SYMONS'S

MONTHLY

# METEOROLOGICAL MAGAZINE.

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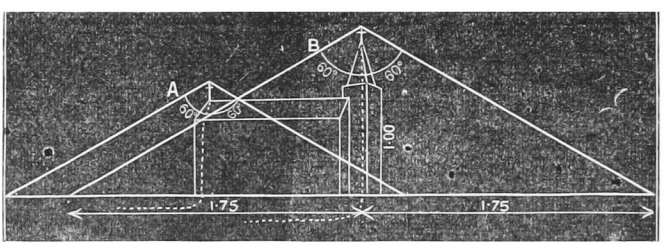
## METEOROLOGY AT THE PARIS EXHIBITION.

POLITICS rarely affect Meteorology, though meteorological influences have great effects upon politics. We cannot help feeling that the disturbed state of Europe is the chief reason for the backwardness of the great Exhibition. Yes, truly great, far too great; why, there are reported to be twenty-seven miles of pathway, and we do not think that there is the slightest exaggeration in the statement. Backward it also undoubtedly is, and no portion so behindhand as the French; thanks to the Prince of Wales, England is fairly forward, but the Netherlands, China and Japan were ready first.

It is a great pity that the objects are (as they have been at all previous Exhibitions) grouped in *countries* and not in *classes*. Why not put all the locomotives together, all the furniture together, &c.? There are perhaps ten locomotives exhibited, but one must walk a mile and a half to see them all, and that is hardly favourable to comparisons. Of course, what is true of one class of exhibits is equally true of all, and as we have very likely missed a few out of the twenty-seven miles, and, moreover, many cases are still empty, we certainly do not pretend to report upon all the meteorological apparatus exhibited, but we jot down, just as we discovered them, the exhibits belonging to meteorology, or sufficiently connected with it to claim notice in these pages. We must add that there are no catalogues of any use for us, and that when they are issued it will be very difficult to find individual exhibits, the classification, both in the Foreign and English Sections, being far from perfect. The gross value of the collection is enormous, but there are miles and miles of cases to pass which are neither more nor less than shop windows.

There are two exhibits of **Lightning Conductors,** one in the Telegraph Instrument Annexe to the French Department, the other in the British, viz., Newall's wire rope, both round and flat. M. Jarriant (58, Rue de Morny) is the French exhibitor, and one need hardly say more respecting his conductors than that they are highly approved by M. Francisque Michel, Secretaire de la Commission des Paratonnerres. Their leading features are platinum points, brass shafts, then gal-

vanized iron for perhaps 8 feet, and thence downwards copper rope, buried at the lower extremity in a bricked trench filled with coke. With respect to the radius protected by a conductor, both M. F. Michel and M. Jarriant fix it at a cone whose base has a circumference whereof the radius is 1·75 times the elevation of the point. We think that this is a very obscure way of stating a very simple matter. Why not say that the area protected extends 60° on all sides below the point of the conductor, as, for instance, in the following sketch of a church :—




In this case the steeple is not high enough to bring the chancel end of the church within the cone protected by the conductor on the steeple, and, therefore, a second conductor is required at the other end of the church.

Some people are not handy at measuring angles. It may be well to explain how, without any cost and with little trouble, any person can ascertain whether any given portion of his house or church is efficiently protected according to the above rule.

Take a square card, not less than two inches square, put the letters A, B, C, D at the four corners so that A, B is at the top, B, C the right-hand side, and C, D the bottom. Cut across from A to C. Divide A to C into three equal spaces. Draw a strong pencil line from the lower of the two marks thus made to the corner B. Through B pass a needle carrying a thread with a rather heavy button at the end of it to act as a plumb-line ; fasten the thread at B. Place the eye at A and look along the edge A B, while the thread is lying along the strong pencil line. If you can see the conductor above the edge B, the place whence you are looking is protected, if you cannot, it is not.

**Electric Clocks** are shown by several persons ; we pronounce no judgment upon them because we are not horologists, but we are glad to see that wooden pendulum-rods are becoming nearly universal, and we welcome every effort to diffuse accurate knowledge of true time. There are a large number of Austrian ½ second regulators, but there are few clocks of high quality, and Sir John Bennett is, as far as we have seen, the only exhibitor of full size marine chronometers.

