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BOROUGH OF TORQUAY.



### Annual Report

OF THE

### MEDICAL OFFICER OF HEALTH,

THE

ELEVENTH REPORT OF THE SANATORIUM,

THE

SANITARY INSPECTOR'S REPORT,

AND AN

Abstract of Meteorological Observations,

For 1895.

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## ANNUAL REPORT

OF THE

## Medical Officer of Ibealth for 1895.

Mr. Mayor, Aldermen, and Councillors,

I beg to submit my eighteenth Annual Report: viz., that for 1895.

BIRTH RATE. During the year 1895, 484 births have taken place in the Borough of Torquay, or 18.9 per 1,000. This is thirteen less than in 1894; 36 less than in 1893; 50 less than in 1892; and 71 less than in 1891.

The average for the five years 1891 to 1895 is 518; and for the ten years 1881 to 1890 it is 559; and thus in the past year there were 34 fewer births than the average for the first period; and 75 less than the average for the second period.

DEATH RATE. The number of deaths which have occurred is 456, or 17.8 per 1,000. This is 46 more than 1894; 21 more than 1893; 36 more than in 1892; and 54 more than in 1891.

Taking the same periods as before, the average for the five years 1891 to 1895 is 421; and for the ten years, 1881 to 1890, it is 388; and thus the past year is 35 higher than

the average for the first period, and 68 higher than that of the second period.

These results are obtained on the supposition that our population is 25,500 (at the last census it was 25,488).

VISITORS. Of these deaths 53 occurred among visitors and strangers; so that after making the usual deduction the rate for 1895 will be 15.8 per 1,000, as compared with 14.4 in 1894, 14.7 in 1893, 14.4 in 1892, and 13.8 in 1891.

We are thus met with this fact, that we have a diminishing birth rate, and an increasing death rate. The former I cannot well explain; the latter may to a certain extent be accounted for. I attribute the higher death rate, partly to the very severe weather in February and March, (the number of deaths in March was 31, and in April 14, higher than the average of ten years); and secondly there has been a good deal of sickness of a non-preventable character.

The causes will be seen from the following table:—

Death Rate for Torquay, as required by the Local Government Board for 1895.

NAME OF			UNDER			OVER
DISEASE.			5 YEARS.			5 YEARS.
Small Pox			0			0
Scarlatina			2			0
Diphtheria		***	1			0
Membraneou	s Croup		0			1
Typhus )			0			0
Enteric	***		0			5
Continued }	Fevers		0			0
Relapsing			0			0
Puerperal			0			0
Cholera			0	***		0
Erysipelas			0			0
Measles			16			0
Whooping C	ough		1			0
Diarrhœa an	d Dysentery		1		***	1
Rheumatic F	ever		0			1
Ague			0			0
Phthisis			3			70
Bronchitis, I	Pneumonia, a	nd				
Pleurisy			29			50
Heart Diseas			0			42
Injuries			4		***	10
All other Dis	seases		76			143
			133			323
	Total for 18	95			456	

These figures should be compared with those of previous years, as seen in the following table :—

CAUSES OF DEATH IN TORQUAY FOR TEN YEARS.

CAUSES.	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95
Small Pox	. 0	0	0	0	0	0	0	0	0	0
Scarlatina	1 0	1	0	1	0	0	0	0	1	2
Diphtheria	0	0	0	0	0	2	. 0	1	1	1
Membraneous Croup	0	Ŏ	0	1	1	2	1	2	1	1
(Typhus	0	0	0	0	Ô	0	0	0	0	0
Enteric or Typhoid	0	1	1	1	1	2	2	0	8	5
Continued	0	0	0	0	0	0	0	0	0	0
Enteric or Typhoid Continued Relapsing	0	0	0	0	0	0	0	0	ő	0
I D	1	0	0	1	0	0	0	0	0	0
C11_1	0	0	0	Ô	0	0	0	0	0	0
Th	1	3	1	0	0	1	0	0	0	0
Mill	4	0	12	2	1	3	8	0	0	16
	0	2	1	0	16	0	2	8	4	10
Whooping Cough	1 (100)	3	1	3	10	1	3	0	3	0
Diarrhea and Dysentery	-	0	3	0	0	4	0	1	0	1
Rheumatic Fever	-	1		1			1	1		1
Ague		0	0,	0	0.	0	0	0	0	0
Phthisis		52	64	52	67	67	60	70	71	73
Bronchitis, Pleurisy, and					-					
Pneumonia		38	52	51	63	53	64	64	72	79
Heart Disease		39	39	48	36	44	38	35	43	42
Injuries		9	6	10	8	9	13	17	9	14
All other Diseases	. 228	184	228	199	235	214	228	235	197	219
	-		-		200					-
Total	.412	333	408	370	429	402	420	435	410	456

The causes of death among visitors was as follows:— Enteric fever, 2; rheumatic fever, 1; phthisis, 26; bronchitis and pneumonia, 2; heart disease, 5; injury, 4; and all other diseases, 13; total 53.

COMPARATIVE TABLE OF THE AGE AT WHICH DEATH OCCURRED.

1886	At all ages 412	Under 1 year. 73	1 and under 5. 27	5 and under 15.	15 and under 25.	25 and under 65. 124	65 and upwards. 142
1887	333	54	18	9	36	85	131
1888	408	68	36	12	35	120	137
1889	370	67	25	18	28	102	130
1890	429	81	37	16	30	112	153
1891	402	55	25	19	27	105	171
1892	420	74	34	8	25	103	176
1893	435	69	25	9	28	151	153
1894	410	62	38	8	36	114	152
1895	456	75	58	13	34	141	135

ZYMOTIC RATE.—The Zymotic death rate will be 1.13, which is the highest for several years, and as this is the real est of the health of a district, I will now proceed to examine each separate item.

Scarlatina, but not half as many as in 1894. With few exceptions all were children attending, or associated with those who attended the various public schools. It seems almost exclusively confined to this class; it is influenced by the holidays, when the numbers decline; and goes up again about ten days or a fortnight after the schools open. I have no doubt that there are cases which the parents either don't, or won't recognize, and the children full of infection are allowed to run about. From this disease we have two deaths.

