotic Death-Rate	20
Death-Rate from Pulmonary and other Tuberculosis	20
Death-Rate from Cancer	20
Death-Rate from Respiratory Diseases.. .. .	21
Death-Rate from other Diseases of Special Interest	21
Table of Statistics for last ten years	22
Deaths in Hospitals and Institutions	23
Distribution of Deaths in Wards, &c.	23
Ward Statistics, 1913	24
Table showing Vital Statistics for each Ward.. .. .	25
Deaths Certified by Coroner after Inquests	26
Deaths not certified	26
Local Government Board Tables I., II., III., IV.	27—30
Table of Causes of Death according to International List	31—33
Acute Infectious Diseases:—	
Zymotic Diseases Notified since Notification began	34
Scarlet Fever	35
Infectious Sore Throat Prevalence 1913	38
Diphtheria	39
Acute Polyomyelitis	40
Enteric or Typhoid Fever	46
Infantile Diarrhœa	46

Measles, Influenza, Whooping Cough	47
Vaccination	47
Zymotic Diseases notified in each month during 1913	35
The Prevalence and Control over Tuberculosis.. ..	43
Sanitary Circumstances and Administration in the District:—	
Cheltenham and County Powers of Local Government	48
The Water Supply	51
Sewage Disposal	52
The Management of the Infectious Diseases Hospital	52
Return of Articles submitted to Public Analyst, 1913	53
Summary of Routine and other Sanitary Work Done:—	
Report by Chief Sanitary Inspector	54
Tabulated Work of the Year	55
House-to-House Inspections—Tables Detailing Work in 1913	57
Housing and Town Planning Act—Tabulated Statement of Houses dealt with under the Act in 1913	62
Houses Declared Unfit for Habitation and Work under Closing Orders ..	62
Improvements to House Drains	63
The Corporation Sanitary Certificate	64
Sanitary Certificates granted in 1913	64
Inspections under the Factory and Workshops Act	65
Outworkers	66
Tabular Report required by the Secretary of State under the Factory and Workshops Act, 1901	67
Slaughter-Houses and Meat Inspection	69
Unsound and Diseased Meat, &c., Destroyed.. .. .	70
List of Butchers using Abattoir.. .. .	71
Number of Animals Slaughtered in Abattoir 1912 and 1913.. .. .	71
Inspection of Food Shops	71
Disinfection	72
Cowsheds, Dairies, and Milkshops	73
Stables and other Places where Animals are kept	73
Offensive Trades	75
Common Lodging Houses	75
Ash Receptacles	76
School Sanitation	76
Meteorological Report for year 1913 by Mr. Saxby ..	77

Natural and Social Conditions of the District.

Geology.

Within the Borough bounds the lias clay is the predominating geological feature. The clay, however, is overlaid throughout about a half of the town's area by sand of varying depths from a few feet up to fifty feet or more. When the sand is in such a situation as to hold water, the line of saturation is usually well below the footings of the house walls, and the sites on the sand are therefore dry. On the clay it is also easy to secure a dry basement, and many of the best houses stand upon the clay. There are also small areas of gravel and other recent alluvial deposits chiefly near the bed of the small river Chelt, which runs its course through the middle of the town. This subsoil is quite dry and unobjectionable at the surface. The hills known as the Cotswolds, which rise to about 1000 feet in altitude behind the town, and which are quite accessible in two or three directions, consist in the main of lias clay as to their lower slopes, with oolitic limestone above. The surface of the latter is very porous and unretentive of water.

Topography and Altitude.

The surface occupied by the town is neither flat nor hilly, South and Eastward there is a general but gentle rise towards the hills. From the banks of the Chelt the land also rises more locally, and the streets that pass from it Southward in particular are all for a short distance up hill, but even here the gradient is not severe. On the borders of the town two other streams pass away from the hills in the same general direction as the Chelt, that is towards the river Severn which flows about 7 miles away, South-Westward to Gloucester and the Bristol Channel. These brooks are also responsible for some amount of gradient in their neighbourhood. The steeper slopes of the Cotswolds which face the town within 3 miles of its centre are only reached when the borough boundary is passed.

The town is broadly laid out with wide streets for the main part, and many of these are planted with avenues of limes and other trees. The chief street of the town, the Promenade, is uniquelyavenued, and includes a flower garden with a large fountain in its width. There are also numerous parks and recreation grounds, squares and private gardens, which effectually prevent any deleterious effect of over occupation of the ground even in the poorer quarters.

The altitudes vary within the limits of the town from about 150 to 320 feet, and a very large proportion of the better class houses stand upon ground with an altitude of over 200 feet.

Climate.

This in its main feature partakes of the character of the climate of the English counties lying west of the Cotswolds. The rainfall, temperature and amount of bright sunshine all being of medium measurement as compared with England as a whole. As between the town and the tops of the neighbouring Cotswold Hills there is a distinct difference, the climate of the latter being brisker, and more quickening of the physiological activities. The change is easily obtained by a short journey of about three miles, and many of the inhabitants of Cheltenham do from time to time resort to the hills for some hours, especially in summer, for change of air. A very large area of open treeless common land known as Cleeve Common, which includes the highest part of the Cotswold range, is rendered easily accessible to the populace by means of a tram line. It must, however, be the softer climate of the town itself which produces the chief effect upon the bodily condition of the inhabitants.

Quality of the Populace.

This town has a just reputation for being a place of settlement and residence of well-to-do persons, and to casual observers this is the aspect that is chiefly noticed ; there are a large number of houses above average dimensions, including many terraces and detached villas. The town does not solely consist of large houses however, in fact there are many more of smaller size. The population of superior class consists of families who are settled here for the advantages afforded by

the Colleges for a first class education for both boys and girls. Cheltenham is a place of prominence in the matter of Education and to have been at College here secures considerable credit to the student in after life. Some of the larger houses are also occupied by men who have retired from the military and civil services of the country, and have chosen this as a pleasant place of residence for themselves and their families. It is also a place of retirement for widows, and the families of husbands and fathers who are still upon active State, or other service, abroad, and in places where it is inconvenient for their families to be with them. The last census returns show that there are 2611 widows in the town, as against 872 widowers, and 365 more married women than married men. Many towns show a disparity of this same sort, but few to the same extent as Cheltenham in proportion to their general population. All the above-mentioned persons along with many others form a class independent of any present particular industry or income-earning labour in the town. The teaching profession must add a considerable number, and because it is more usual for Schoolmasters to be married than Schoolmistresses this population will help, with those mentioned above, to swell the excess of females over males, and the numerous female domestic servants employed here will also be out of proportion to the number found in an ordinary town. Thus, according to the last census returns, whilst the excess of females over males for the whole of England and Wales is given as 1068 to 1000, the proportion in Cheltenham is as 1418 to 1000, or roundly, for every 10 males 14 females. The disparity in numbers of males and females in our population is, however, considerably greater at certain ages than at certain other ages. Up to 14 years of age the difference is comparatively trivial, and then a considerable difference sets in, this being presumably due to the fact that the youths begin to quit the town at this age, leaving their sisters behind. At the ages 17 to 20, the numbers of adolescents in the town is nearly in the proportion of 2 females to 1 male. At higher ages there are rather more than 3 females to 2 males, with a tendency to further divergence as the years of life are increased; until at ages of over 75 there are again more than 2 women to each man.

This numerical sex difference is undoubtedly also much more marked in the better-to-do classes than in the artisan

and labouring classes. In the latter it may be safely surmised that the excess of females is no greater than that exhibited in the populace of the whole country, and as, notwithstanding what has been said about the numbers of large houses that show so prominently here, the working classes form the greater half of the population, the difference in sex must be much accentuated for the rest, and, at the age of about 20, will probably be more nearly 4 females to 1 male in the richer classes. The census returns are not sufficiently detailed to show what difference is caused in the proportions of the two sexes by social position. In the last intercensal period there was a loss to our population of 497 persons, and a loss in the number of females of 471; that is to say, the difference in the numbers of males and females was somewhat diminished between the last two censuses. The houses most recently erected in this town have for the main part been of the respectable small house type, and there is evidently a tendency for some change of character to take place in the population of Cheltenham as a whole with the advance of time.

Population.

The number of persons counted in Cheltenham at the 1911 Census was 48,942, and being aware that there were some hundreds who escaped being counted, for reasons explained in my last report, I raised this number last year to 49,500. In the article I have written a little further on upon the birth-rate, an explanation is suggested for the supposition that our population cannot be now increasing.

The population of Cheltenham differs further from the general population of England and Wales by having many more persons of 65 years and upwards, in fact there are more at all ages over 50, and fewer at all the younger ages. This is the result in part of our low birth-rate, and in part is due to the immigration of persons of middle age and older, and emigration of persons of younger age. This peculiarity of population is so pronounced as to require the correction of our death-rate to make allowance for the greater number of deaths to be expected at ages above 50. The census office has in fact supplied us with a multiplying factor to correct our death-rate to make it comparable with the death-rate of England and Wales. This factor is the fraction $\cdot 8709$, and our death-rate

being multiplied by this is reduced by 2 whole units when it is to be compared with the death-rate of the whole of England and Wales.

In the adjoining table the ages of our populace are set out in five year periods as given in the Census returns, and are compared with the ages of the populace of the neighbouring city of Gloucester. The comparison is interesting as it shows that there are many more persons in Gloucester than in Cheltenham up to 15 years of age. At the ages 15-20 we get distinctly before Gloucester. Gloucester exceeds us in numbers at ages between 25 and 50, but at ages higher than 50 we possess many more than Gloucester. The nett result of the comparison of the respective ages of the persons inhabiting the two towns is to give Gloucester an advantage in life expectancy equal to one and a half point of the death-rate per 1000 inhabitants. In comparing the crude death-rate of these two towns therefore, to make the comparison valid as a matter of comparative vital statistics 1·5 must be added to the figure representing Gloucester's death-rate, or subtracted from the figure representing that of Cheltenham.

TABLE SHOWING THE POPULATION OF THE TWO SEXES AT VARIOUS AGES IN CHELTENHAM AND GLOUCESTER AT THE 1911 CENSUS.

AGES.	CHELTENHAM.			GLOUCESTER.		
	Males.	Females.	Persons.	Persons.	Males.	Females.
At all ages ...	20241	28701	48742	50035	23759	26276
Under 5 years ...	1926	1993	2919	5075	2511	2564
5 and under 10	2016	2026	4042	5201	2634	2567
10 " " 15	2194	2231	4425	5202	2618	2584
15 " " 20	2179	3170	5349	4685	2194	2491
20 " " 25	1514	2796	4310	4181	1856	2325
25 " " 30	1447	2455	3902	4068	1894	2174
30 " " 35	1351	2101	3452	3765	1790	1975
35 " " 40	1329	2031	3360	3438	1625	1813
40 " " 45	1245	1780	3025	3053	1456	1597
45 " " 50	1081	1607	2688	2810	1376	1434
50 " " 55	951	1600	2551	2273	1029	1244
55 " " 60	795	1182	1977	1805	845	960
60 " " 65	706	1076	1782	1548	703	845
65 " " 70	610	975	1585	1196	537	659
70 " " 75	474	749	1223	842	357	485
75 " " 80	244	518	762	535	203	332
80 " " 85	129	269	398	243	89	154
85 " " 90	40	108	148	77	27	50
90 " " 95	6	29	35	33	15	18
95 " " 100	4	4	8	5	—	5
100 and upwards		1	1	—	—	—
Under 5 years ...	1926	1993	2919	5075	2511	2564
5 and under 25	7903	10223	18126	19269	9302	9967
25 " " 50	6453	9974	16427	17134	8141	8993
50 and upwards	3959	6511	10470	8557	3805	4752

Vital Statistics.

SUMMARY.

Acres of Municipal Borough	...	...	...	Acres.	4,726
Rateable Value	...	...	...	£	315,893
Population at middle of last year	...	...	...		49,500
Population in 1911 Census	...	...	...		48,942
Persons per Acre in the Borough at Census 1911...					10·3
Persons per separate Family	...	...	...		4·31
Death-Rate, 1913 (crude)	...	...	Per Thousand Living Inhabitants		15·0
" " (corrected)	...	...	" "		13·1

Average Death-Rate for previous ten years	...	...	...	...	..	..	13·7
Zymotic Death-Rate for 1913	...	...	...	...	..	..	·88
Average Zymotic Death-Rate for previous ten years	...	...	...	...	..	..	·87
Birth-Rate, 1913	...	...	...	...	..	..	15·8
Average Birth-Rate for previous ten years	...	...	...	...	..	..	18·6
Infant Death-Rate (under one year old) per Thousand Births, 1913	...	...	...	...	..	..	88
Infant Death-Rate Average for previous ten years per Thousand Births	...	...	...	...	..	..	101

Births and the Birth-Rate.

The number of births registered in 1913 was just the same as the number registered in the previous year, namely, 784, giving again the abnormally low birth-rate of 15·8 per 1000 living inhabitants. As the deaths were rather more numerous, standing at 743, the natural increase of the population last year or difference in number between the births and deaths was only 41. Probably the meaning of this is that we lost in population last year, as the actual increase has not latterly been equal to the natural increase, the emigration from the town always exceeding the immigration into it, and if we lost in population when the difference between births and deaths was several hundred we could hardly gain when it was but 41.

During the previous 30 years, notwithstanding that the fall in the birth-rate has been gradual and persistent, the fall in the death-rate has taken place at so near an equal rate as to make but slight difference in the surplus of births over deaths. This is clearly shown in the following statement.

NUMBERS OF BIRTHS AND DEATHS, WITH SURPLUS IN FAVOUR OF THE BIRTHS DURING THE THREE DECENNIA INCLUDED IN THE YEARS 1883-1912.

Decennium.	Births.	Deaths.	Natural Increase.
1883-1892	10418	7743	2675
1893-1902	10207	7669	2538
1903-1912	9425	6923	2502

These numbers do not show the actual diminution of birth-rate and death-rate as they are relative to a population

that was for the greater part of the 30 years increasing, and the difference in the rates from one decennium to another is therefore more marked than the difference in the actual numbers of births and deaths. But what is shown is that for 30 years Cheltenham was adding considerably to the general population of the country by its natural increase.

Important Effects of Diminishing Birth-Rate.

We have now, however, arrived at a large and sudden drop in the number of births without a correspondingly large drop in the number of deaths, and should the birth-rate sink lower, the inevitable result must be that the number of deaths will exceed the number of births here. This is more likely to result since should the births not again increase in number the low birth-rate itself will be a direct cause of a heightened death-rate, which in its turn will react to bring about a further fall in population. This will happen by reason of the fewer births presently bringing about a relative decrease in numbers at that long age period in life from 5 to 45 when the death-rate is at its lowest, whilst for 45 years after the commencement of the low birth-rate, supposing this to be continuous, the numbers in the population of over 45 years of age will remain the same, and it is at these higher ages that the greater part of the deaths take place. Our death-rate is already heightened by our population containing a comparatively larger number of persons at this advanced age, and this effect is likely to be further enhanced by the lowering of the birth-rate.

This heightening of the death-rate by lessening the birth-rate will be better understood by contemplating the population and the death-rate at different age groups set out in the following table.

POPULATION OF CHELTENHAM AT DIFFERENT AGE GROUPS
AND DEATH-RATE AT THOSE AGES PER 1000 LIVING
OF THE SAME AGE.

