

# SYMONS'S MONTHLY METEOROLOGICAL MAGAZINE.

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## WEST OF ENGLAND SNOW STORM, FEBRUARY 21st.

AFTER a winter which had been such chiefly in name, the residents in parts of Hampshire, Dorset, Devon and Somerset found themselves on the morning of February 22nd surrounded by S of unusual depth.

Speaking roughly, the fall may be said to have commenced about 5 p.m. on the 21st, and to have lasted until noon on the 22nd, but in most districts by far the greater part occurred before 9 a.m. on the 22nd, and, therefore, in the rainfall "day" of February 21st.

We have extracted (1) from the notes of correspondents the principal facts recorded by them, and (2) from the local and other newspapers their reports as to the depth of the S, and as to damage, and (3) we give a summary of what appears to us to have been the general depth and distribution.

### EPITOME OF OBSERVERS' NOTES.

*Ryde (Thornbrough), R, S and T, total 0·82 in.*

*Emsworth (Redlands), R, S and T, total 0·58 in.*

*Hartley Wintney, S, total 0·03 in.*

*Salisbury (West Dean), S, total 0·31 in.*

*Bishop's Cannings, S, total 0·27 in.*

*Marlborough (Mildenhall), S, about 4 or 5 in., total 0·27 in.*

*Winterbourne Steepleton.*—A heavy fall of S between noon of 21st, and midday of 22nd. It was not accompanied by much wind, therefore the drifts were not great, but roads between walls were stopped by S, and postal arrangements much delayed. (S began between 3 and 4 p.m., and by 10 p.m. the fall had been heavy, the total fall by noon on 22nd had been about 18 in.), measured 1·61 in. for 21st, and ·11 in. for 22nd.

*Poole (Parkstone).*—At 9 a.m. on 22nd there was 18½ in. of S round the rain gauges, and it was still falling, so I delayed digging them out until 11 a.m. when it ceased, and the total depth was 19½ in. This was by far the heaviest S since the celebrated fall of January, 1881, but the character was quite different; in 1881 it was very fine and dry, the present fall has been large-flaked and wet, and the damage to trees and shrubs has, consequently, been excessive. Total 1·98 in.

*Blandford (Whatcombe).*—Heavy S storm on night of 21st-22nd, total 1·62 in.

*Ashburton (Druid).*—Heavy S afternoon and evening of 21st, depth at 5 p.m., 8 in. ; morning of 22nd deep S yielding 1·02 in.

*Tavistock (Statsford).*—S at 9 a.m. on 22nd, 6½ in. deep, yielded 0·57 in. On Dartmoor there were drifts 15 ft. deep.

*Polapit Tamar [Launceston].*—Thick S yielded 0·32 in.

*Honiton (Otterhead).*—The total depth of S varied from 1 ft. 9 in. to 1 ft. 11 in., and the yield was 1·75 in., of which about 1·40 in. would belong to the 21st.

*Wellington.*—Exceptional S during the night of the 21st, the S at 9 a.m. on 22nd was about 18 in. deep, and yielded 1·04 in. Much damage done to evergreens.

*Taunton (Halse).*—S quite 2 ft. deep.

*N. Cadbury.*—Heavy S from about 5 p.m. on 21st to noon on 22nd, total depth, 7 or 8 in., yield up to 9 a.m. on 22nd, 0·52 in. It seems evident that though the S was so heavy at Taunton, very little fell round Bridgwater or to the N. thereof.

*Lechlade.*—Slight S yielded 0·12 in.

*Campden (Hidcote).*—S yielded ·02 in.

#### EPITOME OF PRESS NOTICES.

##### HANTS.

*Cowes.*—TS in evening, and S at night, which melted early on 22nd.

*Bournemouth.*—This is considered to be the heaviest S for 17 years, and more disastrous than even that of 1881. Owing to the wetness of the S it clung to the telegraph and telephone wires, and not merely broke them, but in many cases, by the great weight, pulled over the wrought-iron pillars which carried them. In the morning of the 22nd, not one wire could be worked. Many thoroughfares were blocked by fallen trees and by wires.

##### DORSET.

*Blandford.*—S fell for 18 hours, and there are drifts many feet deep. Between Blandford and Bournemouth nearly all the telegraph wires are broken.

*Bridport.*—This town has been quite isolated, the Lyme Regis omnibus could not get here for two days, and our telegrams have been sent by train to Weymouth and wired from there.

*Dorchester.*—Telegraph and telephone posts are down in all directions, the S drifts vary from 8 ft. to 12 ft., and one man overtaken by the storm, died in it. The mail carts could not leave.

*Hawkchurch.*—The average depth of S (2 ft.) was greater than in 1891, but the drifts this year were not so great; although quite sufficient to block the roads until they were cut through.

*North Curry.*—S stopped telegraphic communication, and the mails were several hours late.

*Poole.*—Even before midnight of 21st, some of the telegraph and telephone wires and posts had been broken by the weight of the S; but in the morning the wreckage proved to be general, and in

several cases the wires had carried away tiles and portions of chimneys. Glass and iron roofs also gave way under the load.

*Shaftesbury*.—The road to Sembley entirely blocked by S.

*Weymouth*.—Unusually heavy S; great damage to telegraph and telephone wires and posts, and the railway between Upwey and Abbotshbury so blocked that a snow plough had to be fetched.

*Wimborne*.—All telegraphic communication stopped; and the roads blocked with S and by broken trees.

*Wantage*.—The mail cart from Taunton stuck in a snow drift, and had to be dug out.

*Yetminster*.—Railway blocked.

# DEVON.

*Ashburton*.—S twelve inches deep.

*Brixham*.—Most of the S melted as it fell, but on the hills it was a foot deep, and there were drifts of 3 ft.

*Chagford*.—S more than 1 ft. deep, but not much drifted.

*Dartmouth*.—S many inches deep. Trees, telegraph and telephone wires down, and traffic deranged.

*Dawlish*.—S nearly 6 in. deep.

*Exeter*.—Many telephone wires broken by heavy S.

*Exmouth*.—S about 4 in. deep.

*Honiton*.—S quite 14 in. deep, and traffic stopped, the roads being impassable. The heaviest S since March, 1891.

*Ivybridge*.—The 8.30 a.m. mail train from Plymouth ran into a drift near Wrangaton, and had to stop for an hour until a gang of men had dug it out.

*Kingsbridge*.—S in places two or three feet deep. Traffic stopped, and some tradesmen did not take down their shutters.

*Moretonhampstead*.—S about 1 ft. deep.

*Newton Abbot*.—The average depth of S here was 8 in.

*Plympton*.—A man lost his way in the S, and died from exposure.

