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THE
ANNUAL REPORT
UPON THE
Health & Sanitary Condition
OF THE
BOROUGH OF TUNBRIDGE WELLS,

For the Year ending December 31st, 1898,

BY

WM. STAMFORD,

LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON,

FELLOW OF THE ROYAL INSTITUTE OF PUBLIC HEALTH,

FELLOW OF THE INCORPORATED SOCIETY OF MEDICAL
OFFICERS OF HEALTH.

MEDICAL OFFICER OF HEALTH FOR THE BOROUGH.

Tunbridge Wells:

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Medical Officer of Health's Report

For the Year ended December 31st, 1898.

*To the Chairman and Members of the Health Committee of the
Council of the Borough of Tunbridge Wells.*

GENTLEMEN,

I have the pleasure to lay before you my Report upon the health and sanitary condition of the Borough of Tunbridge Wells during the year ending December 31st, 1898, and to inform you that the gross mortality among the inhabitants is not appreciably higher than the exceptionally low returns for the preceding year, which were the lowest in a series of returns relating to ten years, while the death-rate falls at about the mean for the years 1889—98.

Population.—The population of the Borough on June 30th, estimated by my method, which I have adopted for a long period, was 30,615, showing an increase of 360 upon the figures for 1897.

Births and Birth Rate.—The total number of Births during the year was 611 against 615 for the previous year, being a decrease of 4. Of this number 315 were boys, and 296 were girls.

The Birth Rate per 1,000 of the estimated population, 19·95, was only slightly lower than that for the previous year, 20·32; the Birth rate for England and Wales during the same period having been 29·4 per 1,000.

Deaths and Death Rate.—The total number of deaths from all causes registered during the year, includes 32 not properly belonging to this district, and is recorded as 424, being an increase of 54 on the number registered the previous year. This number compares very favourably with the average for the ten years ending December 31st, 1898, which was 399, the increase in the population during this period being taken into account.

The death rate for the year 1897 having been the lowest on record, 12·2 per 1,000 of the estimated population, it is satisfactory to be able to report a death rate of 13·8, the rates for the years 1894, 1895, and 1896 having been 13·4, 13·3, and 13·7 respectively,

and the mean death rate for the decade 1889—98 having been 13·7 per 1,000.

The death rate for the year 1898 for England and Wales, as extracted from the Registrar General's returns, was 17·6, while that of Brighton was 16·9.

TABLE I.
COMPARISON OF DEATH RATES FOR TEN YEARS.

1889	...	...	...	13·3
1890	...	...	...	13·3
1891	...	...	...	13·4
1892	...	...	...	15·9
1893	...	...	...	14·8
1894	...	...	...	13·4
1895	...	...	...	13·3
1896	...	...	...	13·7
1897	...	...	...	12·2
1898	...	...	...	13·8
The Mean Death-rate for ten years				13·7

Correction of Death Rate and Foreign Mortality.—In a Borough subject to so heavy a burden of mortality properly belonging to other places, as Tunbridge Wells, it is of paramount importance to keep such foreign mortality distinct, and to separate it when endeavouring to accurately gauge the health of the Borough. This has been done for many years by some of the Metropolitan Districts and by some large provincial towns, but nowhere can it be more necessary than in this Borough, to which great numbers of invalids annually resort to take advantage of its restorative atmosphere and healthful surroundings, some unfortunately to die.

For some years, therefore, I have made a separate comparison of the proper mortality of the Borough under this heading, and for this purpose I find it necessary on this occasion to eliminate no less a number than 32 from the general total of 424, leaving 392 as the number of deaths proper to the Borough, which gives a death rate per 1,000 of the estimated population, of 12·80 instead of 13·84.

For the purpose of this calculation I have only taken deaths occurring in the cases of persons resident here for shorter periods than three months, and it will at once be seen that this by no means covers the whole foreign mortality.

A view of the mortality for nine years, giving the death rate and the corrected death rate is shown in Table II.

TABLE II.