Age Groups.	Population.	Death-Rate.
0—5 years	3,919	29
5—25 „	18,126	2
25—45 „	13,739	6
45—65 „	8,998	19
65 and upwards	4,160	79

This problem of the birth-rate is a very important one nationally. The part to be played by the British race depends largely upon its relative numbers, and when these are diminishing by failure of sufficient births the nation is on the downward grade. Activity, progress and success require the energy of comparative youth, as also do ability for competition and defence. The manhood-force of the country is chiefly measured by the numbers in its population who are at the most able age, and the motherhood-force by the numbers of women who are at the child bearing age. A living object lesson presents itself in the case of our nearest neighbours upon the continent of Europe. The comparison between the power and state of France and Germany now, and as things were 40 years ago, is illuminating as to the relative effects upon any two nations of a high birth-rate and a low one. In France for some time past the importance of this matter has been felt, and its significance both as to national and domestic life is there most realised. Even the maintenance of the moral and necessary human institution of marriage is relaxed and the casual child held to be precious in a state, that, but for its illegitimates, would be rapidly losing its population. And this also must mean a great loss in domestic felicity, which from the satisfaction, interest and affection that pertains to it, has always hitherto been the mainspring of human endeavour. Surely it is too ancient and historic an attribute of human life to be dying out, or to be really held less precious however temporarily seducing may prove the more selfish pursuits and interests which mark this passing era. As a selective influence the natural attraction of domesticity and family life may also be expected to assert itself over all influences that tend to prevent reproduction, and after the lapse of a couple of generations become again all conquering. Yet the length of time occupied by two generations may well suffice to permit one nation to surpass another, and to change the face of the earth in the matter of predominance of race. Even in the course of one brief generation of 45 years a nation may easily double or halve its numbers, or, for that matter, extinguish itself entirely. All this surely suffices to demonstrate the possibility of a rapid national decadence by a diminished birth-rate, as well as to suggest how limited is the best developed human capacity that knows no reproduction, and therefore no possibility of being continued beyond the present generation.

The Infant Death-Rate.

The number of deaths in the first year of life is best considered in connection with the births of the year. There were 784 births in 1913 and 69 deaths in the first year of life, which gives an infant death-rate per 1000 born of 88. This is relatively low, though not so low as in the previous year.

The infant death-rate, taken decade by decade during the last 30 years has shown a continued fall corresponding with the fall in the general death-rate and in the later decade with the fall in the birth-rate. Whether the diminished birth-rate has itself been a cause of fewer deaths of infants born must be considered problematical since there is no proof to go upon, but it may be so. Other causes that have operated in saving infant life here will be the general sanitary improvement and better modes of life amongst the poorest parts of the community, where with us the vast majority of births take place, and the better knowledge that has been diffused.

The following table shows the fall in the infant death-rate during the last 3 decades as well as that in the general death-rate and birth-rate.

Decade	Genl. Death-Rate per 1000 living	Infant Death-Rate per 1000 born	Birth-Rate per 1000 living
1884-1893	17·3	148·5	23·5
1894-1903	15·7	129·4	22·8
1904-1913	13·7	101·7	18·6

Illegitimacy.

The question of legitimacy has a marked influence here as everywhere upon the infant death-rate, this being much higher among illegitimates. Last year, for example, whilst the general infant death-rate was 88 per 1000 born for the whole 784 births of the year, the deaths of legitimate infants as compared to legitimate births was equal to 75 per 1000 births, whilst the deaths of the illegitimate infants compared to the number per 1000 of illegitimate births was 240. The actual number of illegitimate births and their percentage to all births for the last 5 years is as below. The numbers are somewhat striking, but are only a little higher than those for the country at large. The numbers here given may be taken as those actually pertaining to the town, the Registrar-General

having supplied information of those born who belonged elsewhere, and those born elsewhere in England who belonged here.

ILLEGITIMATE BIRTHS IN CHELTENHAM DURING THE 5
YEARS 1909-1913.

Year	Number of Illegitimate Births				Rate per 1000 of all Births
1909	48	...	50·9
1910	60	...	64·6
1911	75	...	80·0
1912	46	...	58·6
1913	54	...	68·8

The General Death-Rate.

The number of deaths pertaining to this district registered last year was 743 as against 655 in the previous year and an average of 691 for the previous 10 years. This brought the death-rate considerably above the average, which for the 10 previous years was 13·7, the death-rate for 1913 being 15·0. These numbers both require correction for unusual age distribution, and when multiplied by the factor ·8709, the 15·0 is reduced to 13·1 as compared to 11·5 in the previous year.

The death-rate is liable to vary considerably from year to year, and it has been our experience that a comparatively high death-rate in one year has been usually followed by a comparatively low death-rate the next. This is probably due to causes such as weather and prevalence of zymotic influence, these tending to exhaust their effect when that effect is more severe than usual, so that an unusual number of deaths, particularly amongst young children and persons of advanced years in one year, is followed by a smaller number in the next year.

Of necessity we must reach a point in the lowering of the death-rate below which it will be impossible to reduce it. It may be that after the continuous fall in the annual death-list that has taken place during the last 30 years we have arrived at the lowest point for the present to be attained, and that unless something happens to produce a marked effect upon causes producing many deaths, such as cancer and tuberculosis, the death-rate instead of going lower may even

tend to rise as the result of the diminished birth-rate. Apart from emigration and immigration, a change in the birth-rate is operative in causing a periodic increase and decrease of the various parts of the population that yield a low or a high death-rate, in the way shown upon a former page.

The Zymotic Death-Rate.

The death-rate for the 7 chief zymotic diseases for the year 1913 was .88 per 1000 living, or just about the average for the previous 10 years. These diseases are dealt with at more length a little further forward in the report.

Death-Rate from Phthisis or Pulmonary Tuberculosis.

The number of deaths was 49 last year, or nearly 1 per 1000 living inhabitants, which is about our average. Other tuberculous diseases accounted for 24 deaths, equal to .48 per 1000. The consideration of this disease in connection with its general notification under the order of the Local Government Board, which came fully into operation last year, and the attempt to deal with it under the Insurance Act is considered further on.

Death-Rate from Cancer.

The 77 deaths registered from Cancer, this including all forms of malignant growths, as Carcinoma, Epithelioma, Sarcoma and "Malignant Disease," make an unusually large record for the year past and give an abnormal death-rate of 1.5 per 1000. This is the highest death-rate recorded in Cheltenham, where we are always a little above the average for the whole country, a fact easily accounted for upon consideration of the relative number of persons in our population as compared with the whole country who are over 45 years of age. When allowance is made for that, as I have shown in previous reports, the number of deaths from cancer here is very nearly the average for the whole country. The frequency of this disease, one is a little uncertain about saying its increasing frequency, as a cause of death makes it a matter of the greatest importance in vital statistics, and more so, in a personal way, when it is considered as a painful and chronic affection that is so often the terminating cause of life. Much

study has been latterly given to it with a view to discovering its precise cause and prevention, but hitherto no certain progress has been made in this direction. The introduction of treatment by X-rays and by radium promises, however, in at least some cases, to be a more or less effective cure or prohibitor of malignant growths.

Death-Rate from Respiratory Diseases.

Of deaths from Bronchitis, Broncho-pneumonia, Croupous Pneumonia, Pleurisy, and other lung diseases there were 83, giving the favourable death-rate of 1.66 per 1000. There were only 26 deaths from bronchitis, which again emphasizes the fact that the climate here is not conducive to this complaint.

Deaths from other Diseases of Special Interest.

Pernicious Anæmia causes a few deaths here every year and last year it caused 8 deaths. These, for the greater part, occurred in persons in middle life, or getting a little beyond the middle period. Such cases are occasionally seen here, the patients perhaps most often being of the male sex. 10 deaths were caused from the direct effect of over indulgence in alcoholic drink, the certificate stating them to be variously from Alcoholism, Delirium Tremens, or Cirrhosis of the Liver. Diabetes caused 10 deaths, and Epilepsy 7, all over 25 years of age, which is perhaps a rather greater number than usual. Among infants under a year old there were 27 deaths of the total of 69 attributed to premature birth and defects that may be taken as dating from birth or prior to it. There were 10 deaths from violent causes by accident, and 3 from suicide.

Table of Statistics for the last 10 years, showing Deaths from Chief Zymotic Diseases, and Zymotic Death-rate, and Total Deaths and General Death-rate; also Total Births and Birth-rate per 1,000 of population, and (under 1 year old)

Infant Death-rate per 1,000 children born.

	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913
	50,500	50,500	51,000	51,000	51,000	51,500	51,500	49,200	49,500	49,500
Population...	...	...	...	...	...	...	...	...	...	...
Small Pox ...	...	30	7	...	...	47	...	34	1	17
Measles ...	3	1	1	...	...	...	...	1	1	4
Scarlet Fever ...	3	6	9	7	1	3	3	...	2	3
Diphtheria ...	3	11	1	7	3	5	9	3	9	...
Whooping Cough ...	2	2	1	2	2	2	4	4	...	2
Enteric and Continued Fevers ...	39	24	16	15	16	21	9	37	4	18
Diarrhoea, Enteritis, &c., in Young Children ...	50	74	35	31	22	78	25	79	17	44
Total Deaths from seven chief Zymotics...	...	...	...	...	...	...	...	...	...	...
Death-rate from Chief Zymotics ...	·99	1·46	·68	·60	·43	1·51	·49	1·60	·34	·88
Total Deaths belonging to District ...	714	747	711	708	641	784	624	696	655	743
General Death-rate ...	14·1	14·8	13·9	13·8	12·5	15·2	12·1	14·1	13·2	15·0
(Uncorrected for unusual age incidence).										
Total Births belonging to district ...	961	995	975	881	955	949	926	937	784	784
Birth rate ...	19·0	19·7	19·1	17·2	18·7	18·4	18·0	19·0	15·8	15·8
Infant Death-rate per 1,000 Children born ...	133	131	100	95	90	119	68	127	66	88

Deaths pertaining to Cheltenham that took place in Hospitals and Institutions in 1913.

(The figures after the deaths refer to ages at death).

THE CHELTENHAM GENERAL HOSPITAL.—Tetanus 29, enteritis and diarrhœa 2, 2, 14 m., 10 m., 9 m., 8 m., miliary tuberculosis 29, 3, 2, 2, 20 m., acute tuberculosis 13 m., tuberculous lymphadinitis 5, pernicious anæmia 51, cancer 62, 50, cystic disease 65, pyæmia 35, delirium tremens 29, meningitis 13, 20 m., myelitis 4, epilepsy 26, pneumonia 35, 22, 54, 64, 11 m., broncho-pneumonia 3, 42, 17 m., pulmonary embolism 34, heart failure 61, angina pectoris 49, intussusception 7 m., gastric ulcer 31, 25, 38, cholecystitis 55, peritonitis 5, pyosalpinx 25, nephritis 46, 38, 35, 44, 56, uræmia 65, cystitis 58, 63, fibrosis of prostate 59, abortion and pyæmia 38, puerperal septicæmia 36, stenosis of pylorus 2m., premature birth 13 days, scalds and shock 15 m., poisoning by acid 39.

THE CHELTENHAM WORKHOUSE INFIRMARY.—Gastro-enteritis 15 m., 9 m., alcoholism 58, 64, phthisis 19, 26, cancer 48, 66, 65, 51, 70, 54, 55, epilepsy 30, 54, apoplexy 56, 52, 62, 61, 61, general paralysis 46, 46, bulbar paralysis 64, senile dementia 68, pneumonia and pulmonary congestion 66, 44, 68, 52, 35, 43, 53, broncho-pneumonia 66, heart disease 72, 75, 74, 47, aneurism 62, nephritis 70, 38, 66, 51, cirrhosis of liver 61, debility 10 days, prematurity 1 day, senile decay 84, 86, 73, 77, 81, 82, 69, 81, 75, 76, 88, 80, 87, 74, 85, 84, 78, chronic suppuration 58.

DELANCEY HOSPITAL FOR INFECTIOUS DISEASES.—Scarlet fever 8, 2, 11, enteric fever 26, 20, diphtheria 4, measles 5, phthisis 13.

HOME FOR SICK CHILDREN.—Meningitis 10, pyæmia 8 m., general tuberculosis 8, tubercular hip joint 11, tubercular meningitis 5.

NAZARETH HOUSE.—Gastric ulcer 43, paralysis agitans, 85, senile decay 82, 84, sarcoma of neck 87.

EYE, EAR AND THROAT HOSPITAL.—Mastoiditis 10.

IMPERIAL NURSING HOME.—Appendicitis 63, 57, fibrosis of uterus 72, 46, sarcoma of ileum 57, pyloric obstruction 68, peritonitis 20, 56.

ROYAL NURSING HOME.—Cancer of œsophagus 83, sarcoma of brain 75, apoplexy 77, appendicitis 69, albuminuria 68, cirrhosis of liver 26, pericarditis 54.

CENTRAL SPA NURSING HOME.—Alcoholism 65.

LADIES' COLLEGE SANATORIUM.—Measles 14, tonsillitis 50.

Distribution of Deaths in Wards, &c.

The deaths pertaining to the borough, whether they took place in institutions or in the streets, were distributed as follows:—

North Ward	South Ward	East Ward	West Ward	Central Ward	Middle Ward	Not referable to Wards	Inward Transfer	Total
159	122	121	89	94	106	16	36	743

There were also registered 44 deaths in Cheltenham of persons belonging to districts outside, and which are consequently excluded from our total as above. They have been transferred presumably by the Registrar-General to the districts to which they rightly belong. These outward transfers belonged for the main part to the surrounding districts, being of persons who were sent in to our hospitals and institutions for treatment. The 36 inward transfers included in our total were also to a large extent institutional deaths, the county lunatic asylums contributing the greater part.

Ward Statistics, 1913.

To a chief extent it is the quality of the population in the several wards that determines the difference in the rate of sickness and death to be observed in each, and though in regard to infectious cases there are occasional vagaries, as a general thing the statement holds true. The following table gives the numbers of cases notified in each ward, per 1000 living in the ward, of notifiable infectious diseases other than tuberculosis, and of tuberculous cases.

CASES NOTIFIED PER 1000 POPULATION.

Ward	Infectious Diseases other than Tuberculosis	Tuberculosis
North Ward	15·7	6·2
South Ward	10·7	1·6
East Ward	4·9	3·3
West Ward	7·2	2·6
Central Ward	9·3	4·9
Middle Ward	5·2	2·9

In regard to the birth-rate, which was only 15·8 for the whole town per 1000 living inhabitants, it may also be noticed that the poorer districts supply the bulk of the births, and even in the better districts the births mainly take place in the small houses. In the West and Middle Wards, comprising together a population of 15,214, the birth-rate was only 12·6 and 12·1 respectively.

The infant death-rate last year happened to be greatest in the Central Ward, where one half of those who died in the first year of life died the first day owing to prematurity, and conditions affecting the new born.

Other information as to causes of death, operative in the several wards, will be found in the following table, which gives the chief vital statistics for each ward.

WARD STATISTICS.

Table showing Vital Statistics in each Ward of the Town during 1913.

	Whole Town	North Ward	South Ward	East Ward	West Ward	Central Ward	Middle Ward
Population ...	49,500	9,676	9,073	8,368	6,352	6,611	8,862
Death-Rate from all causes ...	15.0	16.4	13.4	14.4	12.4	14.0	11.9
Zymotics ...	.88	1.86	1.10	.71	.15	.45	.22
Phthisis ...	1.00	1.24	.44	1.31	.31	.75	.90
Other Tuberculous Diseases ...	.48	.41	.55	.60	.15	.30	.56
Respiratory Diseases ...	1.68	2.37	.99	1.31	1.73	2.26	1.12
Cancer ...	1.55	1.75	1.65	1.92	1.10	1.05	.79
Birth-rate ...	15.8	21.3	14.9	18.4	12.6	14.9	12.1
Infant Death-rate under 1 year old ...	88	87	88	85	75	141	46

PER 1000 CHILDREN BORN.

