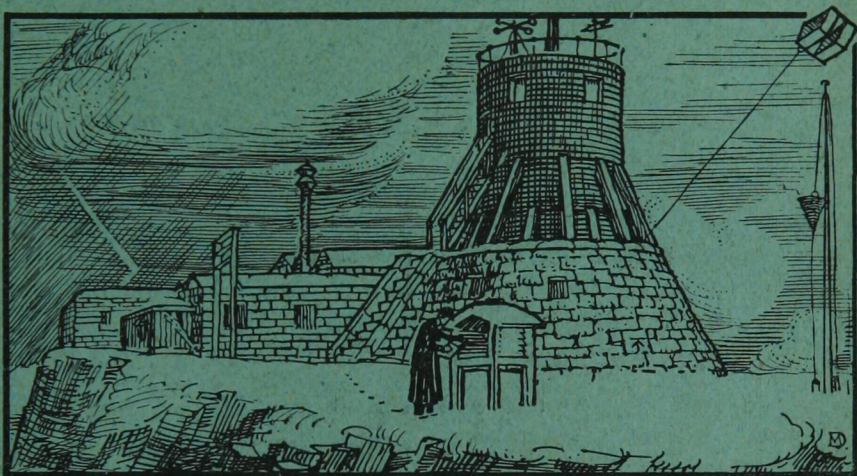


NO. 547 SYMONS'S VOL. 46

# METEOROLOGICAL

✠ · MAGAZINE · ✠

.... EDITED BY HUGH ROBERT MILL ....



AUGUST, 1911.

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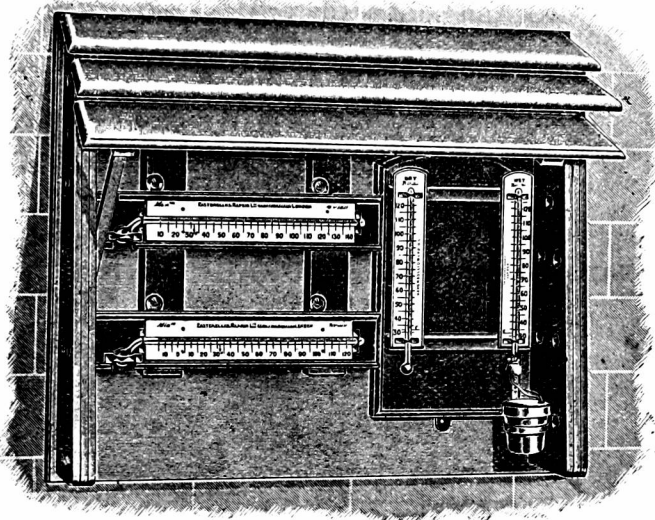
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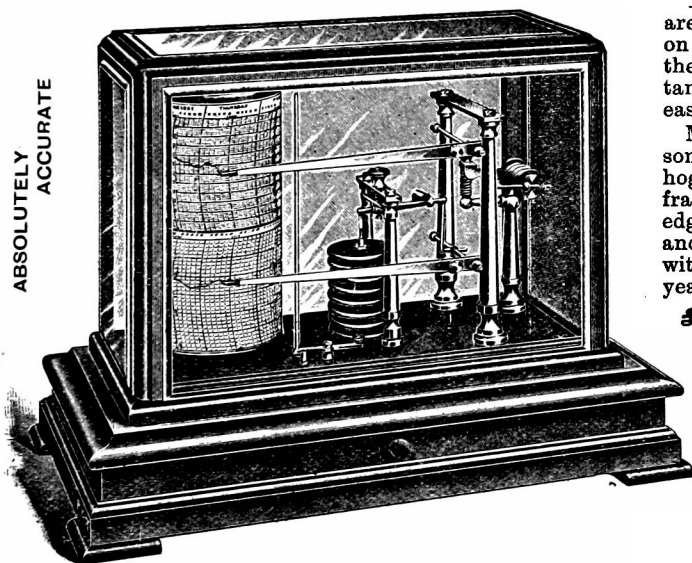
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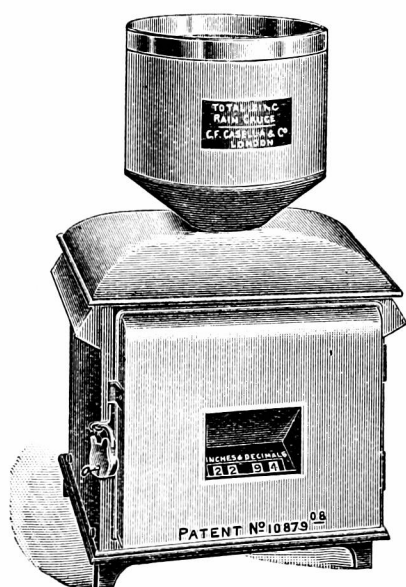
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# Symons's Meteorological Magazine.

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No. 547.

AUGUST, 1911.

VOL. XLVI.

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## THE HOTTEST DAY ON RECORD IN LONDON.

AUGUST 9th, 1911, proved to be the hottest day in the long record of temperature kept at Camden Square since 1858. The temperature at 9 a.m. was  $78^{\circ}7$ , at 9.40 it had reached  $83^{\circ}0$ , the increase being at the rate of a tenth of a degree per minute. At 1 p.m. the reading was  $95^{\circ}0$ , and at 2.15 p.m. the dry bulb thermometer read  $97^{\circ}1$ , this being also the temperature shown on the maximum thermometer hung on the same Glaisher stand. Special care was taken to turn the stand so that the sun never shone on the instruments. At 3 p.m. the reading was  $95^{\circ}8$ , at 4 p.m.  $95^{\circ}0$ , at 5 p.m.,  $93^{\circ}1$ , at 6.15 p.m.  $89^{\circ}0$ , and at 9 p.m.  $74^{\circ}4$ .

The previous occasions on which the maximum temperature exceeded  $93^{\circ}$  in the fifty-four years' record were as follows:—July 21st, 1868,  $93^{\circ}3$ ; July 22nd, 1868,  $93^{\circ}2$ ; July 15th, 1881,  $94^{\circ}6$ ; August 18th, 1893,  $93^{\circ}6$ ; July 16th, 1900,  $95^{\circ}2$  (previous highest); July 19th, 1900,  $93^{\circ}4$ ; July 25th, 1900,  $94^{\circ}0$ ; August 31st, 1906,  $93^{\circ}2$ ; September 2nd, 1906,  $94^{\circ}4$ . This shows that the maximum temperature on August 9th at Camden Square was  $1^{\circ}9$  above the highest previously recorded.

In 1881, when Camden Square recorded  $94^{\circ}6$ , the Royal Observatory at Greenwich, also on a Glaisher stand, recorded  $97^{\circ}1$ ; and we understand that on August 9th this year the reading at Greenwich was  $100^{\circ}$ . The fact of so open a position as the top of Greenwich Hill having a maximum shade temperature three degrees higher than much more sheltered stations at a lower altitude in London is very remarkable.

On August 9th the maximum temperature at the Meteorological Office in South Kensington was  $97^{\circ}$ , and the same figure was registered by Mr. G. Searle at West Kensington. At Mill Hill, 380 feet above sea level, Mrs. H. R. Mill recorded  $95^{\circ}8$  in the Stevenson screen, while the black bulb thermometer in vacuo gave a maximum of  $142^{\circ}4$ . She recorded a black bulb temperature of  $146^{\circ}8$  on July 22nd when the shade maximum was  $90^{\circ}0$ . Mr. W. B. Butler, with Kew verified instruments in a Stevenson screen, recorded  $97^{\circ}3$  at Old Southgate, London, N., 255 feet above the sea; and Mr. H. E. Frier at Ponders End, Middlesex, 50 feet above sea level, recorded



98°·8 with a Kew certified Six's thermometer in a Stevenson screen. This is, we believe, the highest shade temperature recorded in standard conditions in the British Isles, the Greenwich thermometer like that at Camden Square being exposed on a Glaisher stand, which always gives more extreme values than the Stevenson screen. At Camden Square when 97°·1 was registered on the stand, the maximum thermometer in the screen read only 95°·0.

Amongst high readings some distance from London which have been reported to us on the same day are 96° by Mr. Axford at St. Giles, Salisbury; 95°·8 by Mr. Burrell at Westley Hall, Bury St. Edmunds; 95° by Mr. J. Ellis Mace at Tenterden, and 91° by Mr. C. L. Brook at Harewood Lodge, Meltham, who states that such a temperature had not occurred since 1868.

