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XLIV. Remarks on the weather during the quarter ending March 31, 1850

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expressed. In such a case this supposed bibasic prusside and the nitroprusside would stand in a very simple relation:

$$\begin{aligned} &Fe^2\,Cy^6 \quad\quad + 2R, \\ &Fe^2\,Cy^5\,NO + 2R. \end{aligned}$$

The complicated formula required by the analyses of all the nitroprussides might be resolved into $2(Fe^2\,Cy^5\,NO + 2R) + (Fe\,Cy^2\,NO + R)$, in which the latter member is constituted on the same type, but more cyanogen is displaced by the nitrous oxide. It will not excite surprise, after what has been learned in the previous inquiry as to the obstinate manner in which the nitroprussides unite with cyanides from which they are not removable by any means tried, that a salt constituted on the same type should unite with the true nitroprussides and form an integrant conjugate compound which is not broken up by crystallization. It appears therefore very probable that the true formula of the nitroprussides may in reality be $Fe^2\,Cy^5\,NO + 2R$, and that further research may eliminate this compound. Hitherto this has not been done, and the only formula which correctly expresses the analysis is $Fe^5\,Cy^{12}\,3NO + 5R$, which on theoretical, but on no other grounds, may be resolved into

$$2(Fe^2\,Cy^5\,NO + 2R) + (Fe\,Cy^2\,NO + R).$$

I trust soon to be able to present to the Society another memoir on the prussides, which will confirm experimentally some of the views theoretically supported in the present communication; but at present I submit the previous results with a view of drawing attention to this interesting class of salts, and with a perfect conviction that future research will simplify and explain the remarkably complex and unsatisfactory formulæ which I have been obliged to adopt, without believing them to be the correct expression of the constitution of the salts.

XLIV. *Remarks on the Weather during the Quarter ending March* 31, 1850. *By* James Glaisher, *Esq.*, *F.R.S.*, *F.R.A.S.*, *and of the Royal Observatory, Greenwich**.

At the beginning and towards the end of the quarter there was much snow; the amount of rain was less than usual. The weather was mild in February and severe towards the end of March.

* Communicated by the Author.

The mean daily temperatures of the air till January 24 were below their average values; the mean deficiency was 4°·6. From January 25 to March 13 they were above their average values; the mean excess was 5°·8; and from March 14 they were below their average values; and the mean deficiency was 6°·2.

The mean temperature of the air at Greenwich for the three months ending February, constituting the three winter months, was 39°·2; and that of the average from the seventy-nine preceding winters was 37°·6.

For the month of January was 33°·7, being 2°·0 *less* than the average of the seventy-nine preceding years, and 3°·8 *less* than that of the preceding nine years.

For the month of February was 44°·7, *exceeding* that of the average of the preceding seventy-nine years by 6°·5, and *exceeding* that of the preceding nine years by 5°·1.

For the month of March was 39°·9, being *less* than that of the average of seventy-nine years by 1°·0, and *less* than that of the preceding nine years by 2°·5.

The mean for the quarter was 39°·4, *exceeding* the average of seventy-nine years by 1°·2, and *less* than that of the preceding nine years by 0°·4.

The mean temperature of evaporation at Greenwich—

For the month of January was 32°·5; for February was 42°·3; and for March was 37°·0. These values are 4°·4 *less*, 5°·0 *greater*, and 2°·8 *less* than those of the averages of the same months in the preceding eight years.

The mean temperature of the dew-point at Greenwich—

For the months of January, February and March, were 29°·5, 39°·2 and 32°·7 respectively. These values are 5°·7 *below*, 4°·1 *above*, and 3°·9 *below* respectively the averages of the same months in the preceding eight years. The mean value for the quarter was 33°·8, and that for the preceding eight years was 35°·6.

The mean elastic force of vapour at Greenwich for the quarter was 0·214 inch, being *less* than the average from the preceding eight years by 0·023 inch.

The mean weight of water in a cubic foot of air for the quarter was 2·5 grains. The average from the preceding eight years was 2·7 grains.

The mean degree of humidity in January was 0·897, in February was 0·830, and in March was 0·770. The averages from the eight preceding years were 0·901, 0·886 and 0·836 respectively.

The mean reading of the barometer at Greenwich in January was 29·854 inches, in February was 29·828, and in March was

30·039. These readings are 0·088, 0·091, and 0·289 *greater* respectively than the averages of the same months in the preceding nine years.

The reading of the barometer at Greenwich was 30·17 inches on January 1; decreased to 29·31 by 10^h A.M. on the 6th; increased to 29·90 by the 13th; decreased to 29·27 by the 15th; increased to 29·86 by the 18th; decreased to 29·34 by the 19th; increased to 30·40 by the 22nd; decreased to 29·28 by 3^h P.M. on the 26th; increased to 30·42 by the 27th at 1^h P.M., having passed the point 30·00 at midnight. This great increase of 1·14 in twenty-two hours was very great. The reading on the 28th was 29·74; increased to 30·22 by the 30th; decreased to 28·80 by February 6; increased to 29·60 by Feb. 8; decreased to 29·30 by Feb. 9; increased to 30·00 by Feb. 10; decreased to 29·12 by the 12th, and increased to 30·00 by the 16th; and from this day till March 22, with the single exception of March 3, the reading was above 30 inches. This high reading for so long a period is remarkable. On March 23 the reading was 29·39, which increased to 30·01 by the 29th, and decreased to 29·67 by the end of the month.

The average weight of a cubic foot of air for the quarter, under the average temperature, humidity and pressure, was 551 grains; being six grains *greater* than the average from the eight preceding years.

The rain fallen at Greenwich in January was 1·2 inch, in February was 1·3, and in March was 0·3 respectively. The falls for these three months on an average of thirty-four years, are 1·6, 1·6 and 1·4 respectively.

The average daily ranges of the readings of the thermometer in air at the height of four feet above the soil, in January was 8°·5, in February was 11°·6, and in March was 16°·4. The averages for these three months from the preceding nine years were 8°·4, 10°·0 and 13°·4 respectively.

The minimum readings of the thermometer on grass in January was at or below 32° on twenty-four nights; the lowest was 12°·8, and exceeded 32° on seven nights; the highest was 40°·5. In February the readings were at or below 32° on sixteen nights; the lowest was 19°, and exceeded 32° on twelve nights; the highest was 44°. In March the reading was at or below 32° on twenty-four nights; the lowest was 12°·8, and exceeded 32° on seven nights; the highest was 40°.

The temperature of the Thames water, from the observations of Lieut. Sanders, R.N., Superintendent of the Dreadnought Hospital Ship, was 32°·4 in January, 41°·3 in February, and 41°·2 in March.