DIPHTHERIA.—There have been notified altogether six cases, the majority of which were well in a few days. This disease and Membraneous Croup each contribute one death.

Enteric or Typhoid Fever.—There have been eleven cases, of which no less than six were imported. This is rather more than usual, and the mortality is much higher. Of the fatal cases, two were strangers who came here ill; and one was a servant girl who came home from her place because she was ill, with what turned out to be Typhoid. The two deaths we are answerable for were, one notified in 1894, and who died in January last; and the other lived where there were defects enough to account for anything. So that, although there have been five deaths, only one should be credited to 1895. I consider that we passed through a severe ordeal during the past autumn. We had had a delightful, but very dry summer, and the drought was long continued; and yet when the rain fell we had no outbreak of Typhoid. I have known the time when heavy rains, following on a long drought, would have revealed many defective houses by the occurrence of Typhoid in them. This is a crucial test, and shows most distinctly that we have not been working in vain, and that the work has been good work. I am quite satisfied with the result.

Measles.—This disease is utterly uncontrolable: it is infectious before the rash comes out, and consequently the sickening child is spreading the infection among its class mates, before even its own mother knows that there is anything wrong; it spreads in schools with great rapidity; and if there be very cold weather, there is sure to be a large mortality. These sixteen deaths occurred during the cold

weather of February, March, and April, and with one exception only all the fatalities occurred among the families of the poorest members of the community. In well-to-do houses the children can be kept in bed and warm; but in the homes of the poor it is very different; for the mothers have their daily work to do, and can not sit by the bed side all day; and then the little ones get out of bed, run down stairs, perhaps to open doors, and over stone passages; and Bronchitis and Pneumonia finish the story. I had to close the following schools on account of the prevalence of Measles, viz.:—Braddon Street, Ellacombe, Pimlico, Rock Road, and Victoria Park. The type was exceedingly severe in 1895, and those adults who were unfortunate enough to have an attack are not likely to forget their experiences.

CHEST DISEASES.—The other items in the list of Zymotic diseases call for no remark, but I would like to draw your attention to the number of deaths from "Phthisis," and "Bronchitis and Pneumonia." The average for ten years is 63 cases of Phthisis; this year it is 73. Under the latter heading the average is 59, this year it is 79. The excessive mortalities from these two causes took place during the severe cold of February and March.

Outside Influences.—Last year I had to report to you on an epidemic of Typhoid which was sent to us by the culpable carelessness of a farmer, who supplied milk to one of our dairies. This year we have had no such fate, but it wasn't for want of opportunity. Twice it was brought to my knowledge that there were cases of Typhoid in farms, the milk from which was sent to Torquay. Fortunately I had intelligent people to deal with, and no mischief was done. In one case I removed the patient to our Sanatorium, and in the other the cows were milked at another farm than that occupied by the patient. Both these farms were outside our district, and we have no means of knowing what takes place in them.

Sale of Food and Drugs Act.—The County Police made a test raid; one sample of milk was found to be adulterated, and conviction followed. Twice I had to have meat seized, and which was afterwards destroyed by magisterial order. In the first case the meat had been cooked; and the second, it was a whole carcase of a pig who had suffered from some wasting disease. I somehow suspect that there is an idea

current among the farmers of the country, that a beast which needs killing to save its reputation, can be disposed of in Torquay. I may be wrong on this point, but I wish it to be distinctly understood by those who purvey food for the inhabitants of this town, that they had better arrange for good and wholesome meat; and that it will not answer to sell that of a doubtful, or inferior quality.

WATER SUPPLY.—Nothing has been done towards purchasing our watershed since my last report. I am hopeful that next year I may be able to tell quite another tale.

Bakehouses.—These have had the usual inspection; and with one exception all were found in a satisfactory state.

Housing of the Working Classes Act.—No action has been taken under this Act. The usual general inspections of the district have been made, but no minute survey of one special division has been attempted, and this is the second year that I have had to report thus. The time is fast approaching when your Sanitary Inspector will have to be supplied with an assistant. So much of his time is taken up with house inspections, that he has had no time to carefully go through a poor quarter. This is much to be regretted; but I see no way out of the difficulty other than the appointment of an Assistant Inspector.

RETURN OF NEW CASES OF SICKNESS MADE BY POOR LAW MEDICAL OFFICER; AND OF NEW PATIENTS RECEIVED IN THE TORBAY HOSPITAL, AS REQUIRED BY THE LOCAL GOVERNMENT BOARD.

	NAMES OF	DISEASES.		Poor Aged under	LAW. Aged 5 yrs.		In-Patients. Aged 5 yrs. and up.
Class	11 D			5 yrs.	and up.	5 yrs.	and ap.
	all Pox	***	***	0	0	0	0
	rlatina	***	***	1	0	0	0
Dip	htheria	***		0	0	0	0
Me	mbraneous C	roup		0	0	0	0
1	Typhus			0	0	0	0
202	Enteric or T	vphoid		0	0	0	6
ve	-Continued			0	0	0	0
Fevers	Relapsing			0	0	0	0
_	Puerperal			0	0	0	0
Che	olera			0	0	-0	0
	vsipelas			0	0	0	1
	asles			27	0	0	0
Ini	ury			0	0	. 5	34
Otl	ner Diseases			62	249	10	260
				90	249	15	301
		TOTAL:-	-Poor	Law, 339			001

I append the eleventh report of the Sanatorium, the Annual Report of your Sanitary Inspector, which gives the details of his work, and Mr. Chandler's abstract of meteorological observations, and remain,

Mr. Mayor and Gentlemen,

Your obedient servant,

PAUL Q. KARKEEK, M.R.C.S. & L.S.A.

Medical Officer of Health.

Torquay, February 4th, 1896





## The Medical Officer's Eleventh Report on the Sanitorium

For the Year ending 19th March, 1895.

TO THE CHAIRMAN OF THE SANITARY COMMITTEE.

SIR.

At the commencement of the past financial year there were 9 patients in the Sanitorium; and from that date to March 19, 1895, there were admitted 129 fresh cases; so that altogether 138 patients were under treatment during the 12 months.

Of these, 126 were suffering from Scarlatina, 11 from Typhoid, and 1 from Small Pox; the last being a visitor, who developed the symptoms of the disease within a few hours of his arrival in the town.