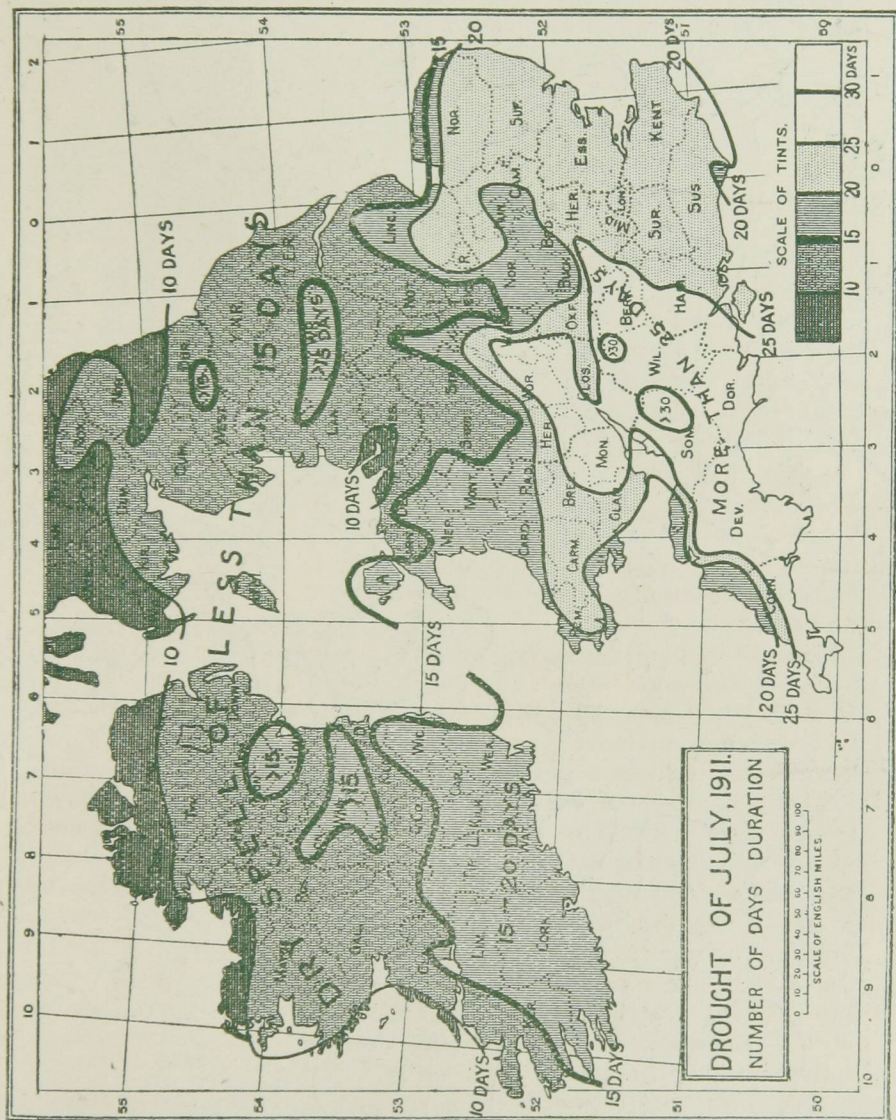
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### THE DROUGHT OF JULY, 1911.

THE rainfall of July has proved exceedingly small in England, Wales, and the south of Ireland, in some places under 5 per cent. of the average, but rather above the average in the west of Scotland. An absolute drought, or period of more than 14 days without rain, occurred in all parts of the British Isles south of a rather wavy line drawn from the south-west of Ireland to Dublin, and thence by Holyhead across England to the north coast of Norfolk. A map has been prepared showing the part of the country in which more than ten consecutive days without rain occurred, and this is published herewith. In most cases an extra day should be added from June to complete the dry spell; but to do this would have more than doubled the time required to compile the map, which would have had to waste the sweetness of its approach to perfection in a cupboard at Camden Square instead of showing its graphic, if less perfect, outlines in this Magazine.

It will be observed that although the drought did not extend to twenty days in Ireland, the area with more than twenty rainless days in England stretched from sea to sea, and was not much less in area than the portion with fifteen days or more. The very exceptional length of twenty-five days of drought was the rule to the west of a line drawn from the Solent to Dunstable, and several stations within this area had no rain to record for the whole month. The intensity of this drought was the more severely felt because the very same part of the country with the maximum duration in July had already suffered a long drought in May and early June.

The most interesting part of the drought area lies within the limits of our monthly rainfall map of the Thames Valley and its surroundings, on which it will be observed that there are only a few splashes of more than 1 inch of rain for the month, representing the positions of the thunderstorms in which the drought broke up in the last week of July. It will be noticed that the greater part of the





# THAMES VALLEY RAINFALL - JULY, 1911.





map shows less than half-an-inch of rain, and in the south-west we have drawn isohyets for a quarter of an inch and also for one-tenth of an inch, Wiltshire, together with a large part of Berkshire and Gloucestershire having had less than this insignificant sprinkling as the total rainfall for the month. In the extreme south-west, several stations report a rainless month, and there we have shown a small area on which we believe that no rain at all fell. It is probable that this condition of things was unprecedented for July.

It is impossible to refer to all the correspondence we have received ; but we have pleasure in adding to this notice a few lines describing the personal experience of Observers.

**Belper.**—Ten months had a total rainfall less than half-an-inch, during the 34 years and 7 months of my record, from January, 1877, to July, 1911. Of these, two months had less than a quarter of an inch, viz. :—February, 1891, rainfall .12 in. falling on 2 days, and July, 1911, with .04 in. falling on 3 days.—JOHN HUNTER.

**Branston Hall, Lincoln.**—The rainfall here for the month of July is 0.14 in. The total rainfall so far this year has been 8.03 in. I have had to go back to a return of rainfall taken at South Kyme, from 1800, to find such a low return for July. I find that in 1826 there was no rain in July, and the return for that year is so very remarkable\* I give it below :—

	in.		in.		in.
January.....	.33	June.....	.89	November ...	2.02
February ...	.87	July.....	.00	December ...	1.05
March .....	.24	August ...	1.12		
April .....	.00	September.	1.18		8.79
May .....	.00	October ...	1.09		

A. S. LESLIE MELVILLE.

**Lanwithan, Lostwithiel.**—The drought began on June 30th at noon, and ended on July 29th at 2.30 p.m., making 28 complete days without rain. On July 29th we were visited with a very severe thunderstorm. The thunder lasted here from about 12.30 to 6 p.m. ; was very severe from 2.30 to 4. About 2.45 the wind rose suddenly from a dead calm to the force of a hurricane, which lasted about half-an-hour. In Fowey Harbour boats were swamped and vessels dragged their anchors. Here also we had torrents of rain for about an hour—.75 in., .60 in. of which fell in half-an-hour and was torrential. On the Fowey a remarkable rise and fall of the tide was observed. The July drought is the third spell of dry weather we have had this year, namely, March 30th to April 18th, 19 days absolute drought ; and May 4th to June 1st, 28 days, but on 3 days during this time .25 in. fell. In the year 1887 we had 36 days absolute drought.—MABEL FOSTER.

**Stoke Fleming, near Dartmouth.**—The only rainfall here in July was .48 in. on the 29th (.47 in. of it in 1½ hours, with thunder) and .05 in. on the 31st.—CHAS. F. SELBY.

**Chewton Mendip.**—You may be interested to hear that the rainfall for July at the Priory, Chewton Mendip, was .05 in. on July 31st. I believe it really fell in August, but before 9 a.m. on August 1st.—WALDEGRAVE.

**Chelwood Rectory, North Somerset.**—We only had one hour's rain in July, yielding .22 in., of which .20 in. fell from 2.40 p.m. to 3.25 p.m. on the

\* Too remarkable to be accepted.—ED. S.M.M.

26th. Last Saturday, the 29th, my self-registering thermometer registered 93° at 3 p.m. There was a strong south-easterly wind blowing all the day.—HUBERT SATCHELL.

**Clifton.**—This absolute drought lasted 25 days—from the 1st to the 26th—when it was broken by showers in the afternoon, which, however, gauged only .07 in. Its duration has been equalled only three times in the last 55 years, viz. : in September, 1907, June, 1887, and June, 1865, and it has been once exceeded by a drought of 27 days in February, 1891.—ROBT. F. STURGE.

**Bath.**—The rainfall for July as measured by me, in my rain gauge in Somerset Place, was .03 in. on 2 days, the lowest for any month in the year, since I began to keep a rain gauge in 1869, both as regards the rainfall itself and the number of days on which the rain fell. I learn from the papers that the rainfall as taken in July, 1911, was nil at the Henrietta Park; nil at the Literary Institution; .08 in. at Monkswood (1 day); Bath Easton .02 in. (1 day); Charlcombe .01 in. (1 day). These gauges are all in or near Bath.—R. LEWIS LLOYD.

**North Cadbury, Somerset.**—July, but for the strange storm on the 29th, would have been a rainless month. The 29th was very hot, and I do not doubt the maximum of 94° about 2 p.m., as the wind was strong and there was no doubt about free circulation of air. At 4 it began to grey over from south-south-east, and thundery cumuli formed low down in the north. The greyness darkened and took the form of well defined arches, each darker than the one before it, working across the sky from south-south-east. The appearance was like that of a sirocco sky in Algiers or Patras. At 5.20 Cadbury Camp, a high hill just one mile south, became obscured as if by rain, and all the country to the south-west and west disappeared. Then came a furious blast from the south, and the air was filled with dust *from grass fields*. It was a dust storm worthy of Algeria. There was a little thunder and lightning, and rain began gently at 6.30 p.m. and ceased about 7.30 (.05 in.), a few drops came about 9 p.m. when the sky cleared. The rain was nowhere enough to do any good.—H. A. BOYS.