Fog was prevalent at Conway, Liverpool, Manchester, Birmingham, Southampton, on January 1; at Glasgow, Beattock, Lancaster, Manchester, Gloucester, Oxford, Plymouth and Southampton, on January 2; it was general on the 3rd; at Birmingham, Reading, Southampton, Brighton, Basingstoke, Hastings and Stone, on the 4th; at Liverpool, Gloucester, Oxford and Southampton, on the 6th; at Crewe, Plymouth and Manchester, on the 7th; all over the country on the 8th; at several places on the 9th; at Dundee, Liverpool, Peterborough and Gloucester, on the 10th; at Edinburgh and Southampton on the 11th; at Southampton on the 13th and 14th; at Sunderland, Whitby, Liverpool, Oxford and Southampton, on the 16th; at several places on the 17th; on the 18th it was general; on the 19th at Crewe, Southampton, Brighton and Hartwell Rectory; on the 20th at Manchester; on the 21st at Southampton; on the 22nd, 23rd, and 24th at many places; on the 25th at Folkestone and Hartwell Rectory; on the 29th at Southampton, Brighton and Hastings; on the 30th at Sunderland and Hartlepool; and on the 31st at Plymouth.

On February 1 at Hartwell, Hastings and Folkestone; on the 2nd at Weymouth; on the 4th at Plymouth, Stone and Hartwell Rectory; on the 5th at Stone; on the 15th at Weymouth, Portsmouth, Brighton and Hastings; on the 25th, 26th, 27th, it was prevalent over the south of England; and on the 28th it was general over the country.

On March 1 general in the south of England; on the 3rd at Southampton; on the 5th at Plymouth; on the 6th at Plymouth, Beckington, Basingstoke, Southampton and Stone; on the 7th and 8th it was general over the south of England; on the 9th it was general from the south coast to Hartlepool and Darlington; on the 11th at Manchester; on the 12th at Manchester, Birmingham and Plymouth; on the 13th at Birmingham, Rugby, Lancaster, Plymouth and Southampton; on the 14th at Hartlepool, Lancaster and Folkestone; on the 15th at Dundee, Lanark and Whitby; on the 16th at Whitby and Lancaster; on the 18th at Hartlepool, Whitby and Manchester; on the 19th at Hartlepool, Whitby and Conway; on the 21st at Southampton; on the 22nd at Oxford; and on the 27th at Liverpool. Fog has prevailed more or less on fifty-four days during the quarter.

Meteors were seen at Nottingham on February 3, 4, 9, 10, 11, 13, 20, 26, March 7 and 17.

At Hartwell Rectory, on February 3, a meteor was seen at 11^h P.M.; on February 9 a meteor at $11^h\ 15^m$ P.M. passed from Aries to Orion; on Feb. 11, at $10^h\ 40^m$ P.M., the bright

light of a meteor was observed, followed at an interval of two minutes by a distant report from the N.E. by N. resembling the sound which follows the distant fall of an avalanche*.

At Stone, on February 22, at $11^h\ 57^m$ P.M., a large meteor was seen to the south, which shot from west of the constellation Crater, and went southward, leaving a train of light; it exploded when near the horizon.

At Aylesbury, on February 22, at $11^h\ 45^m$, a large meteor was seen.

On March 4, at $7^h\ 20^m$ P.M., a meteor crossed Orion.

On March 11, at $8^h\ 47^m$ P.M., a meteor shot northward from east of Jupiter.

On March 15, at $7^h\ 25^m$ P.M., a meteor shot from near α Ursæ Majoris, passing Regulus, to α Hydræ.

On March 17, at $6^h\ 55^m$ P.M., a splendid meteor of the colour and size of Jupiter shot from a little above Sirius and travelled due south 15°, leaving a train of blue light about 5° in length.

On March 17, at $9^h\ 48^m$ P.M., a meteor shot from ζ Cancri, and went the short space of half a degree only.

On March 28, at $8^h\ 45^m$ P.M., a red meteor shot northward from α Persei to γ Andromedæ, leaving a train of blue light.

On March 31, at $9^h\ 5^m$ P.M., a meteor shot from γ Virginis and went east 3° or 4°.

Solar halos were seen at Nottingham on January 1; at Whitehaven on January 7; at Aylesbury on January 30; at Nottingham on February 1, 2 and 20; at Stone on March 11; at Nottingham on March 22 and 26; at Greenwich, Aylesbury, Stone and Nottingham, on March 29; and at Greenwich, Stone and Nottingham, on March 30.

Lunar halos were seen at Hartwell Rectory and Norwich on the 27th; on the 28th at Norwich; and on the 30th at Greenwich and Cardington; on February 16 at Nottingham; on the 19th at Aylesbury; on the 20th at Guernsey, Truro, Greenwich, Stone, Cardington and Norwich; on the 21st at Greenwich and Aylesbury; on the 22nd at Cardington, Norwich and Durham; on the 23rd at Guernsey, Greenwich, Hartwell Rectory, Cardington and Durham; on the 24th at Stone; on the 27th at Guernsey, Aylesbury, Stone and Hartwell Rectory; on March 21 at Hartwell Rectory and at Norwich; on March 25 at Stone and Hartwell Rectory; on the 26th at Durham and Hawarden; on March 27 at Rose Hill near

* For accounts of this meteor see the Philosophical Magazine for the months of March and April.

Oxford; on March 28 at Stonyhurst; on the 29th at Greenwich; and on the 31st at Cardington.

Lunar coronæ were seen at Stone on January 23, 25, 27, 29; March 20, 21 and 25.

Auroræ were seen on January 5 at Greenwich; on January 30 at Hartwell; on February 6 at Whitehaven, Stonyhurst and Durham; on February 9 at Manchester; on February 10 at Stone; on February 12 at Durham; on March 9 at Whitehaven; on March 10 at Nottingham and Stonyhurst; on March 11 at Greenwich and Stonyhurst; on March 27 at Rose Hill near Oxford; on March 28 at Stone; and on March 29 at Stone and Leeds.

Thunder-storms occurred on February 4 at Helston; on February 5 at Helston, Cardington and Holkham; on March 27 at Hawarden and Leeds; on March 28 and 29 at Helston.

Thunder was heard, but lightning was not seen, on January 13 at Helston; on March 28 at Derby; on March 29 at Helston; and on March 31 at Derby.

Lightning was seen, but thunder was not heard, on January 9 at Oxford; on February 4 at Leeds; on February 5 at Aylesbury, Stone, Hartwell Rectory and Nottingham; on February 6 at Aylesbury, Oxford, Hawarden and Nottingham; on February 7 at Hartwell and Hartwell Rectory; on February 8 at Hartwell; on February 9 at Leeds; and on February 27 at Hawarden.