		Full Death-rate.		Corrected Death-rate.
1890	...	13.3	...	12.8
1891	...	13.4	...	12.2
1892	...	15.9	...	12.5
1893	...	14.8	...	12.9
1894	...	13.4	...	11.7
1895	...	13.3	...	12.0
1896	...	13.7	...	11.8
1897	...	12.2	...	11.1
1898	...	13.8	...	12.8

Quarterly Returns.—The mortality during the first quarter of the year was the highest since 1892, the great Influenza year, which, during its first quarter, showed a mortality equal to an annual death rate of 22.6 per 1,000 of the estimated population. Last year the rate for the first quarter was 20.83, the number of deaths having been 159, of which 9 cases did not properly belong to the District. On eliminating these the corrected death rate for the quarter appears as 19.65.

The excess of loss during this period of the year was due to two causes, first, to Influenza, which cost 18 deaths registered as directly due to this disease, and probably many others which appear under other headings though primarily due to Influenza; and second, to Diphtheria which caused 13 deaths, to be referred to later on.

Singular enough, the mortality of the second quarter was the lowest on record for any quarter except that of the third quarter of the year 1890.

During the third quarter the heat and drought were so great that there was more than the usual mortality from Diarrhoea, which caused 13 deaths.

The mortality for the several quarters, the death rate per annum per 1,000 represented by it, and the effect of deducting deaths not proper to the District, are set forth in the following table :—

TABLE III.

	Number of Deaths.	Rate per 1000 per annum.	No. of Deaths deducted.	Corrected Quarterly Death-rate per annum.
1st Quarter ...	159	20·8	9	19·6
2nd Quarter ...	79	10·3	5	9·6
3rd Quarter ...	93	12·1	8	11·0
4th Quarter ...	93	12·0	10	10·7

In the next table I have formulated the quarterly death rates per 1,000 per annum for a period of five years.

TABLE IV.

	1894	1895	1896	1897	1898
1st Quarter { Rate per 1000 per annum ...	14·8	15·6	11·6	11·0	20·8
2nd Quarter { Rate per 1000 per annum ...	14·3	13·2	12·1	14·5	10·3
3rd Quarter { Rate per 1000 per annum ...	11·1	12·1	11·4	11·9	12·1
4th Quarter { Rate per 1000 per annum ...	13·2	12·5	19·4	11·3	12·0

Mortality at Several Ages.—Table V. shows the mortality at the several periods of life for the year 1898, contrasted with the figures for the preceding four years, and from this table it will be seen that out of a total of 424 deaths, 216 or more than 50%, took place either within the first year of life or at advanced ages of 65 years or upwards.

TABLE V.

	1894	1895	1896	1897	1898
Deaths at under 1 year of age ...	58	66	80	54	71
" " 1 and under 5 years...	28	41	26	24	35
" " 5 " " 15 " "	18	14	24	15	36
" " 15 " " 25 " "	18	17	19	20	16
" " 25 " " 60 " "	125	93	—	—	—
" " 25 " " 65 " "	—	—	105	109	121
" " 60 and upwards ...	144	164	—	—	—
" " 65 " " " "	—	—	156	148	145

Infant Mortality.—During the first year of life the number of deaths was 71, which is equal to a mortality of 116 per 1,000 born, and is 17 in excess of the number for 1897, but which is well within the mean for the country generally, and compares not unfavourably with the mean for 8 years in the Borough, which was 104·5.

TABLE VI.
COMPARATIVE VIEW OF INFANT MORTALITY RATE
FOR SEVEN YEARS.

1892	Death-rate per 1000 born	114·9
1893	" " "	110·7
1894	" " "	88·5
1895	" " "	112·8
1896	" " "	117·6
1897	" " "	97·8
1898	" " "	116·0

Mortality at Advanced Ages.—The deaths at advanced periods of life registered during the year were as follows :—

Deaths at over 90 years of age	-	5
„ under 90 and over 80	-	41
„ „ 80 „ „ 70	-	67
„ „ 70 „ „ 60	-	54
		167

These 167 deaths at ages over 60 are equal to 39·3 per cent of the deaths at all ages or considerably over one in three.

Zymotic Diseases.—Under this heading all the deaths registered except two were due to Diphtheria, Diarrhœa and Dysentery, and Whooping Cough, but owing mainly to the mortality due to Diphtheria, especially in the early months, and to Diarrhœa and Dysentery in the hot weather of the third quarter of the year, the loss from diseases of this class is heavier than I have had to report for several years.