**Market Lavington.**—The rainfall of July seems (to me) very remarkable being a total of .02 in. of which .01 in. fell on the 2nd and .01 in. on the 29th. On, I think, 2 other days light showers fell, but nothing measurable. It has been very strange that during the extraordinary heat of July, in this district, we have had not a single thunderstorm. Market Lavington is situated in the valley to the north of Salisbury Plain, about 290 feet above sea level.—A. PLEYDELL BOUVERIE.

**Shrewton.**—As Salisbury Plain seems, so far as I can gather, to have been near the focus of the July drought, figures may be of interest. Rain : .03 in. on one day, the 29th; absolute drought 1st—28th; temperature, absolute maximum 92° on 29th, three other days over 90°, 19 in all over 80°. Owing to the dryness of the air the sun's heat was intense, but the minima were comparatively low, and the mean temp. for the month works out at 66°. The driest month in the long Chitterne record near here was July, 1885, with .03 in., but that month was much less hot.—F. J. WARDALE. †

**Downton, Salisbury.**—The drought here in South Wilts has been remarkable. There was no rain at all from July 1st to 25th. On July 26th. there were a few drops about 6.45 a.m. for something like a quarter of an



hour, but certainly nothing like .01 of an inch. I should put it down as about .0005 in. No rain on July 27th or 28th. On July 29th we came in for the edge of a thunderstorm at 6.20 p.m., which ceased before 7 p.m., and produced .05 in., which stands as the total for the month. The characteristic of the month has been intense heat without sultriness, and brilliant sunshine. The hottest day was July 29th, with 91° F. in the screen. Bright sunshine exceeded 350 hours. The black bulb thermometer in vacuo was above 130° F. on every day in the month, and on July 9th, 20th and 24th was 150°, 154° and 151° F. respectively.—FRANK PENROSE.

**Dinan, France.**—The rainfall here for July may be of interest in connection with the drought in England. Total rain in July was .31 in. Such rain as fell was merely local and fell on 5 days. The thunderstorm of the 29th was very heavy, but here only .04 in. of rain fell. The absolute drought lasted 21 days, from the 2nd to 22nd.—P. A. GORE.

Several letters too long for insertion this month, will, if possible, be published in a subsequent number.

---

## THE WEATHER OF JUNE AND JULY.

By FRED. J. BRODIE.

### JUNE.

JUNE opened with warm, seasonable weather, but owing to shallow barometrical depressions in the south, thunderstorms occurred between the 1st and 5th in several isolated districts. On the 1st and 2nd the thermometer rose slightly above 80° at a number of places situated in the northern and central parts of Great Britain, and touched 83° at Balmoral, Fort William and Aspatia. After the 4th, in a large anticyclone, shade readings of 80° and upwards were recorded in nearly all parts of the United Kingdom, the thermometer reaching 84° at Greenwich and Fulbeck. A shallow low-pressure system over the Bay of Biscay on the 8th was accompanied by thunderstorms in the Channel Islands and the south-west of England, with a very heavy fall of rain in Guernsey.

The Atlantic anticyclone then receded westward, and between the 9th and 14th a cold current of air from the northward prevailed, with a temperature considerably below the average. On the night of the 9th the sheltered thermometer fell below 40° in nearly all districts, and touched 35° at some places in the west and north, the readings on the grass being as low as 25° at Llangammarch Wells and Burnley, and 27° at Southport and Wisley. A cyclonic disturbance, which extended slowly from the Atlantic over the entire Kingdom, caused the wind to shift to the eastward or south-eastward, with rain in all districts, and thunderstorms in many scattered places. Between the nights of the 13th and 15th a ground frost was experienced, the exposed thermometer falling at least 5° below the freezing point in several localities. On the night of the 14th a reading of 24° was

recorded at Birmingham, and a reading of  $19^{\circ}$  at Llangammarch Wells, and at many places in the west and north the frost is reported to have caused considerable damage to the growing crops. Cool, unsettled weather continued to prevail throughout the Coronation week (ended July 24th), a heavy fall of rain being experienced in the west of Scotland on the 21st, and a still heavier fall over the north and east of Great Britain on the 23rd and 24th. Temperature was considerably below the normal, but towards the close of the month, when the wind backed to west or south-west, the thermometer rose somewhat, the general conditions being, however, still unsettled and showery, with thunderstorms in some parts of Ireland and Scotland. Over the country generally the mean temperature was nearly normal. The total duration of bright sunshine was as a rule somewhat above the normal.

### JULY.

IN addition to a phenomenally long summer drought, lasting in many places for a period of considerably over three weeks, the month of July was marked by several features of more than ordinary meteorological interest.

At the commencement of the month, in the rear of a cyclonic disturbance which passed from Iceland to northern Europe, a cool north-westerly breeze was blowing across the United Kingdom, with passing showers in most districts, but scarcely any rain in the south of England. After the 2nd a large anticyclone came in from the Atlantic, and for the ensuing fortnight brilliantly fine weather prevailed, the week ending the 8th being the sunniest experienced over the country generally since the widespread adoption of recording instruments 30 years ago. Temperature was almost continuously above the normal, the warmest spells occurring on the 7th and 8th, and between the 12th and 14th. On the earlier occasion the thermometer in the screen rose above  $85^{\circ}$  in many parts of England, and, locally, in the south of Ireland, and touched  $90^{\circ}$  at Camden Square, Epsom and Cullompton. On the latter occasion, between the 12th and the 14th, shade maxima of  $85^{\circ}$  and upwards were observed over a large portion of the United Kingdom, some of the highest temperatures being recorded in the north. At Crieff the thermometer on the 12th rose to  $89^{\circ}$ , and at Balmoral on the 13th it touched  $88^{\circ}$ . Between the 17th and the 21st less settled weather was produced by low pressure systems which moved over the Atlantic in close proximity to our own western and northern coasts. Frequent rains were consequently experienced over Ireland and north Britain, but over a large portion of eastern and southern England the weather remained very dry, with a continued high temperature. On the 21st shade readings above  $85^{\circ}$  were registered in many places, and on the following day the thermometer exceeded  $90^{\circ}$ , the readings being as high as  $93^{\circ}$  at Camden Square and South Kensington,  $94^{\circ}$  at Margate



and  $96^{\circ}$  at Greenwich. The Greenwich reading had been exceeded only twice in the course of the previous 70 years, viz., on July 22nd, 1868, and July 15th, 1881, on each of which occasions the thermometer rose to  $97^{\circ}$ . Between the 24th and 27th less settled conditions were produced by shallow low pressure systems which spread in from the Atlantic, and on the 25th and 26th sharp thunderstorms were experienced in various parts of the country. One of the most striking events in the meteorological history of the month was the unusually violent thunderstorm which burst over the western parts of London on July 28th. The storm appears to have reserved its worst fury for South Kensington, and the daily records made by the automatic instruments at the Meteorological Office formed one of the most striking series ever collected in the metropolis, or perhaps in any other part of the country. The storm came up rapidly from the north-eastward just after 5 p.m., and in the course of 15 minutes 1.10 inch of rain was collected, the thermometer dropped almost instantaneously  $22^{\circ}$ , and the wind rose in squalls to a velocity of 54 miles an hour. The storm was essentially one of a local character, especially as regards intensity, but on the following day, when a large cyclonic disturbance extended over the United Kingdom from the south-westward, thunderstorms occurred in all parts of the country, with exceedingly heavy falls of rain in the south of Ireland, a tidal wave on the coast of South Devon, and a storm of dust in South Wales. On the 28th and 29th the shade temperature again rose above  $90^{\circ}$  in several parts of England and Wales, and reached  $93^{\circ}$  at Bath.

With the frequent recurrence of such unusual warmth, it is not surprising to find that the mean temperature of the month was everywhere in excess of the average, and that in the south of England the excess was large. In London the month proved to be the warmest July for at least 40 years past. The amount of bright sunshine also showed a large excess in all parts of the country, many places in the south of England recording at least 100 hours more than the average. At Westminster the total of 320 hours was as many as 139 in excess of the average.

---

### SERIOUS DROUGHT IN INDIA.

THE feebleness of the south-west monsoon this year has given rise to much anxiety and alarm in India, which is reflected in the following extracts from the dispatches of the Indian Correspondents of *The Times* :—

BOMBAY, July 23rd.

“The continued scarcity of rain is causing anxiety, though a slight improvement is noticeable. To-morrow the Bombay Hindus will close their

shops and go in procession to the sea shore, there performing the concluding ceremony of an elaborate ritual for propitiating the god Indra. The Parsis and Mahomedans are organising large prayer meetings. In the Cathedral the prayer for rain has been said for the last ten days."

BOMBAY, July 24th.