Hail fell on January 4 at Stonyhurst; on January 5 at Guernsey, Helston and Truro; on January 6 and 8 at Holkham; on January 9 at Greenwich; on January 10 at Guernsey; on January 11 at Helston; on January 12 at Helston and Truro; on January 14 at Helston; on January 15 at Guernsey; on January 26 at Hartwell and Nottingham; on January 27 at Holkham and Rose Hill, Oxford; on February 3 at Stonyhurst; on February 5 at Uckfield, Stonyhurst and Saffron Walden; on February 6 at Guernsey, Nottingham and Stonyhurst; on February 7 at Stone, Cardington, Stonyhurst and Hawarden; on February 8 at Cardington; on February 11 at Hawarden; on February 12 at Truro and Nottingham; on March 16 at Nottingham; on March 21 at Stonyhurst; on March 23 at Helston, Truro, Hawarden and Nottingham; on March 24 at Helston, Truro and Holkham; on March 25 at Helston, Truro and Stonyhurst; and on March 27 at Helston.

Zodiacal light has been seen on February 3, 4, 7, 9, 11, 12, 13, 20, 26, and on almost every clear evening in March. Its boundary was noticed at Stone on March 4, at $7^h\ 10^m$ P.M.,

its apex reached to the Pleiades, and its north side passed by α Arietis and γ Pegasi; its south side passed by η and β Ceti. The sun seemed to be in the centre of its base; its axis was coincident with the ecliptic. The light seemed to move northward as it was going down with the stars.

Snow fell at Saffron Walden on January 3; at Manchester and Stonyhurst on the 4th; at many places on the 5th; at Uckfield, Holkham, Liverpool and Oxford, on the 6th; at Birmingham on the 7th; at Uckfield and Saffron Walden on the 8th; on every day from the 9th to the 22nd it fell at many places; at times it was falling all over the country; on the 26th it was falling at many places; and on the 31st at Shap, Darlington, Manchester, Leeds and Nottingham. On February 7 at Glasgow, Lanark and Saffron Walden; on the 12th at Glasgow, Lanark, Shap, Stone, Hartwell, Norwich, Manchester, Hawarden, Saffron Walden and Nottingham; and on the 13th at Whitby. From February 14 to March 15 no snow fell; on March 15 it fell at Hartwell; on the 17th at Holkham and Saffron Walden; on the 27th at Holkham, Leeds and York; from the 23rd to the 27th it fell at many places on every day; on the 23rd and 26th it was falling all over the country from Guernsey to Edinburgh. On the 27th at many places from the south coast to Stonyhurst; on the 28th at Derby, Leeds and Durham; and on the 29th at Leeds.

Frost at various places on January 1, 2, 5, 6, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 21, 22, 23, 24, 29, 30, 31; February 4, 7, 12, 13; March 4, 12, 13, 18, 23, 25, 26, 27, 28 and 31.

The direction of the wind at Greenwich was south-west till January 5, passing at the rate of 86 miles daily; it was north-east from January 6 to January 21, passing at the rate of 80 miles daily; it was mostly south-west from January 21 to March 7, with an average daily motion of 155 miles; and from March 8 the direction was variable with an average motion of 70 miles.

The valuable series of observations taken at many of the railway stations, and published daily in the *Daily News*, has continued with great regularity. The working of this scheme requires the assistance of all the railways. This has been most liberally given by every company with the exception of the East Lancashire, and Lancashire and Yorkshire, which companies alone have declined to join in this work of great utility.

All the particulars received by this means and from various other sources I lay on a map daily, from which the following tables and remarks have been formed.

Jan. 1850.	Direction of the Wind.									General Remarks.
	On the south coast.	On the south-east coast.	On the east coast.	On the north-east coast.	On the north-west coast.	On the south-west coast.	In the southern counties.	In the midland counties.	In the northern counties.	
1	n.w.	n.w.	n.w.	w.n.w.	n.w.	n.w.	variable.	variable.	n.w.	Calm and fog general. Frost in several places.
2	n.w.	n.w.	w.	w.	variable.	calm.	n.w.	calm.	s.	A calm day. Fog and frost in several places.
3	n.w.	variable.	s.	s.w.	s.	s.e.	calm.	calm.	s.	Calm and fog general. [a strong breeze with rain.
4	w. & s.w.	s.w.	w.s.w.	s.w.	s.e.	w.s.w.	w. & s.w.	s. & w.	s.	Frost at Darlington. Calm general. At Glasgow and Edinburgh
5	variable.	n.w.	s.w.	w.	w.	n.w.	variable.	w.	w.	Snow extending from Edinburgh to Shap. Frost at many places
7	variable.	n.	n.w.	w.	calm.	n.w.	n.w.	n.w.	calm.	Frost general. Calm at many places with fog. [north of Rugby.
8	n.	n.	n.w.	w.	variable.	n.	n.	calm.	calm.	Fog and frost general over the country. A calm at most places.
9	n. & n.e.	n.e.	n.e.	variable.	s. & w.	calm.	n. & n.e.	calm.	calm.	Frost and snow north of Greenwich. Hail at Hastings.
10	n.	n.e.	n.e.	variable.	calm.	calm.	n. & n.e.	n.e.	w.	Frost general. Occasional snow. Wind nearly calm.
11	s.e.	s.e.	e.	s.e.	s.e.	s.e.	s.e.	s.e.	s.	Snow and frost at a few places north of Greenwich.
12	n.e. & e.	e.	e.	e.	n. & e.	calm.	n.e.	n.e.	e. & n.	Snow and sleet general to the north of Greenwich.
14	n.e.	e.	e.	e.	e.	e.	n.e.	e.	n.e.	A strong breeze everywhere. A gale at Holyhead and Yarmouth.
15	n.e.	n.e.	n.e.	e.	n.	n.e.	n.e.	n.e.	n.e. & e.	A strong breeze general. Frost and snow all over the country.
16	n.e.	n.e.	n.e.	e.	calm.	n.e.	n.e.	e.	variable.	Snow and frost general. Heavy snow at Edinburgh.
17	n.	n.	n.e.	w.n.w.	variable.	n.w.	n.	calm.	light airs.	Light snow general. Air in gentle motion, with slight fog.
18	variable.	n.w.	calm.	variable.	s. & s.e.	s.e.	variable.	s.e.	s. & s.e.	Air nearly calm. Snow and frost general. Fog.
19	n.w.	w.	variable.	s.e.	e.	s.w.	w.	variable.	variable.	Wind in gentle motion. Hard wind to the S.W. Heavy gale at
21	variable.	s.e.	s.e.	variable.	s.e.	s.e.	e. & s.e.	e. & s.e.	s.e.	Snow and frost general. Wind in gentle motion. [Exeter.
22	variable.	s.e.	variable.	variable.	variable.	s.e.	variable.	s.	calm.	Frost at a few places. Occasional snow.
23	variable.	w.s.w.	s.w.	w.	variable.	variable.	s.w. & w.	calm.	calm.	Air in gentle motion. Frost breaking.
24	calm.	w.	s.w.	variable.	variable.	calm.	light airs.	w.	light airs.	Calm and fog everywhere.
25	variable.	w.	s.w.	s.w.	variable.	variable.	s.w.	s.w.	s.	Rain general. A calm day. [53°. Snow falling in the North.
26	variable.	w.	s.w.	variable.	n.w. & w.	w.	s.w.	w.	variable.	Calm and gentle breeze to the S. Hard wind between lat. 51° and
28	s.w.	s.w.	s.w.	w. & s.w.	s.w.	s.w.	s.w.	s. & s.w.	variable.	Wind in gentle motion. Gale at Oxford. Rain at many places.
29	w. & s.w.	n.w.	n.w.	n. & n.w.	variable.	variable.	variable.	light airs.	calm.	Calm and fog general.
30	e.	s.e.	n.e.	s.	s.e. & s.	s.e.	variable.	calm.	s.e.	Frost at Darlington. Wind in gentle motion.
31	s. & s.e.	s.	s.	s.s.e.	s.	s.e.	s.e. & e.	s.e.	s. & s.e.	Snow and frost in the North. Rain and fog to the South.