The number of deaths registered in this class was 57, and the death rate per 1,000 of the inhabitants was 1·86. The number last year was 29, and the death rate 0·95.

The zymotic death rate for England and Wales for 1898 was 2.22 per 1,000 living. Brighton was 2.36.

TABLE VII.
CONTRASTING THE MORTALITY FROM ZYMOTIC
DISEASES FOR TEN YEARS.

	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898
Scarlet Fever ...	2	1	0	1	0	1	0	0	2	0
Continued Fever ...	1	1	0	1	2	1	0	0	1	1
Erysipelas and Pyæmia ...	1	0	4	3	2	1	0	0	1	1
Diphtheria ...	3	5	4	5	9	5	8	14	10	31
Diarrhoea and Dysentery ...	2	4	1	0	8	0	3	2	2	15
Smallpox ...	0	0	0	0	0	0	0	0	0	0
Measles ...	5	3	0	15	2	0	0	10	0	0
Whooping Cough ...	1	8	2	4	10	2	10	2	12	9
Croup (Membranous) ...	2	2	1	3	1	1	0	1	1	0
Total Number of Deaths from Zymotic causes ...	17	24	12	32	34	11	21	29	29	57
Percentage upon the total Number of Deaths from all causes ...	4.5	6.4	3.2	7.0	7.9	2.9	5.3	7.4	7.8	13.4
Zymotic Death-rate per 1000 living ...	0.61	0.85	0.42	1.12	1.25	0.38	0.71	0.97	0.95	1.86

Scarlet Fever.—All the cases reported to me recovered, 67 in all, 61 of whom were removed for treatment and isolation to the Sanatorium. This disease was not so prevalent as during 1897, when there were 129 notifications.

Although there were no deaths this year and only two last year out of a total of 196 cases for the two years, every effort has been put forth to stamp out the disease by early isolation, but owing to the mildness of the type this has proved a most difficult task, because parents whose children are suffering little discomfort from the attack often avoid sending for a doctor, and thus allow their children to spread the disease during the desquamative stage, when they are permitted to run about disseminating germs. Sometimes even, children recovering from scarlet fever are allowed by their parents, wittingly or unwittingly, to attend school. Against such methods of spreading infection all our precautions are of little avail, for they can only be taken when the mischief is done.

I think that greater care might be taken by those having the

care of the young to exclude ailing children until they have a medical certificate of the absence of infectious disease. Although this does not provide a remedy, it would have a great effect upon the spread of scarlet fever at school.

Typhoid Fever was the cause of only one death, that of an infant, and only four cases of the disease were notified to me.

Erysipelas, as last year, caused only one death.

Diphtheria.—This disease has again been prevalent in the Borough. I have received notifications relating to 278 cases during the year, and the fatal cases have numbered 31. In the early months a serious outbreak of the disease occurred, mainly confined to the parishes of St. James' and St. Barnabas. Immediately I closed both these schools, one for a month and the other for five weeks, and a rapid diminution in the number of cases notified confirmed my view that the spread of the disease was largely due to school infection, as many of the scholars were known to have attended while suffering from sore throat.

The schools were thoroughly disinfected and cleansed under the supervision of your officers, the walls, floors, desks, slates and school apparatus being included in the disinfection.

Every house in which a case occurred was visited immediately, and from time to time during the illness.

Disinfectant powder and fluid, carbolic soap, and cotton wool were freely distributed gratis.

Notification of all cases was given to Schoolmasters and to Institutions having libraries, and all children from infected houses were forbidden to attend school.

Printed cards with special instructions for the care and attendance of the sick were distributed to each house.

All public drinking fountains in the Borough were closed.

A house to house inspection of the districts affected was made, two assistant sanitary inspectors having been appointed for the purpose.

All public sewers, gullies and surface ventilators in the districts

affected were thoroughly disinfected, and all gullies found untrapped were forthwith trapped.

Where possible surface ventilators to the sewers were closed and shaft ventilators substituted.