*Plymouth*.—In the town the average depth was 3 in. or 4 in., and in drifts 1 ft. to 1 ft. 6 in.

*Princetown*.—In intensity this S has equalled 1891, but it did not last so long, and, except by telegraph, we have been isolated from the world for two days. Four locomotives with two ploughs were many hours trying to clear the railway. From Stenlake to Goatstone Hill the S on the roadway was 18 ft. deep; near the prison gates the S was 15 ft. deep.

*Sidmouth*.—S several inches deep, which broke telegraph and telephone wires. Man found dead in the S.

*South Brent*.—Drifts of S from 6 ft. to 7 ft. Mail cart stuck, so the driver left it, and rode on with the letter bags.

*Starcross*.—S about 6 in. deep.

*Tiverton*.—S 1 ft. deep, and no railway open except the Exe Valley.

*Torquay*.—Total depth on ground 3 in. or 4 in.

*Totnes (Broadhempston)*.—S generally about 1 ft. deep, but in drifts quite 4 ft., the greatest since 1891.

## CORNWALL.

*Bude*.—No S to lie, except upon the hills.

*Camelford (St. Tudy)*.—S about  $2\frac{1}{2}$  in. deep, but a thaw followed.

*Fowey*.—In the early morning the hills were white with S, but the sun soon melted it.

*Fowey (Polperro)*.—S at times covered the ground, but soon melted.

*Lostwithiel*.—Some S, but it soon melted.

## SOMERSET.

*Bath*.—S 3 in. or 4 in. deep; traffic interrupted, 150 men and 120 carts employed to clear it away.

*Castle Cary*.—Drifts from 3 ft. to 6 ft. deep.

*Chard*.—S drifts 10 ft. to 12 ft. deep; great damage to fine trees.

*Cranmore*.—The first up train on the E. Somerset line stuck in a drift and had to be dug out.

*Ilchester*.—The mail cart with two horses stuck in a S drift. Eventually the bags were sent on on one horse, and the cart was dug out and sent on with the other.

*Ilminster*.—S considerably over 1 ft. deep.

*Langport*.—S quite 5 in. deep.

*Taunton*.—Very heavy S, at least 2 ft. deep, and much more where drifted. Roads blocked, and nearly all the telephone wires broken.

*Wellington*.—S 2 to 3 ft. deep, railway to Burlescombe blocked, and considerable damage done to trees and roofs.

*Wiveliscombe*.—Excessive S, in places 3 or 4 feet deep, and on the Brendon Hills the roads are full up level with the hedges.

*Yeovil*.—Very heavy S, fully a foot deep, and much more in places. It was very heavy, and damaged wires, roofs and skylights.

## SUMMARY.

By plotting the above statements upon a large scale map they are seen to agree remarkably well.

The S was quite unimportant, except in the Counties which we named on a previous page, viz., Hants, Dorset, Devon and Somerset.

Devonshire requires separate mention because, apparently, the depth of the S in two parts of that county was due to different causes. In N.E. Devon the fall was part of the exceptional fall of which we are going to speak further, but the heaviness of the fall on Dartmoor, and on its eastern edge, was, we believe, chiefly due to the chilling effect of that mass of high land.

Omitting that area, the facts, according to all information yet received, seem clearly marked, and any map (Bradshaw's, for instance) will enable them to be realized.

The fall reached, or exceeded, 12 inches over the area contained between two lines, the northernly one running about E.S.E. from Watchet, through Yeovil to Lymington, and the southernly one from Porlock, through Tiverton to Bridport; say, 60 miles by 20 miles.

The greatest depth, about 24 inches, occurred nearly centrally in this belt, say, between Milverton and Crewkerne.

# RESULTS OF METEOROLOGICAL OBSERVATIONS AT CAMDEN SQUARE FOR 40 YEARS, 1858-97.

## FEBRUARY.

ELEMENTS.	MONTHLY MEANS OR TOTALS.										ABSOLUTE READINGS.					
	Mean, 40 years	Highest Month Date.	Lowest Month and Date.	MEANS 9 A.M. AND 9 P.M.					EXTREMES AT 9 A.M. AND 9 P.M.					Mean of all Highest Lowest.		
				Mean.	Highest Month.		Lowest Month.		Highest.		Lowest.					
					Value.	Date.	Value.	Date.	Value.	Date.	Value.	Date.				
Barometer ..... { (cor. & red.)	1 30.003	2 30.480 1891	3 29.537 1879	4 9 a.m. 9 p.m.	5 30.004 30.003	6 30.481 30.478	7 1891 1891	8 29.538 29.536	9 1879 1879	10 30.854 30.770	11 23rd, 1883 23rd, 1883	12 28.761 28.767	13 21st, 1893 21st, 1893	14 30.520 30.498	15 29.313 29.324	
Dry Bulb..... { Temp. { Max. .... { Min. .... { Wet Bulb..... {	39.5 45.5 34.7 38.0	45.6 1869 .. 43.8 1867	28.8 1895 .. 27.8 1895	9 a.m. 9 p.m. .. 9 a.m. 9 p.m.	39.2 39.7 .. 37.8 38.3	45.8 45.5 51.7 40.6 43.8 43.7	1869 1869 1869 1869 '67, '69 1867	28.1 29.6 36.1 22.5 26.9 28.6	1895 1895 1895 1895 1895 1895	54.0 54.0 62.5 51.2 53.6 52.0	11th, 1869 6th, 1866 25th, 1868 1st, 1869 11th, 1869 28th, 1878	15.2 17.2 24.2 7.3 14.8 17.0	9th, 1895 7th, 1895 8th, 1895 8th, 1895 8th & 9th, '95 7th, 1895	49.6 49.6 55.2 45.4 48.0 48.0	28.4 29.4 35.3 24.1 27.6 28.4	
Solar Rad., black ... Solar Rad., bright.. Grass Minimum ... Soil, 1 foot .....	63.2 49.2 31.5 38.9	.. .. .. ..	.. .. .. ..	.. .. .. ..	.. .. .. ..	74.1 54.2 38.3 43.1	1877 1885 1869 1872	51.9 41.2 19.0 32.3	1886 1895 1895 1895	102.4 69.8 49.9 46.0	23rd, 1871 28th, 1883 11th, 1869 15th, 1877	29.8 30.0 5.0 30.9	11th, 1876 7th, 1895 9th, 1895 18th, 1895	89.0 62.4 43.2 42.3	39.9 36.9 20.0 35.6	
Cloud .....	6.8	8.9 1873	5.2 1858	9 a.m. 9 p.m.	7.1 6.5	8.7 9.1	1873 1873	5.3 4.4	1859 1866	10 10	Every year Every year	0 0	Various Various	10.0 10.0	0.6 0.3	
Rainfall .....	1.61	3.77 1879	.01 1891	9 a.m. 9 p.m.	.87 .74	2.28 1.75	1883 1879	.00 .01	1891 1891	.62 .60	15th, 1890 10th, 1879	.00 .00	Every year Every year	.29 .24	.00 .00	

Max. Rainfall in 24 hours, .76 in., 10th, 1879      Mean max. daily fall, .40 in.