Of **glass dividing** there is a small but extremely fine exhibit by Berthauld, of 30, Rue and Passage Dauphine, Paris. Of course, we cannot speak to the accuracy of his thermometers without testing them,

but the dividing and figuring is extremely good and so are all the subjects in his case; in fact we have never seen better graduations.

**A Montsouris Thermometer Stand**, of which, through the courtesy of MM. Marie Davy and Gauthier-Villars, we give the engraving from the *Annuaire de l'Observatoire de Montsouris*, is exhibited by Baudin, and two cards hanging to it indicate that a Negretti Max., a Rutherford's Min., a dry and a wet thermometer are to be put upon it. Being inside the building it has no trees around it, and we are not sure whether the trees are, or are not, held to be desirable. We think that it would be better not to have them. Another stand of the same pattern is near the Montsouris Observatory.

The pocket **Compasses** may be splendid specimens of spoked wheels, but they are precisely what, in our opinion, compasses ought *not* to be; except in a good light you cannot tell which is N. and which S.

Those who work much at **diagrams**, plotting curves, &c., may be glad to be referred to Bellavoine (142, Faubourg, St. Denis), who has a very large collection (200 or more) of copper plates, each divided differently, and sheets printed from them, even on best paper, are very cheap.

Among the Maps and Charts, we may mention the **Wind Charts** of M. Brault, published by the Depôt des cartes et plans de la Marine at the serious cost of 1s. 6d. each.

With respect to Maps, we ought not to pass without favourable mention the extent to which the French employ relief or **raised maps**; for teaching physical geography they are far better than the usual flat ones, and their increased use in the British Isles is certainly desirable.

It is rather curious how many subjects apparently unconnected with meteorology are really of importance to meteorologists. Here is an illustration. Towering above a café on one side and some machinery on the other, we found four telegraph poles, and attached to them notices stating that they had formed part of one of the Russian telegraph lines, had been prepared with common salt by a patent process in 1872, and dug up in 1878 for transmission to Paris. To all appearance the process of Baron de Hervarth (87, Pont Obouckoff, St. Petersburg) completely stops decay, but we wish that one had been laid down, sawn through vertically, and the line of the level to which it had been buried marked upon it. Now, for the application to meteorology: how about the legs of thermometer stands, how about anemometer poles, wind vanes, solar thermometer posts, &c.? there is often an optician's heavy bill traceable to nothing but a half rotten post.

Near the Pont Iena, almost in the centre of the grounds on the South side of the Seine, is a square wooden house, the sides perhaps 8 ft. each in breadth and 10 in height, painted a quiet brown. This is entered on the plan as **Observatoire de Montsouris**, but the real Montsouris Observatory is quite another style of edifice, and this little erection contains only a few of the principal patterns of apparatus used at Montsouris. The apparatus is not yet adjusted, but most

things are in position — a Robinson's Anemometer (small size), which in order to enable the public to see it has been placed only 6 or 7 feet above the ground and quite under the shelter of the building. A rain gauge almost precisely the pattern of an 8 in. Negretti's gauge needs no comment. Then there is a curved sheet of glass, about 3 ft. by 3 ft., sloping down towards a receptacle to collect rain water for analysis. There is also a Montsouris thermometer stand (see *frontispiece*); but at present it has only carried a species of recording ozonoscope, called an Ozonograph, by the maker, Salleron. It is so arranged that different portions of the paper are exposed at different parts of the day. On the roof is a large circular vessel filled with earth, but exposed to wind and rain; this is an evaporator acting by weight alone, being attached to one end of a balance, the index of which traces a delicate line on a blackened sheet of paper, and thus a continuous record of its changes in weight is obtained. For temperature an arrangement is adopted which has some advantages, but we think some disadvantages also. The advantages consist chiefly in the ease whereby any temperature phenomenon can be recorded, and in the fact that half-a-dozen thermometers may be made to record upon a single cylinder. At the Exhibition a single drum takes the records of earth temperature, two solar radiation thermometers, a dry and a wet bulb one. The drawback is, that as the bulbs are virtually thin flat metal tubes, their capacity must vary with changes in atmospheric pressure, and therefore their zero points must be constantly shifting; but as they have an internal pressure of several atmospheres, the changes of an inch on either side of 29·6 can hardly be very serious. Moreover, the long narrow metal pipes which replace the column of an ordinary thermometer, must vary in capacity, not merely with external or internal temperature, or a mixture of both, but also according to the part of the building along which they pass. We are not satisfied that this correction can be accurately made.