All sources of milk supply were ascertained, but it was not found possible to trace any cases to this cause.

Whenever death occurred the bodies were packed in disinfectants, in the majority of cases removed to the mortuary, and in all cases coffin lids were screwed down, and burial effected as early as possible.

Notwithstanding all these efforts cases continued to arise, but at the end of the year the outbreak appeared to have almost ceased.

The Borough was visited several times during the summer by Dr. Buchanan, one of the Inspectors of the Local Government Board. This gentleman inspected the affected districts, the Waterworks, the Northern Sewage Farm, a portion of the sewerage system of the Borough, and the means of ventilating the sewers, but his report is not yet to hand. All the information required by him was duly furnished.

Diarrhœa and Dysentery were the cause of 15 deaths, an exceptionally heavy mortality, altogether due, in my opinion, to the heat and drought of the third quarter of the year, during which period 13 of the deaths occurred.

Smallpox, as for many previous years, caused no mortality, and no case was notified.

Measles caused no mortality.

Whooping Cough was prevalent in the earlier months of the year and was the cause of nine deaths.

Membranous Croup was the cause of no mortality, and no case was notified.

Notifications of Infectious Diseases.—Under the provisions of the Infectious Diseases (Notifications) Act, 1889, there were 381 Notifications of Infectious cases sent to me, 7 of which were duplicates, as follows :—

Scarlet Fever	...	...	67	
Diphtheria	...	...	285	... 7 duplicates.
Typhoid Fever	...	...	4	
Erysipelas	...	...	25	
				381 Notifications.
				7 Duplicate ditto.
				374 Cases.

Of the 374 cases, 103 were removed to the Sanatorium, 61 cases of Scarlet Fever of whom all recovered and were discharged cured and free from infection ; and 42 cases of Diphtheria, of whom 5 died.

Out of these 374 cases of notifiable infectious diseases, there resulted 33 deaths, 31 of which were due to Diphtheria.

I have to thank the members of the medical profession practising in the Borough for the prompt notification of infectious cases as soon as they have come within their knowledge, and for the endeavours they have made to facilitate the working of the Act. So promptly have these notifications been sent in, that it is no doubt owing to this, that of the 285 notifications of cases of Diphtheria (seven of which were duplicates), many afterwards turned out to be doubtful, and when the Sanitary Inspector called to fulfil his duties, the children were found running about.

Such prompt notification of even a doubtful case is best calculated to fulfil the intention of the Act, though for the purpose of these statistics it is apt to unduly swell the roll of cases of disease of a notifiable character.

Sanitary Work.—The Report of the Chief Sanitary Inspector is appended, and again shews a record surpassing all previous efforts in this department.

During the year the Staff of the department was increased by the appointment of two Assistant Sanitary Inspectors, an increase which was much needed, and which has enabled many works to be carried out which must otherwise have been neglected.

Indoor Baths.—The Indoor Baths were completed during the year, and opened by the Mayor (Mr. C. R. Fletcher Lutwidge) on

October 5th. I am pleased to say the Council have arranged a scale of fees which brings the Baths within the reach of all, and I anticipate that the health of the inhabitants will be much improved through their agency.

Labourers' Dwellings.—I am pleased to report that the Council have entered into a provisional contract for the purchase of land on which to erect labourers' dwellings, and have applied to the Local Government Board for sanction to borrow £20,000 for the erection of the first lot of dwellings.

Water Supply.—The drought mentioned in my last report continued throughout the whole year, but thanks to the bore-holes, from which 113,000,000 gallons were pumped, the inhabitants were afforded an abundant supply for all domestic purposes.

The water has again been analysed by Sir E. Frankland, and pronounced by him to be of extremely high quality, organically and bacteriologically, equalled by very few towns in Great Britain. The work of constructing the filter beds is in hand, the contract having been let to Messrs. Merredew and Wort, of Stevenage.

The Sanatorium.—This institution has again proved useful in affording the means of isolation for 103 cases of infectious disease. Its usefulness has been greatly increased by the accommodation it now affords for cases of diphtheria.

The cases admitted were 42 cases of diphtheria, of whom 37 recovered and five died, and 61 cases of scarlet fever, all of whom have recovered.