Deaths Certified by Coroner after Inquests in 1913.

Accident by being knocked down by a motor car	...	...	...	...	...	...	1
„ being knocked down by passing tram	...	...	...	...	...	...	3
„ colliding with a motor car whilst riding a motor bicycle	...	...	...	...	...	...	1
„ colliding with a tram car whilst riding a bicycle	...	...	...	...	...	...	1
„ falling downstairs	...	...	...	...	...	...	1
„ scalds	....	...	...	...	...	...	1
„ suffocation in bed with parents	...	...	...	...	...	...	1
Apoplexy	....	...	...	...	...	...	1
Cerebral congestion	...	...	...	...	...	...	1
Cerebral hæmorrhage	...	...	....	...	...	....	2
Delirium tremens	...	....	...	....	...	...	1
Epidemic diarrhœa	...	...	...	....	....	...	1
Found dead	...	...	...	...	...	...	1
Heart affection, syncope	...	...	...	...	...	...	8
Meningitis	...	...	...	...	...	...	1
Pneumonia	...	...	...	...	...	...	1
Suffocation due to food penetrating the larynx	...	...	...	...	...	...	1
Suicide by poisoning	...	...	...	...	...	...	1
Want of attention at birth, debility	...	...	...	...	...	...	4

—
32
—**Deaths not Certified.**

Congenital debility, 6 hours	1
General degeneration, 89	1
Premature birth, 10 minutes, 30 minutes	2

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4
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Local Government Board Table No. 1.—Vital Statistics of whole District of the Borough of Cheltenham during 1913 and previous years.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS.		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number.	Nett.	Number.	Rate.	of Non-residents registered in the District	of Residents not registered in the District	Under 1 Year of age		At all Ages	
								Number.	Rate.	Number.	Rate
1908	51,000	955	...	672	13.2	31	...	86	90	641	12.5
1909	51,500	949	...	814	15.8	30	...	113	119	784	15.2
1910	51,500	926	..	639	12.4	32	17	63	68	624	12.1
1911	49,200	943	937	712	14.5	39	23	119	127	696	14.1
1912	49,500	783	784	656	13.2	28	27	52	66	655	13.2
1913	49,500	783	784	751	15.1	44	36	69	88	743	15.0

Area of District in acres 4,726

Total population at all ages..... 48,942

Number of families or separate occupiers... 11,346

Average No. of persons per family 4.31

1911
}
} Census

Local Government Board Table II.—Cases of Infectious Disease notified during the year 1913
for the Borough of Cheltenham.

NOTIFIABLE DISEASES.	Number of Cases Notified.								Total Cases notified in each Locality.					Total cases removed to Hospital.	
	At all Ages	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 & upwards.	North Ward.	South Ward.	East Ward.	West Ward.	Central Ward.		Middle Ward.
Diphtheria (including Membranous Croup) ...	49	...	15	20	9	3	2	...	10	15	11	5	2	6	24
Erysipelas ...	45	...	2	5	4	13	16	5	16	7	4	2	10	6	...
Scarlet Fever ...	335	2	68	224	26	13	2	...	124	72	25	35	48	31	313
Enteric Fever ...	11	...	...	1	3	4	3	...	1	1	1	4	2	2	8
Puerperal Fever ...	3	...	...	...	...	3	...	...	1	1	...	...	...	1	1
Poliomyelitis ...	4	...	3	1	...	...	...	...	...	2	...	...	...	2	...
Pulmonary Tuberculosis ...	135	...	1	17	41	56	18	2	37	9	24	14	30	21	18
Other Forms of Tuberculosis ...	25	...	...	7	9	5	3	1	8	4	4	3	3	3	4
Totals ...	607	2	89	275	92	97	44	8	197	111	69	63	95	72	368

Isolation Hospital—Delancey Fever Hospital, within the District. Provided by Board of Trustees.

Local Government Board Table IV.—Infantile Mortality during the Year 1913 in the Borough of Cheltenham.
 Nett deaths at stated causes at various ages under 1 year of age.

CAUSE OF DEATH.	Under 1 week	1-2 weeks	2-3 weeks	3-4 weeks	Total under 1 month	1-3 months	3-6 months	6-9 months	9-12 months	Total Deaths under 1 year
Measles ... ..	...	...	...	...	...	1	...	...	...	1
Tuberculous Diseases ... ..	...	...	...	...	...	...	...	...	1	1
Meningitis (<i>not Tuberculous</i>) ... ..	...	...	1	...	1	1	1	...	...	3
Convulsions	1	...	...	...	1	1	...	2	...	4
Bronchitis ... ..	...	...	...	...	...	1	1	...	...	2
Pneumonia (all forms) ... ..	...	1	1	...	2	2	1	1	3	9
Diarrhœa ... ..	...	1	...	...	1	2	1	2	...	5
Enteritis ... ..	...	1	...	...	1	1	...	3	...	5
Suffocation, overlying ... ..	...	...	...	1	1	...	...	...	...	1
Injury at Birth	2	...	...	...	2	...	...	...	...	2
Atelectasis	3	...	...	...	3	...	...	...	...	3
Congenital Malformations	2	...	...	...	2	...	...	...	...	4
Premature Birth	8	4	...	...	12	1	...	1	1	15
Atrophy, Debility and Marasmus	1	2	...	...	3	...	...	...	...	3
Other Causes	5	...	...	...	5	1	1	1	...	8
Totals	22	8	2	1	33	12	5	10	9	69
Net Births in the year {	Legitimate, 730.									
Net Deaths in the year {	Legitimate infants, 56.									
	Illegitimate, 54.									
	Illegitimate Infants, 13.									

BOROUGH OF CHELTENHAM.

Causes of Death pertaining to the District in 1913.

(Nomenclature and arrangement according to the International List).

CAUSES OF DEATH.	AGES AT DEATH.								Total at all Ages.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 45	45 to 65	65 to 75	75 and upwards	
I.—GENERAL DISEASES.									
Measles	1	13	3						17
Scarlet Fever		1	2			1			4
Enteric Fever				1	1				2
Diphtheria		2			1				3
Influenza				1		5	1	5	12
Tetanus					1				1
Pulmonary Tuberculosis		2	1	8	28	9	1		49
Tuberculous Meningitis			2	1					3
Tuberculosis of Peritoneum & Intestines				3	2	1			6
Tuberculosis of Bones			1			1			2
Disseminated and General Tuberculosis	1	7	2		2			1	13
Ricketts		1							1
Cancer		1			5	36	23	12	77
Acute Rheumatism							1		1
Chronic Rheumatism, Arthritis						2	1	1	4
Gout							1		1
Diabetes					1	2	5	2	10
Exophthalmic Goitre (Grave's Disease)					1				1
Lymphadenoma						1			1
Pernicious Anæmia					1	6	1		8
Pyæmia	1				1				2
Alcoholism, Delirium Tremens					1	2	1		4
Morphia Habit						1			1
II.—DISEASES OF THE NERVOUS SYSTEM.									
Meningitis	2	2	2			1			7
Mastoiditis			1						1
Cerebral Cyst			1						1
Cerebral Hæmorrhage, Apoplexy						17	13	26	56
Hemiplegia							1	3	4
Softening of Brain						1	2	2	5
Mania and Dementia					1	1	2	1	5
General Paralysis of the Insane					1	2	1		4
Epilepsy					3	2	1	1	7
Infantile Convulsions	4			1					5
Spinal Meningitis	1								1
Myelitis		1							1
Infantile Paralysis		2							2
Bulbar Paralysis... ..						1			1
Paralysis Agitans							1	1	2
Locomotor Ataxy						2			2
Paraplegia, Spinal Paralysis						1	1	1	3
Cretinism			1						1

CAUSES OF DEATH.	AGES AT DEATH.								Total at all Ages.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 45	45 to 65	65 to 75	75 and upwards	
III.—DISEASES OF THE CIRCULATORY SYSTEM.									
Pericarditis	1					1			2
Endocarditis						1			1
Organic Disease of Heart				1	4	24	23	27	79
Angina Pectoris						2	1	2	5
Arterio Sclerosis, Atheroma						3	2	10	15
Aneurism					1	2	2		5
Status Lymphaticus		1							1
IV.—DISEASES OF THE RESPIRATORY SYSTEM.									
Bronchitis	2					2	9	13	26
Broncho-Pneumonia	6	3			1	2	1	2	15
Pneumonia	3	2		2	7	8	2	8	32
Pulmonary Congestion						1	1	1	3
Pulmonary Embolism					1			1	2
Fibroid Lung					1				1
Pleurisy					1			2	3
Emphysema								1	1
V.—DISEASES OF THE DIGESTIVE SYSTEM.									
Septic Throat, Tonsillitis						1	1		2
Gastric Ulcer					4				4
Gastritis		1						2	3
Epidemic Diarrhœa	6	2							8
Enteritis	4	2							6
Gastro-Enteritis	3	1							4
Appendicitis						2	1		3
Duodenal Ulcer						2		2	4
Intestinal Obstruction, Intussusception	1						1		2
Peritonitis			1			1			2
Cirrhosis of Liver					2	2	1	1	6
Gall Stones, Cholecystitis						1			1
Disease of Liver								1	1
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM.									
Nephritis, Bright's Disease					5	9	11	5	30
Cystitis						2	1		3
Uræmia							1	2	3
Prostatitis						1	1		2
Urethral Stricture					1				1
Uterine Fibroid						1	2		3
Ovarian Tumour						2			2
Salpingitis, Pyosalpinx					1				1

CAUSES OF DEATH.	AGES AT DEATH.								Total at all Ages.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 45	45 to 65	65 to 75	75 and upwards	
VII.—DISEASES CONNECTED WITH THE PUERPERAL STATE.									
Abortion, Miscarriage					2				2
Parturition					1				1
Puerferal Septicæmia					1				1
VIII.—DISEASES OF THE SKIN AND CELLULAR TISSUES.									
Gangrene							1		1
Ulcers of Leg						1			1
X.—MALFORMATIONS.									
Hydrocephalus		1							1
Spina Bifida	2								2
Stenosis of Pylorus	1								1
Meningocele	1								1
XI.—DISEASES OF EARLY INFANCY.									
Premature Birth	15								15
Debility, Asthenia	3								3
Marasmus		1							1
Icterus Neonatorum	1								1
Atelectasis, Asphyxia at Birth	3								3
Want of Attention at Birth	3								3
Injury at Birth	2								2
XII.—OLD AGE.									
Senile Decay, Senility, Old Age						1	12	61	74
XIII.—DEATHS PRODUCED BY EXTERNAL CAUSES.									
Suicide by Poison					1				1
„ being run over by Train					1				1
„ Firearms			1						1
Accident by Burns or Scalds		1							1
„ Falls and Fractures				1	1	2			4
„ Train				1			1		2
„ Struck by Lightning				1					1
„ Overlain	1								1
„ Food in Larynx		1							1
XIV.—DEATHS FROM ILL-DEFINED CAUSES.									
Dentition		1							1
General Debility				1					1
Found Dead	1								1
Suppuration						1			1
Totals	69	49	18	22	86	170	132	197	743

Number of cases of Zymotic Disease notified in Cheltenham since notification began.

Year	Scarlet Fever	Diphtheria	Enteric Fever	Puerperal Fever	Small-pox	Erysipelas	Polyomyelitis
1890	93	16	24	2	...	...	...
1891	75	15	19	...	...	...	...
1892	264	10	10	...	...	...	...
1893	419	33	63	4	2	...	...
1894	147	26	27	1	3	...	...
1895	89	25	34	3	1	...	...
1896	126	60	26	4	22	...	...
1897	224	43	20	1	...	...	...
1898	296	52	23	5	...	...	...
1899	273	80	16	...	...	...	...
1900	103	74	32	1	...	21	...
1901	67	58	18	1	...	16	...
1902	147	63	18	3	1	19	...
1903	142	65	17	...	1	25	...
1904	143	59	7	...	...	25	..
1905	116	65	16	...	4	42	...
1906	104	61	24	6	1	37	...
1907	30	71	14	...	...	16	...
1908	79	53	12	1	...	20	...
1909	87	39	20	2	...	24	...
1910	81	90	8	2	...	27	..
1911	77	26	34	...	...	34	...
1912	193	19	10	...	...	27	...
1913	335	49	11	3	...	45	4
Average for all years...	154	48	21	1.6	1.5	27	4

Acute Infectious Diseases.

The year 1913 proved to be the worst experienced for many years in regard to the number of cases of infectious diseases notified in Cheltenham, though by no means the worst in regard to numbers of deaths from such diseases. The increased aggregate of cases chiefly resulted from a prevalence of Scarlet Fever, which was fortunately of a mild type. Streptococci were active during most of the year in producing disorders notifiable and non-notifiable, and the want of more definite knowledge as to the species of streptococci, and

possible relationships or identity of those that cause one disease and another is to be regretted. This type of organism is so ubiquitous as to give but a vague significance to the discovery of their presence, though that discovery is often connected with very serious if widely differing diseases.

ZYMOTIC DISEASES NOTIFIED in each month during 1913.								
Month.	Scarlet Fever.	Diphth- eria.	Enteric Fever.	Puerperal Fever.	Erysi- pelas.	Polio- myelitis	Cerebro- Spinal Fever	Totals.
January	35	2	...	1	2	...	...	40
February.....	24	3	2	...	2	...	...	31
March	29	7	1	...	...	...	...	37
April	17	5	1	...	3	...	...	26
May	19	3	2	...	5	...	...	29
June	30	3	1	...	4	...	...	38
July	51	1	...	...	4	...	...	56
August	29	6	2	...	2	1	...	40
September ...	32	2	...	...	6	...	...	40
October	36	7	2	...	4	3	...	32
November ...	23	5	...	...	9	...	...	37
December ...	10	5	...	2	4	...	...	21
The 12 months Totals	335	49	11	3	45	4	...	447
Tot'l no. treated in Hospitals...	313	24	8	1	...	...	...	346

Scarlet Fever.

In 1913 this disease became semi-epidemic, the prevalence of the latter part of 1912, noted in my last annual report, being continued into and persisting through the whole of last year with only a temporary remission in the earlier summer months. Thus the curve of incidence of this disease rose higher than it has risen since the year 1893, just twenty years previously. There were notified in the year 335 cases, and these occurred in every district of the town, though unequally as is to be expected always by reason chiefly of the unequal

distribution of children in one part and another, and of the relative amount of poverty and degree of aggregation of population. Both these circumstances are most marked in the North Ward and there upon a population constituting 19 per cent of the whole borough fell 37 per cent of the scarlet fever cases, or nearly twice as many cases as would have fallen to this ward by an equal distribution of the malady. The South Ward suffered next most severely with 21 per cent of the cases ; this chiefly on account of the comparatively large number of children in the ward.