(*To be continued.*)

## EASTER AT THE SORBONNE, 1878.

SIEGES, revolutions and changes of many kinds have passed over Paris since the foundation of its University, and though the city is now passing through a crisis of excitement over the Exposition, no vibration of it reaches the Sorbonne. There the meetings and the paper-reading goes on just as usual, but perhaps there are a few more attendants than in previous years, since at the final meeting to hear the reports and receive the Minister (M. Bardoux), the large salon was crammed.

One serious blank could not but be realized by all, and was dwelt upon in all the general addresses—Le Verrier is no more; the *réunion* has lost its president, France has lost her foremost man of science, and the world one of its best astronomers.

The chief difference between the communications in the present and

in previous years, is the greatly increased number upon pure mathematics. With them, however, we have here nothing to do. But we shall probably be excused if (considering that probably no other report will be published in England) we devote half a-page to non-meteorological matters which we think may be of general interest.

Prof. Dieulafait, of Marseilles, reported the results of many analyses of fossil, ancient, and present, marine organic bodies, comparing the proportions of the rarer minerals which they contain, and thence drawing conclusions as to the constitution of sea-water in the past and present epochs.

M. Gosselet, of Lille, read a very interesting paper, illustrated by a good map, upon the changes which have taken place in the coast-line of the North of France since the time of the Cæsars; this he did by several separate methods—by an examination of the soil, by the antiquities dug up, by the names of the places, and by reference to the oldest chronicles.

M. Olivier, of Elbeuf, called attention to an improvement he has been making in telephones. The sounds given to a telephone are not reproduced at the other end of the same tone, or of equal intensity. M. Olivier thinks that this is because the vibrating material is a flat and uniform plate, and therefore it will only vibrate perfectly for its own proper tone. If it renders the fundamental and the first hypertones, it will vibrate but little, or not at all, for the sharper notes. It is quite otherwise with the tympanum of the human ear, which is concave, has no tone of its own, but being possessed of various tensions, can vibrate for every portion of the tonic scale from 60 to 40,000 vibrations per second. M. Olivier proposes to use diaphragms of varying thickness, so that while one part will vibrate for one tone, others will for others. In the subsequent discussion, M. Alluard, Director of the Observatories at Clermont-Ferrand and on the Puy-de-Dome, said that the two establishments were united by a wire which was carried on the same post as another wire, but the two were at no point within a yard of each other, yet messages sent on either wire are heard on both.

M. l'Abbé Vassart, of Roubaix, made some remarks upon electrically synchronizing public clocks, which he believes is best effected by some arrangement by which an electro-magnet acts upon the escapement-wheel.—[We do not profess to understand the arrangement, but a specimen is said to be at the Paris Exhibition.]

M. Marchand, of Fécamp, reported upon the methods of analyzing milk now employed, and urged the adoption of one uniform method which would ensure correct results.

M. Doumet-Adanson, of Cette, in a very vigorous address, demonstrated his unfamiliarity with the more advanced branches of climatology. He seemed to assume that the only instruments employed are the dry and wet, max. and min. thermometers in the shade, and he contended, quite truly, that the range of these instruments was not equal to that of vegetation exposed to the full sunshine. He had

overcome the difficulty by placing on a post fully exposed, a thermometer, of which he had blackened the bulb with smoke! How he was permitted to offer so crude a suggestion, or one showing such ignorance of what is being done, even in Paris itself, we cannot imagine. The real temperature of the exposed portions of a plant is very difficult to determine, because it depends on so many causes; the one which alone suffices to upset any relation between M. Adanson's smoked thermometer and a cabbage-leaf is, that the plant is constantly evaporating, and the sap circulating; what with these causes, and the difference of colour and texture, the contrast becomes sufficiently obvious; of course the first shower of rain would wash off M. Adanson's smoke, and then his thermometer, acting as a spherical mirror, will scarcely be any warmer in the sun than in the shade. We do not think that anyone yet knows how to determine accurately the climatic experience of plants; indeed, no two kinds of plant, and no two leaves of any one plant, are under precisely similar conditions. We know all about the heat and the moisture of the air itself; we know the greatest daily heating power of the sun's rays, we ought to know also its total amount for each day, and M. Marie-Davy is just beginning to ascertain it. We know the lowest temperature of vegetation each night; we know how much water falls upon it, and approximately, how much goes away as vapour. We know the temperature of the roots of plants at various depths, and M. Marie-Davy has made an attempt at determining the temperature of their leaves by painting thermometer bulbs green, and placing them over grass. For the reason we have already given, we do not believe that these thermometers tell much that is worth knowing, but they certainly excel M. Adanson's smoked ones.