Feb. 1850.	Direction of the Wind.									General Remarks.
	On the south coast.	On the south-east coast.	On the east coast.	On the north-east coast.	On the north-west coast.	On the south-west coast.	In the southern counties.	In the midland counties.	In the northern counties.	
1	s.w.	s.w.	s.	s.	s.	s.w.	s.w.	s.w.	s.	Fog at Hartlepool. Rain general.
2	s.w.	s.w.	s.w.	w.	variable.	s.w.	s.w.	s.w.	variable.	Overcast, except at Sunderland, where the sky was cloudless.
4	variable.	variable.	s.w.	variable.	variable.	variable.	s.w.	s.w.	light airs.	Calm and gentle breeze. Frost at Crewe. Partially cloudy.
5	s.w.	s.w.	w.	variable.	variable.	n.w.	variable.	n.w.	light airs.	Overcast. Rain at Cambridge. A slight frost at Darlington.
6	n.w. & w.	w.	n.w.	n.w.	n.w.	n.w.	n.w. & w.	n.w.	n.w.	Heavy gale everywhere, except on eastern side of Northern Hills.
7	n.w.	n.w. & w.	n.w.	n.w.	n.w.	n.w.	s.w.	n.w.	n.w.	A gentle breeze at most places. Sky principally clear. Snow at
8	w. & s.w.	w.	s.w.	s.w.	variable.	n.w.	s.w.	s.w.	s.	Rain falling all over the country north of Liverpool. [Glasgow.
9	s.w.	w. & s.w.	s.w.	s.w. & w.	w.	s.w.	s.w.	s.w.	s.	A heavy gale in the North. A strong wind in the South.
11	s.w.	s.w.	s.w.	s.w.	s.	s.	s.w.	s.	variable.	A hard wind at Holyhead and Bristol. Rain general.
12	s.w.	s.w.	s.w.	s.w.	w.	n.w.	s.w.	s.	s.	Rain at many places. Snow at Shap and Edinburgh. Frost at
13	n.w.	n.w.	n.w.	n.w.	n.	n.w.	n.w.	n.w.	n.w.	Frost general. Snow at Yarmouth and Whitby. [Darlington.
14	s.w.	s.w.	s.w.	s.w.	s.	s.w.	s.w.	s.	s.	Rain at many places. Snow at Shap. Strong wind to the S. Calm
15	w.	s.w.	variable.	s.w.	variable.	w.	s.w.	s.w.	variable.	Wind variable in strength. [and gentle breeze to the N.
16	w.	w.	w.	n.w.	n.w.	n.w.	n.w.	w.	w.	A calm at some places. A heavy gale in the North-west.
18	w.	w.	w.	variable.	light airs.	w.	s.w.	w.	variable.	Gentle breezes to the South. A hard wind to the North.
19	s.w.	s.w.	s.w.	s.w.	s.	s.w.	s.w.	s.w.	variable.	A hard wind at Glasgow and Edinburgh. Calm and gentle breeze
20	s.w.	s.w.	s.w.	w.	w.	s.w.	s.w.	s.w.	variable.	Rain in the S. Partially cloudy in the N. [at other places.
21	light airs.	w.	w.	w.	w.	n.w.	variable.	w.	w.	Gentle breeze in the South. A storm north of Liverpool.
22	w.	w.	w.	n.w.	n.w.	n.w.	w.	w.	n.w.	Gentle breeze in the S. A hard wind blowing from the Irish Sea
23	variable.	variable.	variable.	variable.	w.	variable.	s.w.	w.	variable.	The sky overcast. Calm or gentle breeze. [across the country.
25	variable.	variable.	variable.	s.w.	s.	s.	variable.	s.e.	variable.	Overcast. Fog at Plymouth and Hartlepool. Rain at Holyhead.
26	calm.	calm.	calm.	s.w.	s.e.	variable.	calm.	calm.	variable.	Overcast. Fog at Exeter, Hastings, Folkestone, Oxford and Whitby.
27	variable.	variable.	variable.	variable.	s.e.	s.e.	variable.	calm.	variable.	Generally overcast. Fog at many places.
28	calm.	calm.	variable.	s.w.	variable.	variable.	calm.	calm.	calm.	Calm generally. Overcast. Fog at many places.