In consideration of the causation of this prevalence of Scarlet Fever and the prevention of its spread the following facts are worth consideration. There had been no such prevalence for many years and there existed in the town an ample supply of susceptible persons of a right age to get the disease, and who were unprotected by previous attack. But the numbers of susceptible persons was not much greater than for several years past, and inasmuch as Scarlet Fever does not sweep through the town in the manner of Measles, of which 2000 or more cases may occur in a population of 50,000 like ours in any epidemic year, thus clearing the ground to a large extent for the time being of children liable to contract Measles, Scarlet Fever never in these days occurs in such large numbers relative to the whole population, and the result is there is always ready material in the shape of susceptible persons for the development of the disease. Besides, in the case of Measles no control as by hospital isolation is attempted, and in time of epidemic the cases remain in the streets. Not so here with Scarlet Fever, as there are never more than 2 or 3 cases remaining in the streets at any one time owing to the fact that 90 and more per cent of our cases are always removed to hospital as soon as notified. Last year 93 per cent went to hospital, and stayed there till all signs of the disease had disappeared.

During the year we had evidence of the disease being spread by personal contact of healthy children with one affected with the disease in a school. In two schools there was a continuance of cases amongst the children in one class room until the fact was discovered and obviated, in the one instance by the discovery of the culprit, and in the other by closing a portion of the school. Evidence of personal contact with neglected cases in which the symptoms had been but

slight was obtained pretty often by the ultimate discovery of the case in the peeling stage. In a town such as this moreover, what with insurance doctors, school attendance officers, school inspection officers, school teachers and others to make the discovery, it must be rarely that a case, that is so decided to admit of certain diagnosis, escapes detection sooner or later. Certainly, however, some of these very mild and neglected cases are the cause of other cases occurring. Besides the causes of spread mentioned above there is the very definite cause through milk. But a milk born outbreak of Scarlet Fever is explosive, easily discovered, and as a primary source easily put a clean stop to, and no evidence was forthcoming during last year of such an influence being at work.

Therefore, although one may trace the cause of individual cases, and of batches of cases of Scarlet Fever in any year to such influences as those above mentioned, these influences are not sufficient to explain an epidemic season of Scarlet Fever like that which happened here last year, and which no knowledge that we have satisfactorily explains, and no preventive measure that we can take, such as the use of isolation hospitals, entirely arrests. Nothing connected with the relative number of susceptible persons in the borough, nothing connected with the relative care and neglect of cases that occurred, will explain why in 1907 we had 30 cases only of Scarlet Fever, and in 1913 335 cases. The dying down of the mildly epidemic condition cannot be entirely due to the action of the Health Department, which has been as ever. That has lessened the number of cases no doubt, but we cannot claim to have controlled the disease in its rise to prevalence, nor that our action is the whole cause of the fall in the numbers of cases when this fall comes to pass.

The cause of Scarlet Fever is therefore a variable as well as a powerful influence. From time to time it assumes a vitality and infectiveness which it does not possess at another time, and by virtue of this produces a greater number of cases. Supposing, as is probable if not absolutely proven, that the disease is due to a microbe, then that microbe varies in its power of producing the disease, and in its extent of existence considered numerically. In this it is in no way peculiar, as many analogies can be called to mind in the recurring prevalence of other diseases both of men and animals and plants, and in some of these the seasonal increase of parasitic life,

which causes the disease, and its determined vitality and power at such times, are evident beyond question.

Notwithstanding our inability to stem entirely the epidemic tide of Scarlet Fever that flows in upon us from time to time, there is considerable gratification in the contemplation of the comparative mildness of type now assumed by this disease, as well as the diminished extent of its spread when the season of prevalence comes, as was the case last year. Thus, whilst our 335 cases last year resulted in 4 deaths only, in the year 1876 there was an epidemic of uncounted numbers in this town but whose virulence made itself terribly evident by producing a death roll of 96. I believe that the knowledge gained and spread since then, and the practical methods of Public Health which after that date were gradually developed, and are now in vogue, will effectually prevent the recurrence of such a calamity.

The provision made for hospital isolation of Scarlet Fever at the Delancey Hospital in Cheltenham just sufficed, when the cases arising were at their maximum, for the streets to be kept as free as usual from cases, thus happily demonstrating that the number of beds provided for this disease was well calculated.

Infectious Sore Throat.

A disease quite distinct from Diphtheria, affecting primarily the throat, arose in the town last year, and was chiefly in evidence for about three months in the early part of the summer. Of this I should estimate the number of cases that occurred from first to last at about three hundred. It affected grown up persons rather than children, as very few cases indeed were heard of in the Elementary Schools even upon enquiry. A question addressed by letter to the leading medical practitioners elicited the fact that most of them had had cases of this complaint under treatment, some of them in sufficient numbers to lead to comment ; in fact, my attention was drawn to the matter by one of them. Such an occurrence lends itself easily to exaggeration, and the importance of the presence of this disease became somewhat exaggerated, so that it got abroad that the town was badly affected by an epidemic. It happened about this time that two deaths attributed to tonsillitis or septic sore throat took place in persons of advanced years, and this lent some speed to the rumour, which received an

undesirable filip, and led to questions being directed to me from various sources by a publication in one of the daily newspapers that boasts a very large circulation. This publication was too sensational, and was likely to be more damaging to the town than of advantage to any living person.

Non-diphtheric infectious sore throat has always been of sufficiently common-place occurrence. How many sorts and sources of such throat affections exist no one can say, since the matter has not been worked out, but one might well expect several kinds to be capable of being distinguished from one another.

The sore throat which occurred here last summer was associated with an easily demonstrable streptococcus contained in the muco-purulent secretion thrown out upon the tonsils and neighbouring inflamed mucous surfaces of the throat, and which appeared in some cases to be capable of setting up a general septicæmia. In the vastly greater proportion of patients so attacked the illness ensuing ran a course of a few days, and resulted in rapid and complete recovery, whilst a few were more severely affected with enlarged cervical glands that did not immediately resolve, and a few were made dangerously ill with signs of toxæmia and endocarditis. Two physicians of the town have detailed some of the worst cases seen, and the interesting accounts they have published in the *British Medical Journal* may be looked upon as a valuable contribution towards the required differentiation of the several kinds of sore throat that undoubtedly exist by the description of one such. They also seem to have established the desirability of carefully enquiring into the condition of the heart in all cases of sore throat.

Diphtheria.

During last year 49 cases of Diphtheria were notified, which is the exact average number of the last 25 years. There were 3 deaths, giving the moderate case death-rate of 6 per cent. Our experience with this disease last year was as hitherto, the disease occurred in almost as many houses as there were cases, and in connection with several schools, but in no instance was there any running continuance of cases connected with one another. The advocacy of swabbing all contacts in every case of diphtheria notified, and the wide

administration of preventive doses of anti-toxic serum to contacts appear to have lost considerably in credit, and the tendency now seems to be to limit such measures to those instances in which there is evidence of the presence of a specially infective germ and to those in which the special circumstances denote the necessity of unusual caution. Our experience of last year of 50 cases of diphtheria occurring without one of them showing any marked capability of spreading the disease is the common experience. Nevertheless diphtheria remains a disease of great danger especially to young children, and the surroundings and possibilities of every case require the most careful attention, those nearest concerned being always apprised of what is required to limit the spread of the disease and prevent a fatal result in the case notified. Severe cases and those that look like being mischievous are here sent to the isolation hospital, with considerable benefit to patients and public ; and in my opinion hospital provision for the isolation of diphtheria is of decided advantage, at least in a town like this.

Acute Polyomyelitis.

A limited but quite definite outbreak of this disease occurred in Cheltenham in 1913. It appears from the information ultimately obtained that at least 12 cases occurred, chiefly within a limited area in one quarter of the town, three cases being at more remote distances, and one case was introduced into the town from a village 13 miles out.

Although the requirement of notification had been brought to the knowledge of the Medical practitioners of the town, not long previously, four cases only were notified. Amongst those not notified were two that were first learned of by their occurring upon the death-returns, one of the deaths being certified as from Spinal Myelitis and the other from Infantile Paralysis, the subjects being both children of four years of age. There were considerable reasons for excusing the failure to notify as the nature of several of the cases from the onset was very obscure. One case appears to have been successively attacked by Measles, Polyomyelitis

and Scarlet Fever, the several diseases following each other in this order at short intervals. In other cases no doctor was called in until long after the first signs of attack had passed away. There was a nest of six cases very near together, i.e. in the same street and adjoining streets, two of these cases being children of the same family, the situation here was also very near to one of the largest elementary schools in the town.

The ages of the patients were from one to nine years, but chiefly between two and four, the sex distribution being about equal. The first case heard of was notified on August 11th, the illness dating from August 7th, and death taking place on the 12th. Between this date and September 1st, several other cases appear to have occurred that were not notified. The three other cases notified were not heard of until October, and of the two of them which were taken ill in the town, it was elicited that one was seen by a doctor as early as July 17th, when she had meningitis with opisthotonos which soon passed off, leaving paralysis of both legs. This was probably the first case of the outbreak. The other cases appear to have had their beginning in August and September. I have no knowledge of any case having originated in the town after September.

In most of the cases there was a definite acute illness at the onset. Those in which the symptoms were most evident complained of pain in the head, stomach, back or limbs. One screamed suddenly in the night with pain. Several were sick at the beginning, and a few days later when the acute symptoms had passed off it was noticed that a weakness of one or more of the limbs had developed. One small boy had a convulsion followed by pain in the arm and leg. The sequel here was absolute paralysis of the arm which now hangs straight and lifeless. More usually the lower limbs were affected, the feet becoming contracted, or inverted, or dragged or quite limp.

In half the cases no doctor's advice was sought until long after the onset of the illness, and the most careful enquiry showed that in these cases the disease was ushered in with very mild preliminary symptoms. The child was poorly, complained of weariness, was sick, or trembled a little, but had no definite pain, and in a couple of days or so recovered, the recovery however being followed by more or

less paralysis, or paresis which for a time grew worse, and led at last to the patient being taken to the Hospital outpatient department, or to a private doctor.

Several of the cases were sent to the local Home for Sick Children where they were treated for a more or less long time. The paralytic condition was distinctly improved by medical treatment, as by massage, etc. in a fair proportion of those who were thus dealt with. Improvement was most pronounced in the milder cases where great lameness ultimately gave place to a very good power of walking. In all the most severe cases that lived, severe and permanent crippling has however, resulted.

The lessons learnt in an experience of this frightful disease, which was happily as limited as above represented, seem to be firstly, that its epidemic nature fully justifies its addition to the list of notifiable infectious diseases. The limitation of the disease for the main part to one quarter of the town, several cases, as ultimately discovered, neighbouring each other quite closely, indicates that contiguity plays a part in the spread of the disease, which however, seems to be more selective than most infectious diseases, and to be spread with greater difficulty whether as the result of a pretty general power of defence in the bodies of the children, or the fact of the infection not being readily disseminated from the body of the sufferer in a direct way, in that respect resembling Typhoid Fever. It certainly appears that notwithstanding that it did get a hold of several children within a limited area and time, the disease subsided of its own accord. Heaven grant that it may not have left a remnant spark of infection to recrudescence. It appears somewhat astonishing that the tendency to epidemicity, and the evidently infectious nature of this dreadful disease should for so long have escaped notice. From time to time we have known of its presence, and have been made aware by the evidence of its effect among our population of its periodic recurrence. By its notification there will be henceforward chances for its closer study, with the hope of being able to interpose some sort of prevention to save humanity from its dire effects. It cannot be pretended that at present so desirable a power is available, for whilst the actual cause of the disease may be shown to be microbic, the control of the cause seems at present to be exceptionally

difficult. Is it necessary to isolate such cases and for how long? Should we cease to permit them to go to general hospitals as they have always done hitherto? Is any good done by disinfecting clothing and houses? Is any treatment possible for the prevention of the disease or to alleviate its effects on the lines of Pasteur's treatment for hydrophobia, or otherwise? Where does the germ of the disease find its natural habitat and what is the precise reason of its coming and going? These are questions which arise in sight of the infliction upon human creatures of such pitiable results as those which follow the stroke of Polymyelitis.

The fact of half the cases of the outbreak here last year being at first neglected and overlooked, clearly demonstrates the necessity of a careful enquiry in the neighbourhood whenever a case of polymyelitis is notified, with a notice to the doctors residing near to apprise them of the chance of other cases occurring and so to assist them to make an early diagnosis, though what may be the successful treatment at the onset of the disease to prevent the after permanent paralysis may as yet be undetermined.

The Prevalence and Control over Tuberculosis.

Last year being the first year in which tuberculosis was fully notified in whatever place or person it occurred, we had 160 notifications of new cases within the year. Of these 135 were cases of tuberculosis of the lungs, or of the lungs along with other organs. In the remaining 25 instances the disease attacked other parts of the body to the exclusion of the lungs.

The 135 new cases of pulmonary tuberculosis was well up to the number anticipated, and the practitioners of the town have now I believe quite taken into mind their obligation to notify all cases.

Under the Insurance Act, the dealing with tuberculosis in the matter of treatment has fallen to County Councils and County Boroughs. This I look upon as somewhat of a misfortune in a town of this character which happens to be just below county status. It would be more satisfactory if the management of cases of tuberculosis here were in the

hands of the local Medical Officer of Health, rather than that Cheltenham cases should be dealt with as a part of those of the minor urban and rural districts that fall under the supervision and direction of the County Officer.

The County Authority has opened a tuberculosis dispensary in this town, and has acquired beds in a sanatorium situated at Birdlip about seven miles from Cheltenham, and a certain amount of treatment is being done amongst Cheltenham phthisis cases, but I believe the organization is not yet complete. The County M.O.H. informs me that the County Authority are proposing to appoint visiting nurses and suggests that these could make all necessary enquiries, as to the antecedents of each case, etc., but I am not aware that these nurses have been appointed to date. During the year there was a change in the tuberculosis Medical Officer and Dr. Dickson the present officer will be getting matters into working order.

CASES OF TUBERCULOSIS NOTIFIED IN
CHELTENHAM IN 1913.

	Form A	Form B	Form C	Form D	Previous to New Order of Feb. 1913
Cheltenham	143	...	25	18	17
including :—					
Cheltenham Workhouse	...	...	9	6	...
Gloucestershire County Asylum	2	...	...	...	...
Cranham Sanatorium, Nr. Gloucester ...	...	...	12	7	...
Winsley Sanatorium, Nr. Bath ... ..	...	...	2	2	...
Southbourne Sanatorium Bournemouth ...	...	...	1	...	...
Springfield Sanatorium Newport ... ..	...	...	...	1	...
Pinewood Sanatorium, Wokingham... ..	...	...	...	1	...
Kingswood Sanatorium, Peppard Common, Oxon. ... ..	...	...	...	1	...

Enquiries made at the end of the year, by visits to the houses of the Cheltenham cases of pulmonary tuberculosis that were notified last year, have shown with what care and thoroughness the dealing with such cases requires to be done for any considerable effect to be produced, and how difficult it is, from one hindering cause and another, to take a comprehensive grasp of this work.

This can only be done by such a concentration of energy and expenditure of money generally as appears little likely to be forthcoming, notwithstanding the pecuniary aid granted under the Insurance Act, seconded by such additions as may be voted by the local councils. The tendency up to this moment is towards the appointment of too few officers, and until a sufficient capable staff of officers and nurses are appointed the system must fail in completeness, and continue to show the want of thoroughness and extent which will render the expenditure wasteful. It is a sort of work which must be done with completeness to be done with economy and good effect, but we are as yet far from the complete and effective handling of all notified cases of phthisis.

Of the 135 cases of phthisis notified in this town last year, some 35 died within the year. Of those still living, 14 were known to have been treated in sanatoria, the effect in the major part of these cases apparently not being perfect or permanent cure, the condition of some being much improved, at least temporarily, the improvement in other cases being however doubtful, some were admittedly no better, and some who went to sanatoria are numbered among the dead 35.