## ROYAL METEOROLOGICAL SOCIETY.

THE monthly meeting of this Society was held on Wednesday, February 16th, at the Institution of Civil Engineers, Westminster, Mr. F. Campbell Bayard, LL.M, President, in the chair.

The following candidates were elected Fellows of the Society :— Charles Henry Gatty, M.A., LL.D., F.R.S.E. ; Rev. G. T. Laycock, F.R.H.S. ; Joe Harry Webb, C.E. *Honorary Members* :—Walter G. Davis, Director of the Oficina Meteorologica Argentina, Cordoba, Argentina ; Dr. J. P. Van Der Stok, Director of the Magnetical and Meteorological Observatory, Batavia.

Mr. E. Mawley, F.R.H.S., read his report on the Phenological Observations for 1897, from which it appeared that there had been a marked absence of very exceptional weather during the past year, the most noteworthy features affecting vegetation being the persistent rains in March, and the three dry periods of May, July and October. Until about the middle of May wild plants appeared in blossom in advance of their usual time, but throughout the rest of the season they were all somewhat behind their average dates in coming into bloom.

The heavy rainfall in the early spring favoured the hay (which proved the only really abundant farm crop of the year), but it greatly impeded the sowing of spring corn. The cereals were, however, much benefited later on by the warm, dry and brilliant weather of the summer. Taking the country as a whole, oats proved a good crop, barley an average one, while the yield of wheat was somewhat under average. There were also fair crops of roots and potatoes. It was owing more to the dry spring and summer, and the sunless autumn of the previous year than to the moderate frosts and cold winds of the spring of 1897 that the fruit crop was so very light. Apples, pears and plums, especially the latter, yielded badly, while the small fruits were in most districts only average crops.

In the discussion which followed, the President suggested that the observations of the habits of insects would yield a very interesting diagram similar to those based on the records concerning birds ; he also spoke of the weather of Jubilee year (1887) as being similar to that of 1897.

Mr. Curtis referred to the heavy gale in the south-western counties on Ash Wednesday, and quoted the record of the Dines' anemometer at Rousdon, showing a velocity of 100 miles an hour, the greatest ever recorded in the British Isles.

Mr. Symons hoped that some reference to the storms of March 3rd and June 24th would appear in the publications of the Society, and spoke of the destruction of trees round Salisbury in the former gale, which died out about Alton in Hampshire.

Mr. Marriott exhibited lantern photographs of damage wrought by the Essex storm, and said that the wind was the more remarkable feature of the storm than the hailstones.

Mr. J. Hopkinson, F.L.S., F.G.S., read a paper on "Monthly and Annual Rainfall in the British Empire, 1877-1896."

From the Climatological Tables which appeared at first in *The Colonies*, and subsequently in the *Met. Mag.* the author had tabulated the rainfall at London, Mauritius, Calcutta, Bombay, Colombo, Adelaide, Melbourne, Wellington, Toronto and Winnipeg for the 20 years 1877-96, and at Malta and Jamaica for the 10 years 1887-96.

Tables I.-XII. give the mean monthly and annual rainfall, and the number of days on which at least 0·01 in. of rain fell at these 12 stations, and also the maximum and minimum monthly and annual rainfall, and the number of days of rain.

A summary of the yearly rainfall at the whole of the 12 stations is given in Table XIV., which we reproduce.

TABLE XIV.—*Mean and Extreme Yearly Rainfall, and Number of Days of Rain at 10 Stations in the British Empire for Twenty Years, and at 2 for Ten Years.*

MONTHS.	MEAN.		MAXIMUM.		MINIMUM.	
	in.	Days.	in.	Days.	in.	Days.
1877-96.						
London .....	25·76	164	34·09	195	19·21	137
Mauritius .....	50·38	203	68·17	241	29·74	174
Calcutta .....	59·20	116	85·23	143	39·38	74
Bombay .....	76·71	111	111·93	124	57·82	102
Colombo .....	91·82	179	139·70	215	60·55	128
Adelaide.....	20·56	135	30·87	164	14·01	113
Melbourne .....	24·52	132	32·39	153	17·06	116
Wellington .....	51·22	170	67·68	191	31·37	137
Toronto .....	31·49	177	48·51	206	24·83	143
Winnipeg .....	21·22	127	29·33	159	14·64	88
1887-96.						
Malta .....	20·50	79	26·04	90	11·38	59
Jamaica .....	29·16	85	40·81	97	19·01	78

Mr. Baldwin Latham remarked that the results for the stations in the paper agreed very closely with the rule recognised for this country, that one-third added to the mean annual rainfall gives the maximum yearly fall, and one-third taken from the mean gives the minimum.

Mr. Chadwick referred to the variation of fall in the different countries, and to the precise location of some of the Observatories, urging the caution that the falls given for many of the stations must not be assumed to apply to any very extended area.

Mr. Symons spoke of the paper as a plucky attempt at an impossibility; he reckoned very roughly that there were more than 25,000 rain gauges at work in the world, and it is impossible for one man to give a great *résumé* of all the records. He would like to see the many good local rainfall maps that exist, reduced to a uniform scale, and all brought together in one atlas.

Mr. Hopkinson, in reply, said he had not attempted to give the mean rainfall of each country, but simply to summarise the tables on which the paper was based, and to give the records for a long concurrent period for as many stations as possible.

## R E V I E W.

*Der Tägliche Wärmeumsatz im Boden, und die Wärmestrahlung zwischen Himmel und Erde* von DR. THEODOR HOMÉN. 4to., Leipzig Wilhelm Engelmann, 1897, 148 pages and 10 plates.

WE had the pleasure of calling attention to Dr. Homén's work upon "Earth Temperature" on page 45 of the *Met. Mag.*, vol. xxx. In the book before us he carries it farther and endeavours to measure, not merely the penetration of solar heat into soils of several varieties, but also to establish a sort of Debtor and Creditor account between the heat imparted by the sun, and that dissipated into space by radiation.