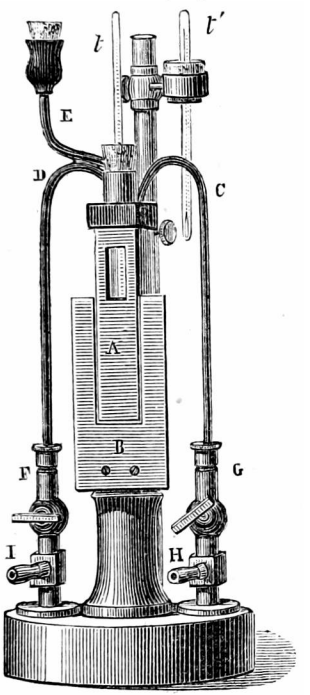
M. Hébert, Professor of Physics at Moulins, read a rather long memoir upon the great movements of the atmosphere. He has lately been studying closely the weather charts published three times each day by the United States Government, and considers that he has ascertained that the Atlantic storms have their origin in the Rocky Mountain district of Western America, being produced by the friction of the equatorial current against the mountain-tops. These tourbillons follow the river courses to the Gulf of St. Lawrence, and there form the great depressions which start across the Atlantic. M. Hébert said that they usually land in Europe on points situated between the mouth of the English Channel and the coast of Greenland,—[As Greenland is not usually considered to be part of Europe, we infer that M. Hébert means the latitude of Greenland]—re-descend usually across the Polar Sea to the North of Russia, across Siberia to the Sea of Ochotzk, and so to Alaska; after passing over the extreme North of America, they again appear to touch Iceland, and finally fade away in the Arctic Regions. Under their influence, combined with that of the general Atlantic equatorial current, the numerous tourbillons are formed in the mountain ranges of Europe which cross the Mediterranean, the Black Sea, and the Bay of Biscay.

M. Hébert subsequently remarked that he had found traces of

similarly-produced effects in Southern Asia, and on the African continent.

M. Alluard, Dean of the Faculty of Sciences of Clermont, and Director of the Observatories at Clermont and on the Puy de Dome, exhibited and described the new hygrometer which he has invented.

The hygrometer designed by M. Alluard may be best described as a much improved form of Regnault's. We had, however, better describe it thoroughly, as we are inclined to regard it as the best condensing hygrometer yet brought before the public. It is made by L. Golaz (24, Rue des Fossés-St-Jacques, Paris) of the following pattern. The essential features of the instrument are a square brass tube, gilt and highly polished, to contain ether (the evaporation of which by the passage of a current of air causes cooling and condensation of the vapour in the atmosphere upon its exterior) and a thermometer. This tube is marked A, and has two small windows which allow the ebullition of the ether to be seen. The thermometer *t* passes through the top of the square tube, and has its bulb in the middle of A, and is to be read at the instant at which dew is seen to be deposited upon the exterior of A. The air temperature is shown by the thermometer marked *t'*.




The little tube H G C passes inside A to near its bottom, the tube I F D only passes into the top of A. When an observation is to be made, ether is poured into the funnel E until it rises half-way up the window in the tube A. India-rubber tube is slipped on to the orifices H and I. By blowing into H the air is forced through the ether in A, cold is produced and dew is deposited upon the bright surface of A. Precisely the same effect is of course produced by attaching an aspirator to the tube I.

We now come to the two new features which distinguish this hygrometer from all others yet regularly sold, though each feature has, in some respects, been partly anticipated.

The first specific feature is the deposition of the dew upon a flat surface. M. Alluard is, we believe, the first to apply a flat surface to an ether-condensation hygrometer, though Mr. Dines has used it in his cold-water-hygrometer for years. There is no doubt as the great advantage of the change, the deposition is more easily seen than on a round surface, and is indeed visible at a distance of 8 or 10 feet.