"Remarkable scenes were witnessed to-day, when 5,000 Hindus marched through the principal streets to the sea shore, and immersed the image of Shruna Rushi as an invocation for rain. The image had been worshipped continuously in the Cloth Market by 90 Brahmans. Heavy clouds hung in the sky as the processionists, having reached the sea shore, performed the accustomed rites, with ceremonial dances and the wailing of conches, before committing the image to the waters."

SIMLA, July 27th.

"The continued feebleness of the monsoon is beginning to cause much anxiety."

SIMLA, July 28th.

"The area affected by the drought is very extensive. It includes the northern parts of the Bombay Presidency, the deficiency in Gujerat being very marked, Central India, Rajputana, portions of the Central Provinces, and practically the whole of the United Provinces, while the eastern and southern parts of the Punjab are also suffering. Burma, Assam, the two Bengals, and the Deccan districts have had good rain, though unequally distributed. The deficiency in the United Provinces varies from 6 in. to 17 in.

The geographical area is best described as the country west of a line drawn from Bombay, through Jubbulpore, to Darbhanga; in other words, nearly one-half of the whole country, but in parts of the United Provinces and the Punjab the canals and the rivers are furnishing an unlimited supply of water owing to the heavy snowfall in the Himalayas last spring."

BOMBAY, August 6th.

"Friday and Saturday's rainfall in Bombay City amounted to 10 in., and heavy rain is continuing. The rainfall is fairly general in North-east India, lower Burma, and Bombay. Some rain has fallen in the eastern part of the Central Provinces, the Deccan, and Northern Madras. Rain is wanted in the United Provinces, the Punjab, Gujerat, and Kathiawar."

BOMBAY, August 7th.

"Rain has fallen generally in the Central Provinces, Konkan, the Deccan, and Haiderabad, and locally in Central India and in the extreme north-west of the United Provinces. There has been nothing more than a drizzle in Gujerat and Kathiawar, where the situation is desperate."

BOMBAY, August 8th.

"The rainfall continues in Burma and North-east India. Rain has fallen locally in the United and Central Provinces, and generally in the Deccan, Konkan, and Haiderabad. None has fallen in Gujerat, Kathiawar, Central India, and the Punjab."



## INTERNATIONAL BALLOON ASCENTS.

By W. H. DINES, F.R.S.

*January 11th, 1909.*

Starting Point.	Country.	A miles.	B ° F.	C miles.	D ° F.	E miles.	F
Petersfield ....	England ....	6.3	-76	9.9	-63	806	E.S.E.
Paris .....	France .....	7.0	-76	9.7	?	442	S.E. by E.
Strassburg ....	Germany ....	6.4	-74	7.0	-74	19	S.E.
Munich .....	„ .....	7.2	-74	8.5	-70	37	S.S.E.
Pavlovsk ....	Russia .....	6.1	-76	7.2	-71	21	E. by S.

*January 12th, 1909.*

Manchester....	England ....	?	?	6.9	-71	263	E.S.E.
Brussels .....	Belgium ....	6.1	-78	8.4	-67	235	E.S.E.
Hamburg.....	Germany....	5.6	-63	9.7	-70	97	E. by N.
Paris.....	France .....	7.2	-80	7.5	-76	173	E.S.E.
Strassburg ....	Germany....	6.1	-81	9.1	-72	84	S.S.E.
Munich.....	„ .....	6.4	-76	8.1	?	62	E.S.E.
Vienna .....	Austria.....	6.5	-81	9.5	-62	82	E.S.E.
Pavia.....	Italy .....	7.1	-92	10.6	-72	90	S.E.

*January 13th, 1909.*

Manchester....	England ....	6.6	-67	14.4	-78	282	E. by S.
Pyrton Hill....	„ .....	7.7	-70	9.6	-68	643	E.S.E.
Brussels .....	Belgium ....	6.3	-85	9.0	-76	100	E.S.E.
Hamburg.....	Germany....	6.1	-80	7.0	-69	86	S.E. by E.
Paris .....	France ....	6.4	-81	6.5	-80	197	S.S.E.
Strassburg ....	Germany....	6.6	-87	9.3	-63	91	S.S.E.
Vienna .....	Austria ....	6.1	-78	6.8	-76	73	S.E. by E.
Pavia .....	Italy .....	6.8	-80	7.3	-74	98	E.S.E.

A=Height in miles of commencement of isothermal column.

B=Temperature, F°, at bottom of column.

C=Greatest height of reliable record in miles.

D=Temperature, F°, at greatest height.

E=Distance in miles of point where balloon fell.

F=Bearing of falling point from starting point.

Owing to the strong wind that was blowing from the west, but few of the English balloons were found. The distances run from Petersfield and Paris on the 11th and from Pyrton Hill on the 13th are very unusual. The temperature shown over Pavia on the 12th is very low.

On the 11th an extensive low-pressure system with very low pressures lay to the west of Norway, with one anticyclone over Spain and another over the Alps. The depression decreased in intensity and moved eastwards, while the Spanish anticyclone showed but little change.

## Correspondence.

*To the Editor of Symons's Meteorological Magazine.*

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## DAMAGE BY LIGHTNING.

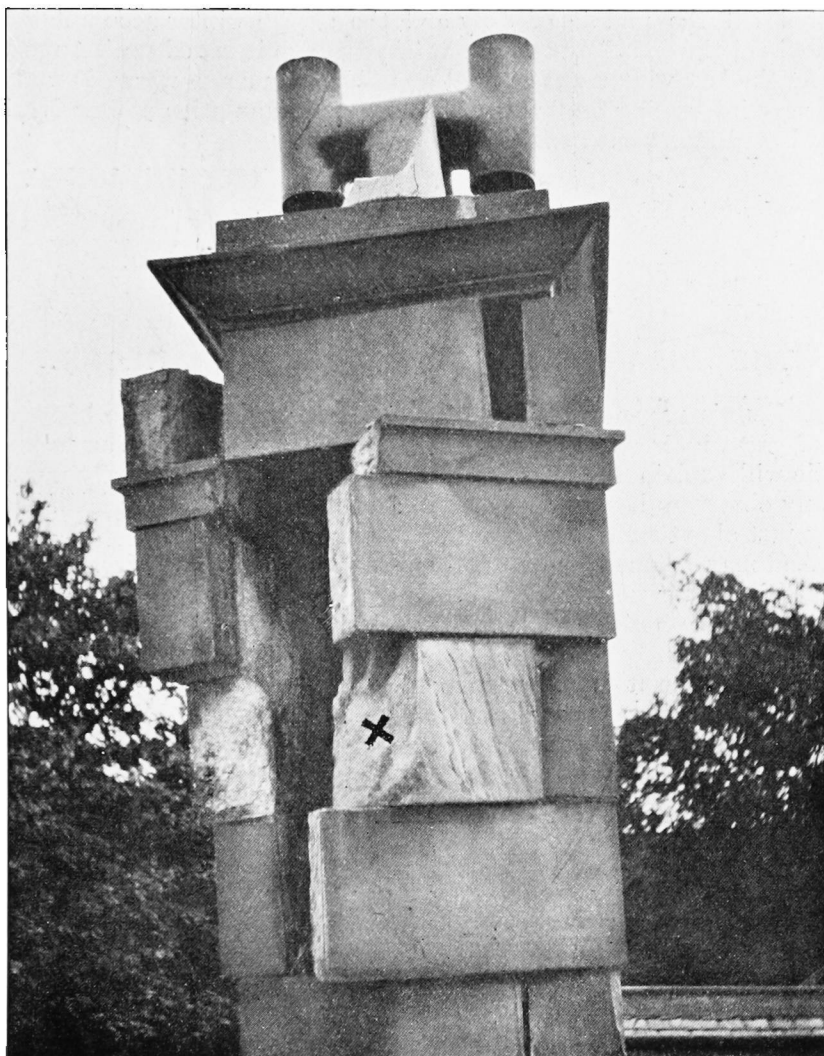
On Saturday, June 17th, 1911, two short but severe thunderstorms occurred in this valley; the first lasted from 3.15 to 3.30 p.m. with heavy rain (·10 in. in  $3\frac{1}{2}$  min.). During this storm Meltham Hall, distant about 300 yards in a south-westerly direction, was affected in the following way—three persons were standing in a broad passage, facing at a distance of three or four yards an ordinary electric light pendant from the ceiling; all three at the instant of a flash saw this light surrounded by a globe of fire described as being about two feet in diameter, the appearance was momentary; at the same instant, a fourth person standing with his back to this electric light and having on his left hand a fire hydrant, the end of which is about four feet above the floor, saw a flash pass from the end of the hydrant to the floor with a sharp crack; no damage was done, except that possibly the burning out of the safety fuse of the electric lights in the cellar may be attributed to this flash; the electric light, round which the globe of fire appeared, was uninjured.

The second storm lasted from 4.5 to 4.30 p.m., and the same house was again struck, this time more seriously. The photograph shows the damage done to a chimney stack; the stones of this are solid ashlar, and are approximately 6 in.  $\times$  6 in.  $\times$  18 in. One only (marked with a cross) was broken, but all the stone work for the first five courses was apparently forced outwards, and was within an ace of tumbling down; the grate of the bedroom next below this chimney was shifted about half an inch out of its position, and the fender was thrown into the middle of the room.