Mar. 1850.	Direction of the Wind.									General Remarks.
	On the south coast.	On the south-east coast.	On the east coast.	On the north-east coast.	On the north-west coast.	On the south-west coast.	In the southern counties.	In the midland counties.	In the northern counties.	
1	n.	n.e.	w.	w.	s.w.	variable.	s.w.	variable.	n.w.	Fog to the South. Air in gentle motion.
2	w. & s.w.	s.w.	s.w.	s.w.	s. & s.w.	s.w.	s.w.	s.w.	s.w.	Air variable in strength, from hard wind in N. to calm in S.
4	n.w.	n.	.....	n.e.	n.	n.e.	n.	n.	variable.	A heavy gale at Whitby. Frost at Lancaster. Wind strong in S.
5	n.	n.e.	w.	w.	s.w.	s.w.	variable.	s. & s.w.	s.w.	Hard wind to the N. Calm over the Southern and Midland C.
6	n. & n.e.	s.w.	n.w.	n.w.	variable.	n.w. & w.	calm.	w.	n.w. & w.	Strong westerly wind over Midland Counties. Hard wind to N.
7	variable.	calm.	calm.	w.	n.w. & w.	variable.	calm.	calm.	w.	Wind variable. Calm all over the country. Fog to the South.
8	calm.	calm.	s.w.	calm.	n.e.	n.	calm.	n.w.	w. & n.w.	General calm over the country. Fog to the South.
9	calm.	calm.	calm.	.....	calm.	s.	variable.	s.w. & s.	n. & n.e.	Fog general over the country. Air in very slight motion.
11	n.e.	n.e.	n.	n.e.	n.	n.w.	variable.	n.w. & n.	n.w.	Gentle breeze to the South. Calm and fog in Midland Counties.
12	n.	n.e.	.....	calm.	n.w.	n.e.	calm.	calm.	variable.	Fog in a few places. Frost at Darlington. Calm day throughout.
13	n.w.	w.	n.	s.w.	w.	s.e.	calm.	calm.	w. & n.w.	Calm general. Occasional fog. Frost at Darlington.
14	n. & n.e.	n.e.	n.w.	calm.	calm.	n.e.	variable.	calm.	calm.	A calm day. Fog in many places.
15	n.e.	n.e.	n.e.	calm.	calm.	n.e.	n.e.	n.e.	calm.	Wind in quick motion. Fog in a few places.
16	n.	w.	n.w.	n.e.	calm.	n. & s.	variable.	calm.	n. & w.	Calm in the Midland Counties. [westerly direction at N.
18	n. & n.w.	n.e.	e.	.....	calm.	calm.	variable.	variable.	w.	Wind in quick motion to S. Calm in the Midland C., taking a
19	n.	n.	n.	calm.	calm.	variable.	w. & n.w.	n.w.	n.w.	Strong breeze at many places. Calm and fog to the North.
20	n.	n.e.	calm.	calm.	calm.	s.e.	n.	calm.	w.	Wind in gentle motion, increasing in strength on N.E. coast.
21	n. & n.w.	n.	n.	calm.	n.	n.e.	n. & n.e.	n. & n.e.	calm.	Slight rain to N.E. Strong breeze over the Eastern Counties.
22	variable.	n.	s.w.	.....	.....	s.e. & s.	n.w. & w.	n.w. & w.	n.w. & w.	Wind very variable in strength. [Whitby and Reading.
23	variable.	n.e.	n.	n.w.	n.w.	n.w.	n.w.	n.w.	variable.	Hard wind and snow general. Storms at Conway, Yarmouth,
25	n. & n.e.	n.	w.	n.w.	n.	variable.	n.w.	n.w.	n.	Air in gentle motion. Snow north of Holyhead.
26	n.w.	n.	w.	e.	e.	s.e.	w.	variable.	e.	Air variable in strength. Snow north of Bristol.
27	n.e.	s.e.	n.w.	n.w. & w.	variable.	n.e.	variable.	variable.	w.	A calm day. Snow over the whole of the country.
28	n.e.	n.	s.w.	variable.	variable.	variable.	n.w. & w.	variable.	variable.	A calm day. Frost at a few places.
29	s.e.	s.e.	s.e.	variable.	s.e.	s.e.	s.e.	s.e.	s.e. & e.	Gentle breeze at most places. Frost north of Rugby. [Whitby.
30	n.e.	s.e.	s.e.	s.e.	s.e.	s.e.	e.	s.e.	s.e.	A hard wind everywhere. Heavy gales at Crewe, Lancaster and

On January 1 the general direction of the wind was N.W. There was frost at all places, except near the south coast. Jan. 2 and 3 were mild; fog in many places. There was a gentle thaw on the 3rd. Jan. 4 was calm in many places, and light airs in others. South of latitude 52° the general direction was S.W.; between 52° and 53° it was W., and the air passed in this direction across the country, and north of this parallel it was S. Frost at Darlington only. Jan. 5 to 12 there was frequently a great diversity of direction of the wind. Frost, fog and snow were general, particularly in the eastern counties and in the north. Frequently the temperature was the lowest between the parallels of latitude of 52° and 53°. There was no frost at Guernsey. Jan. 14, there were heavy falls of snow in the northern and eastern counties. A hard wind was blowing from the N. and N.E. over the southern parts of the country, described as a gale at Yarmouth. At the same time the air was in gentle motion from the E. on the north-east coast, which on meeting the high lands in Cumberland was partly deflected up and partly down the country. The air was calm at some places in the north. Jan. 15, the direction of the wind south of latitude 53° was uniformly N.E., with a heavy wind blowing; a hard wind was blowing from the E. on the eastern side of the Cumberland mountains, and on their western side its direction was from the N. Frost everywhere, excepting Guernsey. Snow on the east coast. Jan. 16, the general direction of the wind was N.E. Snow and frost as on the 15th. Jan. 17, fog, frost and snow. Jan. 18, light airs in all directions. A hard frost, except on the south coast. Jan. 19, in the north the direction of the wind was principally E.; it was W. and S.W. between the latitudes of $51\frac{1}{4}°$ and $53\frac{1}{2}°$, and it was N.W. on the south coast. A portion of the south-east coast was distinguished by a gentle wind, another by a thick fog; at the same time, from Portsmouth, round the south-west coast to Bristol, a hard wind was blowing, described as a heavy gale at Exeter. A rapid thaw everywhere. Jan. 21 to 25, the air was mostly in gentle motion. A gentle thaw set in on the 23rd, and which became general on the 25th. Jan. 26, on the south coast the air was generally calm, or in gentle motion only from the W. At Bridgewater was first felt a strong breeze from the S.W., which passed up the country, becoming stronger as it proceeded, and described as a gale at Yarmouth, and so passed to the North Sea. Above these parallels of latitude the air was mostly calm.

On Jan. 27 a heavy wind was blowing from the S. and S.W., described as a gale at Oxford, and passed over Nor-

folk to the North Sea. At Tamworth and Birmingham the air was in gentle motion only. In the north, at the same time, a strong wind was blowing from the Irish Sea, but which was not felt east of the Cumberland mountains, except at places of a considerable elevation, as at Durham. There was a rapid thaw in the south. Jan. 29 to 31, the thaw proceeded, and the air was in gentle motion.

On Feb. 1 the general direction of the wind was S.W. in the southern counties, and it was S. on the east coast and in the northern counties. Rain was falling all over the country. On Feb. 2 and 4 the general direction of the wind was S.W. There were slight frosts at Crewe and at Darlington.

On Feb. 6 there was a heavy gale from the N.W. This gale raged in Ireland and on the Welsh coast.