Secondly, the face A is surrounded by a similar surface B, which is separated from it, and is not cooled. The comparison of the surfaces A and B renders it more easy to observe when A is dimmed, than

it would otherwise be. We believe that a duplicate round tube was used for this purpose with a Regnault's hygrometer at Kew, but with that exception the method is, we think, new.

Those who have often used Danielli's or Regnault's hygrometers are aware that the readings of the thermometer when the dew is first seen and when it disappears, rarely agree, and the mean is generally taken. The difference between these values may be regarded as the error of the instrument, and M. Alluard claims for his, that this difference is extremely small, rarely so much as 0°·4 F.

## THUNDERSTORM ON MAY 1ST.

*To the Editor of the Meteorological Magazine.*

SIR,—I enclose you the following particulars of the rainfall during the above storm. It appears to have been heaviest at or near Winchmore Hill. The following table of the rainfall between 9 a.m. on May 1st and 9 a.m. on May 2nd, will show the extent and severity of the storm better than any description I can give :—

*Rainfall from 9 a.m. May 1st, to 9 a.m. May 2nd.*

| Station. | in. | Station. | in. |
|---|---|---|---|
| Enfield (Nag's Head Lane) | 1·43 | Deptford | 0·44 |
| Norwood | 0·93 | Eltham | 0·41 |
| Clapton | 0·85 | Greenwich | 0·38 |
| Tottenham | 0·82 | Blackheath | 0·27 |
| Southgate | 0·77 | Muswell Hill | 0·17 |
| Enfield Chase | 0·70 | Addiscombe | 0·12 |
| Lee | 0·49 | Charing Cross | 0·07 |
| Guildhall | 0·45 | | |

In some of the above instances the whole amount fell during the storm, and in others the greater part. The rain did not extend so far as this, and no rain fell during the storm at Bromley, Foots Cray, Surbiton, Regent's Park, Hampstead, Highgate, or Waltham Abbey. I do not know what the total fall was at Winchmore Hill, but at any rate 1·50 in. fell there between 5.15 and 5.50 p.m., an excessively large quantity to fall in 35 minutes, while the 0·93 in. which fell at Norwood came down between 6 and 7 p.m., or within the hour, when the gauge overflowed through temporary stoppage. The rain was accompanied by vigorous lightning and thunder at Tottenham, and the lightning was frequent and accompanied by remarkably heavy thunder at Clapton. The lightning was very vivid in the neighbourhood of Camden Road. The rain commenced at Southgate between 3 and 4 o'clock, and in most other places shortly after 5 o'clock, and ended between 8 and 10 p.m.—Yours faithfully.

W. P. SWAINSON.

277, *Camden Road, London, N., May 6th*, 1878.

SIR,—I send you a line to show you the rainfall I measured in gauge on Wednesday last, during the terrific thunderstorm.

The storm commenced at 4.38, and lasted till 7.44 p.m. During the first 38 minutes no less than 1·52 in. fell, and in the 3 hours and

22 minutes no less than 2·2 in. My gauge being well exposed, I think it worth my while to let you know. A good deal of damage was done to trees and greenhouses by the lightning and hailstones. —Yours truly, JOHN W. PAULIN.

*Vicar's Moor Lane, Winchmore Hill, 3rd May*, 1878.

[We may add that at Hackney, Dr. Tripe recorded 1·31 inches.—*Ed.*]

## THE EURYDICE SQUALL.

*To the Editor of the Meteorological Magazine.*

SIR,—I send you my report on the day of the remarkable squall :—

| Date. | Sea Level Pressure. | Wind. | Force. | Direction. of Cloud. | Temp. | Wet temp. |
|---|---|---|---|---|---|---|
| 24th :— | in. | | | | deg. | deg. |
| 8 a.m. ..... | 29·610 | E.S.E. | 1 | N.N.W. | 32·0 | 31·0 |
| 0.45 p.m. .. | ·476 | W. | 3 | W.N.W. | 42·3 | 37·7 |
| 4 p.m. ..... | ·478 | N.W. | 5 | N.W. | 33·7 | 30·7 |
| 6 p.m. ..... | ·462 | N.N.W. | 2 | N.W. | 33·3 | 30·7 |
| 8 p.m. ..... | | N.N.W. | 1 | ... | ... | ... |
| 11 p.m. ... | 29·601 | 0 | 0 | 0 | 26·7 | 25·6 |
| 25th :— | | | | | | |
| 1.15 a.m. ... | ... | ... | .. | ... | 29·1 | 29·0 |

Max. temp. 48°·7 ; min. temp. 25°·4 ; min. temp. on grass, 20°.2.