In this storm, also, another house half a mile away was struck, and the contents of one room partially burnt. Also in a small wood belonging to me an oak tree was completely destroyed; at about two-thirds of its height from the ground the main trunk was split into shreds, but not severed, so that the top tumbled over on to the next tree; the lower part of the trunk was split in two, quite two-thirds of the bark was stripped and much of it thrown into the field adjoining to a considerable distance, but how far I cannot ascertain. Perhaps, however, the most curious feature was that the wood of the tree where the bark had been stripped was grooved in several places just as if a cheese scoop had been used, the ground all around being littered with chips.

CHARLES L. BROOK.

*Harewood Lodge, Meltham, July 23rd, 1911.*



CHIMNEY OF MELTHAM HALL DAMAGED BY LIGHTNING.

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### THE LATEST SNOW SPOT IN WALES.

It has struck me that your Magazine should record every year, if possible, the date of the disappearance of each winter's latest snow spot in England and Wales. Since the description of the Carnedd Llewelyn spot in this Magazine for June, 1910, and in *British Rainfall*, 1909, the matter has taken several people interested to visit the place. The 1910-11 winter accumulation disappeared before the end of May; whereas the 1909-10 winter accumulation

lasted till the middle of July and the 1908-9 winter accumulation lasted till the end of June. About 30 years ago it lasted until August.

As the last winter was so mild and this summer so warm, it would be very interesting to know whether the accumulation at Ben Nevis has lasted under such exceptional conditions.

J. R. GETHIN JONES.

*Capel-y-Ffn, Llanthony, August 2nd, 1911.*

### THE DISAPPEARANCE OF EVENING CLOUD.

MR. ELLIS's paper on "The Disappearance of Cloud at Full Moon" is of great interest; he will increase your readers' obligation to him if he will explain the fact he alludes to, which must surely puzzle many observers besides myself, viz.: the frequent clearance of the sky just about sunset.

And may I hope to have another difficulty removed? In a certain type of weather we not infrequently see small cumulus clouds almost all round the horizon while the zenith is quite clear. I am told it is very frequently so at sea. Now those clouds are on some one's zenith and yet it is most characteristic of this sort of weather to have a clear sky overhead; how is this to be explained? Nature herself seems to lend colour to our auto-centric tendencies.

A.F.

We submitted this letter to Mr. Ellis and have much pleasure in adding his interesting reply:—

I was pleased to read the appreciative remarks of your correspondent, A.F., on my little paper "The Disappearance of Evening Cloud at Full Moon." A friend has kindly drawn my attention to the description of evening contained in Book IV. of Milton's "Paradise Lost," the latter part of which runs as follows:—

"Now glowed the firmament  
With living sapphires: Hesperus that led  
The starry host, rode brightest till the Moon,  
Rising in clouded majesty, at length  
Apparent queen, unveiled her peerless light,  
And o'er the dark her silver mantle threw."

These lines are interesting as indicating some predominant influence of the moon in the evening sky, added to which the beauty of a moonlight evening (so well described by Shakespeare in his "Merchant of Venice") draws the attention of many persons in a



special degree thereto. Under such circumstances it is not surprising to find that an impression is created assigning the evening dispersion of cloud to action of the moon. Then come the facts of observation, showing that there is as much evening clearance at new moon as at full moon, and conversely as many clouded nights at full moon as at new moon. But having disassociated the two phenomena as regards their scientific aspect, we may still be allowed to link them together in poetic fancy as expressed in Milton's verse.

In reply to the inquiry of A.F. as to the cause of the frequent clearance of the sky just about sunset, it may be said to be a consequence, indeed a phase, of the diurnal variation in the amount of cloud, which I may, perhaps, be allowed again to mention reaches, on the average, a maximum in the forenoon, falling to a minimum in the evening, and rising again to the maximum on the following forenoon. There is, however, little variation in the amount of cloud during a winter day; in summer the variation during the day is, on the average, greater. But the departures from averages on individual days are very great. Here are some examples—*a*. At times many days in succession will remain cloudy throughout, especially in winter. *b*. On other occasions cloud by day will fade away in the evening. *c*. A fine day may cloud up in the evening. *d*. Less frequently there will occur days that are clear throughout. It is when a day of the class *b*. coincides with a rising full moon that the impression is given of lunar influence.

With respect to the appearance of small clouds round the horizon when the zenith is clear, said to be not infrequent, I fear that I am not too well acquainted with the condition described. Can it be a question of perspective. Small clouds, seen near the horizon, might be really a considerable distance apart. If the spectator could be transported to the neighbourhood of the small clouds what then might be the appearance. The condition described, if frequent, seems to be abnormal, and one for which it seems difficult to suggest any physical cause.

I should in conclusion draw attention to a paper communicated by Dr. Shaw, F.R.S., to the Royal Meteorological Society in 1902, entitled "*La Lune mange les Nuages*," an abstract of which is given on page 38 of Vol. 37 of this Magazine. It deals with the thermal relations of floating clouds, the variations in which can be so readily observed under a bright moon, although the phenomena described are not confined to any special period being of the class *b* (above) in which, under the moon, the clouds become illuminated, giving the impression implied in the French proverb. WILLIAM ELLIS.

*August, 1911.*

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## REVIEWS.

*Weather Science, an elementary introduction to Meteorology.* By F. W. HENKEL, B.A., late Director of Markree Observatory. London: T. Fisher Unwin, 1911. Size 8 × 5½. Pp. 336. Price 6s. net.

MR. HENKEL is well-known to the readers of this Magazine as a practical meteorological observer, with a wide knowledge of the literature of the subject. He makes no profession of originality in the work before us, and is scrupulous in citing his authorities. As is perhaps natural in an author who has had less experience of teaching than of observing, he is apt to assume familiarity with the ideas of scientific study on the part of his readers, and we fear that some will find the plunge into isobars in the first chapter a little too bracing, but the reader should soon get over this, and as he goes deeper he will find much to interest him.

Apart from a tendency to repeat statements, which after all is no great defect in a book which is an introduction and not a text book, Mr. Henkel writes agreeably and touches upon a vast number of facts and generalisations grouped in a popular rather than a strictly scientific order. That he should occasionally make a slight slip in matters of detail is not surprising, for it is difficult for anyone outside the narrow limits of his own special branch to appreciate the relative importance of the less familiar data of his own science. We only venture to refer to a few points on which we have special opportunities to be informed, and we should not do this but for the kindly recognition in the Preface of a very slight courtesy we were glad to show the Author, the terms of which might suggest that we had seen and approved the proof sheets.

The number of stations reporting to the British Rainfall Organization is quite truthfully given on p. 89 as "more than three thousand five hundred," but one thousand five hundred observers would be better pleased to see credit given for the full five thousand. On p. 90 the Snowdon rain gauge is figured, but not named, nor is the nature of the all-important differences from the Howard rain gauge made plain, "merely an improvement on Howard's" is hardly a fair description, for the improvement is revolutionary. The Camden glass is not referred to, and the reference to recording rain gauges is brief and inadequate. In the chapter on Observatories the name of the Royal Meteorological Society is given inadvertently on p. 245 for that of the Scottish Meteorological Society, to which the credit for maintaining the observatory on Ben Nevis for nearly twenty years of course belongs.

There is no doubt that the general reader will join the general chorus of praise with which the newspapers of the country have welcomed Mr. Henkel's book, the value of which to the journalist writing "a weather story" must indeed be very great.

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*Handbuch der Klimatologie* von DR. JULIUS HANN. Band III. Klimatographie. II. Teil. Klima der gemäßigten und der Polarzonen. Dritte, wesentlich umgearbeitete und vermehrte Auflage. [*Handbook of Climatology*, by DR. JULIUS HANN. Vol. III., Part 2. Climate of the Temperate and Polar Zones. Third greatly improved and enlarged edition.] Stuttgart: J. Engehorns Nachf. 1911. Size  $9 \times 6\frac{1}{2}$ . Pp. x. + 714. Price 23m.

THE new volume of Dr. Hann's second great work must be received by meteorologists with that respectful admiration which all his publications command, and this is by no means diminished although the scale of the work has prevented the author from referring to the more recent maps of average rainfall in various parts of the British Isles, or indeed mentioning the humble efforts of the British Rainfall Organization in elucidating its small corner of the problem of the climatology of the Temperate Zone. It is natural in such a work to take the continents as the main subject of comparative study, the off-lying islands introducing complications and diversities which cannot be treated adequately in a generalization on the scale employed. The great value of the largely augmented mass of material incorporated in this volume for the better known parts of the world will perhaps be found to lie in the Tables of Temperature and other climatological data which are given for each region dealt with; but in the less known regions the descriptions now given are in many cases the first authentic treatment of the climatic conditions. The chapters on the Polar regions are thus practically original works and will be very helpful as a guide to the treatment of the new data which is being accumulated regarding them.