Three deaths occurred, viz., Scarlatina 2, and Typhoid 1; 126 were discharged cured, and 9 were under treatment on March 19, 1895.

Three of these patients were visitors, 2 were domestic servants, 4 came from the Torbay Hospital, 4 from a boys' orphanage, 11 from families associated with small businesses, and the remainder may be described as belonging to the various labouring and artizan classes.

By far the majority were very poor, and I paid the fee for medical attendance in 70 cases.

For some weeks we had very severe duties to contend with, there being two sets of patients, Typhoid and Scarlatina, in the buildings at the same time; and this, of course, necessitated two sets of nurses; indeed, during one week we had six nurses on the premises. The number of patients not only has been greater on the average, but the total has far exceeded anything in the previous history of the institution.

The cost of working during the twelve months will be seen from the following statement of accounts:—

	E	XPEN	DITURE					
						£	s.	d.
Diet of Patients						407	0	6
Wages and Diet of		es				159	19	0
T 1				15.		44	8	6
Curator						52	0	0
Surveyor's Account	t		***			43	17	10
Tradesmen's Accou						71	11	4
Rent, Rates, and I	nsurai	nce				13	15	5
T				***		18	15	11
3.6 11 1 73						73	10	0
Conveyance of Pat	ients					27	6	0
Coal, Čoke, and Wo						49	6	6
Telephone, 11 year						16	12	6
New Carriage						23	10	0
						1,001	13	6
Extra Account for	Repai	irs an	d Altera	tions		372		10
					£	1,374	13	4
		RE	CEIPTS.					
						3	s.	d.
Paid by Patients						116	17	2
Deficit						1,257		2
					£	1,374	13	4

It will be interesting to compare the cost of working in previous years with that of the past:—

First B	Report	 30	Patients	 Cost,	£197	9	1	 Deficit,	£134	11	10
Second	,,	 35	,,	 ,,	311	0	1	 ,,	220	9	6
Third	,,	 25		 ,,	395	9	0		294	11	5
Fourth	,,	 10	,,	 ,,	212	9	9		172	5	3
Fifth	,,	 11	,,	 **	175	4	11	 ,,	175	4	11
Sixth	,,	 12		 ,,	245	4	10		201	6	4
Seventh	1 ,,	 8		 ,,	214	5	6	 *,,	193	0	5
Eighth	,,	 11	,,		259	15	6	 	234	17	0
Ninth	,,	 50		 ,,	529	1	2		498	5	5
Tenth	,,	 76		 200	740	9	8	 ,,	651	10	4
Elevent		138		,,	1,374	13	4	 	1,257	16	2

I am pleased to be able to report that Mr. and Mrs. Arnall have carried out their duties to my satisfaction; and your permanent nurse, Miss Hunt, although very hard worked at times, has managed exceedingly well. A very large sum of money has been spent in carrying out alterations and making the wards in the stone buildings more comfortable; and I have seen the advantage of this during the past winter.

From October 29th, 1883, to March 19th, 1895, four hundred and six patients have been admitted.

I remain, Sir,

Your obedient servant,

PAUL Q. KARKEEK, M.R.C.S. & L.S.A.,

Medical Officer of Health.

October 4th, 1895.





#### ANNUAL REPORT

OF

#### THE SANITARY INSPECTOR.

Town Hall, Torquay, 3rd February, 1896.

TO THE WORSHIPFUL THE MAYOR, ALDERMEN, AND COUNCILLORS OF THE BOROUGH OF TORQUAY.

#### GENTLEMEN,

I beg to submit to the Urban Sanitary Authority this my Eighteenth Annual Report, being that for the year 1895.

The work executed has been classified in the following manner:

- 196 Thorough House Inspections were made, of which 89 were Villas on re-letting, or Lodging Houses.
- 98 New Sanitary Conveniences were fixed.
- 60 Old ones were repaired.
- 44 Soil-pipes were put outside houses.
- 114 Drain, and Soil-pipe Ventilators were fixed.
- 64 Blocked Drains and Traps were cleared.
- 239 New Intercepting and Surface Traps were fixed.
- 80 Waste-water and Rain Pipes disconnected from drains.
- 83 New Pipe-drains were laid.
- 27 Masonry ditto were abolished.
- 5 Cesspits were destroyed.
- 9 Yards were bricked and drained.
- 47 Accumulations of offensive matter were removed.
- 6 Pig or Fowl nuisances were abated.
- 61 Bedrooms, Bedding, etc., were fumigated.
- 43 Supplies of Disinfectants distributed.
- 7 Premises were limewashed.
- 98 Flushing Cisterns were fixed to new closets.
- 7 New Drinking-water Supplies given.
- 15 Cisterns were cleaned and covered.
- 7 Overcrowding Cases were abated,

These added together give a total of 1,114 sanitary operations, carried out on 414 separate premises.

Two cases were brought under my notice by Her Majesty's Inspector of Factories, one of overcrowding in a workshop, and one of unsanitary conveniences in another workshop. I dealt with both by getting the first workshop made larger in every way, and in the second proper conveniences were substituted.

There were also two bad Meat cases, both, however, in which the same person was implicated, though at different times. One was cooked pork, which was seized and duly condemned, and on the case being brought to trial a substantial fine was imposed; in the other case, the carcase of a pig was seized immediately after delivery from the station, on being found unfit for human food. This also was taken before a magistrate and condemned, but owing to a doubt about ownership the case was not carried further.

The common Lodging Houses, Slaughter House and Dairies, Milkshops and Cowsheds, have been inspected during the year, and any defects therein noted and remedied.

With regard to the surveying of New Buildings, there has been a slight increase in the number of houses examined, which was 56 as compared with 49 in 1895, and 28 in 1893. Very little trouble was occasioned except where occupation was prohibited in a few cases owing to dampness.

The office work comprised the keeping of the necessary books, in which to record the proceedings from day to day; also the writing and copying of 467 letters, and sanitary reports, and the issue of 40 preliminary notices.

A few Legal notices were also sent out, but no prosecution ensued, as the necessary work was done.