Intense white frost ; 8 a.m., very fine, thin linear cirri pointing in various directions and crossing each other, the majority pointing N.W. and S.E. ; at 10 a.m., slight solar halo ; 0.45 p.m., slight snow ; from 0.50 p.m. till 1.50 p.m., heavy snow storm ; for the first half-hour the flakes were small, then larger ; snow ceased at 3 p.m. The snow-storm moved in a W.N.W. current ; the ground was covered 1 inch deep, and the snow when melted yielded 0·051 in. of water. The temp. was 28°·3 during the storm ; after the storm, prospect very clear ; 6 p.m., much ice, and ground white with snow. From 8 p.m. to 10.30 p.m. much lightning in S. and S.W.—Yours truly,

E. J. LOWE, F.R.S.

*Highfield House Observatory, March 24th*, 1878.

SIR,—After reading Mr. Clement Ley's article on the above subject in the current number of the *Meteorological Magazine*, I am tempted to send you a few particulars of the squall as noticed by me.

Sunday, the 24th March, broke here a brisk, wintry day, with all appearance of fine weather, so much so that many neighbours predicted a fine day, but, warned by a rapidly falling bar., and other symptoms of approaching change, I judged it well not to venture out without an umbrella. I was prevented from seeing its approach, being in Church at the commencement, but at 11.45 a.m. I noticed it growing gradually darker, the sky becoming overcast, and a few flakes of snow falling.

Believing that a storm of no ordinary occurrence was about to burst,

I took particular notice (as far as I could from the interior, and the nature of my occupation would allow), and at 11.55 a terrific squall seemed to suddenly strike the building, accompanied by blinding snow and a sudden darkness (caused by the density of the snow-cloud), which lasted several minutes. For fifteen minutes the wind howled in a fearful manner, after which it gradually subsided, and at 12.35, upon coming out, I found snow 2 inches deep on the level road, and five minutes afterwards snow ceased to fall. The wind then again increased, and blew with much force from the N., drifting the snow. Much snow afterwards fell from 4 to 8 p.m. Appended are tabulated remarks :—

| Storm commenced. | Snow ceased to fall. | Wind before Storm. | During storm. | Rainfall following morning. |
|---|---|---|---|---|
| 11·55 a.m. | 12.35 a.m. | N. | N. | 0·35 in. |

—Yours truly, E. GRIFFITHS.

*Bishop's Castle, Shropshire, 23rd April,* 1878.

## THE WEATHER IN APRIL.

AT the beginning of the month two atmospheric depressions were shown over the United Kingdom, the larger a little to the southward of the Shetlands, and the subsidiary one over the N.E. of France ; the mercury was falling over all Western Europe, but was rising slightly in Sweden. The smaller depression disappeared, and on the 2nd the larger one was still shown, then over the North Sea, but it was apparently filling up, and the barometer rose everywhere. Pressure was highest over Spain ; the wind circulated round the low pressure, being north-westerly in Scotland, westerly over England and France, south-westerly in North Germany, and south-easterly in Scandinavia, and was generally rather strong in force. Aurora was seen in the evening of the 2nd.

On the 3rd pressure was still increasing over the whole of Western Europe, but the general distribution remained the same as on the previous day, being relatively high over the S.W. of France and the north of Scandinavia, while an area of low pressure lay over the North Sea. During the day pressure began to decrease in the S.E., and a shallow depression lay over the N.E. of England. This depression subsequently advanced south-eastwards and lay over the Sound ; the barometer had risen over nearly the whole of Western Europe ; readings were comparatively uniform, and became more so during the day, the pressure continuing to increase.