20 cases had received treatment at the Dispensary or otherwise than in Sanatoria, these being also too ill to do any work.

27 of the notified cases were following their avocations, and some of these had been successfully treated for at least a temporary benefit. A few of them appeared to be mistaken diagnoses, and a few were evidently in need of treatment, and were viewing their ailment with too little respect to their future welfare, but some of them were obliged to go to work to earn their living.

Only two said they were ready to work but had not been able to find employment, but no information could be obtained as to 30, on account of 20 of them having left

their address, and in 10 other instances no one was at home, but in some of these last 10 the neighbours said the patient was gone out to work, or gone out to look for work.

It is certainly difficult to find any warrant for enthusiasm in a statement like this, in connection with the work done last year in this town in the way of preventing and curing phthisis, but it suffices to prove the statement that I mentioned above, namely, that the grappling with this disease requires to be very close and systematic, for any considerable good to result.

Enteric or Typhoid Fever.

Last year there were 11 cases of this disease notified which is one of the lowest annual numbers recorded in 25 years, the average annual number during that time having been 21. Two of the 11 cases died. In the year before last there were 10 cases, or very nearly the same number as last year, and with reference to the water supply in connection with these cases, it may be noted that whereas the year before last on account of the plentiful supply of water at the Dowdeswell Reservoir no river water was supplied to the Town, last year the pumps at Tewkesbury were at work from July 9th, to the end of the year.

Infantile Diarrhoea.

Of the 18 deaths from diarrhoea or enteritis during 1913, 13 were under a year old, and all under five years. Nearly every one of the 18 deaths occurred in the very poorest class of house, nine of the 18 in the North Ward which tells the story of comparative neglect, careless feeding, dirt and flies.

Measles.

There were 17 deaths from Measles, 14 of them being under five years of age, which shows that this non-notifiable infectious disease must have occurred in considerable numbers. This we know to have been the case towards the end of the year in the Central, East, and North Wards requiring the closing of the Infants' Schools of Holy Trinity, St. John's, St. Paul's, etc., and it was in these localities that the major part of the deaths from Measles occurred.

Influenza.

To Influenza 12 deaths were directly ascribed last year, 11 of them being over 45 years of age, and generally speaking it is to those past middle life that an attack of this disease is especially dangerous. It is very dangerous no doubt to an elderly person enfeebled by age, chronic bronchitis or other long standing affection, and such persons need to be careful to avoid the infection of this disease, since it has always to be remembered that no disease is more decidedly spread from the sick to the healthy by near approach than Influenza. It is too often the case that sufferers will persist in moving abroad, and going to the club or other place of meeting whilst the temperature of the body is raised, and other symptoms of the disease are present. Younger and stronger members of the Community may be thus the cause of those less able to withstand the disease being attacked.

Whooping Cough.

There was no death from whooping cough last year, though there were cases as in every year. As however I have had occasion to remark before, this disease is of comparatively mild type here as a rule, not affecting our infantile population in the character of the scourge that it elsewhere assumes.

Vaccination.

There was a further decline in the number of successful Vaccinations performed last year, which was as follows :—
Vaccinated, 252, Exemptions, 493, not accounted for, 39.
The number of births in the year being 784.

Sanitary Circumstances and Administration of the District.

Cheltenham and County Powers of Local Government.

Cheltenham is not a County Borough and consequently suffers some disadvantage in want of autonomy as compared with other towns of similar size and importance that at some distance surround it, such as Gloucester, Bath, Worcester, Exeter, Oxford. It is true that these latter for the greater part have been counties for a long time by virtue of an ancient right pertaining to cathedral cities, but that does not lessen the desirability of Cheltenham being brought to an equality with them. The Local Government Act of 1888, which established County Councils and County Boroughs requires a population of 50,000 in any town aspiring to become a County Borough, and this town might obtain the prestige and advantages of a County Borough by application to the Local Government Board to be so created, had it the required population. It was thought that the last census count would have shown the population to be over 50,000, but this hope was destined to disappointment, and, for reasons I have given in this report in connection with the diminishing birth-rate, it is now unlikely that by natural means our population will rise within any moderately near time to that required for county dignity and powers.

That there would be an advantage to Cheltenham in being numbered amongst the County Boroughs is, I believe, undeniable. As a matter of advertisement in sundry connections the mention of towns is limited to the County Boroughs. The advertised weekly returns of health statistics is so limited, and Cheltenham is out of the list whilst those towns of similar size above mentioned are in it. There are other connections always growing in number in which the same thing happens. Even the census returns are more full for County Boroughs. The detail as to occupation of inhabitants, and so forth, is limited to towns whose importance is judged by the fact of their being of county estate. The

limitation or curtailment of the governing powers of the non-county borough is a matter of even greater consideration. These minor towns are becoming increasingly subject to the overmastery and ordering of the Council of the County in which they happen to lie, in our case to the Gloucestershire County Council. It is not my part to mention matters that are unrelated to Public Health, but the tendency has been in all recent Acts of Parliament containing Public Health provisions to make the County Council the responsible Authority for application of the Act, to all areas other than County Boroughs. Thus in Cheltenham we have had taken out of our hands the regulation of such domestic and local matters as that of the midwives practising in the district, and as the provisions of the Insurance Act connected with the bodily condition, housing, etc., of our townsmen. The obligation placed upon the County Authority of dealing with tuberculosis in Cheltenham is particularly unnecessary and regrettable.

No doubt time has shown that the smaller administrative bodies such as the Rural and small Urban Councils have shown themselves incompetent to put Acts of Parliament in force, and for one reason and another have failed as Sanitary Authorities. But this cannot be said of Cheltenham, which for long has stood upon a different footing to the rest of the Administrative County in having a Public Health Department staffed by sufficiently well qualified men, and a Medical Officer of Health giving whole time and a close and hourly attention to his work, and for a long time there have been here most of the available institutions and apparatus for effective performance of all sanitary duties. In these respects this town has for many years stood out distinctly from the rest of the County, and still does so, as from its numbers, quality and importance it ought to do. Consequently one may state that this is a sort of place intended to be exempt as a County Borough from the rule and supervision of the Council of the County in which it lies, and a unique instance of a town that by its quality and importance is due to be made a County Borough and misses it by having a population just below the limit fixed as the necessary qualification. In this regard Cheltenham does suffer some loss, and, as time goes on and further powers are given to County Councils, must suffer more from the position in which it is placed.

A very simple method for relieving Cheltenham from this disadvantage suggests itself. Whilst the population within the borough boundary has not lately increased, and in my opinion is not, at least for the present, likely to do so, the district immediately outside the boundary, has increased its population and will continue to do so. Many people working in the town, or living in the neighbourhood for the sake of Cheltenham, prefer a house in these outside suburbs, which are now rendered convenient in the matter of transit by a tramline and other modes of conveyance. Numbers of the former residents in Cheltenham have gone out to occupy new or older houses in these suburbs, leaving their houses in the town perhaps to be unoccupied, and whilst still partaking of all the special provisions and advantages of the town, are now removed from its government. The remedy is to extend the boundary of the town to include the adjoining populous districts of Charlton Kings and Prestbury. Of old time Charlton Kings and Cheltenham were but one place, they formed a single manor, and at the present time the houses of this small contiguous urban district are in nearer relation to the town than some parts of Cheltenham that actually do lie within the borough boundary. The same thing may be said of a considerable part of Prestbury. Even one half of the Pittville Gardens, the pump-room and all the villas on the other side of the brook there are outside of Cheltenham in Prestbury parish, and the whole of the two parishes of Charlton Kings and Prestbury might be taken into the borough without any part being inconveniently remote.

It is unnecessary to advocate the advantages of a unified government for the districts in question, doubtless that would come out in evidence at any local inquiry held by the Local Government Board to consider the application to extend the boundary, when this is made. But the principle of union in such instances as ours is well recognised, and there have been many instances of an extension of a boundary to include outside parishes where the conditions have been practically speaking, identical with those that hold here. The neighbouring town of Gloucester is but one example, and the citizens there have shown themselves more enterprising than the inhabitants of Cheltenham, and have given the latter a lead, whereas according to precedent and

expectation, it is Cheltenham that should show the pattern of good government for imitation by the sister town.

The Water Supply.

There has been considerable difficulty here from time to time by a deterioration of the water supply of the town by the growth in the reservoirs and pipes of one or another of two vegetable organisms *Chara vulgaris* and *Crenothrix polyspora*. In regard to *Chara vulgaris* an experiment made by adding one part per million of copper sulphate to a body of water in one of the reservoirs appeared to prove fatal, or temporarily fatal, to the weed, but it is questionable whether this is a very practical method of getting rid of it. It had however, been noticed that where a repair to the bottom of one of the brick built reservoirs in which the *Chara* grows had been made with cement, so that a level hard surface was presented to the water at the bottom of the reservoir in that part, no *chara* grew upon it even after several years, whilst the weed flourished everywhere upon the bottom and sides of the reservoir where the bricks were bare. As the bricks were also crumbling and needing repair, it was resolved by the Committee to amend this condition and at the same time to try to stop the growth of the *Chara* by covering the bottom and sides of the reservoir with a smooth cement concrete. The rough surface of the crumbling bricks made a good key for the cement, and the work was successfully carried out last autumn, after the reservoir had been drained dry and cleansed. As cupric sulphate had appeared to be objectionable to the weed, the water used for mixing the concrete had a small portion of copper, about one part in 150,000 dissolved in it.

The work having been completed, the reservoir has again been filled with the spring water from the base of the oolite that is collected there, and we have to wait a couple of years to be assured of the success of the experiment before treating the fellow reservoir in a similar way. The cost of lining the one reservoir was about £1000, the reservoir having a capacity of 14,000,000 gallons. Although the *Chara* has grown in this water hitherto with great persistence, I anticipate that the above treatment will be successful as a preventive.

Sewage Disposal.

The carrying into execution of the the system of Sewage disposal by tanks and filters that was adopted here some years ago for the greater part of the sewage, in the place of a simple broad irrigation system, was delayed by reason of the considerable expense entailed in establishing the necessary plant, but the works of establishment are now nearing completion. The whole scheme, approved by the Local Government Board, to which the above remarks apply, was estimated at £38,385.

The scheme for re-sewering the South-Eastern district of the town, which provides for the renewal of a large number of old sewers in that district at a cost of about £18,000, has not yet been put into execution.

Management of the Infectious Diseases Hospital.

Since my last report the Trustees of the Delancey Hospital have applied to the Charity Commissioners to vary the deed of trust and formulate a new scheme whereby the management of the hospital shall in future be carried on by the nominees of the Cheltenham Corporation, the Urban District Council of Charlton Kings, and the Cheltenham Rural District Council.

The three governing bodies in question have discussed the matter together by appointed representatives, and have practically agreed to the proposition. The exact details have yet to be arranged, and the direction of the Charity Commissioners in regard to the whole scheme, and to certain minor matters in dispute, is awaited.

Return of Articles submitted to the Public Analyst during the year 1913, with the results of the Analyses.

(G. Embrey, Esq., Gloucester, Public Analyst).

Samples submitted by Superintendent A. W. Hopkins.

1st Quarter.

Articles Submitted.	Result.
9	Samples of Milk, 5 genuine, 1 sample 11% added water; fined £1 and 17/6 costs. *1 sample 11% added water and 2 samples 23% and 16% fat abstracted.
7	„ „ Whiskey, all genuine.
3	„ „ Gin, all genuine.
2	„ „ Butter, both genuine.
2	„ „ Rum, 1 sample 29.66% under proof; fined 10/- and £1 costs. *1 sample 30% under proof.
2	„ „ Margarine, both genuine.
1	„ „ Brandy, genuine.

2nd Quarter.

6	„ „ Milk, 5 genuine, 1 sample 11% added water: fined £1 and 16/6 costs.
4	„ „ Butter, all genuine.

3rd Quarter.

6	„ „ Butter, all genuine.
2	„ „ Pepper, both genuine.
1	„ „ Jam, genuine.
1	„ „ Vinegar, genuine.
1	„ „ Citric Acid, genuine.
1	„ „ Glycerine, genuine.

4th Quarter.

4	„ „ Milk, 3 genuine, 1 sample 33.5% added water; fined £3 and 19/6 costs.
2	„ „ Gin, both genuine.
2	„ „ Whiskey, both genuine.
1	„ „ Brandy, genuine.
1	„ „ Rum, genuine.

* Informal Sample, no proceedings.

Summary of Routine and other Sanitary Work done in the Health Department during 1913, with Notes thereon.

Report by the Chief Sanitary Inspector.

I herewith submit my report, as Sanitary Inspector for the Borough of Cheltenham on the work carried out by the Inspectors of the Health Department, in connection with the abatement and suppression of nuisances during 1913.

The total number of inspections made during the year was 16,648. On 1,396 of the premises visited, nuisances to the number of 4,209 were discovered, and in dealing with the sanitary defects from which they arose 1,106 "Preliminary" and 323 "Statutory" Notices were served.

The number of letters written and received with reference to the business of the department was respectively 518 and 353. In order to ascertain that the sanitary defects were being properly remedied, 1,812 visits were paid to the respective premises while the work was in progress. During the year, the various places and trades over which the Town Council has control, and which are supervised by the Health Department, have been systematically inspected. The work carried out includes house-to-house inspections, the inspections of houses-let-in-lodgings, common lodging-houses, slaughter-houses, bakehouses, cowsheds, dairies, milkshops, factories, workshops, workplaces and outworker's premises, and disinfection of rooms and clothing after infectious disease.

Each and all of these duties have occupied the time, and required the attention of your inspectors, and whenever insanitary conditions were found to exist, such action as was necessary for their removal, was promptly taken.

Much of the work done is of a routine character, and directed to secure the amelioration of minor insanitary conditions, which, singly perhaps can hardly be said to affect the general health, but the presence or absence of which in the aggregate determines whether a town is healthy or not.

It will be readily seen from the foregoing remarks that the activities of the department cover a wide field, which has been considerably extended in recent years by the

development of Public Health Legislation. We have endeavoured to keep pace with the demands made upon us, and have given attention to each branch of our work, according to its importance. The usual practice has been continued of communicating with the owner or agent immediately upon the discovery of any sanitary defects, and supplying detailed particulars of the work necessary to satisfactorily remedy the same. Long experience has proved that generally it is much easier to get nuisances abated, not only more promptly, but more willingly, by writing a letter, or by calling upon the responsible person, than by the service of a legal notice. It is extremely gratifying to be able to record that it has not been necessary in any case to take legal proceedings to enforce compliance with the statutory notices.

The complaints and applications received at the office numbered 462, as against 562 received last year, all these were duly investigated, and dealt with as found necessary. Many of these were of the usual trivial character, and in a number of instances no nuisance could be discovered at the places against which the complaint was made. The execution of all works undertaken for the removal or suppression of nuisances, whether it be a small matter of repair or extensive structural alterations, is done under the supervision of the Sanitary Inspectors. Following the practice adopted in previous years, a summary of the sanitary operations is furnished below. Such a statement, however, cannot adequately express the amount of work done by your sanitary staff, because in addition to the matters already set out, a considerable amount of time is of necessity taken up in keeping various registers and records, in clerical work, in interviewing owners or agents of property, and other administrative work which cannot well be tabulated.

The total number of sanitary inspections of the district with the results, are fully set out in the appended table :—

Sanitary Inspections of Districts and Results.