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*Hints to Meteorological Observers.* By W. MARRIOTT, F.R.Met.Soc. Seventh Edition. London: Edward Stanford. 1911. Size 10 + 6. Pp. 76. Price 1s. 6d.

THIS popular and accurate guide to meteorological observers continues to improve as it enlarges. It is thoroughly practical, very wisely leaving out of its scope aspirations after systems of abstract perfection, with which only the learned few will ever be called upon to deal, and leaving details of difficult measurements and adjustments to the care of the specialists, who can alone cope with them. Mr. Marriott's genius as an inspector of meteorological instruments and observers makes this book the best of its kind we know.

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BRITISH RAINFALL, 1910, containing the records from nearly 5,000 stations, re-arranged according to a new plan, is now in the press, and will be issued to subscribers before the end of August.

## RAINFALL TABLE FOR JULY, 1911.

STATION.	COUNTY.	Lat. N.	Long. W. [*E.]	Height above Sea. ft.	RAINFALL OF MONTH.	
					Aver. 1875— 1909. in.	1911. in.
Camden Square.....	London.....	51 32	0 8	111	2'57	1'17
Tenterden.....	Kent.....	51 4	*0 41	190	2'21	'15
Arundel (Patchling).....	Sussex.....	50 51	0 27	130	2'46	'34
Southampton (Cadland).....	Hampshire.....	50 50	1 22	52	2'42	'13
Oxford (Magdalen College).....	Oxfordshire.....	51 45	1 15	186	2'43	'27
Wellingborough (Croyland Abbey).....	Northampton.....	52 18	0 41	174	2'54	'12
Shoeburyness.....	Essex.....	51 31	*0 48	13	1'73	'12
Bury St. Edmunds (Westley).....	Suffolk.....	52 15	*0 40	226	2'68	'37
Geldeston [Beccles].....	Norfolk.....	52 27	*1 31	38	2'37	'60
Polapit Tamar [Launceston].....	Devon.....	50 40	4 22	315	2'74	'55
Rousdon [Lyme Regis].....	„.....	50 41	3 0	516	2'68	'28
Stroud (Upfield).....	Gloucestershire.....	51 44	2 13	226	2'75	'17
Church Stretton (Wolstaston).....	Shropshire.....	52 35	2 48	800	2'58	'51
Coventry (Kingswood).....	Warwickshire.....	52 24	1 30	340	2'60	'19
Boston.....	Lincolnshire.....	52 58	0 1	25	2'35	'13
Worksop (Hodsock Priory).....	Nottinghamshire.....	53 22	1 5	56	2'35	'15
Macclesfield.....	Cheshire.....	53 15	2 7	501	3'41	'45
Southport (Hesketh Park).....	Lancashire.....	53 38	2 59	38	2'92	'35
Wetherby (Ribston Hall).....	Yorkshire, W.R.....	53 59	1 24	130	2'56	'47
Arncliffe Vicarage.....	„.....	54 8	2 6	732	4'75	1'07
Hull (Pearson Park).....	„ E.R.....	53 45	0 20	6	2'39	'71
Newcastle (Town Moor).....	Northumberland.....	54 59	1 38	201	2'90	1'05
Borrowdale (Seathwaite).....	Cumberland.....	54 30	3 10	423	8'91	2'73
Cardiff (Ely).....	Glamorgan.....	51 29	3 13	53	3'26	'45
Haverfordwest.....	Pembroke.....	51 48	4 58	95	3'39	'63
Aberystwyth (Gogerddan).....	Cardigan.....	52 26	4 1	83	4'03	'85
Llandudno.....	Carnarvon.....	53 20	3 50	72	2'52	1'17
Cargen [Dumtries].....	Kirkcudbright.....	55 2	3 37	80	3'20	1'66
Marchmont House.....	Berwick.....	55 44	2 24	498	3'30	'89
Girvan (Pinmore).....	Ayr.....	55 10	4 49	207	3'73	3'00
Glasgow (Queen's Park).....	Renfrew.....	55 53	4 18	144	2'91	2'05
Inveraray (Newtown).....	Argyll.....	56 14	5 4	17	4'72	5'64
Mull (Quinish).....	„.....	56 34	6 13	35	4'12	4'62
Dundee (Eastern Necropolis).....	Forfar.....	56 28	2 57	199	2'84	1'14
Braemar.....	Aberdeen.....	57 0	3 24	1114	2'65	1'40
Aberdeen (Cranford).....	„.....	57 8	2 7	120	3'00	1'49
Cawdor.....	Nairn.....	57 31	3 57	250	3'14	2'74
Fort Augustus (S. Benedict's).....	E. Inverness.....	57 9	4 41	68	2'98	1'76
Loch Torridon (Bendamph).....	W. Ross.....	57 32	5 32	20	5'35	8'45
Dunrobin Castle.....	Sutherland.....	57 59	3 56	14	2'91	2'22
Wick.....	Caithness.....	58 26	3 6	77	2'67	2'44
Killarney (District Asylum).....	Kerry.....	52 4	9 31	178	3'53	2'92
Waterford (Brook Lodge).....	Waterford.....	52 15	7 7	104	3'13	3'37
Nenagh (Castle Lough).....	Tipperary.....	52 54	8 24	120	3'02	3'88
Milton Malbay.....	Clare.....	52 52	9 26	400	3'59	2'91
Gorey (Courtown House).....	Wexford.....	52 40	6 13	80	2'90	2'31
Abbey Leix (Blandsfort).....	Queen's County.....	52 56	7 17	532	2'99	4'09
Dublin (Fitz William Square).....	Dublin.....	53 21	6 14	54	2'60	2'99
Mullingar (Belvedere).....	Westmeath.....	53 29	7 22	367	3'16	2'80
Ballinasloe.....	Galway.....	53 20	8 15	160	3'07	2'74
Crossmolina (Enniscooe).....	Mayo.....	54 4	9 18	74	3'26	4'48
Collooney (Markree Obsy.).....	Sligo.....	54 11	8 27	127	3'36	4'14
Seaforde.....	Down.....	54 19	5 50	180	3'32	1'06
Bushmills (Dundarave).....	Antrim.....	55 12	6 30	162	3'28	3'23
Omagh (Edenfel).....	Tyrone.....	54 36	7 18	280	3'34	4'09