In August last, the Annual Meeting of the Western Sanitary Association was held in Torquay, and though it was successful in every respect, it may not, perhaps, be proper to look upon it as a portion of the work of the year for the purposes of this Report; but inasmuch as it gave rise to an investigation of the records of the Sanitary Department for

the previous seventeen years, and therefore of the progress of Sanitation in the Borough for that period, I would ask leave to give a short summary of the work done. There were 3,223 thorough house inspections made, or more than three-fourths of the number of houses in the town; 4,500 drain and soil-pipe ventilators had been erected; 1,700 intercepting or masons' traps were fixed or built; 2,000 modern closets substituted for old ones: 833 new sets of house drains were laid: 726 indoor sinks were cut off from the drains; 670 new supplies of drinking water were provided. These, with a number of minor improvements, yield a total of 13,885 operations effected; besides, over 1,200 new buildings had been surveyed during the period under review. I have reason to believe that my paper was beneficial, and certainly it was cordially received by the Association; the members of which were delighted with Torquay, and with the kindly reception given them by the Council.

I am, Mr. Mayor and Gentlemen,

Yours obediently,

CHARLES MACMAHON, CERT. SAN. INST.,

Sanitary Inspector and Building Surveyor,





## METEOROLOGICAL REPORT

FOR THE YEAR 1895.

ALFRED CHANDLER, F. R. Met. Soc.,

Borough Meteorologist.

## To the Mayor and Corporation of the Borough of Torquay.

GENTLEMEN,

I have the pleasure to enclose with my usual Monthly Report, the Abstract of the Meteorological Observations for 1895, to which I will add, when it is printed, an explanatory description of the Observatory, the Instruments used, and the time of the readings. During the past year the Observatory and all the Instruments, both at Chapel Hill and at Cary Green, have been kept in good order, and working continuously. Besides the usual readings, made twice daily. at 9 a.m. and 4 p.m., and the work involved in the many computations and measurements of results of over 20 Instruments, I have sent above 2,216 afternoon reports of the weather by telegram, which have been published in the following Newspapers, in some cases appearing in large type, under the title of "The Weather at the South, Torquay," or "The Weather at Torquay." The names of the Newspapers are as follows :- Newcastle Chronicle, Glasgow Daily Mail, Sheffield Daily Telegraph, Leeds Yorkshire Post, Liverpool Daily Post, Liverpool and Manchester Journal of Commerce, Birmingham Gazette, Birmingham Daily Post, Bradford Observer, and Bristol Times and Mirror. Some of the above Newspapers publish the report during the summer months only. Also 102 noon telegrams have been sent in the summer for publication the same evening in the Sheffield Evening Telegraph. 313 daily reports have been supplied to Mr. C. H. Chandler, for publication in the London Standard, the Daily Chronicle, and Western Morning News; 313 daily reports to the Western Daily Mercury; 48 monthly reports to the Western Morning News, Torquay Directory, Torquay Times, and the Natural History Society. The usual Weekly and Monthly Reports have been prepared and forwarded to the Meteorological Office, the Royal Meteorological Society, Symons's Meteorological Magazine, and the Directory.

With the assistance of Mr. Charles Shapley, the daily reports have been placed on the Strand and sent to the principal hotels in the town and to the Natural History Museum. Letters of enquiry have been numerous, and during the year over 100 letters and 200 printed reports have been posted to applicants. I have also supplied, as in former years, the Meteorological figures for Torquay which annually appear in Whitaker's Almanack. Last autumn the Travel Editor of the Queen Newspaper applied, through Dr. Karkeek, for our Weather Report to be supplied every week during the winter and spring months. This I have regularly sent to him, which, with other information relating to Torquay, has duly appeared in that widely-read Newspaper.

A great number of visitors to Chapel Hill during the past year have been shewn the Observatory and Instruments, and the printed reports taken away by them; and on the occasion of the visit of the Journalists' Institute in September I prepared a special report, which was largely distributed. I had also the pleasure of shewing the Observatory and Instruments to many of the Journalists who then visited Chapel Hill.

I have lately commenced Ozone Observations with a Moffat Ozonometer, and the results, which I think will be most valuable, are now published in the Monthly Reports.

I cannot close this Report without expressing my thanks to Mr. Chas. Shapley, F.R.Met.Soc., for the voluntary aid he has rendered me in twice daily reading the Instruments on Cary Green, and for his assistance in distributing the Daily Reports.

My thanks are also due to the Council of the Torquay Natural History Society for the loan of several valuable Instruments in use at the Observatory.

I am, Gentlemen,

Your obedient servant,

ALFRED CHANDLER, F. R. Met. Soc.,

Borough Meteorologist.

Chapel Hill Meteorological Observatory, February 3rd, 1896.

#### THE OBSERVATORY.

#### POSITION AND BUILDING.

The Observatory is built on limestone rock at the summit of the quarry, and at the back or N. side of the old ruined Chapel; about \(^3\)4 mile from the sea, overlooking Torbay and the English Channel. The ground level is 276 ft., and the top of the building 286 ft. above mean sea level. The part of the building immediately under the Sunshine Instruments is built of solid limestone to prevent vibration. This was designed in 1888 by Mr. J. Hall, Assoc. M. Inst. C.E., and the last addition, with the erection of the Anemometer and a larger computing room for the Observer, early in 1894 by Mr. H. A. Garrett, Assoc. M. Inst. C.E.

Through a slight error in the foundations of the original building, the Observatory is not quite true astronomical N. and S., but the instruments are all fixed in a true direction.

The latitude is 50°29′ N., and the longitude 3°32′ W. = to 14 minutes after Greenwich Mean Time.

The Observatory is organised and maintained by the Town Council, under the supervision of the Royal Meteorological Society.

#### THE INSTRUMENTS.

#### SUNSHINE RECORDERS.

These are (1) a Jordan Photographic Twin Instrument, which has been in use here for 8 years, and is used as the Standard Instrument; (2) A Campbell-Stokes Lens-burning Instrument, with Professor Stokes's zodiacal card holder. The Photographic instrument is on the S. and the Campbell-Stokes on the N. side of the tower. The Campbell-Stokes is the older of the two instruments, and in its original form was invented by Mr. J. F. Campbell; but in its present form,

with the zodiacal frame, and in the patterns for use in different latitudes, it has been much improved by Professor Stokes, F.R.S., the Greenwich and Kew Observers, and Messrs. Beckley, Cassella, and Negretti and Zambra. There is at present a great difference of opinion as to the exactitude of the two instruments, which give a difference of sunshine duration of from 5 to 16 per cent., the Jordan Instrument always giving in the monthly totals the larger amount; but occasionally in the daily totals less than the Campbell-Stokes Instrument.