Total Number of Visits and Inspections	...	...	...	...	16,648
Ordinary Inspections	...	...	...	...	1,700
House-to-house Inspections	...	...	...	...	1,659
Inspections of Work in progress	...	...	...	...	1,812
Re-inspections	...	...	...	...	5,020

Visits to Slaughter-houses	...	...	...	...	1,883
„ Food Shops	...	....	....	...	797
„ Houses Let-in-Lodgings	...	....	....	...	151
„ Common Lodging Houses	...	....	...	...	453
„ Cowsheds, Dairies and Milkshops	...	....	...	...	68
„ Bakehouses	...	...	...	...	80
„ Workshops	...	...	...	....	802
„ Schools	...	...	....	....	72
„ <i>re</i> Infectious Disease	...	...	...	...	1,032
„ <i>re</i> Public House Conveniences	...	...	...	...	182
„ Places where Animals are kept	...	...	...	...	475
Complaints received	...	...	...	...	462
Number of Nuisances reported...	...	...	...	...	4,209
„ Houses and Premises dealt with	...	...	...	...	1,396
„ Legal Notices served	...	...	...	...	323
„ Preliminary Notices served	...	...	...	...	1,106
„ Letters written referring to Notices	...	....	...	...	518

DRAINS :—

Drains opened and examined under Sec. 41 P.H. Act, 1875	...	...	...	...	74
Smoke tests applied to Drains and Soil Pipes...	...	...	...	...	243
Chemical	„	„	„	....	10
Water	„	„	....	...	626
Defective Brick Drains removed	...	...	...	...	18
New Drains laid	...	...	...	...	166
Length in yards of Stoneware Pipe Drains laid	...	...	...	...	2,592
„ „ of Heavy Cast Iron Pipes laid	...	...	...	...	1,717
Manhole and Inspection Chambers provided	...	...	...	...	103
Intercepting Traps fixed	...	...	...	...	139
Stoneware Gully Traps fixed	...	...	...	...	275
Dip and Bell Traps removed	...	...	...	...	67

W.C.'s :—

New Water Closets built	...	...	...	...	60
New W.C. Pans of the Wash-down type fixed	...	...	...	...	150
Old Pan Containers and Long Hopper Closets removed	...	...	...	...	21
Flushing Boxes fixed to W.C.'s	...	...	...	...	120
Flushing Boxes repaired	...	...	...	...	116
Water Closets and Drains unstopped	...	....	...	...	124

SOIL AND WASTE PIPES :—

Soil Pipes and Ventilating Shafts fixed	...	...	...	...	122
New Waste Pipes trapped and disconnected	...	...	...	...	199

MISCELLANEOUS :—

Rooms cleansed and limewashed	2,357
-------------------------------	-----	-----	-----	-----	-------

House Roofs, Rainwater Pipes, &c. repaired	286
New Glazed Sinks provided	203
Yards and Areas asphalted or concreted	164
Ash Receptacles (moveable galvanised iron, with covers)	257
Bakehouses cleansed and limewashed	7
Slaughterhouses cleansed and limewashed	16
Common Lodging-houses cleansed and limewashed ...	8
Overcrowding in Dwellings abated	39
Samples of Water taken for analysis	14
Urinals provided with a proper supply of water ...	19
Manure Receptacles built or reconstructed	12
Accumulations of Manure removed	54

INFECTIOUS DISEASES :—

Inquiries into Cases of Infectious Diseases	1,032
Notices to Schoolmasters and Schoolmistresses with regard to Infectious Disease	258
Notices to Parents with regard to Infectious Disease	250
Notices to Free Library with regard to ditto	6
Articles of Clothing disinfected after ditto	3,985
Rooms fumigated	544
Articles of Clothing, &c., disinfected for outside Sanitary Authorities and private persons	506

House-to-House Inspections.

In addition to the inspections made under Sec. 17 of the Housing and Town Planning Act, systematic inspections have been made of Houses under £16 per year, as required by the Housing (Inspection of District) Regulations, 1910.

The following tables give the number of houses inspected in the various streets of the town, the number of houses occupied and void, the number of houses in which defects were found to exist, and the number which were found satisfactory. It will be readily seen that in the majority of the houses examined, they were found to have one or more defects in them. In the 874 houses examined, no less than 2,932 defects were discovered, giving an average of 3·4 defects in all houses inspected.

The defects found as the result of the inspections varied considerably in character and extent, and included all kind of nuisances and structural faults usually found in connection with dwellings, viz. ; damp walls and floors, leaky roofs, defective eaves spouting and rainwater pipes, walls and ceilings in bad state of repair, defective drains, defective paving of yards and areas, &c.

NORTH WARD.

Name of Street.	No. of Occupied Houses in Street.	No. of Houses in which Defects were found.	No. of Houses without Defects.	Total No. of Defects found in Street.	Houses Vacant.
Carlton Place, West ...	7	7	0	38	0
Hamilton Place, St. Paul's Road ...	26	12	14	25	0
Hereford Place and Passage ...	20	20	0	90	14
Hungerford Street ...	39	20	19	69	1
Lower Park Street ...	35	35	0	183	5
Nailsworth Terrace ...	16	15	1	64	0
Queen Street ...	49	40	9	228	3
Roebuck Cottages ...	3	3	0	11	7
St. Paul's Terrace South ...	3	3	0	26	1
St. Paul's Street South ...	12	7	5	49	4
St. Peter's Place ...	6	5	1	22	0
Sun Street ...	54	45	9	162	1
Victoria Street ..	30	12	18	18	8
Totals ...	300	224	76	985	44

SOUTH WARD.

Name of Street.	No. of Occupied Houses in Street.	No. of Houses in which defects were found.	No. of Houses without Defects.	Total No. of Defects found in Street.	Houses Vacant.
Avenall's Parade, Bath Road	6	5	1	29	0
Bath Terrace	28	26	2	144	3
Totals	34	31	3	173	3

EAST WARD.

Denmark Villas	15	9	6	35	1
Fairview Street	72	58	14	246	3
Grosvenor Terrace	13	8	5	78	2
Hewlett Place	12	6	6	20	1
Sherborne Street	62	52	10	257	4
Sidney Street	27	22	5	93	4
St. Anne's Terrace	31	17	14	50	4
Union Street	60	47	13	117	5
Winchcombe Place	19	11	8	57	1
York Street Cottages	6	6	0	41	5
Totals	317	236	81	994	30

WEST WARD.

Name of Street.	No. of Occupied Houses in Street.	No. of Houses in which Defects were found.	No. of Houses without Defects.	Total No. of Defects found in Street.	Houses Vacant.
Brooklyn Terrace	7	7	0	21	1
Derrett's Cottages, Alstone	7	6	1	16	0
Great Western Terrace	36	25	11	58	2
Millbrook Street	31	30	1	116	3
New's Cottages, Alstone	7	7	0	47	2
Totals	88	75	13	258	8

CENTRAL WARD.

Gordon Terrace	7	7	0	62	0
Grosvenor Terrace	10	8	2	37	2
St. Paul's Parade	11	11	0	78	2
St. Paul's Terrace	10	8	2	21	1
Totals	38	34	4	198	5

MIDDLE WARD.

Name of Street.	No. of Occupied Houses in Street.	No. of Houses in which Defects were found.	No. of Houses without Defects.	Total No. of Defects found in Street.	Houses Vacant.
Edward Street	21	15	6	47	1
Lansdown Cottages, Gloucester Road ...	10	9	1	36	0
Moorend Parade	6	5	1	11	0
St. James' Place	12	8	4	34	2
Upper Norwood Street ...	48	39	9	196	12
Totals	97	76	21	324	15

SUMMARY.

Ward.	No. of Occupied Houses in Street.	No. of Houses in which Defects were found.	No. of Houses without Defects.	Total No. of Defects found in Street.	Houses Vacant.
North	300	224	76	985	44
South	34	31	3	173	3
East	317	236	81	994	30
West	88	75	13	258	8
Central	38	34	4	198	5
Middle	97	76	21	324	15
Totals	874	676	198	2932	105

Housing and Town Planning Act, 1909.

Tabulated Statement of Houses dealt with during the year 1913, under Sec. 17 of the Act.

No. of dwelling-houses inspected under Sec. 17...	...	32
No. of such houses considered unfit for human habitation		24
No. of Representations made to Local Authority	....	10
No. of Closing Orders made by Local Authority	...	9
No. of houses made fit for habitation without Closing Orders ...	... ..	0
No. of houses made fit for habitation after Closing Orders		4
No. of Demolition Orders made ...	... ..	2
No. of such houses in respect of which notices were served during 1913 ...	... ..	33

General Character of Defects Found.

- (1) Lack of sufficient light and ventilation.
- (2) Insufficient water supply.
- (3) Lack of proper W.C. accommodation.
- (4) Damp and dark rooms.
- (5) Lack of conveniences for decent living, *e.g.* proper facilities for cooking and storing food, washing accommodation, &c.
- (6) Overcrowding.
- (7) General dilapidations.

Houses declared Unfit for Habitation in their present state.

1 and 2 Fountain Passage, Commercial Street.
 9, 10, 11, 12 and 13, Hereford Place.
 1, 2, 3 and 4, Hereford Court.
 47, 49 and 51, Duke Street.
 1 to 4, Teale's Court, Duke Street.
 1 and 2, Higgs Cottages, Alstone.
 9, St. Paul's Street South.
 Walton Cottage, Hester's Way.
 Plum Cottage, Hester's Way.
 12, Brunswick Terrace.

Of the houses closed, three have been thoroughly repaired and brought up to our requirements as set out in the specifications supplied to the owners. An Order determining the Closing Order was made in each case by the Local Authority.

Eighteen houses have been demolished, seven of which were closed by Order in 1912. In eleven instances the owners did not wait for Demolition Orders to be made against their properties, as they realised that it was impossible to make the existing houses fit for human habitation, owing to their numerous structural defects. Seven houses are now being made fit for habitation in accordance with the specifications we have supplied to the owners.

As a result of the proceedings taken under this section a number of wretched little places have been got rid of, resulting in an improved condition of the adjoining property and the neighbourhood generally.

Improvement in House Drains.

A very large proportion of our time is devoted to the detection of faulty drains and in supervising their repair or renewal. A good deal of this work is usually the result of house-to-house inspections, a number of those dealt with, however, are the outcome of complaints received at the office as to nuisances existing at houses, the investigation of which frequently leads to the relaying of the house drains.

In consequence of written complaints alleging a nuisance from defective drainage, the Town Council authorised me to open and examine the drains of seventy-four houses and premises. In seventy of these, insanitary conditions were found to exist, and notices under Sec. 41 Public Health Act, 1875, were served upon the owners to repair or reconstruct the drain as required. In addition to the work done under the above Act, a good deal of drainage and sanitary work has been done to obtain a Corporation Sanitary Certificate and also by verbal notice from the Inspectors.

Altogether we have supervised the laying of 2,592 yards of stoneware pipes and 1,717 yards of heavy cast iron coated pipes, with blue lead joints, also the fixing of 139 intercepting traps, 275 gully traps, and 103 manholes and inspection chambers. In connection with this work 18 old brick drains were removed and replaced by watertight drains, and 250 defective drain traps were removed and stoneware or iron gully traps of the roundway form substituted, and 626 water tests, 243 smoke tests, and 10 chemical tests were applied to the drains. These figures include the testing of drains in

sections and the final test, the latter being applied after completion of the work of filling in the trench, so as to make sure that the pipes had not been damaged by this process.

A survey has also been made of every house and premises where the drains have been reconstructed, and plans of such drains have been prepared and filed for future reference. These plans, of which we have now 1225, form a valuable record of the work done in connection with existing buildings in this town.

The Corporation Sanitary Certificates.

Last year 42 additional Corporation Sanitary Certificates were granted for as many houses to the tenants or landlords who made application for them. The total number of Certificates issued since the commencement of this work is 1,028. The inspections in connection with this work frequently revealed grave defects in the drainage system and sanitary fittings of a house, where the owner or occupier was under the impression that everything was in perfect sanitary order.

The periodical testing of drains and sanitary fittings is strongly recommended as being the best means of protection against the evils which may arise from defective sanitary conditions.

All who are about to take a house are strongly advised before signing any agreement, to insist upon an up-to-date inspection and a Certificate of sanitary fitness of the premises.

SANITARY CERTIFICATES.

Situation of Premises.	Gross Annual Value.
Andover Place, 2	£40
Benton House, The Park	150
Berkely Place, 7	40
Brighton Lodge, Battledown Approach	36
Cambray, 25	35
Camdore, Battledown Approach	36
Carlton Street, 44	18
Chime Lea, Eldon Road	30
Cranford, Painswick Road	32
Cleeve View, Harp Hill	25

Colonsay Lodge, 26, Park Place	...	...	...	38
Deerhurst, Clarence Square	...	...	...	60
Dunstall Cottage, Hatherley Road	...	...	...	60
Easton Villas, 2, Albert Road, Pittville	...	...	...	56
Edenham, Wellington Square	...	...	...	45
Framlingham Lodge, Libertus Road	...	...	...	30
Gloucester Lodge, Promenade	...	...	...	70
Grafton Terrace, 5	...	...	...	22
Heatherdene, Hatherley Road	...	...	...	70
Imperial Square, 15	...	...	...	48
Homestead, Church Road, St. Mark's	...	...	...	45
Kilcrevan, Carlton Street	...	...	...	50
Lansdown Place, 15	...	...	...	80
Lansdown Terrace, 6	...	...	...	50
Malvern Place, 1	...	...	...	50
Meldon Lodge, College Lawn	...	...	...	100
Montpellier Terrace, 6	...	...	...	60
Montpellier Villas, 36	...	...	...	30
Priory Street, 5	...	...	...	38
Rosedale Villas, 2, King's Road	...	...	...	32
Royal Parade 7	...	...	...	50
Selkirk Parade, 13	...	...	...	78
St. Philip's Terrace, 4	...	...	...	19
St. Michael's, Montpellier Drive	...	...	...	50
Suffolk Square, 6	...	...	...	45
Suffolk Square, 14	...	...	...	70
The Cedars, Fairmount Road, St. Mark's	...	...	...	35
Wellington Square, 3	...	...	...	32
Westhorpe, Montpellier Drive	...	...	...	40
Winterbourne, Painswick Road	...	...	...	80
Woodborough Glen, Libertus Road	...	...	...	38
Yorkleigh, St. George's Road	...	...	...	80

Inspections under the Factory and Workshops Act.

The whole of the workshops (including bakehouses, workplaces, and outworkers' premises) have been visited during the year. The total number of Workshops and Workplaces now on the Register is 409. The total number of visits made under these Acts amount to 992. The Local Authority is the authority responsible for the sanitary condition of the workshops, workplaces, and the homes of the outworkers in their district. Sanitary conditions include

(a) Cleanliness (b) Overcrowding (c) Ventilation (d) Drainage of floors of workshops in which any process is carried on which renders the floor liable to be wet and which is capable of being removed by drainage (e) Sanitary conveniences.

CLEANLINESS.—One hundred and fifty walls or ceilings were found to be in a dirty condition. The necessary cleansing has been carried out in every case.

OVERCROWDING.—Four workrooms were found to be badly overcrowded. Notices were served on, or representations made to, the responsible persons, and the overcrowding was abated. Thirty-eight workrooms were measured up, and cards setting forth measurements have been supplied to the occupiers, stating how many persons could be employed in each room.

VENTILATION.—Five workrooms were found to be without satisfactory means of ventilation, and these have been supplied with suitable inlet and outlet shafts.

DRAINAGE OF WET FLOORS IN LAUNDRIES, ETC.—The floors of these places were found generally to be in a satisfactory condition.