We pointed out on the previous occasion, that "A sketch of one or two of his thermometers in position, a process photo of one of his experimental groups, and an outline plan showing the sites of the observations, would have made it more easy to appreciate fully the conditions of the experiments." Dr. Homén has given us the third, but not either the first or the second—and perhaps it is our own fault for not more forcibly dwelling upon their necessity—but we still do not clearly understand the precise mounting of his thermometers, especially as to the precautions taken to ensure that the penetration of rain to the point occupied by the thermometer bulb is neither less nor more than that penetrating to the same depth in other places. Dr. Homén takes so much pains to ensure accuracy in other respects that doubtless he has done so in this, but the difficulty is an old one, and full details as to how he has conquered it would be useful to many observers.

Again, with regard to the thermometers, if we understand correctly they are, in order to facilitate reading, set at an angle with the vertical, but with their bulbs at the true vertical depth, the plan adopted at the Royal Botanic Gardens, Regents Park, (See engraving, *Met. Mag.*, vol. v, p. 102,) but this brings the weight of the observer's body many times a day as a compressing influence upon the soil almost over the bulbs, and we are not sure that this does not affect its permeability. Another point upon which an engraving would have given more information than half a page of text is the extent to which the temperature of the buried bulb could have been affected by the scale exposed above ground. Dr. Homén shows the pains which he took to correct the long thermometers for the temperature through which their stems passed, but he does not enable us to see clearly the details of his work, which would doubtless have been very instructive.

It is the province rather of a skilled physicist than of an ordinary meteorologist to follow the latter portions of Dr. Homén's work in which he determines the number of Calorics received by, and dissipated from, the earth, but one is constantly coming upon facts and data of interest. For instance, on pages 93 to 95 there are the results of a series of readings, day and night, of an hygrometer with an Assmann aspirator, read at the level of the ground, and at 3, 7, 16 and 33

feet above it, showing very well the increased range of temperature experienced near the ground.

The observations were made on several days, but those of one day will show the general features better than a long description.

		AIR TEMPERATURE.					DEW POINT TEMPERATURE.				
		0 ft.	3 ft.	7 ft.	16 ft.	33 ft.	0 ft.	3 ft.	7 ft.	16 ft.	33 ft.
Aug. 11,	3.0 a.m.	41°0	45°0	46°4	48°0	50°5	40°5	44°6	46°0	47°5	49°6
	4.15 "	35°2	40°3	42°8	45°9	49°6	34°9	39°2	42°1	45°1	49°1
	5.15 "	41°9	41°5	44°1	46°4	49°5	41°7	41°0	43°5	46°0	48°7
	6.15 "	53°6	52°5	50°9	51°4	51°8	50°9	49°5	48°9	48°9	49°6
	7.30 "	62°4	59°0	58°5	57°2	56°8	55°4	52°2	51°6	50°9	50°9
	8.15 "	66°2	61°3	61°2	60°3	59°4	59°2	53°6	52°3	51°8	51°1
	10.15 "	70°0	65°8	64°9	64°4	64°0	61°2	51°4	50°4	49°5	49°1
	0.15 p.m.	69°4	67°3	66°9	66°2	66°2	58°1	46°4	46°0	45°7	45°7
	2.15 "	73°2	68°5	67°8	67°5	67°5	59°4	46°8	45°5	46°0	45°1
	4.15 "	70°5	68°7	68°0	67°8	67°6	55°0	47°5	47°1	47°1	46°4
	6.15 "	63°0	65°7	65°8	65°5	65°5	50°9	45°1	44°2	44°6	44°2
	7.15 "	55°4	60°3	62°4	63°7	64°2	51°3	47°5	47°5	46°4	46°8
	8.15 "	47°7	53°6	55°0	60°1	61°9	45°7	46°4	47°5	47°1	46°8
	9.15 "	43°2	47°3	50°0	54°7	58°6	42°1	46°0	46°8	45°4	45°1
	10.15 "	40°8	45°1	45°9	50°5	54°7	39°2	43°9	44°2	46°8	46°8
Aug. 12,	0.15 a.m.	37°2	40°5	41°4	44°1	48°9	36°5	39°2	40°1	42°8	46°0
Max.	.....	73°2	68°7	68°0	67°8	67°6	61°2	53°6	52°3	51°8	51°1
Min.	.....	35°2	40°3	42°8	45°9	49°6	34°9	39°2	42°1	44°6	44°2
Range	.....	38°0	28°4	25°2	21°9	18°0	26°3	14°4	10°2	7°2	6°9

Many things, often forgotten, are illustrated by this little table, *e.g.*, the enormous effect of the soil upon the temperature of the air.

We see that shortly before sunrise the temperature is nearly the same at all elevations, but that as the sun gets power the surface temperature rushes *above* all the others and remains so till about sunset, then terrestrial radiation becomes preponderant, and in the early morning hours the temperature near the surface is from 10° to 14° *below* that at 33 feet.

Most of this difference is very close to the earth's surface. If we take out the range of temperature at each elevation, and then take the differences for each interval the result is very marked.

		Difference.	Difference for each foot.
Range at the surface .....	38°0	0	0
" " 3 feet .....	28°4	9°6	3°2
" " 7 " .....	25°2	3°2	°8
" " 16 " .....	21°9	3°3	°4
" " 33 " .....	18°0	3°9	°2

Another very marked feature is the dryness of the air at 16 feet, and especially at 33 feet, during the evening and early night hours,

the humidity being from 20 to 30 per cent less than near the surface. Well may persons speak of the "mists rising" when we see the humidity at the surface from 8.15 p.m. to 10.15 p.m. averaged 94, whereas at 7 feet it averaged 84, at 16 feet 73, and at 33 feet only 65 per cent, 29 per cent less.

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### BUYS-BALLOT.

ON page 119 of our last volume we mentioned the desire of the successors of Dr. Buys Ballot that a bust of him should be erected at the New Meteorological Institute at Utrecht, and that it should be erected mainly by International Subscription. We concluded by saying that "Our personal view of the matter is that no very large sum is required, but that the greater the number of contributors, the more would it be evidence of the esteem in which the deceased was held."

*We did not receive a single shilling.*

Dr. Snellen has sent us circulars which we shall be happy to forward to anyone interested, but they do not contain much more information than is given above, and in the previous notice.

All desiring to take part in this testimonial are requested to send their contributions during the month of March (as the list is to close on April 1st,) either to Dr. Snellen, de Bilt, Utrecht, or to G. J. Symons, 62, Camden Square, N.W.

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### THE AUSTRALASIAN SOCIETY FOR THE ADVANCEMENT OF SCIENCE.