On a careful reference to an excellent map, and a re-examination of my note-book, containing observations on the situation of the stations made during my progress through the country for the purpose of organizing the scheme now in operation, I find that the variations, both of the strength and direction of the wind, were owing to local circumstances. Starting from the north, and confining myself to the western side of the high range of mountains, extending, with many deviations east and west, from Edinburgh to a little below Derby, I find at Dundee a gentle breeze only is recorded. This is possibly attributable to a high range of mountains, whose direction is from the S.W. to the N.E., and situated immediately above Dundee, and which would shelter it from a N.W. gale, such as that we are now investigating. At Glasgow and Lanark, places open for miles round in a N.W. direction, a storm is described. At Beattock there was a heavy gale; this place is encompassed by the Moffat hills, forming the highest ground in the south of Scotland, the highest amongst them exceeding 3000 feet above the level of the sea. Proceeding southwards, at Shap a storm was raging. This place is situated to the north of a ridge of mountains extending across the country from Whitehaven to Appleby, and from its situation is much exposed to a gale from the N.W. and W. At both Lancaster and Manchester a gale, and at Liverpool a hard wind, was recorded; the direction at these places was W. These places are open to the Irish Sea. At Conway a storm from the S. is recorded; the place is sheltered by a range of mountains to the east of it. At Holyhead there was a heavy gale from the N.W. At Crewe and Tamworth there was a heavy gale from the N.W. By reference to the map, Crewe is much exposed, and Tamworth is open from the N.N.W. Starting again from the N., on the eastern side of the mountains, at

Berwick, which is sheltered on all sides, with the exception of that open to the E., a strong breeze is recorded. At Durham and at Darlington a hard wind was recorded; but both these places, though at a considerable elevation above the sea, are protected from the N.W., at a distance, by the main ridge of mountains extending down the country. At Hartlepool, a place situated on the sea-coast, there is no mention of wind stronger than ordinary. At York there was a gale; at Whitby a strong breeze, which probably is protected by the mountains on the N.W. of it. Thus it will be seen, that, whilst a furious and destructive gale was raging on the western side of the mountains, those places on the opposite side were experiencing weather of a much more moderate character; plainly showing that the land is of sufficient elevation not only to influence the direction of the wind, but in a great measure to obstruct a storm in its progress.

A more cursory examination of the midland and southern counties will be sufficient, the hills being of sufficient elevation rarely to obstruct the wind in its course during the passage of a storm. From all those places situated near the Bristol Channel, except Exeter, including Weymouth and Guernsey, a N.W. gale is mentioned. At Exeter a strong breeze only was experienced, attributable probably to the vicinity of the Devonshire hills rising N.W. of it. The same was described at Swindon, a place situated between the range of high hills in Wiltshire and Berkshire and those in Gloucestershire. In the south-eastern counties the gale was general, but it was uniformly from the W. It is possible that this direction over a portion of the country during a N.W. gale may be owing partly to the high land in Wales, and partly to the different velocities with which the air seems to have passed down the country on the different sides of the northern mountains. At the time the observations were taken, the heaviest part of the gale had passed. It had attained its height all over the country between the hours of 3 and 6 A.M. The decrease in the reading of the barometer was great. At Chester the lowest reading occurred at $3^h\,45^m$ A.M., and was 28·68, as observed by the Rev. A. Rigg. At Durham the lowest reading was 27·9, as observed by R. E. Carrington, Esq., being the lowest since Dec. 12, 1847. On Feb. 8 the direction of the wind was S.W. principally, but it was much deflected by the high land. Rain was falling at most places north of Holyhead. On Feb. 9 a strong S.W. wind was blowing at most places south of latitude 53°; between 53° and 55° the direction was S.; and N. of 55° it was W. A storm and heavy gale was blowing at places north of 53° 30′; and heavy rain was falling at many

places. On Feb. 11 and 12 the general direction of the wind was S.W.; rain was falling on the former all over the country, and at many places on the 12th, on which day snow fell at Edinburgh and at Shap. There was a frost at Darlington; on the 10th the wind was from the N.W., and the frost was general. Snow was falling at York and at Whitby. On the 14th the direction was S.W. and S., blowing strongly in the south, whilst the air was either calm or in gentle motion only in the north. Snow was falling at Shap, and rain was falling at many places. On the 15th the wind was very variable in strength. On the 16th the air was in gentle motion at most places, whilst a gale was blowing from the Irish Sea between the latitudes of 54° and 55°. On the 18th the air was mostly calm on the south coast, and there was a hard wind on the north-east coast. On Feb. 19 the general direction was S.W.; at places situated south of 53° 30′, and north of this parallel, it was S. At most places the air was in gentle motion. At Glasgow and Edinburgh it was blowing strongly. On Feb. 20 the wind was S.W., except in the north, where it was N.W. Rain was falling at many places in the south. On the 21st there were light airs passing in different directions; south of latitude 53° 30′ north of this parallel, a gale was blowing from the W., and which passed across the country. On the 22nd the air was in gentle motion at most places, yet there was a hard wind at some places. From this day to the end of the month the air was mostly in a calm state, and fog was prevalent.

On March 1 the air was in gentle motion in the southern parts of England, and passing for the most part from the S.W. and S., till, arriving at Beattock, Lanark and Edinburgh, a strong N.W. wind was recorded. On the 2nd the prevailing direction was S.W., veering in the northern counties to the S., or, in other words, becoming parallel to the main ridge of northern mountains; in the extreme north, the wind was blowing strongly. On the 4th the air was evidently on its return down the country, setting in at Glasgow, Lanark and Beattock from the N.W., which shortly afterwards changed to N., and continued in this direction to the south coast with scarcely an exception. At Whitby, on this day, a heavy gale from the N. is recorded. On the 5th, at Beattock, Lanark, Edinburgh and Berwick, a strong breeze was recorded, the direction being different, affording strong evidence of the effect of the mountains in deflecting the course of the wind. With a few exceptions this day was calm; the same remark applies to the 6th, with this difference, that, commencing at Holyhead, there was a fresh westerly breeze, and