It is alleged that the Campbell-Stokes measures only bright sunshine, and that the Jordan measures sunlight as well as sunshine; but from the work done here for the past 8 years with the Photographic Instrument I have never traced or measured any sunlight on the charts, after they have been immersed in water, face upwards, according to the instructions issued to Observers by the Royal Meteorological Society.

The Photographic Instrument is more troublesome than the Campbell-Stokes Instrument, but taking the different states of the atmosphere into consideration all the year round, it is the more accurate and sensitive instrument of the two.

These instruments, which are also Sun dials, for the measurement of sunshine and of time, are open to great improvement, and doubtless will in the future be made as exact in measurement and definition as the telescope, the spectroscope, the barometer, and the thermometer.

#### ANEMOMETER.

The Anemometer, for registering the velocity and direction of the wind and the time of its various changes, is a Robinson embossing, self-recording instrument by Casella. The general principle of this instrument is the invention of Dr. Robinson, of Armagh, in which four hemispherical cups revolve with the pressure of the wind. The very ingenious registering parts of the instrument and also the vane, are new, and were designed by Mr. Beckley, of Kew Observatory, and Mr. Casella. The force-and-die principle of embossing is the means of registration here adopted. The paper employed for receiving the hourly velocity and direction marks, is blue in colour and formed of narrow strips, rolled

round a small attached roller, from which it is drawn and embossed on one edge by the action of the rollers, which are divided to represent miles, figured at every five miles of horizontal wind velocity. The clock raises the hammer, which falls once in every hour, impressing the other edge of the paper with an arrow, whose movements correspond with the larger one driven by the wind, and this shows its exact direction at every hour of time. The rate of speed is also shown during each preceding hour by the distance travelled over on the paper between each successive imprints of the The projection under the large arrow (outside) contains metal balls which firmly support the top and aid in giving freedom of action to the vane. The square box (outside) is of cast iron, and contains the stronger portion of the wheelwork, and chains from this gear-work act on the velocity rollers and the arrow attached to the clock-work below. From these automatic hourly observations are obtained the velocity of the wind, its direction and estimated force, but this latter is not very reliable, and, to make the instrument complete, an automatic pressure plate should be added, as in Osler's Anemometer, which shews the maximum push or thrust of the wind in pounds weight on the square foot, and the time when such maximum pressure takes place, the speed of the wind at the same time being recorded by the Robinson Cups.

#### BAROMETERS.

The Barometer is one of Negretti and Zambra's standard mercurial instruments, on the Fortin adjusting principle. The mercurial reservoir is 279ft. above mean sea level. The instrument is read twice daily, with the Vernier index, and the readings are reduced to mean sea level and 32° Fahr.

The self-recording Aneroid Barometer is placed by its side

for purposes of comparison.

#### THERMOMETERS AND SCREEN.

The Shade Thermometers, by Casella, consist of a mercurial maximum, a spirit minimum, a Dry and Wet Bulb Thermometers for hygrometrical measurements. The screen containing these instruments is a Stevenson's double louvre, placed over grass, with the bulbs of the Thermometers 4 ft, from the ground.

An exact duplicate of these Instruments and screen is at

Cary Green (12 ft. above mean sea level).

The Solar Thermometers, by Negretti and Zambra, are a black bulb and a bright bulb in vacuo instruments, both mercurial, and both registering the maximum temperature in the sun, the difference in reading between the two instruments being a measure of the amount of solar radiation.

The Grass Thermometer is one of Hick's spirit minimum instruments, placed on grass about one inch above the level

of the ground.

The Self-Recording Thermometer is placed in a Stevenson's screen, and shows approximately the time when the highest and lowest temperature takes place. It is useful for purposes of comparison; but it cannot be so exact and sensitive as the mercurial or spirit Thermometer, depending as it does upon the lengthening and shortening of a metal plate, as the temperature varies, acting on a crank lever connected to an arm carrying a pen, which writes the curve of temperature on the chart on the clock cylinder.

All the Thermometers are degree marked on the stem, verified at Kew Observatory, and are read with their errors

corrected.

#### RAINGAUGE.

The Rainguages at Cary Green and Chapel Hill are both 5 inches in diameter, placed 1 ft. above the level of the ground. They are the Snowdon pattern, with a deep rim for the measurement of snow.

#### AVERAGES.

The averages of Sunshine are for eight years' observations. Those of Temperature, Rainfall, and the Barometer are nineteen years, being the means of Mr. E. E. Glyde's Babbacombe Observations, and the Cary Green and Chapel Hill Observations.

#### TIME OF READING.

All the Instruments are read twice daily, at 9 a.m. local time = 9.14 G.M.T., and 4 p.m. local time, = 4.14 G.M.T. The Instruments at Cary Green being read by Mr. C. Shapley, F.R. Met. Soc.

SUNSHINE.

Jordan Photographic Sunshine Recorder.

Sunless Days.	928600211482	47
Days on which Sun shone.	16 27 29 39 31 88 83 35 16 27 29 39 39 31 88 83 35 31 88 83 35 35 35 35 35 35 35 35 35 35 35 35 35	318
Date.	18th 28th 22nd 15th 11th 24th 7th 16th 18t 18t 15th	July 7th
Percentage Actual of Possible.	%77.2 91.6 81.7 91.1 91.1 87.7 89.7 83.5 76.6 68.4	2.68
Greatest Daily Amount Sunshine.	H. M. 6. 30 9. 40 9. 55 12. 25 14. 25 11. 10 8. 40 6. 5	14. 25
Difference from Average.	H. M. + 18, 55 + 1, 25 + 2, 0 - 23, 30 + 78, 55 + 40, 30 + 49, 20 - 15, 10 - 15, 10 - 27, 5	+107.10
Afternoon.	H. M. 38. 30 42. 55 82. 50 85. 35 152. 40 146. 35 89. 10 96. 35 110. 55 110. 55 113. 10	929, 40
Morning Sunshine.	H. M. 51. 15 41. 0 68. 30 81. 5 145. 55 126. 30 90. 0 91. 25 102. 50 49. 35 27. 30 13. 15	888. 50
Percentage Actual of Possible.	34.5 30.4 30.4 40.7 62.9 56.2 36.8 42.4 57.4 30.8 17.8	41.3
Actual Sunshine.	H. M. 89. 45 83. 55 151. 20 166. 40 298. 35 273. 5 179. 10 188. 0 213. 45 100. 50 47. 0 26. 25	1818.30
Possible Sunshine.	H. M. 260. 0 276. 0 410. 0 475. 0 486. 0 443. 0 327. 0 264. 0	4406. 0
1895.	fanuary february March April May une uly September September October	Year

SUNSHINE.