THE seventh session of the Australasian Society for the Advancement of Science was opened at Sydney on January 6th, 1898, when Prof. A. Liversidge, M.A., LL.D., F.R.S., who is both President and Secretary, delivered the inaugural address to a large audience. The *Daily Telegraph* (Sydney) has devoted much space to the proceedings of the meeting, and from that paper we are able to cull some items of interest. Among the most important of the papers read were the following:—

#### SEISMOLOGICAL COMMITTEE.

This report was presented by the secretary, Mr. George Hogben, M.A., of Timaru, New Zealand, and stated that the most interesting result of the labours of the observers was the fact, based upon rough calculations, that the great South Australian earthquake of May 10th, 1897, proceeded from a line parallel to the coast near Beachport and Kingston, and was possibly due to a sliding of one part of the crust upon another, such as forms what is called in geology a "fault." This was probably deep, but the later and slighter shocks were surface ones, caused by readjustments of the immediate crust. The subject was still under investigation by the secretary. But Mr. Hogben pointed out that it was as part of a world-system of seismological observations that the work of the committee might be most useful. An international seismological committee had been set up, embracing all the ablest workers in every part of the world, and in co-operation with that committee were committees of the

British Association and of the Royal Society. They desire especially to be able to track the microseismic vibrations or minute earthquake waves, which travelled from the sources of disturbance all round the earth's surface, or it might be right through the solid mass of our world (if it is solid). The speed of these finer waves was many times greater than that of the larger waves felt by us, reaching a velocity as great as 12 miles per second, or even more. For the purpose of observing them the international committee had agreed upon a certain type of instrument—the horizontal pendulum—to be used by all stations alike, as it was important that instruments of the same kind and of the same degree of sensitiveness should be employed for purposes of comparison.

#### PERIODIC WAVES.

Mr. H. C. Russell, F.R.S., the Government Astronomer of New South Wales, read a paper on "The Source of the Periodic Waves, sometimes called Earthquake Waves, which reach Sydney from time to time." The author stated that these waves were recorded very frequently in Sydney, and had the same period as the waves known to be caused by earthquakes—that was about 26 minutes from crest to crest; but it was shown that only about 1 per cent. of them originated in earth movements, and that 60 per cent. originated in Bass' Straits, when the meteorological condition known as a low pressure arrived at that part of Australia. The effect of low barometers was to cause a rise in the sea level, to provide for which currents set in along the south and east coasts of Australia, which, meeting in Bass' Straits, produced waves, and set them going in Tasman Sea, whence they were recorded on the Sydney and Newcastle tide gauges. It was also shown that at least another 10 per cent. of these waves originated in the Tasman Sea by the action of heavy gales. That was, in all 70 per cent. of the periodic waves originated from meteorological disturbances, and probably the remainder were due to these causes, although the connection had not yet been actually traced. Reference was made to Lake George, where somewhat similar periodic waves were frequent, and all were traced to meteorological causes.

#### CLOUD HEIGHTS AND VELOCITY.

A paper on "The Measurements of Cloud Heights and Velocity" was read by Mr. P. Baracchi, F.R.A.S., Government Astronomer in Victoria. The year 1897 had been called by some writers on meteorological subjects "the cloud year," on account of the systematic observations of clouds which were carried on in nearly all the civilised countries during that period, under a scheme laid out and finally agreed upon in all its detail by the International Meteorological Committee at its Upsala meeting of 1894. The object of the scheme was to obtain more uniform and comprehensive data to serve as the basis for the further study of atmospheric conditions, as indicated by the forms and movements of clouds. After a brief reference to the methods adopted in Victoria for securing results anticipated by the scheme, Mr. Baracchi said there were now some 20,000 observations ready. For the determination of absolute height and velocity two stations for simultaneous observations were established, one being on the grounds of the Melbourne Observatory, and the other on the roof of Parliament House at a distance of 6,820 ft. After consideration he adopted the photographic method which had been successfully employed at the Kew Observatory some years ago.

*(To be concluded in our next.)*

## CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, SEPTEMBER, 1897.

STATIONS.  (Those in <i>italics</i> are South of the Equator.)	Absolute.				Average.				Absolute.		Total Rain.		Aver.
	Maximum.		Minimum.		Max.	Min.	Dew Point.	Humidity.	Max. in Sun.	Min. on Grass.	Depth.	Days.	
	Temp.	Date.	Temp.	Date.									
England, London .....	70·6	29	38·1	19	64·0	48·5	48·1	0-100 77	115·0	34·0	inches 2·75	13	6·4
Malta.....	97·8	14	62·2	19	84·3	69·5	64·1	71	156·4	56·7	·05	1	2·4
<i>Cape of Good Hope</i> ...	79·9	25	39·5	8	63·8	48·3	49·2	82	...	...	2·52	14	6·1
<i>Mauritius</i> .....	79·2	22	61·0	5	76·9	64·8	58·9	69	127·3	53·6	1·77	16	5·8
Calcutta.....	90·7	28	72·9	13	88·1	78·2	77·6	85	159·0	74·1	5·94	13	7·9
Bombay.....	90·1	22	75·0	11	85·6	77·1	76·6	85	150·6	72·1	20·60	23	7·5
Ceylon, Colombo .....	89·2	23	72·5	2	86·7	77·8	73·8	80	146·8	72·8	4·58	24	7·6
<i>Melbourne</i> .....	80·7	17	36·5	4	64·2	45·8	45·0	71	130·3	28·2	2·40	10	5·3
<i>Adelaide</i> .....	87·6	16	39·2	3	67·2	48·4	45·3	63	145·8	29·5	1·67	9	5·1
<i>Sydney</i> .....	...	...	...	...	...	...	...	...	...	...	...	...	...
<i>Wellington</i> .....	65·0	19a	39·0	18	58·9	46·3	43·4	71	130·0	27·0	6·16	18	4·8
<i>Auckland</i> .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Jamaica, Kingston.....	91·3	2	70·7	27	88·8	73·9	72·0	80	...	...	8·84	11	5·8
Trinidad .....	91·0	7, 29	69·0	29	87·0	71·5	74·0	86	170·0	68·0	9·83	23	...
Grenada.....	87·4	8	71·8	24	84·2	75·6	71·6	74	157·4	...	11·55	23	3·1
Toronto .....	93·2	10	35·4	28	71·0	50·4	51·2	70	110·0	29·0	·40	5	3·5
New Brunswick, Fredericton.....	87·7	10	31·0	19	65·7	43·5	44·1	64	...	...	·91	7	4·7
Manitoba, Winnipeg.....	92·7	8	31·5	16	76·1	46·1	...	...	...	...	·34	2	3·3
British Columbia, Esquimalt.....	71·5	17	37·2	28	62·4	46·9	50·4	89	...	...	1·80	11	5·4

a—and 29.

## REMARKS.

MALTA.—Adopted mean temp. 75°·1, or exactly the average. Mean hourly velocity of wind 9·5 miles, or 1·8 miles above the average. Thunderstorms on 20th and 28th; lightning on 5 days. J. F. DOBSON.