the air passed in this direction over the western and midland counties, the air at the same time passing in all directions on both sides of this current, particularly on its south side, where it was mostly calm with fog. The 7th, 8th and 9th may be classed as calm days. The 10th being Sunday, I have but few observations. The 11th was calm. On the 12th the air was for the most part in gentle motion, except over the southern counties, where it was chiefly calm. The 13th and 14th days were calm. On coming to the 15th, I find there was a gentle breeze from the N.E. passing over those parts of the country extending from the south coast to Sunderland; north of this place the direction was E. Calm and fogs were registered at Lanark, Glasgow and Dundee. The temperature of the air, which till this day had been mostly above the average for the season, declined considerably below it. On the 16th the prevailing direction was N.W., but the air was deflected in many places. The temperature of this day was several degrees below its average, and at night the reading was below 25° at most places. On the 17th the direction of the wind was mostly N.E. and E. The day was very severe; its temperature at most places was 10° or 11° below the average for the season; and from this time to the end of the month the temperature of the air was low. On the 18th the air was passing in all directions, but chiefly from the N. On the 19th the directions were N.W. and N., and in many places a strong breeze was recorded. On the 20th there was a westerly current in extreme north, a N.W. wind in the northern English counties, and which dispersed in all directions in its progress to the south. On the 21st the air was passing from the N. On the 22nd the principal direction was from the W. On the 23rd there was a hard wind from the N.W., storms at some places, with snow and hail falling at others. On the 25th the direction of the wind was N.W., with a sharp frost. On the 26th the whole mass of air north of Liverpool passed from the E., and below this latitude its direction was from the N.W. On the 27th the air was in gentle motion from the E. and N.E. at southern places, and from the W. and N.W. at northern places. Snow was falling at several places in the south on the 28th, the directions were chiefly N. and N.W. On the 29th and 30th the principal directions were S.E. and E., passing with gentle motion on the former day, and there was a gale on the latter.

The mean of the numbers in the first column is 29·847 inches, and it represents that portion of the reading of the barometer due to the pressure of air; the remaining portion, or that due to the pressure of water, is 0·224 inch. The sum

Meteorological Table for the Quarter ending March 31, 1850.

The observations have been reduced to mean values, and the hygrometrical results have been deduced from Glaisher's Tables.

Names of the places.	Mean pressure of dry air at the level of the sea.	Mean temperature of the air.	Highest reading of the thermometer.	Lowest reading of the thermometer.	Mean daily range of temperature.	Mean monthly range.	Range of temperature in the quarter.	Mean temperature of the dew-point.	Wind.		Mean amount of cloud.	Rain.		Mean weight of vapour in a cubic foot of air.	Mean additional weight of vapour required to saturate a cubic foot of air.	Mean degree of humidity.	Mean whole amount of water in a vertical column of atmosphere.	Mean weight of a cubic foot of air.	Height of cistern of the barometer above the level of the sea.
									Mean estimated strength.	General direction.		Number of days on which it fell.	Amount collected.						
	in.	°	°	°	°	°	°	°					in.	grs.	grs.		in.	grs.	feet.
Guernsey	29·885	43·0	54·0	28·0	6·9	19·3	26·0	39·7	1·7	e. of n.	6·2	41	6·6	3·1	0·4	0·890	3·6	548	123
Helston	29·871	43·6	56·0	25·0	9·9	24·7	31·0	40·6	1·6	e.n.e. & s.w.	6·4	41	6·8	3·1	0·4	0·894	3·7	548	106
Falmouth	....	44·5	60·0	23·0	10·3	29·0	37·0	..	1·5	e.n.e. & w.	7·1	41	7·6						
Truro	29·947	43·3	58·0	18·0	12·1	33·0	40·0	39·2	1·0	n.e. & s.w.	6·8	38	6·9	3·0	0·5	0·856	3·5	552	35
Exeter	29·970	41·5	60·7	20·1	13·7	34·6	40·6	38·0	1·9	e. & w.	4·9	32	4·1	2·9	0·4	0·874	3·5	556	140
Chichester	....	38·7	53·0	21·0	9·0	28·7	32·0	..	..	n.n.e. & s.w.	..	..	4·4						
Uckfield	29·853	37·9	58·0	18·0	13·0	35·3	40·0	33·8	..	n.e. & w.	..	26	4·1	2·5	0·4	0·859	2·9	555	180
Southampton	29·896	40·1	60·0	10·0	8·1	32·5	50·0	35·5	0·4	.....	6·4	22	4·2	2·7	0·5	0·876	3·1	553	55
Royal Observatory, Greenwich	29·882	39·4	58·0	20·0	12·2	32·4	38·0	33·8	..	.....	..	25	2·8	2·5	0·5	0·832	3·0	551	159
Maidenstone Hill, Greenwich	29·904	39·2	57·6	21·5	9·8	30·6	36·1	35·5	..	n.e. & s.w.	7·3	25	2·6	2·7	0·4	0·877	3·1	553	107
St. John's Wood	29·865	39·6	60·0	20·0	13·0	33·3	40·0	34·3	1·4	.....	7·0	26	2·8	2·6	0·6	0·830	3·0	551	150
Chiswell Street, London	....	41·6	57·5	25·0	8·4	24·8	32·5	37·0	..	.....	..	26	2·5	2·8	0·6	0·830	3·3	549	
Latimer Rectory	29·874	37·4	56·0	10·0	14·4	35·7	46·0	32·0	1·6	n.e. & s.w.	6·9	28	3·9	1·7	0·6	0·820	3·0	549	355
Aylesbury	29·873	39·3	62·0	19·0	15·3	34·7	43·0	34·6	0·7	n.w.	7·4	29	3·1	2·6	0·4	0·850	3·1	548	284
Stone Observatory	29·859	37·6	55·0	16·9	12·9	33·6	38·1	32·9	1·1	n.e. & s.w.	6·7	26	2·4	2·4	0·5	0·845	2·9	549	320
Hartwell (near Aylesbury)	29·849	38·7	59·0	19·0	13·9	35·0	40·0	34·3	1·4	n.e. & s.w.	7·6	29	2·8	2·5	0·4	0·867	3·0	550	250
Hartwell Rectory	29·869	38·0	56·2	20·0	12·5	31·5	36·2	33·3	1·0	n.w. & s.w.	6·3	28	..	2·5	0·4	0·853	2·9	550	290
Saffron Walden	....	38·0	57·0	18·0	12·4	32·7	39·0	..	2·4	n.w.	5·6	26	2·4						
Oxford	29·865	38·7	56·5	16·7	11·5	34·1	39·8	37·3	2·1	n.e. & s.w.	7·7	20	2·4	2·8	0·2	0·940	3·4	551	210
Rose Hill, near Oxford	29·878	38·5	55·6	17·0	12·7	38·6	31·9	36·4	1·6	.....	7·3	17	3·0	2·8	0·3	0·921	3·3	550	270
Cardington	29·843	38·3	57·0	19·4	12·0	31·5	37·6	34·5	1·2	.....	7·1	20	1·9	2·6	0·4	0·865	3·0	553	100
Norwich	29·853	38·5	56·0	14·0	10·2	31·0	42·0	33·6	..	s.w.	7·1	32	4·5	2·5	0·5	0·815	2·9	555	23
Holkham	29·824	37·7	56·7	16·0	10·9	32·6	40·7	33·7	1·2	w. & s.w.	7·1	37	3·9	2·5	0·4	0·865	2·9	555	39
Highfield House, Notts	29·774	38·4	61·2	17·5	14·2	34·2	43·7	34·9	1·1	Variable.	6·5	25	3·2	2·6	0·4	0·879	3·0	551	103
Derby	29·818	38·4	57·0	17·0	14·2	31·7	40·0	35·4	..	Variable.	..	32	3·4	2·7	0·4	0·874	3·1	551	140
Manchester	29·842	39·7	..	..	..	..	..	35·0	..	n.e. & n.w.	7·5	..	..	2·7	0·5	0·892	3·1	551	144
Hawarden	....	39·2	57·6	17·5	11·0	32·0	40·1	34·7	1·0	Variable.	6·6	16	3·2	2·6	0·4	0·866	3·1	548	
Liverpool	29·834	40·7	55·1	24·4	6·9	24·3	30·7	32·7	1·4	Variable.	7·5	23	3·1	2·4	0·8	0·755	2·8	552	37
Wakefield	29·796	39·0	62·0	15·5	12·1	32·8	46·5	35·7	..	w.	..	39	3·6	2·7	0·4	0·882	3·1	553	115
Leeds	29·796	38·2	59·0	20·0	10·5	29·7	39·0	35·8	1·8	n.w. & s.w.	7·4	38	3·9	2·7	0·3	0·906	3·2	551	125
Stonyhurst	29·826	37·4	54·6	16·9	11·2	30·0	37·7	34·0	1·3	w.s.w.	7·5	47	11·8	2·5	0·3	0·887	3·0	548	381
York	29·805	36·8	60·0	20·0	10·8	30·0	40·0	34·6	..	n.n.e. & s.w.	..	27	2·6						50
Whitehaven	29·754	38·8	52·5	21·5	7·1	24·7	31·0	35·9	2·2	s.w.	..	43	8·8	2·7	0·2	0·923	3·2	553	90
Durham	29·760	38·2	57·4	18·0	9·3	30·7	39·4	34·0	1·3	s.w.	5·6	34	3·6	2·6	0·4	0·865	3·0	546	340
Newcastle	29·742	39·5	55·0	21·0	10·8	29·2	34·0	35·5	..	.....	..	33	5·6	2·6	0·5	0·829	3·1	550	121
Glasgow	....	37·6																	
Number of columns	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