The difficulty of obtaining the removal of patients to the institution annually decreases, and my warmest approbation is due to the staff for the care and attention given to the inmates, and I take this opportunity of expressing my appreciation of their services.

The health of the Borough at the close of the year was in a very satisfactory condition.

I am, Gentlemen,

Your obedient servant,

Wm. STAMFORD,

Medical Officer of Health.

APPENDIX.
SUMMARY OF
MEDICAL OFFICER OF HEALTH'S REPORT
For the Year ending December, 1898.

Estimated Population	...	...	...	...	...	30,615
Number of Deaths	...	...	...	...	...	424
Rate per 1,000	...	...	...	...	...	13.84
Corrected Rate per 1,000	...	...	...	...	...	12.80
AGE AT DEATH.						
Under One Year	...	...	...	...	...	71
One, and under Five...	...	...	...	...	...	35
Five, and under Fifteen	...	...	...	...	...	36
Fifteen, and under Twenty-five	...	...	...	...	...	16
Twenty-five, and under Sixty-five	...	...	...	...	...	121
Sixty-five years and upwards	...	...	...	...	...	145
CAUSES OF DEATH.						
Consumption	...	...	...	...	...	21
Bronchitis, Pleurisy, and Pneumonia	...	...	...	...	...	57
Diseases of Brain and Nervous System—including Convulsions in Children	...	...	...	...	...	35
Old Age	...	...	...	...	...	33
Diseases of Organs of Circulation	...	...	...	...	...	45
Diseases of Digestive Organs	...	...	...	...	...	23
Malignant Diseases	...	...	...	...	...	29
Congenital Diseases in Infants	...	...	...	...	...	2
Tubercular Diseases	...	...	...	...	...	20
Urinary Diseases	...	...	...	...	...	17
Premature Birth and Atrophy	...	...	...	...	...	15
Parturition	...	...	...	...	...	2
Rheumatic Fever	...	...	...	...	...	2
Puerperal Fever	...	...	...	...	...	0
Suicide and Injuries	...	...	...	...	...	9
Influenza	...	...	...	...	...	20
ZYMOTIC DISEASES.						
Scarlet Fever	...	...	...	...	...	0
Continued Fever	...	...	...	...	...	1
Erysipelas and Pyæmia	...	...	...	...	...	1
Diphtheria	...	...	...	...	...	31
Diarrhoea and Dysentery	...	...	...	...	...	15
Small Pox	...	...	...	...	...	0
Measles	...	...	...	...	...	0
Whooping Cough	...	...	...	...	...	9
Croup (Not Spasmodic)	...	...	...	...	...	0
All other Diseases	...	...	...	...	...	37
TOTAL						424
Number of Births (Boys, 315 ; Girls, 296)	...	...	...	...	...	611
Birth Rate per 1,000	...	...	...	...	...	19.95

PUBLIC HEALTH DEPARTMENT,
10, CALVERLEY PARADE,
TUNBRIDGE WELLS,
February 10th, 1899.

SIR,

I have now the pleasure to hand you my fifth Annual Report on the work of my department, which has been carried out during the past year, and I again venture to assert that no town in the South of England has received more attention than ours during the past year.

I am pleased to record that the "drainage regulations," the basis of which I laid before our Committee some time ago, help us to a very great extent in the execution of our duties. There are, nevertheless, other matters which must receive our serious consideration sooner or later; one is the proper making up and paving of private courts and passages, and another the vexed question of combined drainage. There are, under certain conditions, grave responsibilities resting upon local authorities in connection with the repair of combined drains, and the sooner some action is taken to remedy the existing unfair conditions the better. No one but those engaged on this important work can realise the amount of worry attached to getting a drain (which several persons have a right to use) repaired and put into proper working order. The Borough of West Ham have recently become possessed of means, by a private Act of Parliament, of dealing with this matter, and I strongly urge our Council, through the Health Committee, to copy their example. It is, to my mind, the reverse of common sense for ratepayers to be called upon to put in order a combined drain which was constructed in a defective manner years ago to benefit one individual's pocket.