*Mauritius*.—Mean temp. of the air 0°·4 above, of dew point 0°·9 below, and rainfall ·33 in. above, their respective averages. Mean hourly velocity of wind 14·7 miles, or 2·7 above average; extremes, 34·0 on 4th and 3·5 on 12th; prevailing direction E.S.E. and E. by S. T. F. CLAXTON.

CEYLON, COLOMBO.—Mean temp. of air 81°·5, or 0°·8 above, of dew point 73°·8, or 0°·6 above, and rainfall ·50 in. below, their respective averages. Thunderstorms on 4 days. H. O. BARNARD.

*Adelaide*.—Mean temp. 0°·7 above, and rainfall ·09 in. below, the average. C. TODD, F.R.S.

*Wellington*.—Generally showery weather, the total rainfall being 1·90 in. above the average. Prevailing winds from N.W. and S.E.; stormy on four days. Mean temp. 52°·6, or 1°·7 above average. Earthquakes on 13th and 21st. R. B. GORE.

JAMAICA, KINGSTON.—Mean hourly velocity of wind 3·1 miles. Rainfall of Kingston twice the average, the island rainfall being 24 per cent. above the average. R. JOHNSTONE.

TRINIDAD.—Rainfall 2·30 in. above the 30 years' average. J. H. HART.

# SUPPLEMENTARY TABLE OF RAINFALL, FEBRUARY, 1898.

For the Counties, Latitudes, and Longitudes of most of these Stations,  
see *Met. Mag.*, Vol. XIV., pp. 10 & 11.]

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
I.	Uxbridge (Harefield Pk.)	1·30	XI.	Builth, Abergwesyn Vic.	5·76
II.	Dorking, Abinger Hall	1·54		Rhayader, Nantgwillt ...	4·80
	Birchington, Thor	·88		Lake Vyrnwy	6·57
	Hailsham	1·38		Corwen, Rhug	3·25
	Ryde, Thornbrough	2·13		Criccieth, Talarvor	2·45
	Emsworth, Redlands	1·92		I. of Man, Douglas	2·48
	Alton, Ashdell	1·53	XII.	Stoneykirk, Ardwell Ho.	2·06
III.	Oxford, Magdalen Col.	1·21		New Galloway, Glenlee	6·48
	Banbury, Bloxham	1·13		Moniaive, Maxwellton Ho.	4·45
	Northampton, Sedgebrook	·97		Lilliesleaf, Riddell	1·50
	Duddington [Stamford]	·57	XIII.	N. Esk Res. [Penicuik]	3·20
	Alconbury	·52	XIV.	Glasgow, Queen's Park..	3·52
	Wisbech, Bank House...	·78	XV.	Inverary, Newtown	9·34
IV.	Southend	·83		Oban, The Corran	...
	Harlow, Sheering	1·11		Islay, Gruinart School	3·82
	Colchester, Lexden	·71	XVI.	Dollar	2·36
	Rendlesham Hall	·74		Balquhiddy, Stronvar...	8·70
	Rushall Vicarage	1·00		Ballinluig	2·40
	Swaffham	·74		Dalnaspidal H.R.S.	7·88
V.	Salisbury, Alderbury	1·65	XVII.	Keith H.R.S.	2·80
	Bishop's Cannings	2·00		Forres H.R.S.	2·66
	Blandford, Whatcombe	2·93	XVIII.	Fearn, Lower Pitkerrie..	3·35
	Ashburton, Bolne Vic.	3·99		N. Uist, Loch Maddy	6·15
	Okehampton, Oaklands.	3·67		Invergarry	4·49
	Hartland Abbey	1·87		Aviemore H.R.S.	3·97
	Lynton, Glenthorne	2·69		Loch Ness, Drumnadrochit	5·88
	Probus, Lamellyn	1·82	XIX.	Invershin	5·78
	Wellington, The Avenue	2·64		Durness	9·52
	North Cadbury Rectory	2·01		Watten H.R.S.	3·81
VI.	Clifton, Pembroke Road	1·80	XX.	Dunmanway, Coolkelure	3·73
	Ross, The Graig	1·19		Cork, Wellesley Terrace	1·62
	Wem, Clive Vicarage	1·65		Killarney, Woodlawn	5·41
	Wolverhampton, Tettenhall	1·53		Caher, Duneske	2·00
	Cheadle, The Heath Ho.	2·19		Ballingarry, Hazelfort...	2·00
	Coventry, Priory Row	1·22		Limerick, Kilcoornan	3·36
VII.	Grantham, Stainby	·53		Broadford, Hurdlestown	1·91
	Horncastle, Bucknall	·63		Miltown Malbay	3·46
	Workshop, Hodsock Priory	·68	XXI.	Gorey, Courtown House	1·20
VIII.	Neston, Hinderton	1·83		Athlone, Twyford	1·85
	Southport, Hesketh Park	2·18		Mullingar, Belvedere	2·81
	Chatburn, Middlewood.	4·34		Longford, Currygrane...	2·93
IX.	Melmerby, Baldersby	·98	XXII.	Woodlawn	2·81
	Scarborough, Observat'y	1·41		Crossmolina, Enniscoe ..	6·74
	Middleton, Mickleton	3·40		Collooney, Markree Obs.	4·96
X.	Haltwhistle, Unthank...	3·39		Ballinamore, Lawderdale	4·33
	Bamburgh	·86	XXIII.	Warrenpoint	2·67
	Duddon Valley, Ulpha School	6·25		Seaforde	2·54
	Keswick, The Bank	5·37		Belfast, Springfield	3·93
	Llanfrehfa Grange	1·71		Bushmills, Dundarave..	4·32
XI.	Llandovery	3·69		Stewartstown	2·96
	Castle Malgwyn	2·49		Killybegs	8·32
	Brecknock, The Barracks	2·90		Horn Head	5·15