Campbell-Stokes' Lens-burning Sunshine Recorder.

Sunless Days.		6	11	9	4	0	_	67	-	-	1	12	17	71
Days Sunshine.		22	17	25	26	31	59	59	30	59	24			294
Date.		25th	28th	22nd	15th	11th	16th	7th	30th	8th	10th	13th	13th & 15th	July 7th
Greatest Daily Amount.					12, 10									14.15
Afternoon Sunshine.					66, 10									774. 10
Morning Sunshine.					71. 20									814.10
Percentage Actual of Possible.	0	26 .1	25.5	32.7	33.5	54.9	9.64	36.4	40.3	48.6	8. 97	17.0	6.6	36 ·1
Actual Sunshine.			69	119.	137.30				178.	181.	87.	44.	22.	1588, 20
1895.		January	February	March	April	May	June	July	August	September.	October	November	December	Year

Cary Green (The Low-Level Station). TEMPERATURE. SHADE

Cloud mean.	0 to	4.9	2.5	5.3	5.5	3.3	4.1	6.4	6.9	4.1	6.9	0.4	8.5	2.9
Эіпетевьее ЭктэчА шоті	0	ر ئن	0-	+3	0	-3	-4	0	+2	12	-	-	0	-2
Relative Humidity.	6	98	82	83	79	73	72	9/	79	80	85	98	88	80
Wet Bulb	0	35.0	31.2	41.6	45.7	6.09	56.5	57.4	58.5	59.1	47.0	48.8	45.8	47.9
Dry Bulb		9.98	32.6	43.8	48.6	55.4	61.5	61.3	62.0	62.4	49.6	2.09	44.5	2.09
Date.		28th	13th	4th	2nd	2nd	16th	5th	8th	18th	24th	18th	21st	Feb. 13th
Lowest.	0	23.5	21.6	59.4	33.6	39.0	43.0	50.5	47.8	45.4	30.0	37.2	30.5	21.6
Date.		20th	28th	20th	10th	14th	8th	28th	19th & 30th	28th	1st	16th	5th	June 8th
Highest.	0	9.19	48.3	6.19	60.3	73.7	77.0	7.07	70.4	73.9	67.4	64.1	54.4	0.22
Капgе теап.	0	8.6	6.8	11.4	10.6	13.9	14.1	10.8	10.5	14.3	10.9	8.3	6.3	11.0
Бійетепсе Ігот Аусгаде,	0	- 4.8	-10.1	+0.1	-0.1	+1.5	8.0+	-1:1	-1.4	+3.1	-1.8	+3.1	+1:3	8.0-
Max. and Min. mean.	0	37.0	33.4	43.8	6.24	54.5	9.69	60.5	60.1	6.09	9.64	50.3	44.5	50.1
Minimim .nosm	0	32.1	0.67	38.1	45.6	47.5	52.5	54.8	54.8	53.7	44.1	46.5	39.5	44.6
Maximum .nosm	0	41.9	37.9	49.5	53.5	61.4	9.99	9.99	65.3	0.89	0.99	54.5	48.8	55.6
1895.		[an	Teb	March.	April	May	'une	ruly	Aug	sept	)ct	Nov	)ec	Year

Chapel Hill (The High-Level Station). SHADE TEMPERATURE.

		*												
Difference of Mean Temperature between High and Low-Level Stations.		Green	"	**	**	"	**	33	"	33	**	"	"	0.7 higher at Cary Green
Temp en evel Sta		Cary			"		33	"		"		"	"	Cary
f Mean between		at												r at
of Mean Te between High and Low-Level		higher	,	"	"		lower	higher	"	"	"	"	"	highe
Differ	0	1.4	1.7	0.4	0.1	0.3	0.1	0.5	0.5	0.4	1.3	1:1	1.5	2.0
Date.		27th	12th	4th	lst	2nd	16th	5th	8th	18th	24th	18th & 24th	21st	18·4 Feb. 12th
Lowest.	0	21.5	18.4	58.4	34.0	37.5	41.1	47.9	46.7	43.8	58.6	36.0	28.4	18.4
Date.		20th	28th	20th	10th	14th	24th	8th	19th	25th	lst	16th	5th	77.7 June 24th
Highest.	0	52.3	49.7	63.5	62.4	9.92	77.7	72.5	71.7	74.4	68.4	60.5	24.8	7.77
Range mean.	0	9.6	6.6	12.6	12.1	17.7	17.9	13.1	12.8	16.8	12.5	6.8	9.1	12.7
Max. and Min.	0	35.6	31.7	43.4	47.8	54.5	2.69	0.09	6.69	60.5	48.3	49.5	43.0	49.4
Minimim .nrsm	0	30.8	27.1	37.1	41.7	45.3	2.09	53.4	53.5	52.1	45.0	44.7	38.4	43.1
Maximum .nosm	0	40.4	36.4	49.7	53.8	63.0	9.89	999	66.3	6.89	54.5	53.6	47.5	55.8
1895.		January	February	March	April	May	June	July	August	September.	October	November.	December	Year

SOLAR AND GRASS TEMPERATURES.