## RAINFALL TABLE FOR JULY, 1911—continued.

RAINFALL OF MONTH (con.)					RAINFALL FROM JAN. 1.				Mean Annual 1875-1909.	STATION.
Diff. from Av. in.	% of Av.	Max. in 24 hours.		No. of Days	Aver. 1875-1909.	1911.	Diff. from Aver. in.	% of Av.		
		in.	Date.		in.	in.			in.	
-1.40	46	.89	28	5	13.53	12.05	-1.48	89	25.11	Camden Square
-2.06	7	.08	24	2	13.65	9.86	-3.79	72	27.64	Tenterden
-2.12	14	.17	26	3	14.92	10.40	-4.52	70	30.48	Patching
-2.29	5	.12	29	2	15.73	10.81	-4.92	69	31.87	Cadland
-2.16	11	.24	29	2	13.03	8.14	-4.89	63	24.58	Oxford
-2.42	5	.06	27	4	13.68	8.80	-4.88	64	25.17	Croyland Abbey
-1.61	7	.10	24	3	9.73	7.30	-2.43	75	19.28	Shoeburyness
-2.31	14	.17	26	4	13.44	10.65	-2.79	79	25.40	Westley
-1.77	25	.29	24	6	11.98	9.68	-2.30	81	23.73	Geldeston
-2.19	20	.35	29	6	18.62	14.17	-4.45	76	38.27	Polapit Tamar
-2.40	10	.28	29	1	17.01	10.15	-6.86	60	33.54	Rousdon
-2.58	6	.09	26	3	15.83	10.18	-5.65	64	29.81	Stroud
-2.07	20	.39	29	5	16.88	11.34	-5.54	67	32.41	Wolstaston
-2.41	7	.14	29	3	15.35	8.03	-7.32	52	28.98	Coventry
-2.22	6	.06	20	6	12.21	8.61	-3.60	71	23.35	Boston
-2.20	6	.05	19, 29	6	13.15	6.93	-6.22	53	24.46	Hodsock Priory
-2.96	13	.14	1	9	18.17	13.64	-4.53	75	34.73	Macclesfield
-2.57	12	.10	30	8	15.88	11.49	-4.39	72	32.70	Southport
-2.09	18	.15	2	6	14.19	10.98	-3.21	77	26.87	Ribston Hall
-3.68	22	.30	20	11	31.97	35.57	+3.60	111	61.49	Arnccliffe
-1.68	30	.30	29	8	13.47	10.60	-2.87	79	26.42	Hull
-1.85	36	.40	2	11	14.45	12.55	-1.90	87	27.94	Newcastle
-6.18	31	1.19	20	14	65.29	72.67	+7.38	111	129.48	Seathwaite
-2.81	14	.18	30	5	20.48	15.99	-4.49	78	42.28	Cardiff
-2.76	19	.21	22	9	22.84	17.52	-5.32	77	46.81	Haverfordwest
-3.18	21	.32	29	6	22.15	18.06	-4.09	81	45.46	Gogerddan
-1.35	46	.85	29	9	14.89	11.35	-3.54	76	30.36	Llandudno
-1.54	52	.86	27	11	22.26	23.48	+1.22	105	43.47	Cargen
-2.41	27	.16	20, 29	11	17.68	14.43	-3.25	82	33.76	Marchmont
- .73	80	.53	28	23	24.83	24.93	+ .10	100	49.77	Girvan
- .86	70	.62	27	13	18.42	19.11	+ .69	104	35.97	Glasgow
+ .92	120	.92	4	24	34.04	44.55	+10.51	131	68.67	Inveraray
+ .50	112	1.02	24	24	27.67	30.18	+2.51	109	56.57	Quinish
-1.70	40	.22	20	16	14.86	6.47	-8.39	44	28.64	Dundee
-1.25	53	...	...	...	17.80	14.65	-3.15	82	34.93	Braemar
-1.51	50	.32	16	15	17.02	12.37	-4.65	73	32.73	Aberdeen
- .40	87	.47	1	10	15.65	15.20	- .45	97	29.33	Cawdor
-1.22	59	.39	27	20	23.20	21.61	-1.59	93	44.53	Fort Augustus
+3.10	158	1.17	7	24	42.74	53.10	+10.36	124	83.61	Bendamp
- .69	76	.47	7	14	17.19	15.07	-2.12	88	31.90	Dunrobin Castle
- .23	91	.47	18	18	15.38	15.82	+ .44	103	29.88	Wick
- .61	83	.75	21, 26	12	28.40	24.49	-3.91	86	54.81	Killarney
+ .24	108	1.16	31	11	20.53	17.34	-3.19	84	39.57	Waterford
+ .86	129	1.60	29	11	20.53	18.48	-2.05	90	39.43	Castle Lough
- .68	81	.70	29	18	22.30	18.48	-3.82	83	45.11	Miltown Malbay
- .59	80	.77	26	11	18.32	11.98	-6.34	65	34.99	Courtown Ho.
+1.10	137	1.27	31	13	18.83	17.30	-1.53	92	35.92	Abbey Leix
+ .39	115	1.24	29	14	14.75	10.72	-4.03	73	27.68	Dublin
- .36	89	.58	31	11	19.17	18.25	- .92	95	36.15	Mullingar
- .33	89	1.02	29	14	19.22	17.69	-1.53	92	36.64	Ballinasloe
+1.22	137	1.22	31	19	26.64	23.74	-2.90	89	52.87	Enniscoe
+ .78	123	.77	29	17	22.19	19.57	-2.62	88	42.71	Markree
-2.26	32	.18	3	12	20.74	14.86	-5.88	72	38.91	Seaforde
- .05	98	.41	27	22	18.77	16.08	-2.69	86	37.56	Dundarave
+ .75	122	.60	30	18	20.44	19.39	-1.05	95	39.38	Omagh

## SUPPLEMENTARY RAINFALL, JULY, 1911.

Div.	STATION.	Rain inches	Div.	STATION.	Rain. inches
II.	Warlingham, Redvers Road	·24	XI.	Lligwy .....	·74
"	Ramsgate .....	·32	"	Douglas .....	2·34
"	Hailsham .....	·46	XII.	Stoneykirk, Ardwell House	2·28
"	Totland Bay, Aston House.	·15	"	Dalry, The Old Garroch ...	2·63
"	Stockbridge, Ashley .....	·01	"	Langholm, Drove Road.....	1·85
"	Grayshott .....	·92	"	Beattock, Kinnelhead.....	2·77
"	Reading, Calcot Place.....	·31	XIII.	St Mary's Loch, Cramilt Ldge	1·37
III.	Harrow Weald, Hill House.	·46	"	North Berwick Reservoir ...	1·19
"	Pitsford, Sedgebrook .....	·43	"	Edinburgh, Royal Observty.	·96
"	Somersham Vicarage.....	·22	XIV.	Maybole, Knockdon Farm...	2·35
"	Woburn, Milton Bryant....	·46	XV.	Campbeltown, Witchburn...	3·50
IV.	Colchester, Lexden.....	·35	"	Glenreadell Mains.....	4·11
"	Newport .....	·31	"	Holy Loch, Ardnadam.....	4·93
"	Rendlesham .....	·57	"	Ballachulish House.....	3·48
"	Swaffham .....	·16	"	Islay, Fallabus .....	4·12
"	Blakeney .....	·30	XVI.	Dollar Academy .....	3·12
V.	Bishops Cannings .....	·04	"	Balquhider, Stronvar .....	3·62
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"	Okehampton, Oaklands.....	·33	"	Blair Atholl.....	1·87
"	Cullompton .....	·30	"	Montrose, Sunnyside Asylum	1·11
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"	Blockley, Upton Wold .....	·05	"	Loch Ness, Drumnadrochit.	1·24
"	Droitwich .....	·33	"	Glen carron Lodge .....	7·44
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## METEOROLOGICAL NOTES ON JULY, 1911.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Temp. for Temperature; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; TS for Thunderstorm; R for Rain; H for Hail; S for Snow; F for number of days Frost in Screen; f on Grass.

LONDON, CAMDEN SQUARE.—Brilliantly sunny and warm weather continued throughout the month. An absolute drought of 24 days ended on 23rd. Only five instances of longer droughts have occurred in the preceding 53 years. During a TS on 28th, .75 in. of R fell in ten minutes. The mean temp.,  $69^{\circ}\cdot 0$ , was  $5^{\circ}\cdot 5$  above the average, and the highest on record for any month. Duration of R  $5^{\circ}\cdot 5$  hours, and of sunshine  $283^{\circ}\cdot 1^*$  hours, with no sunless days. Evaporation  $4^{\circ}\cdot 60$  in. The shade max.,  $92^{\circ}\cdot 6$  on 22nd, was the highest temp. recorded in July since 25th July, 1900; min.  $48^{\circ}\cdot 5$  on 3rd. F 0, f 0.

TENTERDEN.—The driest July in 49 years. The duration of sunshine,  $358^{\circ}\cdot 0^{\dagger}$  hours, was the most for any month in 20 years. Shade max.  $93^{\circ}\cdot 5$  on 22nd; min.  $44^{\circ}\cdot 5$  on 3rd. F 0, f 0.

TOTLAND BAY.—Temp. exceeded  $80^{\circ}$  on eight days. Mean temp.  $65^{\circ}\cdot 6$ . Duration of sunshine,  $377^{\circ}\cdot 5^*$  hours, was the greatest ever recorded. Shade max.  $85^{\circ}\cdot 2$  on 29th; min.  $46^{\circ}\cdot 9$  on 4th. F 0, f 0.

PITSFORD.—R  $3^{\circ}\cdot 17$  in. below the average. Mean temp.  $66^{\circ}\cdot 0$ . Shade max.  $92^{\circ}\cdot 4$  on 29th; min.  $41^{\circ}\cdot 5$  on 11th. F 0.

POLAPIT TAMAR.—Exceptionally sunny, hot and dry. An absolute drought lasted from 1st to 16th, and a smaller total R has only occurred twice before in 42 years. Shade max.  $85^{\circ}\cdot 0$  on 8th; min.  $45^{\circ}\cdot 2$  on 6th. F 0, f 0.

ROSS.—Shade max.  $91^{\circ}\cdot 8$  on 29th; min.  $41^{\circ}\cdot 5$  on 16th.

HODSOCK PRIORY.—Shade max.  $89^{\circ}\cdot 1$  on 28th; min.  $38^{\circ}\cdot 5$  on 11th. F 0, f 1.

SOUTHPORT.—The driest July in 40 years. Duration of sunshine  $284^{\circ}\cdot 3^*$  hours, and the greatest for the month in 20 years' record. Duration of R,  $6^{\circ}\cdot 5$  hours. Shade max.  $85^{\circ}\cdot 8$  on 29th; min.  $45^{\circ}\cdot 1$  on 24th. F 0, f 0.

HULL.—Shade max.  $89^{\circ}\cdot 0$  on 21st; min.  $45^{\circ}\cdot 0$  on 3rd. F 0, f 0.

HAVERFORDWEST.—Hot and dry. No R fell until 21st. Duration of sunshine  $295^{\circ}\cdot 9^*$  hours. Shade max.  $86^{\circ}\cdot 1$  on 29th; min.  $42^{\circ}\cdot 6$  on 24th. F 0, f 0.

LLANDUDNO.—Shade max.  $84^{\circ}\cdot 8$  on 29th; min.  $49^{\circ}\cdot 2$  on 2nd.

CARGEN.—Shade max.  $88^{\circ}\cdot 0$  on 13th; min.  $41^{\circ}\cdot 8$  on 1st. F 0.

EDINBURGH.—Shade max.  $83^{\circ}\cdot 7$  on 12th; min.  $43^{\circ}\cdot 0$  on 3rd. F 0, f 0.