With regard to the paving question, I strongly advocate the use of asphalt for these private courts and common ways. Nothing is more abominable than the sight presented by such places after being subjected to a free distribution of all kinds of refuse and a heavy downfall of rain. I would, at this point, again ask the "Working Classes" to refrain from keeping chickens, &c., in confined back

yards and thereby rendering the soil around their houses foul and unwholesome.

The question of removing stable refuse is still a constant source of annoyance, but I am sure the recent prosecution has had the desired effect, but I do ask for the co-operation of all those concerned with stables to remove the refuse at least once a week, and thereby obviate much unpleasantness.

The disinfection of rooms, &c., and bedding is under my direct supervision and is done as thoroughly as possible ; there is, however, a difficulty experienced at times, when the whole habitation is required to be done and there is nowhere for the people to find shelter.

I have received many complaints with regard to dustbins, but in most cases it is the people themselves who use them that are responsible for the nuisances created.

The general work as regards drains has been proceeding in a most satisfactory manner, but we have plenty to do for some time to come. The list of actual work carried out, which I append to this report, will be a good proof of my assertion in the first paragraph. I would be pleased to see some regulation made which would compel all persons to give notice to the Corporation when they intend to open up drains for cleansing or repairing.

The question of granting sanitary certificates has at last been settled and has been much appreciated, and I am pleased to say that the income to the Corporation derived therefrom is almost equal to that portion of my salary payable by them.

Cowsheds, dairies, and slaughter-houses are inspected periodically, and are all in a fair condition, but one of the slaughter-houses, which is an old structure, and was, a few years ago, in the open fields, and could not be a nuisance to anyone, is gradually being built up to and will probably have to be severely dealt with shortly. I will here once again raise the question of the desirability of establishing a public "abattoir," which, I believe, would be received with more favour by those concerned than it was when I brought it forward a few years ago.

The Common Lodging Houses have received special attention,

and the number of lodgers permissible have been considerably reduced, and the air space given is in strict accordance with our Bye-laws.

Factories proper do not exist in the Borough, but we have plenty of workrooms that require attention from time to time. Offensive trades we are not worried with, I am pleased to say, we have, however, the usual source of trouble with the marine store dealers, who are a necessary evil.

The inspection of foods has been carried out to a larger extent than is generally imagined, shopkeepers and costermongers alike having a sharp look out kept upon them. I have submitted 10 samples of food to the Public Analyst for the purpose of analysis; a prosecution was the result in one case, this case was dismissed by the magistrates, their decision has been appealed against, but at the time of writing the appeal has not been heard.

The new office accommodation is already proving most useful, and the two assistants which it pleased the Committee to give me are doing their work well and efficiently.

In conclusion, I wish to thank the Borough officials generally for the assistance they have ever been ready to extend to me in the execution of the duties of my department—a department which is slowly but surely being recognised as a most valuable one.

I am, Sir,

Your obedient servant,

JAMES CAVE,

Borough Sanitary Inspector.

W. STAMFORD, Esq.,

Medical Officer of Health.

Summary of Works, &c., Carried out :—

- 212 Complaints have received attention.
- 166 House drains have been reconstructed.
- 197 House drains have been repaired.
- 459 W.C.'s have been refitted and supplied with water.
- 73 Manholes have been constructed.
- 64 New soilpipes have been erected.
- 7 Soil and ventilating pipes repaired.
- 746 Proper traps substituted for defective ones.
- 241 Ventilating shafts to drains have been erected.
- 145 Dustbins repaired or new provided.
- 294 Rainwater pipes disconnected from drains.
- 18 Rainwater pipes repaired.
- 412 Yards and areas have been paved or paving repaired.
- 6 Samples of water submitted for analysis.
- 3815 Re-inspections have been made.
- 506 Visits to infected houses.
- 217 Rooms have been disinfected.
- 41 Rooms cleansed and whitewashed.
- 4 Loads of bedding removed.
- 423 Houses and other premises inspected.
- 22 Loads of offensive matter removed.

All these items are recorded, and, so far as possible, plans are kept of drains repaired and reconstructed.

APPENDIX.

Reprinted from the "Kent and Sussex Courier."