	Number of Days at 32° and below.		24			0		0	0	0	1		8	833
ON GRASS.	Date.		29th	4th	13th	2nd & 3rd	16th & 20th	15th	25th	17th	24th	24th	8th	Feb. 12th
- 0N (	Lowest.	1	18.4						44.5	43.0	25.7	32.0	24.5	17.0
	Minimum .nnsm	. 0 0	28.7	34.3	39.0	42.8	48.5	51.5	51.4	0.09	39.4	42.4	35.9	40.7
		1					THE PARTY							
cuo.	Date.	1111	17 cm	22nd	18th	26th	23rd	28th	19th	2nd	lst	11th	lst	June 23rd
IN SUN, Black Bulb in vacuo.	Highest.	0,40	9.96	113.0	116.0	122.3	125.3	123.5	124.5	122.4	108.5	9.26	81.1	125.3
ack Bu	Alean Solar Radiation.	000.1	4.02	39.9	45.3	47.7	46.4	43.5	45.5	45.8	36.3	20.5	12.9	36.1
SUN, BI	Maximum mean.	0.00	69.8	9.68	99.1	110.7	115.0	109.7	111.8	1117	8.06	74.1	60.4	91.9
In	1895.	Tonnound	February	March	April	May	June	July	August	September.	October	November	December	Year

## BAROMETER.

January February March May July July September October November	inch 29.723 30.071 29.773 29.915 30.099 29.910 29.948 30.159 29.872 29.872	Difference	inch 30.440 30.432 30.432 30.432 30.489 30.290 30.339 30.372 30.360	30th 15th 15th 15th 23rd 6th 25th 17th 17th	inch 28.869 29.706 29.706 29.444 29.444 29.890 29.233 29.233	1114h 1114h 1114h 1114h 1114h 1114h 1114h 1114h
ecember	29-819	-0.190	30-222	28th May 2nd	29.073	Jan. 14th

# ANEMOMETER.

Direction.	Mortherly to Easterly		12	23	9	12	17	13	9	5	15	10	13	11	143
Dire	Southerly to Westerly		19	5	25	18	14	17	25	56	15	21	17	20	222
	эшіТ	TOTAL SECTION	11 a.m. to 12 noon	7 to 8 p.m.	12 noon to 1 p.m.	11 a.m. to 12 noon	2 to 3 p.m.	1	3	1 to 2 p.m.	2 to 3 p.m.	4	2 to 3 p.m.	4 to 5 a.m.	12 noon to 1 p.m.
ui .	Greates Velocity one Hor	miles	34	29	49	41	31	19	25	29	25	. 41	45	46	49 Mar. 24th
	Date.		24th	4th	24th	6th	15th	11th	24th	27th	11th	3rd	16th	5th	Dec. 5th
Δ	Mean JanoH JaiooleV	miles	23.5	23.3	32.9	20.2	20.2	11.2	19.4	19.0	16.4	22.1	28.4	35.9	35.9
	Greates Vlisd	miles	565	260	789	492	492	268	465	460	394	531	681	862	862
Δ	Mean TrooleV	miles	10.5	11.5	11.6	8.8	6.5	9.9	10.0	9.6	4.4	8.7	13.0	13.1	9.4
y.y.	Mean Da	miles	243.6	276.4	977.9	211.3	149.6	134.0	239.8	229.4	105.8	207.8	310.9	315.3	225.2
	letoT inosiroH noitoM	miles	7551	7740	8616	6339	4637	4319	7433	7110	3175	6443	9327	9774	82464 6872
	1895.		January	February	March	April	May	June	July	August	September	October	November	December	Total for Year Mean Monthly

RAINFALL. Cary Green (The Low-Level Station).

Date of Greatest Fall.	1 ort	24th	26th	22nd	31st	23rd	10th	30th	8th	10th	23rd	Nov. 10th
Greatest fall in 24 hours.	inch	0.01	09.0	0.20	0.38	0.73	99.0	0.57	0.77	1.35	06.0	1.35
Mean Wet Day Rate of Rainfall.	inch	0.01	0.51	0.19	0.55	0.23	0.15	0.14	0.54	0.40	0.53	0.53
Wet Days, or falls of 0.01 in. and more.	96	1 20	15	13	n 0	12	16	61	16	20	25	151
Difference from Average.	inch	-2.75	+0.22	-0.03	-1.49	20.0-	-0.45	-5.06	-0.43	+3.98	+5.20	-0.45
Total Amount.	inch	0.01	3.11	2.43	99.0	2.73	2.41	0.58	3.91	7.98	29.9	34.37
1895.		February	March	April	May	July	August	September.	October	November.	December	Year

RAINFALL. Chapel Hill (The High-Level Station).

Date of Circatest Fall.	1001	12th	24th 26th	22nd	31st	28th	23rd	10th	30th	8th	10th	25th	Jan. 12th
Greatest fall in 24 hours.	inch	0.00	0.59	09.0	0.36	99.0	0.73	0.72	0.30	88.0	98.0	0.95	1.55
Met Day Rate of Earling	inch	0.55	0.15	0.17	0.13	0.15	0.55	0.16	80.0	0.19	0.30	0.50	0.19
Wet Days, or falls of 0.01 in. and more.		222	20	13	5	8	13	17	5	21	23	28	178
Difference from Average.	inch	+1.44	+0.72	-0.53	-1.49	-1.04	+0.03	80.0-	-1.95	-0.59	+ 2.80	+2.41	-0.39
Total JanomA	inch	4.78	3.06	2.53	99.0	1.51	2.83	2.78	0.39	4.05	08.9	92.9	34.40
1895.		January	farch	April	May	June	July	August	September.	October	November	)ecember	Year



#### ANNUAL REPORT

#### MEDICAL OFFICER OF HEALTH

#### ST. MARYCHURCH DISTRICT COUNCIL, 1895.

MR. CHAIRMAN AND GENTLEMEN,-

Mr. Chairman and Gentlemen,—

In compiling my annual report for the year 1885, I am pleased to be able to record that our experiences have, on the whole, been satisfactory.

The absorption of Edginswell into this district has widely extended our borders, and, at the same time, increased our responsibilities. The new portion is distinctly transl in character, and the population bat few in number, although the acreage is very large. A careful inspection of each house has been made, and, with but few exceptions, they were in anything but a satisfactory condition. The closet accommodation was of the crudest possible description; in fact, distinctly bucolic, the most general idea being an overflowing cesspit. The inhabitants and owners have shown an excellent spirit in endeavouring to meet our wishes, and a considerable improvement is already to be noticed. It would be somewhat unreasonable to expect in a rural district like this the same standard of sanitary excellence which should be insisted on in a town; but, still, there is a minimum which must be obtained. The substitution of the bucket, with its frequent and easy cleaning, for the horror of the overflowing cesspit, will be a great stride in the right direction; and, as there is ample accommodation in the way of gardens and orchards, where the products can be utilised, there ought to be no difficulty.