## FEBRUARY, 1898.

Div.	STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL.						TEMPERATURE.				No. of Nights below 32°.	
		Total Fall.	Difference from average 1880-9.	Greatest Fall in 24 hours		Days on which $\geq 0.1$ or more fell.	Max.		Min.				
				Dpth	Date		Deg.	Date	Deg.	Date			
											inches.	inches.	in.
I.	London (Camden Square) ...	1.08	— .80	.15	3e	14	56.2	1	24.3	21	7	17	
II.	Tenterden .....	1.08	— 1.04	.16	18a	13	56.0	1	22.0	21	9	16	
III.	Hartley Wintney .....	1.33	— .	.28	19	16	56.0	17	18.0	21	17	19	
IV.	Hitchin .....	1.11	— .64	.26	27	17	53.0	1	23.0	20	9	...	
V.	Winslow (Addington) .....	.95	— 1.21	.20	3	15	53.0	1	23.0	21	13	15	
VI.	Bury St. Edmunds (Westley) ..	.95	— .61	.20	3	13	56.0	1	25.0	22	...	...	
VII.	Norwich (Brundall) .....	1.22	— .	.39	3	17	60.2	1	22.4	22	6	20	
VIII.	Winterbourne Steepleton ...	2.99	— .	1.61	21	20	52.2	1	18.1	25	11	17	
IX.	Torquay (Cary Green) ...	2.24	— .	1.20	21	15	56.1	1, 18	29.5	24	6	13	
X.	Polapit Tamar [Launceston]..	2.83	— .44	.39	3	23	53.4	11	22.1	24	7	10	
XI.	Stroud (Upfield) .....	1.36	— 1.20	.25	18	16	52.0	15b	27.0	24	13	...	
XII.	Churchstretton (Woolstaston)	2.26	— .19	.45	3	20	54.0	1	23.5	21	10	19	
XIII.	Worcester (Diglis Lock) .....	1.35	— .62	.22	17	19	...	...	...	...	...	...	
XIV.	Leicester (Rotherby Hall) ...	1.11	— .	.17	3	19	56.0	16	19.0	21c	12	21	
XV.	Boston .....	.46	— 1.22	.12	3	11	52.0	1	24.0	21	...	16	
XVI.	Hesley Hall [Tickhill].....	.59	— .91	.26	28	11	57.0	1	22.0	21a	9	...	
XVII.	Manchester (Plymouth Grove)	2.17	+ .12	.30	28	21	58.0	1	21.0	20	10	12	
XVIII.	Wetherby (Ribston Hall) ...	1.04	— .54	.33	28	13	...	...	...	...	...	...	
XIX.	Skipton (Arnccliffe) .....	8.32	+ 3.63	.91	1	21	...	...	...	...	...	...	
XX.	Hull (Pearson Park).....	1.52	— .28	.45	3	15	56.0	1	24.0	21	15	21	
XXI.	Newcastle (Town Moor) .....	1.06	— .34	.24	4	11	...	...	...	...	...	...	
XXII.	Borrowdale (Seathwaite).....	16.48	+ 3.84	1.55	9	23	...	...	...	...	...	...	
XXIII.	Cardiff (Ely).....	2.37	— .82	.31	20	20	...	...	...	...	...	...	
XXIV.	Haverfordwest .....	1.91	— 2.21	.36	25	21	53.1	1	23.2	24	4	15	
XXV.	Aberystwith (Gogerddan) ...	3.15	— .11	.64	5	16	51.0	10	...	...	...	...	
XXVI.	Llandudno .....	2.28	+ .36	.37	3	21	57.5	1	28.0	21	2	...	
XXVII.	Cargen [Dumfries] .....	4.67	+ 1.02	.61	6	18	54.6	1	23.0	24	10	...	
XXVIII.	Edinburgh (Blacket Place)...	1.02	— .	.21	1	13	55.5	1	24.0	21	8	19	
XXIX.	Colmonell .....	6.39	— .	1.06	25	21	53.0	10	21.0	20	...	...	
XXX.	Tighnabruaich .....	7.59	— .	1.10	26	22	50.0	2	28.0	20d	10	...	
XXXI.	Mull (Quinish).....	6.80	+ 1.33	1.40	26	21	...	...	...	...	...	...	
XXXII.	Loch Leven Sluices .....	2.00	— .75	.40	2	10	...	...	...	...	...	...	
XXXIII.	Dundee (Eastern Necropolis)	.75	— 1.35	.35	25	11	55.2	15	22.4	24	14	...	
XXXIV.	Braemar .....	2.38	— .98	.47	21	20	51.8	1	2.5	24	20	25	
XXXV.	Aberdeen (Cranford) .....	1.60	— .	.51	25	17	58.0	15	20.0	28	19	...	
XXXVI.	Cawdor (Budgate) .....	3.35	+ 1.12	.33	12	23	...	...	...	...	...	...	
XXXVII.	Strathconan [Beaully] .....	10.91	+ 6.20	1.90	2	15	...	...	...	...	...	...	
XXXVIII.	Glencarron Lodge .....	11.30	— .	1.22	14	25	50.4	1	23.0	4	13	...	
XXXIX.	Dunrobin .....	4.81	+ 2.72	.52	1	23	53.0	1	27.0	20	12	...	
XL.	S. Ronaldshay (Roeberry) ...	5.20	+ 2.56	.81	25	25	50.0	15	27.0	3	13	...	
XLI.	Darrynane Abbey.....	3.72	— .	.53	20	25	...	...	...	...	...	...	
XLII.	Waterford (Brook Lodge) ...	1.31	— 2.77	.28	25	20	53.5	17	22.0	24	8	...	
XLIII.	O'Briensbridge (Ross) .....	4.07	— .	.52	4	22	...	...	...	...	...	...	
XLIV.	Carlow (Browne's Hill) .....	1.54	— 1.54	.25	25	20	...	...	...	...	...	...	
XLV.	Dublin (Fitz William Square)	1.74	— .61	.58	17	18	59.0	1	28.1	24	7	10	
XLVI.	Ballinasloe .....	2.14	— .64	.32	12	19	53.0	1	26.0	23	7	...	
XLVII.	Clifden (Kylemore) .....	10.05	— .	.93	24	24	...	...	...	...	...	...	
XLVIII.	Waringtown .....	2.50	+ .05	.46	25	16	56.0	3	23.0	20	8	19	
XLIX.	Londonderry (Creggan Res.)..	5.48	+ 2.45	.45	13	26	...	...	...	...	...	...	
L.	Omagh (Edenfel) .....	4.18	+ 1.49	.59	17	24	54.0	1	25.0	21	9	18	

+ Shows that the fall was above the average ; — that it was below it.

a—and 25. b—and 16. c—and 22. d—and 21, 23, 24. e—and 5, 18.

# METEOROLOGICAL NOTES ON FEBRUARY, 1898.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; TS for Thunderstorm; R for Rain; H for Hail S for Snow.

## ENGLAND.

TENTERDEN.—Extraordinary deficiency of rainfall continued, the total for the five months ending February being only 6·36 in. A very similar month to February, 1896, the temp. almost identical, but more rain and the bar. not so high. Much colder and drier than 1897, with half the rainfall and nearly double the sunshine; total duration 91 hours.

HARTLEY WINTNEY.—The abnormal mildness which characterised the preceding month continued to the 18th of February, when a sudden fall of temp. and bar. pressure was followed by slight falls of S, which continued for about a week. Lesser celandine in flower on the 7th; brimstone butterfly on wing on the 9th. Ozone registered on 27 days. Rainfall half the average.