A small local depression lay over Wales on the 5th. Very light and variable airs prevailed. Heavy snow and rain fell in Sweden, and a smart thunderstorm was felt over S. England ; the small depression noticed above passed across, but caused no change of importance. After this a complete change came over the distribution of pressure over Western Europe. From the 7th to the 10th pressure was highest in the N. of Sweden, and depressions advanced to our S.W. coasts from the Bay of Biscay ; that of the 7th and 8th occasioned rather steep gradients, and a strong to moderate south-easterly gale prevailed all round our coasts. On the 10th the general distribution of pressure was not much changed, except that the shallow depression, which on the previous day lay over the Bay of Biscay, advanced northward and was shown over the N.W. of France and the mouth of the Channel. The highest readings continued steadily over the N. of Sweden. Pressure was increasing except in the S. and S.E. of England—the change in the S.W. of France being rather brisk. The shallow depression continued to advance, and in the evening its centre lay between Hurst Castle and Plymouth, while the area of wet weather extended from the S.W. counties to London. During the night a fall of rain occurred, being heavy at both Oxford and Portishead, was extraordinarily so in London, where from midnight to 8 a.m. on the 11th the fall was at the rate of ·2 in. per hour at Brixton, and even heavier at Greenwich. This fall continued, though in a lesser degree, down to 2 p.m. of the 11th, the

total fall in the 21 hours being 2·8 in. In other parts of the country the weather was dry; the fall in London seems to have been very local.

On the 12th a rather deep depression advanced to the S. of Ireland, and the day after the mercury fell over all Western Europe, the change being greatest in the N. of Ireland. A large area of high readings lay over the south of Scandinavia, the North Sea, North Germany, and E. of France, while the depression noticed above was passing slowly northward along the W. coast of Ireland. In London a sharp shower occurred in the afternoon.

From the 14th to the 20th the distribution of pressure considerably changed, but the change was gradual and unaccompanied by any important disturbance. On the 14th pressure was highest (30·1 in.) in the east of France, and lowest (29·7 in.) off our western coasts, while numerous slight depressions were shown passing northward. Next day pressure gave way over Scotland, England, and France, but the changes were slight. Several subsidiary depressions advanced from the Atlantic to the west coast of Ireland in a northerly direction, but these caused no alteration in the distribution of pressure elsewhere. On the 21st a well defined area of low readings was shown in the S.W., but this filled up in the course of this day and the following one.

On the 23rd the mercury fell half-an-inch in the N.W. of France, and the decrease in pressure which had begun in the S.W. on the previous day spread to all parts of Western Europe. A well-defined depression (29·4 in.), which had apparently advanced from the south-westward across the Bay of Biscay, lay off the N.W. of France, while an area of high pressure (30·2 in.) lay over the S. of Norway and Sweden. The wind in the south was cyclonic, and circulated round the centre of low pressure, while in the N. and E. it was easterly to south-easterly and anticyclonic; it blew a gale at Corunna. During the day the depression advanced a little eastward, and the next morning was found off the N.W. of France, but was apparently filling up, while the highest readings appeared over the Shetlands. The depression again altered its position and was shown over the N.E. of France on the 25th, but had become unimportant. No particular barometric change occurred (pressure being very uniform throughout W. Europe) until the 28th, when an anticyclone lay over the S.E. of England and the Netherlands. The barometer fell in the N. of Scandinavia somewhat briskly, and to a less extent over Scotland, Ireland and France; while in the S. of France the mercury rose. The weather was fine and dry over the whole of Western Europe.

The mercury continued to fall in all parts of the United Kingdom and France, but rose briskly in Sweden, the gradients for south-easterly winds becoming steeper over the United Kingdom, but no strong winds were experienced from that quarter, the gradients becoming much slighter on the 30th. On this day pressure was relatively high in the S. of France and over Scandinavia, while it was lowest in the neighbourhood of Valentia. Rain fell over the greater part of England and France, but on the eastern shores of the North Sea the weather was clear. H. E. M.

## THE COMING SUMMER.

*To the Editor of the Meteorological Magazine.*

SIR,—Some time ago I constructed from the Greenwich daily mean temperatures (1814 to the present time) a table of monthly means, in which the month was reckoned from the middle of one calendar month to the middle of the next, and so on. The following striking rule is an interesting result of a study of this table:—

When the Greenwich mean temperature of the period from the 15th of February to the 16th of March inclusive, is about or above 44°, the succeeding summer is always warmer than the average. When over 44½° in the period referred to, the following July has always been a very hot month, and generally the whole summer is decidedly hot.