SANITARY CONVENIENCES.—Two workshops were found to be without proper sanitary conveniences, and thirty-five were found to have unsuitable or defective sanitary arrangements. Suitable and sufficient closet accommodation has been provided where necessary, and the defective water closets have been repaired, and put into good sanitary condition.

OUTWORKERS.—The names and addresses of 153 outworkers were received from their employers. The object of visiting outworkers' premises is to control the conditions under which certain specified classes of work are done at the homes of the outworkers. The powers given aim at the prevention of homework being carried on as a means of livelihood in dwellings which are injurious or dangerous to the health of the workers themselves. This may arise through overcrowding, want of ventilation, defective drains, or other insanitary conditions. The homework in this district consists mainly in the making, cleaning or altering of wearing apparel, and any other work incidental thereto.

Last year one hundred and ninety visits were paid to the various places in which work is carried on, and thirty-nine sanitary defects were discovered and rectified.

In the majority of these places the work is carried on under the most satisfactory conditions. In no instance was any case found where wearing apparel was being made, cleaned or repaired, in a house in which any inmate thereof was suffering from any infectious disease. Nor was it necessary for any action to be taken to obtain any order prohibiting homework being done in an infected home.

BAKEHOUSES.—The number of bakehouses now on the register is 55. Of these 46 are above ground, and nine are underground. The underground bakehouses have all been certified by the Sanitary Authority as being suitable with regard to their construction, lighting, ventilation, water supply, drainage, and in all other respects, having been extensively altered to the satisfaction of the Corporation, to meet the requirements of the Factory Act, 1901. The whole of the bakehouses have been regularly inspected, and have been kept in a cleanly and satisfactory condition.

Report on the Administration of the Factory and Workshops Act, 1901, in connection with Factories, Workshops, Laundries, Workplaces and Homework.

1.—INSPECTION.

Premises.	Number of Inspections.	No. of Written and Verbal Notices.	Number of Prosecutions.
Factories (including Factory Laundries.)	26	8	Nil
Workshops (including Workshop Laundries.)... ..	882	81	„
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	84	9	„
Total	992	98	„

2.—DEFECTS FOUND.

Particulars.	Number of Defects found	No. of Defects remedied.
Nuisances under the Public Health Acts :		
Want of cleanliness	150	150
Want of ventilation	5	5
Overcrowding	4	4
Other nuisances	37	37
Sanitary accommodation { insufficient	2	2
{ unsuitable or defective	35	35
{ not separate for sexes	...	...
Total	233	233

3.—HOME WORK.

Lists received from Employers.

Nature of Work.	Twice in the year.		Once in the year.	
	Lists.	Outworkers.	Lists.	Outworkers.
Making and Altering Wearing Apparel...	28	132	29	153

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year.—(1).	Number.—(2).
Dressmakers	79
Tailors	52
Laundries	80
Bootmakers	40
Milliners	20
Bakehouses	55
Miscellaneous	83
Total number of Workshops on Register...	409

5.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspector of Factories ...	0
Failure to affix Abstract of the Factory and Work- shop Act (s. 133)	4
Notified by H.M. Inspector of Factories	6
Reports (of action taken) sent to H.M. Inspectors	6
Underground Bakehouses (s. 101)	9
Certificates granted during the year	Nil
In use at the end of the year	7

Slaughterhouses and Meat Inspection.

The number of private registered slaughterhouses in the borough remains as last year, namely 18, and to these 1,883 visits have been made. It is necessary for us to devote a good deal of time to the inspection of meat during the evening, as it is then when the greater number of animals are slaughtered in this town. Of the 1,883 inspections paid to these places over 1,000 were made during the evenings this year. For the inspections to be of real value they must be made at the time when slaughtering is in progress, before the carcasses and organs are removed from the slaughterhouses.

We have endeavoured to make the standard of inspection in the private slaughterhouses as near as practicable to that which obtains at the Abattoir; in this endeavour we have received the support of several butchers who have notified us, either by telephone or verbal message, when they commenced slaughtering, so that we were enabled to inspect the carcasses before they were removed to the shop for sale. It has not been possible to examine every animal slaughtered before its removal from the private slaughterhouse, but no less than 813 Beasts, 3,667 Sheep, 2,343 Pigs and 68 Calves have been inspected.

Many of the butchers have promptly notified me, as required by bye-law, when they had any doubts as to the soundness of any animal, and willingly surrendered for destruction the carcass or part of any animal which was represented to them as being unfit for human food.

The carcasses of two heifers and 13 pigs were destroyed during the year on account of their being affected with tuberculosis in a generalized form: None of these were emaciated or even of poor quality.

The amount of dead meat brought in from adjoining districts has been much less this year than previously, owing to the increased sale of foreign meat from the wholesale shops established in the Borough.

The bye-laws relating to the periodical limewashing of the slaughterhouse walls, the removal of garbage, offal, skins, etc., have on the whole been well observed.

Unsound and Diseased Meat, &c., Destroyed last year as unfit for the Food of Man.

2 Carcasses of Beef—Generalized Tuberculosis	
4 Forequarters of Beef—Localized Tuberculosis	
8 Bacon Pigs—Tuberculosis	
5 Pork Pigs—Tuberculosis	
1 Pork Pig—Swine Erysipelas	
4 Pork Pigs—Liver Disease and Dropsy	
1 Bacon Pig—Enteritis and Peritonitis	
4 Sheep—Dropsy	
1 Sheep—Decomposition	
1 Calf—Pleurisy and Pneumonia	
3 Hindquarters of Beef—Unsound	
6 Forequarters of Beef	”
21 Sirloins and Rumps	”
20 Sheeps' Kidneys	”
8 Pieces of Mutton	”
1 Box of Rock Salmon	”
1 ” Cod Fish	”
2 Boxes of Haddock	”
1 Box of Herrings	”
1 Tin of Prawns	”
1 Sack of Potatoes	”

582 livers, lungs, or other internal organs of animals, which were, on examination, found to be locally diseased, were surrendered and destroyed. The total weight of meat, fish and unsound food destroyed was 5 tons, 19 cwt., 1 qr., 21 lb.

List of Butchers who regularly used the Abattoir during the year.

General Butchers.

Name.	Situation or Premises.
Mr. Smith	... 276, High Street
Mr. L. James	... 21, Upper Bath Road
Mr. E. T. Drew	... 95, Winchcombe Street
Mr. J. Hayward	... 2, St. Mark's Emporium, Gloucester Road
Mr. J. Smith	... 276, High Street
Mr. F. P. Carrick	... 294, High Street
Mr. G. Dickenson	... Prestbury
Mrs. Pryer	... 308, High Street
Mr. W. F. Pleydell	... 288, High Street
Messrs. A. D. & D. Downham	61, Upper Bath Road
Mr. G. Hannis	... 307, High Street
Mrs. G. M. Davis	... Montpellier Street
Mr. P. M. Nash	... 402, High Street
Mr. G. Willis	... Regent House, Swindon Road
Mr. A. A. Hathaway	... Shurdington Road
Mr. P. Comely	... Portland Terrace

Number of Animals slaughtered in the Abattoir during 1912 and 1913.

	1912	1913	Decrease
Beeves	835	572	263
Calves	834	612	222
Sheep	4,827	4,474	353
Lambs	499	383	116
Pork Pigs.....	2,112	1,679	433
Bacon Pigs	158	76	82
Totals	9,265	7,796	1,469

Inspection of Food Shops.

The various butchers, fishmongers, and greengrocers' shops, and other places where food is prepared or sold, were frequently inspected during the year. Several lots of unsound meat, fish and fruit were submitted for our inspection ; in each case the articles submitted were carefully

examined, and sorted if it was necessary, the unsound or unwholesome food being in all cases voluntarily surrendered by tradesmen for destruction.

The following table gives some information as to the number of shops devoted to the preparation or sale of food in this town :—

Bakers' Shops	...	...	...	...	...	55
Butchers' Shops	...	...	...	...	...	75
Confectionery and Sweet Shops	...	...	...	...	...	110
Dairies and Shops where milk is sold	...	...	...	...	...	66
Fish and Chipped Potato Shops	...	...	...	...	...	20
Fish Dealers	...	...	...	...	...	21
Fruiterers' and Greengrocers' Shops	...	...	...	...	...	81
General Shops	...	...	...	...	...	42
Ice Cream Shops	...	...	...	...	...	6
Provision Dealers' and Grocers' Shops	...	...	...	...	...	128
Restaurants	...	...	...	...	...	12
Tea Rooms	...	...	...	...	...	9
Tripe Shops	...	...	...	...	...	4

Disinfection.

One thousand and thirty-two visits were paid in connection with the cases of infectious diseases which occurred in this district during the year, in order to make the necessary enquiries, and to carry out the work of disinfection.

In regard to the measures taken to prevent the spread of infectious disease, 3,985 articles of clothing, bedding, etc., were removed from the various houses to the disinfecting station, and passed through the steam disinfecting apparatus, 544 rooms were fumigated with formic aldehyde vapour or sulphur, and the walls of the rooms were stripped and cleansed where necessary.

The following table gives the number and kind of goods disinfected at the Steam Disinfecting Station during the year :—

Beds	...	...	...	...	188
Bolsters	...	...	...	...	248
Blankets	...	...	...	...	525
Carpets	...	...	...	...	76
Coats	...	...	...	...	48

Curtains	....	....	....	....	23
Cushions	....	....	....	....	62
Dresses	....	....	....	....	26
Mattresses	....	....	....	....	303
Miscellaneous	....	....	....	....	1,084
Palliasses	....	....	....	....	23
Pillows	...	...	....	....	581
Quilts	....	....	....	....	261
Rugs	...	...	....	....	87
Sheets	...	....	....	....	326
Towels	...	....	....	....	70
Trousers	...	....	....	....	16
Vests	...	....	....	....	38
					<hr/>
Total	...	...	...	...	3,985

Cowsheds, Dairies and Milkshops.

Under the Dairies, Cowsheds and Milkshops Order, Cowkeepers and Purveyors of Milk are required to be registered by the Town Council. Several persons were found to be selling milk without being registered, they were given a verbal caution in each case, most of them immediately discontinued the sale of milk, and the remaining few made application to be put on the register.

During the year eight applications for registration as Dairymen or Purveyors of Milk have been received. The premises of the applicants were carefully inspected as to their sanitary condition and suitability for carrying on such a business. Six were ultimately registered, the remaining two withdrawing their applications on account of the unsuitability of the premises for carrying on such a business.

At present there are upon the register 66 milkshops and 16 farms. These have been systematically inspected, and at the last inspection there was very little cause for complaint at the milkshops, the regulations being generally carried out satisfactorily.

Stables and other places where Animals are Kept.

All stables and other places where animals are kept, which come under the scope of the bye-laws, have been

kept under close observation during the year, special attention being given to secure the removal of stable refuse once in every seven days.

The following tables give a list of the nuisances discovered and abated in connection with the keeping of animals during last year:—

Stables and Manure Receptacles.

Accumulations of Manure removed on Notice	...	...	...	...	54
Manure Receptacles:—					
No cover	...	...	...	...	5
Insufficient	...	...	...	...	4
Defective...	...	...	...	...	2
Stables:—					
Defective paving and floors	...	...	...	...	3
No drainage	...	...	...	...	2
Blocked drains	...	...	...	...	2
Notices:—					
Written	...	...	...	...	12
Verbal	...	...	...	...	29

Pigs and Pigstyes.

Dirty condition	...	...	...	...	18
Defective paving...	....	...	....	....	23
No proper drainage	...	....	...	...	6
No cesspool or catchpit...	....	...	....	...	10
Overflowing cesspools	...	...	...	...	15
Pigs kept in contravention of bye-laws					3
Uncovered cesspools and catchpits	...				23
Accumulations of manure	...	...			32
Notices —					
Written	...	...	....	...	31
Verbal	...	....	...	...	15

Since the practice adopted some years ago, of regularly visiting stables, we have received very few complaints of nuisances, and I am sure that all persons living in the immediate neighbourhood of these places must appreciate the absence of foul smells from large heaps of manure, which were formerly allowed to remain in many instances until they became an intolerable nuisance.

Offensive Trades.

The offensive trades carried on in this town are fortunately few in number. The trades in operation here, which are in the statutory list of offensive trades, are three fellmongers, one tallow melter, 18 rag and bone dealers, and 20 fried fish shops. The bye-laws regulating these places, have generally been well observed, although it has been necessary to occasionally call attention to the desirability of removing garbage, etc., more regularly, and for the thorough cleansing of the floors and pavements at the close of each working day.

Common Lodging Houses.

The number of Common Lodging Houses now on the register is eight, an increase of one over last year. The new lodging house, which is situated in Lower High Street, was formerly a public house, and has been altered and adapted to meet the requirements of the bye-laws regulating Common Lodging Houses.

These places have been systematically and frequently inspected, and they have on the whole been very well conducted, the bye-laws and regulations being carefully carried out, so as to leave little cause for complaint.

The following table gives the names of the keepers and the situation of the Common Lodging Houses in the Borough, with the number of lodgers they can accommodate.

Name.	Situation.	No. of Lodgers
F. T. Agass	20 and 21, Stanhope Street	21
W. Biddle	40, Stanhope Street	10
Mrs. A. Evans	Cumberland Cottage, Grove Street	23
Mrs. A. Evans	Cumberland House, Grove Street ...	31
Mrs. A. Evans	221, High Street	30
Alphonse Meulbreuck ...	Cumberland Villa, Grove Street ...	21
Alphonse Meulbreuck ...	2 and 4, Grove Street	28
Mrs. M. E. A. Jackson ...	Rowton House, Grove Street	46
Total ... ..	... ..	210

Ash Receptacles.

The Cheltenham Improvement Act provides that every house shall have a covered receptacle for ashes and house refuse. The receptacle approved by the Town Council is a covered circular galvanized iron receptacle of not less than 22 gauge iron. These ash-bins are a great improvement from a sanitary point of view over the old-fashioned, uncovered brick ash-pits, holding as they frequently do, large quantities of offensive decomposing organic matter, causing serious nuisance.

Ash-bins make the collection of ashes much easier, and are less costly than the old method. If householders would only take the trouble to keep the receptacles properly covered, always tidy, always in order, always accessible for emptying when the ash collectors call, they would assist greatly in improving the sanitary surroundings of their houses.

School Sanitation.

During the year all the sanitary conveniences at the Schools have been inspected. A number of minor defects were discovered. The School Managers or others responsible were notified of these, and the defects were promptly rectified.

The old insanitary trough closets at the Parish Girls' and Infants' School have been removed, and re-placed by strong fireclay pedestal wash-down closets, a full two-gallon siphon action flushing cistern and chain pull being provided to each closet. The defective urinals were removed, and new enamelled fireclay slabs fixed, and these are flushed by means of Automatic flushing tanks, and copper sparge pipes.

A. E. HUDSON, F.S.I.A.,

Chief Sanitary Inspector

ANNUAL REPORT

UPON THE

Meteorology of Cheltenham,

BY

MR. A. C. SAXBY,
F.R. MET: SOC.;

BOROUGH METEOROLOGIST,

FOR THE YEAR 1913,

LATITUDE $51^{\circ} 53' 45''$ N. LONGITUDE $2^{\circ} 3' 21''$ W.

HEIGHT OF BAROMETER ABOVE MEAN SEA LEVEL, 206ft.

THE INSTRUMENTS ARE OF THE HIGHEST QUALITY
AND HAVE BEEN VERIFIED AT KEW.

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

GENTLEMEN,

I have pleasure in submitting to you my Annual Report for Cheltenham during the year 1913, being the 36th year during which records have been taken.