COUPAR ANGUS.—The seventh successive month with deficient R. Shade max.  $91^{\circ}\cdot 0$  on 12th; min.  $36^{\circ}\cdot 0$  on 3rd. F 0, f 0.

FORT AUGUSTUS.—Shade max.  $84^{\circ}\cdot 1$  on 12th; min.  $37^{\circ}\cdot 1$  on 3rd.

CORK.—An absolute drought of 19 days ended on 18th. Shade max.  $79^{\circ}\cdot 0$  on 14th; min.  $44^{\circ}\cdot 0$  on 3rd. F 0, f 0.

DUBLIN.—Until the 19th the R was only .03 in., but of the last 14 days 11 were rain days. A violent TS on the afternoon of 29th gave  $1^{\circ}\cdot 21$  in. of R in 45 minutes. Mean temp.  $63^{\circ}\cdot 5$ . Temp. rose above  $70^{\circ}$  on 21 days. Shade max.  $78^{\circ}\cdot 2$  on 13th; min.  $45^{\circ}\cdot 6$  on 2nd. F 0, f 0.

MARKREE.—Fine until 18th, but R fell on most days after with T on several occasions. Shade max.  $82^{\circ}\cdot 0$  on 12th; min.  $41^{\circ}\cdot 0$  on 23rd. F 0, f 0.

WARRENPOINT.—On the whole a fine warm month, but considerable R at the latter end with severe TSS. Shade max.  $78^{\circ}\cdot 0$  on 13th; min.  $50^{\circ}\cdot 0$  on 1st. F 0, f 0.

\* Campbell-Stokes.

† Jordan.

## Climatological Table for the British Empire, February, 1911.

STATIONS  (Those in italics are South of the Equator.)	Absolute.				Average.				Absolute.		Total Rain		Aver. Cloud.
	Maximum.		Minimum.		Max.	Min.	Dew Point.	Humidity.	Max. in Sun.	Min. on Grass.	Depth.	Days.	
	Temp.	Date.	Temp.	Date.									
London, Camden Square	55·6	18	20·5	1	46·7	35·2	36·6	83	92·3	17·5	1·43	14	6·5
Malta ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Lagos ... ..	92·0	26	74·0	1	88·4	76·6	76·8	72	149·0	71·0	·29	2	...
Cape Town ... ..	99·4	10	54·0	15	82·6	62·5	60·9	69	...	...	·50	5	2·6
Durban, Natal ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Johannesburg ... ..	35·0	16	43·9	25	75·3	54·4	53·3	70	149·1	43·2	3·10	9	3·6
Mauritius ... ..	85·6	21	67·0	21	83·1	72·5	70·9	81	160·7	60·6	12·68	18	6·9
Calcutta... ..	94·7	27	47·8	3	85·0	58·0	54·0	57	...	40·4	·05	1	1·0
Bombay... ..	91·2	13	58·6	2	84·4	68·1	63·2	67	135·2	50·1	·00	0	0·6
Madras ... ..	92·1	1	62·0	20	86·3	65·7	65·5	72	141·3	58·6	·00	0	1·5
Kodaikanal ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Colombo, Ceylon ... ..	94·7	7	67·1	14	88·9	71·1	69·6	73	156·0	62·4	·45	1	3·9
Hongkong ... ..	74·2	15	47·1	24	65·5	56·2	51·0	71	125·0	...	·00	0	5·0
Sydney ... ..	87·9	27	59·4	17	77·7	65·2	59·6	67	152·0	53·0	4·92	23	6·1
Melbourne ... ..	90·3	8	52·4	20	76·7	60·0	57·1	67	152·1	46·7	5·35	14	5·9
Hobart, Tasmania ... ..	84·0	22	49·0	24	72·9	57·1	52·9	65	151·2	45·2	2·27	13	5·5
Adelaide ... ..	97·5	22	50·6	26	80·3	61·6	55·5	59	162·9	43·0	1·30	12	5·5
Perth ... ..	101·2	1	53·4	22	85·3	63·1	54·9	50	159·2	45·1	·03	1	2·4
Coolgardie ... ..	103·6	20	51·0	13*	88·3	59·4	48·8	36	171·0	48·0	·00	0	2·0
Wellington ... ..	74·6	18	46·6	5	67·1	53·4	51·2	72	129·0	39·0	7·58	9	6·3
Auckland ... ..	77·5	13	50·5	6	73·4	58·4	62·8	90	147·0	47·0	1·76	7	5·0
Jamaica, Kingston ... ..	89·8	14	65·3	4	87·0	65·9	61·2	66	...	...	·03	2	3·3
Grenada ... ..	87·0	17	69·0	†	82·0	71·0	75·5	...	141·2	...	2·77	13	4·5
Toronto ... ..	47·7	25	4·7	6	32·2	18·7	...	...	60·8	1·6	2·12	14	7·2
Fredericton ... ..	44·0	27	—22·0	13	23·4	—1·5	...	81	...	...	1·47	7	4·5
St. John, N.B. ... ..	44·3	27	—6·2	13	24·8	7·4	...	71	...	...	2·41	9	4·3
Victoria, B.C. ... ..	49·0	28	24·4	2	44·1	34·0	...	78	...	...	·96	11	7·0
Dawson ... ..	45·0	19	—54·0	1	3·6	—15·7	...	...	...	...	·91	9	6·5

\* and 28.

† 4 days.

*Johannesburg*.—Bright sunshine 247·7 hours.*Mauritius*.—Mean temp. of air 1°·3, dew point 0°·2 below, and R 5·46 in. above, averages. Mean hourly velocity of wind 13·2 miles, or 4·0 above the average.

COLOMBO.—Mean temp. of air 78°·0, or 2°·1 below, of dew point 1°·0 below, and R 1·52 in. below, averages. Mean hourly velocity of wind 6·1 miles.

HONGKONG.—Mean temp. of air 60°·2, or 2°·2 above, R 1·75 in. below, averages. Bright sunshine 189·9 hours. Mean hourly velocity of wind 14·0 miles.

*Sydney*.—Mean temp. of air 0°·4 below, and R 2·26 in., above, averages.*Melbourne*.—Mean temp. of air 1°·1 above, and R 3·66 in. above, averages.*Adelaide*.—Mean temp. of air 71°·0, or 3°·0 below, and R ·72 in. above, averages.*Wellington*.—Mean temp. of air 60°·2, or 2°·2 below, and R 4·25 in. above, averages. Bright sunshine 221·2 hours.*Auckland*.—Mean temp. of air under average,



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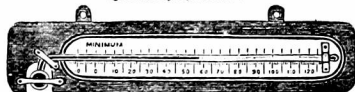
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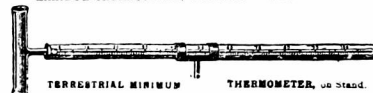
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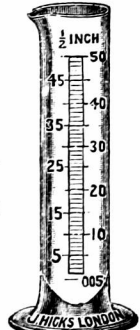
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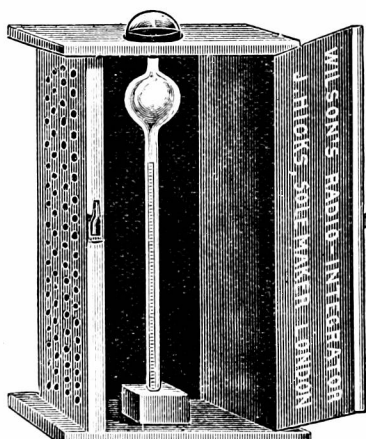
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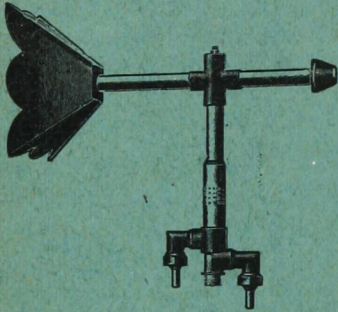
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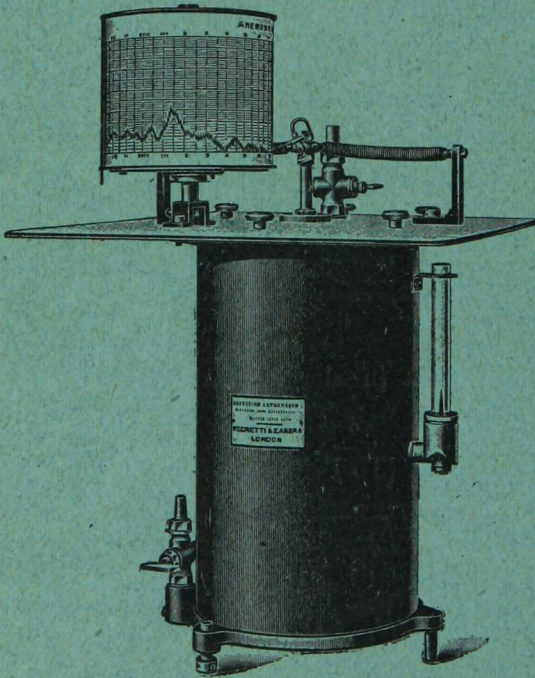
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