of these two numbers is 30·071; and it represents the mean reading of the barometer for the quarter at the level of the sea.

The mean of the numbers in the second column for Guernsey, and those places situated in the counties of Cornwall and Devonshire, is 43°·3; at Liverpool and Whitehaven is 39°·8; for those places situated south of latitude of 52°, including Chichester and Hartwell, is 38°·0; for those places situated between the latitudes of 52° and 53°, including Saffron Walden and Holkham, is 38°·3; for those places situated between the latitudes of 53° and 54°, including Derby and Stonyhurst, is 38°·4; and for Durham and Newcastle 38°·8. These values may be considered as those of the mean temperatures of the air for those parallels of latitude during the quarter ending March 31, 1850.

The average daily range of temperature in Cornwall and Devonshire was 28°·1; at Liverpool and Whitehaven was 24°·5; south of latitude 52° was 33°·2; between the latitudes of 53° and 54° was 31°·5; and north of 54° was 29°·9.

I have received the following agricultural reports:—

From Stonyhurst, favoured by the Rev. A. Weld, B.A., F.R.A.S.

The fine weather which occurred at the beginning of March induced some farmers to sow oats as early as March 15; but owing to the cold weather and severe frosts which followed, the seed has not come up as yet, and considerable fears are entertained of its failure.

Early potatoes were in some instances planted about the same time, and have not yet appeared.

Beans were sown as early as the middle of February, and are now looking very well. The severe frosts which took place about the end of March have done no harm to the fruit-trees in this neighbourhood, the vegetation fortunately not being in a sufficiently advanced state to receive any injury. Irrigation of meadows was carried on extensively in the early part of March. The severe weather which followed and the present rains have entirely suspended the working of the ground during the last fortnight. The lambing season began here about the 21st of March.

From Leeds, favoured by Charles Charnock, Esq.

As regards any remarks on agricultural matters few can be made, except that during the last three months little has been done; and the extreme coldness of March has not only checked the growth of vegetables, but the extreme frosts at night have in a great measure destroyed the blossoms of the earlier fruit-trees.

A very large quantity of potatoes are being planted in Yorkshire.

Wheat has been opportunely checked.

The land is generally in fine condition for the spring crops.

The impetus given to draining has kept the agricultural labourers well-employed during the winter.

Cattle, where healthy, have done well; but they as well as sheep have suffered from epidemics.

From Nottingham, favoured by E. J. Lowe, Esq., F.R.A.S.

Wheat looks very promising, and the grass in fields from present appearance will be early. Apricots are nearly all destroyed by frost, and gooseberries and currants injured. There is a great bloom of plums, cherries, pears and apples. Peaches and nectarines have been slightly injured by frost.

[For the monthly values of the several subjects of research, the names of the observers, and particulars of instruments used, see the Registrar-General's Quarterly Report.]

XLV. *On the Watery Secretion of the Leaves and Stems of the Ice-plant* (Mesembryanthemum crystallinum, *L.*). By Dr. Augustus Voelcker, Prof. of Chemistry Royal Agricult. College, Cirencester*.

A FEW months ago I had the pleasure of communicating to the Botanical Society of Edinburgh the results of an examination of the watery liquid in the ascidia of *Nepenthes destillatoria*. Those present at the meeting, as well as the readers of the 'Philosophical Magazine,' will remember that, in opposition to the statements of most botanists who have directed their attention to the subject of the watery secretions of the leaves of plants, I found the liquid in the ascidia of *Nepenthes* to differ materially from pure water, inasmuch as it contained from 0·30 to nearly 1 per cent. of solid substances, partly organic partly inorganic. I stated at that time my doubts as to the watery secretion of plants being nothing but pure water, and gave some reasons for this opinion; Prof. Balfour, with whom I discussed the subject, kindly furnished me with the means of investigating this point still further by favouring me with fresh specimens of the curious Ice-plant (*Mesembryanthemum crystallinum*), a plant which is remarkable on account of the gland-like vesicular eminences with which its leaves and stems are covered. The result of the examination of the fluid secreted by the leaves of this plant has fully confirmed the opinion expressed in regard to the watery secretions of plants; at all events it has shown me that the secretion of the leaves of the Ice-plant is not merely pure water, but water containing several substances in solution. Though I was unable to determine quantitatively the composition of this secretion on account of the small quantity of liquid at my command—a quantity insufficient

* Read before the Botanical Society of Edinburgh, Jan. 10, 1850.