The observations have been taken twice daily by myself or qualified assistant. The Sunshine Recorder at Pittville has been very carefully attended to by the Custodian of the Pump Room, the Charts being brought in with regularity.

The weekly Reports have been published in the "Gloucestershire Echo," "Cheltenham Chronicle," and the "Looker-On."

I beg to tender my best thanks to those observers who have sent me returns from various stations over the county, and to all who have assisted me in the work.

I am, Gentlemen,

Your obedient Servant,

AUSTIN C. SAXBY,

F.R. MET. SOC.,

Borough Meteorologist.

THE METEOROLOGY OF CHELTENHAM.

Abstract of Meteorological Observations taken by A. C. SAXBY, F.R., Met. Soc., Borough Meteorologist.

Latitude 51° 53' 45" N. Longitude 2° 3' 21" W. For particulars see next page.

1913. Month.	Corrected Mean of Barom. 9 a.m. & p.m. At sea-level.	AIR TEMPERATURES.										Relative Humidity at 9 a.m. and p.m. %	Rainfall.		Bright Sunshine HOURS
		Means of		Absolute Max. and Min.				Total fall	No. of Rainy Days.						
		Dry Bulb 9 a.m. & p.m. °	Max.	Min.	Max.	Date.	Min.			Date.					
January	INCHES. 29.762	41.1	45.5	36.7	51	5-23-30	28	13	4.62	20	41				
February.....	30.018	39.4	45.2	35.8	54	9	25	13	0.88	11	50				
March	29.894	43.5	50.3	37.6	55	27-31	27	18	3.16	19	111				
April	852	46.5	53.3	40.9	66	23	31	13	2.91	17	101				
May	918	53.0	62.3	45.4	80	26	36	7	1.86	13	178				
June.....	30.098	58.8	67.5	50.5	81	16	44	9	0.92	10	200				
July	082	59.2	67.7	52.9	79	28-29	45	8	1.30	12	108				
August.....	080	61.0	69.7	52.6	81	3	42	5	1.23	8	152				
September ...	29.974	57.0	65.3	51.7	77	27-28	43	10	2.81	10	110				
October.....	854	52.1	58.9	46.9	66	2	38	23	3.56	15	100				
November ...	902	48.4	53.6	42.4	58	10-26	33	22-23	2.43	14	87				
December.....	30.122	40.6	45.3	36.1	58	12	22	31	1.03	9	32				
Means	29.974	50.1	57.1	44.1	81	June 16	22	Dec. 31	26.7	158	1270				
	1	2	3	4	5	6	7	8	10	11	12				

COMPARATIVE TABLE OF THE METEOROLOGY OF
CHELTENHAM FOR THE YEARS 1878-1912.

A division has been made in the returns comprising this table, keeping the years previous to 1903-1912, when the instruments were removed to Montpellier Gardens, this situation being more central and giving more accurate observations of Cheltenham than formerly.

This is especially marked with regard to Humidity of the town. The former position was on the extreme North side of Cheltenham, the screen then being within a short distance of the stream of water which at that part forms the boundary between the Borough and Prestbury, and was thus detrimental to the natural dryness of the atmosphere.

Year.	Atmospheric Pressure.	MEAN AIR TEMPERATURES				Humidity.		Rainfall	
		Max.	Min.	Mean	Range	9 a.m.	9 p.m.	Inches.	Days.
	INCHES.	°	°	°	°	%	%		
1878	29.913	56.1	41.5	48.8	14.6	83	88	33.18	176
1879	29.944	52.2	38.5	45.3	13.7	87	89	32.63	212
1880	29.971	55.8	40.5	48.1	15.3	85	88	33.72	177
1881	29.957	55.0	38.9	46.9	16.1	82	85	25.28	185
1882	29.914	55.9	41.5	48.7	14.4	81	86	37.92	214
1883	29.964	55.6	40.6	48.1	15.0	85	89	29.93	204
1884	29.978	56.8	41.9	49.3	14.9	84	89	24.04	190
1885	29.930	54.8	40.0	47.4	14.8	84	87	26.45	193
1886	29.912	55.0	40.6	47.8	14.4	83	86	32.55	193
1887	30.029	55.3	38.6	46.9	16.7	80	83	22.78	153
1888	29.959	53.8	40.1	46.9	13.7	82	84	28.85	195
1889	29.971	55.4	40.6	48.0	14.8	84	87	27.07	181
1890	29.959	55.6	40.1	47.8	15.5	84	88	20.09	191
1891	29.957	55.1	40.0	47.5	15.1	83	87	33.14	192
1892	29.948	54.6	38.7	46.6	15.9	82	85	19.45	175
1893	29.990	59.1	41.3	50.2	17.8	81	83	19.91	169
1894	29.963	56.2	41.6	48.9	14.6	83	87	29.12	194
1895	29.923	56.2	39.6	47.9	16.6	83	87	24.99	174
1896	30.030	57.0	41.4	49.2	15.6	83	86	21.54	185
1897	29.969	56.8	42.8	49.8	14.0	82	86	26.23	191
1898	30.009	58.2	42.5	50.3	15.7	82	85	24.23	173
1899	29.989	58.5	41.2	49.8	17.3	81	85	25.72	162
1900	29.928	57.3	41.1	49.2	16.2	80	84	28.44	203
1901	29.966	56.2	40.1	48.1	16.1	79	83	23.27	169
1902	29.906	56.9	42.4	49.6	14.5	84	87	22.53	176
Means	29.959	55.9	40.6	48.2	15.3	82	86	26.92	185
1903	29.883	55.8	43.0	49.4	12.8	82	84	35.7	215
1904	29.988	55.7	42.8	49.2	12.9	80	84	22.4	177
1905	30.005	55.7	42.9	49.3	12.8	79	83	23.8	165
1906	29.985	56.8	43.4	50.1	13.4	78	82	24.5	164
1907	29.966	55.4	43.1	49.2	12.3	80	85	29.0	174
1908	29.803	56.8	41.9	49.3	14.9	81	84	20.2	158
1909	29.956	55.1	41.7	49.3	13.4	82	84	27.9	191
1910	29.968	55.6	43.0	52.6	12.6	85	87	31.3	175
1911	29.780	59.3	43.9	50.6	15.4	81	83	22.3	145
1912	29.955	56.5	43.3	49.8	13.5	82	88	29.5	190
1913	29.974	57.1	44.1	50.6	13.0	82	86	26.7	158
Means	29.933	56.3	43.0	50.0	13.4	81	85	26.6	174

COMPARATIVE TABLE OF HUMIDITY AND BRIGHT
SUNSHINE REGISTERED AT INLAND STATIONS
• DURING THE YEAR 1913.

The lower the percentage of humidity the drier is the atmosphere.

HUMIDITY % AT 9 A.M.	STATION.	ABOVE MEAN SEA-LEVEL.	RAIN- FALL.	BRIGHT SUNSHINE HOURS.
no report	Bath ...	84—Feet	Inches 28·6	Total—1410
85	Belvoir Castle ...	276 "	23·6	" 1286
85	Berkhampsted ...	397 "	24·0	" 1344
83	Birmingham ...	542 "	27·1	" 1030
85	Buxton ...	997 "	41·9	" 1114
86	Cambridge ...	43 "	18·7	" 1435
84	Cheltenham ...	216 "	26·7	" 1270
no report	Cirencester ...	446 "	30·5	" 1322
no report	Coventry ...	309 "	26·4	" 1169
89	Nottingham ...	85 "	22·3	" 1007
no report	Oxford ...	212 "	25·2	" 1300
82	Sheffield ...	450 "	30·5	" 1103

Remarks.

The year may be generally summarised as a dull one from point of view of bright sunshine.

The Winter was open, the Spring wet, and an uniformly mild Autumn.

Strong winds were a great feature at several periods of the year: the tornado over South Wales on Oct. 27 did much damage there, but none in Cheltenham.

The mean temperature for the year was $2\cdot0^{\circ}$ above the average.

Rainfall slightly under the average.

Snow was recorded on eight days, hail on five, thunderstorms on nine, fogs on three.

JANUARY.—Atmospheric pressure was very disturbed the whole of the month, the barometer being remarkably unsteady and very low: the highest point was reached on the 26th and the lowest on the 20th, range of pressure being $1\cdot192$ inch.

The temperature was $2\cdot8^{\circ}$ above the normal, there being only 14 frosts recorded on the grass. The lowest reading, $19\cdot7^{\circ}$ on the 13th and 26th, the lowest in the screen 28° on that day.

Snow fell on two days, one being the 22nd, when sleet fell from 3-30 p.m. to 8 p.m., making $0\cdot78$ inch of rain.

Rainfall, too, was $2\cdot39$ inches above the average for the month, the greatest amount, $0\cdot99$ inch, on the 11th, although the total between 7-30 a.m. and 10-30 p.m. on that day was $1\cdot22$ inch.

A gale of wind from S.E. from 9th to 11th.

FEBRUARY.—Atmospheric pressure was fairly regular, the barometer rising steadily to the 12th, reaching $30\cdot701$ inches corrected, and the lowest, $29\cdot594$, on the 1st. Range of pressure, $1\cdot207$ inches.

Temperatures for the month were $0\cdot9^{\circ}$ above the normal, the highest in the screen being 54° on the 9th and the lowest 25° on the 13th.

Rainfall was $1\cdot20$ inch under the average, falling on 11 days; only once was more than one-fifth of an inch registered. Snow on one day only. The 12th, 13th and 14th will long be remembered for the density of fog which was then experienced.

Bright sunshine was a fair average, there being 10 sunless days.

MARCH.—Atmospheric pressure was very light the entire month. Rarely was the barometer over 30 inches, the highest being $30\cdot241$ inches, and the lowest $29\cdot049$. Range of pressure, $1\cdot192$ inches.

Temperature for the month, $2\cdot5^{\circ}$ above the normal, the highest in the screen being 55° on the 27th and 31st, and the lowest 27° on the 18th.

Snow fell on one day only.

Rainfall was much in excess of the average, there being five days on which more than one-fifth of an inch fell.

Bright sunshine totalled very well with 111 hours and only five blank days.

APRIL.—Atmospheric pressure for the month was very undulating and below the normal; the highest attained was $30\cdot175$ inches on the 9th, corrected, and the lowest $29\cdot324$ inches on the 16th. Range of pressure $0\cdot851$ inch.

Temperature was $0\cdot06^{\circ}$ above the average, the highest being 66° on the 23rd, the lowest 31° in the screen.

Rainfall was much above the average, the heaviest fall taking place on the 29th, 0.55 of an inch, although the early part of the month from the 3rd to the 9th was without rain.

Bright sunshine was a fair average, only one sunless day.

MAY.—Atmospheric pressure was very irregular the entire month, and the range small, 0.915 of an inch. The highest reached was 30.291 inches, corrected, on the 24th.

Temperature 2.3° above the average, an unusual high record of 80° being registered in the screen on the 26th. Thunder and lightning on the 27th with some little hail, but only amounting to one hundredth part of an inch of rain.

Total rainfall for the month was under the average, the heaviest being 0.47 inch on the 3rd. Bright sunshine totals well with only one sunless day.

JUNE.—Atmospheric pressure was unusually steady the entire month the barometer maintaining a fairly high position throughout, excepting between the 4th and 8th. Range 0.662 of an inch.

Temperature 0.8° above the average. 81° was registered in the screen on the 16th.

Rainfall very light, being 1.32 under the normal; only on the 19th was the rain heavy, when 0.40 of an inch was recorded.

Bright sunshine totals well; there was not a blank day during the month. On eight days there were over 10 hours each day.

JULY.—The month was dull and dry with a low barometer throughout; the highest point reached 30.365, corrected, on the 1st. Range of pressure 0.543 of an inch.

Temperature 0.9° below the average; no great extremes registered. Thunder experienced on one day only.

Bright sunshine was under the average, there being three sunless days, and the greatest amount recorded in a day was nine hours on the 1st.

Rainfall 1.29 under the average; only on the 6th was the rain excessive, when 0.65 inch fell. The last 10 days of the month were dry.

AUGUST.—An unusually cool and dry month with fairly normal barometer, there being no rapid movements. Range of pressure 0.545 of an inch.

Temperature was even during the month, the highest reading, 81°, taking place on the 3rd.

Rainfall 1.45 under the average, registered on eight days only. The first eight days without rain, following the last ten days of July, made a long dry spell.

Thunder on one day only, the 9th. Bright sunshine was sparse, although only two blank days.

SEPTEMBER.—Atmospheric pressure was unsteady. Being about normal on the 1st it gradually relaxed to the 14th, when the barometer reached its lowest point. Range of pressure 1.117 inch.

Temperature was 2.9° above the normal although no extreme readings were taken, the highest being 77° on the 27th and 28th.

Thunder observed on two days only.

Rainfall 0.36 of an inch in excess of the average, the heaviest on the 1st, when 0.91 was registered between noon and 3 a.m. on the 2nd.

Bright sunshine was below the average, there being five blank days.

OCTOBER.—Atmospheric pressure was great during the main of the month, the barometer falling steadily until the 8th, recovering sharply by the 10th. The worst point reached, on the 29th, 29.145 inches corrected, in sympathy with a tornado of wind experienced in South Wales doing much damage to property there, but none in Cheltenham.

Temperature 4.8° above the average, the highest being 66° on the 2nd.

Rainfall totalled 0.84 of an inch in excess of the average, the amounts on the 2nd and 4th being 1.52 inch.

Bright sunshine totalled fairly well, with six blank days.

NOVEMBER.—A very windy month, consequently a disturbed barometer giving a range of pressure of 1.303 inch, the lowest reading taken on the 13th and the highest on the 19th.

Temperature unusually high, the average 4.8° above the normal. Only six nights was frost registered on the grass.

Rain fell on each day but five the first half of the month, and only on four days the latter part. Total for month, 0.21 inch below normal.

Bright sunshine a fair average, only three blank days.

DECEMBER.—Atmospheric pressure was very persistent. The mean of readings were above the average; the range also wide, 1.346 inch.

Temperature 1.8° above normal, although some very low readings were recorded during several nights, the coldest, 22° in the screen, on the 31st.

Rainfall 1.32 of an inch below average. Practically no rain fell from the 7th to 23rd. A little snow on four days.

Bright sunshine was unusually scarce. There were many blank days.

NOTES ON THE TABLES.

(See page 82)

COLUMN 1 is the main reading of the Barometer at 9 a.m. and 9 p.m., corrected for temperature— 32° Fahrenheit—and reduced to mean sea-level, the instrument being kept at 397, High Street, 206 feet above mean sea-level.

COLUMN 2 is the means of Dry Bulb readings in the screen, both at 9 a.m. and 9 p.m.

COLUMNS 3 and 4.—The maximum and minimum thermometers are read and set at 9 a.m. and 9 p.m., and entered to the same day. Instruments and screen are in Montpellier Gardens, 216 feet above mean sea-level.

COLUMN 9.—The relative humidity is calculated by dividing the elastic force of aqueous-vapour at the temperature of the dew-point for the month by that corresponding to the actual temperature of the air.

COLUMN 10.—The rainfall is taken at 9 a.m. and the total entered to previous day. The rain gauge, placed within the enclosure at Montpellier Gardens, is of Snowdon pattern, 5 inch size, the rim being one foot above the ground.

COLUMN 12.—The amount of bright sunshine is registered by an improved Campbell Stokes Recorder, which is mounted on the top of Pittville Pump Room. Prior to 1908 Jordan's Twin-cylinder Recorder was used.