Many of the houses in Edginswell depend for their water supply on the public well; and, as this was quite dry for a considerable period during the past summer, it will be necessary to consider in what way the inconvenience thus caused may be prevented. Either the present well must be deepened, or other provision be made for an efficient and constant supply. In Barton things remain just as they were, and the problem is not an easy one to settle. Here the cottages have not the necessary garden space to absorb the contents of backets, if such were introduced, and the cleansing of the cesspits cannot be a pleasant operation for laboracrear local point in the first i

Death Rate for St. Marychurch,

as required by the Loca	I Government I	Sound,	1895.
	UNDER		OVER
NAME OF DESEASE.	5 YEARS		5 YEARS.
Small Pox	. 0		0
Scarlatina	0	-	0
Diphtheria	. 0	-64	0
Membranous Croup	0		0
/Typhus	. 0	4.0	0
E   Enteric or Typhoid	0		0
E Continued	0	4.0	0
E Relapsing	0	- 44	0
Puerperal	0		0
Cholera	0		0
Blooming along	0		0
Address Section 1997	0		1
Whooping Cough	0		0
Diarrhosa and Dysentery	0		- 0
Rheumatic Fever	- 0		-1
			0
	0		10
Phthisis Bronchitis, Pleurisy, and			200
	11		6
Pneumonia			12
Heart Disease	0		4
Injuries	19	141	60
All other Diseases			40
	99		74
W 4 3 4 - 1005	60	20	17
Total for 1895	11 17 A	With the	

These figures abould be compared with those of previous years in the following table :--

Country of deaths to be beautiful to be a beauti											
	CAUSES.	86	'87	'88	189	90	'91	92	95	'94	'95
	Small Pox	0	0	0	0	:0	0	0	0	-0	0
	Married Address	0	0	0	100	1	0	0	0	3	0
	417 7 -3 -3	0	0	0	0	0	0	0	0	Ö.	0
		Ö	ő	0	ő	ŏ	1	ž	ĭ	0	0
	Membranous Croup	ő	ő	0	0	ŏ	ô	0	ô	0	ő
	Typhus	9	U	U.	U		4			Ψ.	
	Enterio or	-		-		-	0	4	0	1	
	Typhoid	0	1	5	0	0		0	ö	0	8
		0	0	0	0	0	0				0
	Trendbarrell in	0	0	0	0	0	0	0	9	0	
	Puerperal	0	1	0	0	0	0	0	0	0	0
	Cholera	0	0	0	0	0	0	0	.0	0	0
	Erysipelas	0	1	0	0	1	0	0	0	0	0
	Measies	-10	0	6	2	0	0	5	3	0	1
	Whooping Cough	0	0	10	0	6	10	-1	0	1	0
	Diarrhosa & Dysentery	10	2	1	0	4	0	1	.0	0	0
	Rheumatic Fever	0	0	-1	1	1	0	-1	0	0	1
	Ague	0	0	0	0	0	0	0	0	0	0
	Phthisis	10	10	6	4	6	9	3	11	7	10
	Bronchitis, Pleurisy,	100	**		-	-	-	~	-		
	and Pseumonia	11	18	- 20	12	33	17	33	- 8	13	17
	Hannt Disasses	7	10	13	6	9	15	1	7	16	12
	Washington, and the same of th	- 4	1	3	ő	3	1	â	3	4	4
		42	45	53	43	56	54	65		47	57
	All other Diseases	40	40	00	90	00	99	90	99		31
		100	22	-22	-	-50	200		102	00	102
		81	89	105	69.1	130	98	311	T/VS	92	106

It will be seen that there was only one death from zymotic disease, viz., measles; thus the zymotic death rate for 1895 is '14—a very low one indeed.

death rate for 1835 is '14—a very low one indeed.

Two deaths occurred among visitors, viz., one from gastritis and one from apoplexy.

The ages at which death took place are as follow:—
Under one year, 23; one and under five, 5; five and under fifteen, 5; fifteen and under twenty-five, 2; twenty-five and under sixty-five, 33; and sixty-five and upwards, 34; total 102.

I was obliged to close Shiphay school, on acc an epidemic of measles, in the month of July.

an epidemic of measles, in the month of July.

Altogether, seventeen cases have been notified under the Infectious Diseases Notification Act: viz., typhoid 5 and scarlatina 12. Hence the cost of this important measure has been the ruinous sum of two pounds, two shillings, and sixpence.

There has been much less infectious disease than in 1894, '33, or '92. The scarlatina cases were mostly of a very mild type. The five cases of typhoid were distributed as follow: viz., one in Edginswell, not to be accounted for; one in Hele, when there was filth enough to explain anything; and three in Plainmoor. This last item is not satisfactory, for Plainmoor has been hitherto very free from typhoid, and I am not at all pleased at its appearance.

The number of new houses inspected and passed

am not at all pleased at its appearance.

The number of new houses inspected and passed for occupation is twenty. This matter of house inspection is one of the greatest importance, and I regret to say that there is every need for close observation of the builders at work in the district.

The county police took samples of milk in a test raid, but all were certified as being of good quality.

The natur from the valle wells has been tested.

raid, but all were certified as being of good quality.

The water from the public wells has been tested and found satisfactory. The bake-houses and slaughter-houses have been inspected and found, on the whole, in good condition. Two applications have been made during the past year for permission to build slaughter-houses, but, acting within your legal power, they have been refused. The darries, cow sheds, and milk shops have been supervised in the usual manner.

I have made the usual inspection of the district.

I have made the usual inspection of the district, and the Edginswell portion has received special and minute attention.

I remain, Mr. Chairman and Gentlemen,

Your obedient servant,

PAUL Q. KARKEEK, M.R.C.S., & L.S.A. Medical Officer of Health.

Torquay, Jan. 9th, 1895.