ADDINGTON.—Weather unsettled, but a small rainfall. Frost on a good many nights, but of no intensity. The temp. rose to or above 50° on 7 days; bar. very low on the 20th, 21st and 22nd. On the 18th S and sleet fell to the amount of ·11 in.

BURY ST. EDMUNDS, WESTLEY.—Much colder than January. R fell on only 13 days in very small quantities, and ponds and rivers are very low. TS on 27th.

NORWICH, BRUNDALL.—Mean temp. of the month 40°·7; mean temp. of the three winter months (December to February) 41°·3, the highest since 1876-7. Wind nearly continuously W. and N.W., and rough at times. Although generally very mild, a less genial month than January. Floods on the marshes, caused by N.W. winds, on 3rd. Lawn white with S on 4th. T, L, H and S on 5th; W.N.W. gale on 16th; H storms and a very bright rainbow on 20th.

WINTERBOURNE STEEPLTON.—The temp. up to the 18th was unusually high, with a high bar. A sudden change occurred on the 19th, followed by frosts and a heavy fall of S between noon of 21st and 22nd. Sunshine on 23rd and 24th began to melt the S, and the rain later rapidly reduced it. Squalls of sleet and S on 2nd; squally N.W. wind with sleet and R on 4th; sharp frost at night on 18th.

TORQUAY, CARY GREEN.—Rainfall 0·30 in. below the average of 22 years. Mean temp. 0°·7 above the average. Duration of sunshine 102 hours 45 mins., being 27 hours above the average; two sunless days.

POLAPIT TAMAR.—Generally mild and damp. The only period of really wintry weather for the season was in the last 8 days. The min. on grass on 24th fell to 18°. Stormy, with frequent H on 2nd; N.W. gale on 4th; H on 5th, 6th, 7th and 20th; S on 20th, 21st and 22nd.

STROUD, UPFIELD.—Gale from N.W. in evening of 2nd; slight S on 4th; S all day on the 18th, covering the hills, and about an inch on the ground on 20th.

WOOLSTASTON.—The early and latter parts of the month were cold and stormy, S falling lightly on several days, with a good deal of frost at night. Mean temp. 39°·0. S on 2nd, 3rd, 6th and 18th.

MANCHESTER, PLYMOUTH GROVE.—S and sleet on the 4th; H showers on 6th; S on 21st; dense fog on 22nd; thick fog on 24th. The last week or nine days very wintery. Mean temp. 39°·4.

## WALES.

HAVERFORDWEST.—February commenced stormy, a gale beginning about 11 p.m. on the 1st and lasting until the night of the 4th, varying in force from fresh to strong. On the 5th the Precelly Range was snow-capped, and colder weather prevailed to the 8th, after which, up to the 18th, it was very mild, with continual damp. S fell on the 20th and 21st, followed by three days of hard frost, and then stormy, wet weather to the end of the month.

Although the rainfall was small, the weather, generally, was very damp, but there was not much fog. Daffodils in bloom, and brambles in leaf, on the 4th, and vegetation generally very advanced.

ABERYSTWTH, GOGERDDAN.—Sharp snowstorm on the 20th, melting as it fell.

LLANDUDNO.—Stormy on 2nd, 3rd, 4th and 19th; T, L and H on 2nd; S and H on 20th.

#### SCOTLAND.

CARGEN [DUMFRIES].—The mild weather experienced in January continued for only the first two days in this month, the mean temp. falling from 49° on the 1st to 39° on the 3rd. Exceptionally low temp. prevailed during the latter part of the month; the mean for the last 12 days being only 37°, while for the first 16 days it was 42°·5. More sunshine was registered than in any other February since 1876; the total duration being 111 hours, against an average for 39 years of 84. Slight S fell on 7th, 21st, and 28th. Westerly winds prevailed on 14 days. The district entirely escaped the very severe gale experienced at no great distance to N. and S. on the 2nd. Primroses and blackthorn were in bloom in the early part of the month, and the blossom of lilac and pear was bursting from the bud; birds were to be found sitting, and an instance of eggs having been actually hatched is recorded. The forward state of vegetation received a seasonable check towards the end of the month.

EDINBURGH, BLACKET PLACE.—Mean temp. 1°·2 above the average. Rain-fall only half the normal, while the bright sunshine recorded—90 hours—is the greatest in February since 1880. S.W. gale on 1st, W. gale, with H, on 12th. TS, with heavy H and S, 3.30 p.m., on 6th. S on 21st and 26th.

COLMONELL.—Rain 2·70 in. above, and mean temp. 1°·2 above, the average of 22 years.

TIGHNABRUACH.—An uncommonly wet month, embracing all the features—R, H, S, Sleet, T, etc.

ABERDEEN, CRANFORD.—The month was colder and less spring-like than January. The highest min. temp. being 40° on the 1st, 10th, and 14th. Wind W. and N.W., and often high.

S. RONALDSHAY, ROEBERRY.—A very wet cold month. The wettest February recorded in 31 years. Mean temp. 37°·8, or 0°·8 below the average.

#### IRELAND.

DARRYNANE ABBEY.—On the whole a mild month, but colder towards the end. Strong gale, with heavy squalls, on the 4th. S and sleet on 20th.

WATERFORD, BROOK LODGE.—H and S showers on 2nd. One of the heaviest gales this winter from N.W. on 4th. H on 20th, S on 21st. Large flocks of starlings seen on 15th.

O'BRIENSBRIDGE, ROSS.—Mild up to 20th, when S fell, followed by very rough and cold weather.

DUBLIN, FITZWILLIAM SQUARE.—Of average mean temp., this month was no less than 5° colder than January. It was a rainy month, for there were only 10 days on which there was no registerable rainfall; but the downpours were not heavy, except on 17th. Prevailing winds W. and N.W., and the force often considerable. On the whole the month was a fairly average February. Mean temp. 42°·9, or 0°·1 above the average. Foggy on 3 days. The amount of cloud, 5·0, is 1·6 below the average. High winds occurred on 18 days, reaching the force of a gale on 5. Solar halo on the 5th, lunar halos on 4th and 6th.

CLIFDEN, KYLEMORE.—A very wet and cold month throughout. Gales from N.W. on 3rd and 4th, and from S. on 7th, stormy on 1st, 5th, 8th, 10th, and 28th. H on 1st, 26th, and 27th.

OMAGH, EDENFEL.—February was raw, wet, and unsettled throughout, with frequent, but transitory falls of S, and spells of frost. The mean temp., although almost exactly the average, was 4°·1 lower than that of January, causing it to be felt with unusual severity.