METEOROLOGICAL NOTES AT TUNBRIDGE WELLS FOR 1898.

The total amount of sunshine recorded by the Jordan Photographic Recorder was 1,734 hours 10 minutes; the mean of the last ten years being 1,801 hours 15 minutes. The most sunny days were June 29th and July 24th, on each of which 13 hours 49 minutes was recorded. There were 79 sunless days, the mean being 63.

The Campbell-Stokes Burning Glass recorder showed 1,542 hours 44 minutes, the mean of the last five years being 1,580 hours 15 minutes.

The Jordan Recorder—

First showed 10 hours of sunshine on March 15th.				
"	"	11	"	April 6th.
"	"	12	"	April 8th.
"	"	13	"	June 11th.
Last	"	13	"	Aug. 12th.
"	"	12	"	Sept. 4th
"	"	11	"	Sept. 17th.
"	"	10	"	Oct. 2nd.

The Campbell-Stokes Recorder—

First showed 10 hours of sunshine on March 21st.				
"	"	11	"	April 8th.
"	"	12	"	April 8th.
"	"	13	"	July 24th.
Last	"	13	"	Aug. 2nd.
"	"	12	"	Aug. 20th.
"	"	11	"	Sept. 16th.
"	"	10	"	Oct. 2nd.

The greatest heat in the sun was 137·5 deg. on August 14th, and the least, 35 deg., on March 25th. The mean for the year was 93·9 deg., and for the last 10 years 92·5 deg.

It first reached 100 on March 18th.

"	"	110	"	March 18th.
"	"	120	"	May 23rd.
"	"	130	"	June 22nd.
It last	"	130	"	Sept. 7th.
"	"	120	"	Sept. 21st.
"	"	110	"	Oct. 23rd.
"	"	100	"	Nov. 8th.

The maximum in the shade was highest 87·5 deg. on September 8th, and lowest 34·5 on March 25th; the mean for the year being 57·6 deg., and for the ten years 55·9 deg.

It was first 60 in the shade on March 18th.

"	"	70	"	May 22nd.
"	"	80	"	Aug. 13th.
"	last	80	"	Sept. 17th.
"	"	70	"	Sept. 21st.
"	"	60	"	Nov. 10th.

The minimum in the air was lowest, 24·5 deg., on February 21st and March 21st; and the hottest night of the year was September 18th, when the temperature did not fall below 61·2 deg. The mean minimum for the year was 42·9 deg., and for the 10 years 41·3 deg. The mean temperature of the year was 50·2 deg., and for the 10 years 48·5 deg. The daily range was greatest, 29·9 degrees., on August 1st; and least, 1·6 deg., on February 4th; the mean being 14·8 deg., and for the last 10 years 14·7 deg. The difference between the wet and dry bulbs at 9 a.m. was greatest, 10·3 deg., on August 13th; on March 4th there was none, the air being saturated with moisture. There were 48 frosts in the air, the mean number for the last 10 years being 66. On the grass there were 117, the mean during the last nine years being 141.

The last frost in the air in spring was on April 23rd, and the first in the autumn on November 23rd. The last on the grass in spring was on May 17th, and the first in the autumn on September 1st.

The temperature of the soil at the depth of 1ft. was highest,

67·7 deg., from August 15th to 17th; and lowest, 37·3 deg., on March 7th. The mean for the year was 51·1 deg., and for the last nine years 49·8 deg.

It was first 50 degrees on May 3rd.

„ „ 60 „ June 8th.

„ last 60 „ Sept. 18th.

„ „ 50 „ Nov. 3rd.

The Anemometer recorded 84,783 miles in the year, the mean for the last seven years being 89,752. The most windy day was February 2nd, when 682 miles were recorded. The calmest day was December 22nd, with 47.

The total rainfall was only 23·39 inches; the mean for the last 10 years being 30·88 inches. The wettest day was November 23rd, when 1·06 inch was measured. Rain fell on 152 days, the mean being 177. There was snow on 13 days, fog on 15, and thunder or lightning—generally distant—on 13.

The mean amount of cloud at 9 a.m. was 7—10 representing overcast. The mean for the last seven years was 6·6.

F.G.S.