Your readers may perhaps like to see the whole series of this particular month of the table, so I give it below:—

| Year. | Mean temp. of Feb. 15th to March 16th inclusive. | Difference of mean temp. of following June to Aug., from avg. of 60 years. | Year. | Mean temp. of Feb. 15th to March 16th inclusive. | Difference of mean temp. of following June to Aug., from avg. of 60 years. | Year. | Mean temp of Feb. 15th to March 16th inclusive. | Difference of mean temp. of following June to Aug., from avg. of 60 years. |
|---|---|---|---|---|---|---|---|---|
| | deg. | deg. | | deg. | deg. | | deg. | deg. |
| 1814 | 30·2 | —3·1 | 1836 | 37·1 | —0·5 | 1858 | 34·5 | +1·7 |
| 1815 | 43·1 | —1·4 | 1837 | 38·8 | —1·0 | 1859 | 46·3 | +3·5 |
| 1816 | 39·9 | —5·7 | 1838 | 37·9 | —1·7 | 1860 | 34·4 | —4·1 |
| 1817 | 42·2 | —3·4 | 1839 | 37·2 | —1·5 | 1861 | 44·1 | +0·3 |
| 1818 | 39·7 | +3·4 | 1840 | 35·6 | —1·0 | 1862 | 41·8 | —2·5 |
| 1819 | 40·3 | —0·2 | 1841 | 43·2 | —2·6 | 1863 | 41·8 | —0·5 |
| 1820 | 37·1 | —2·8 | 1842 | 42·6 | +2·0 | 1864 | 38·8 | —1·2 |
| 1821 | 38·4 | —3·0 | 1843 | 38·2 | —1·0 | 1865 | 37·8 | +0·5 |
| 1822 | 44·3 | +1·3 | 1844 | 38·8 | —0·9 | 1866 | 36·6 | —0·4 |
| 1823 | 38·7 | —2·7 | 1845 | 32·1 | —1·5 | 1867 | 39·4 | —1·0 |
| 1824 | 39·4 | —1·6 | 1846 | 46·3 | +3·5 | 1868 | 44·7 | +3·6 |
| 1825 | 39·7 | +1·2 | 1847 | 39·1 | +1·0 | 1869 | 39·5 | —0·6 |
| 1826 | 44·8 | +3·2 | 1848 | 41·9 | —1·3 | 1870 | 38·7 | +1·7 |
| 1827 | 38·7 | —0·8 | 1849 | 43·9 | +0·2 | 1871 | 43·4 | —0·4 |
| 1828 | 43·3 | —1·5 | 1850 | 43·7 | +0·3 | 1872 | 45·5 | +0·9 |
| 1829 | 37·7 | —1·9 | 1851 | 39·9 | +0·2 | 1873 | 37·8 | +0·9 |
| 1830 | 41·6 | —2·0 | 1852 | 38·7 | +0·8 | 1874 | 38·8 | +0·1 |
| 1831 | 42·5 | +1·5 | 1853 | 37·0 | —1·3 | 1875 | 36·8 | —0·4 |
| 1832 | 36·4 | —0·4 | 1854 | 42·4 | —1·8 | 1876 | 44·6 | +1·9 |
| 1833 | 38 | —1·4 | 1855 | 34·1 | —0·4 | 1877 | 40·0 | +0·5 |
| 1834 | 45·8 | +1·7 | 1856 | 39·0 | +0·3 | 1878 | 45·6 | ... |
| 1835 | 41·0 | +1·7 | 1857 | 41·1 | +3·2 | | | |

The years in which the mean temperature of the period from the 15th February to the 16th March, was within a small fraction of 44°, will be seen to have been 1849, 1850, and 1861, and the mean temperatures of the following summers (June to August inclusive) were respectively 0°·2, 0°·3, and 0°·3 above the average of 60 years. In 1822, when the mean of the period was just below 44½°, the following summer was 1°·3 above the average, but in 1826, 1834, 1846, 1859, 1868, 1872, and 1876, when the period referred to in the above table was above 44°·5, the following summer, or the following July, was in each case remarkably hot. In 1826, July was 3°·5 above the Greenwich average of 60 years. In 1834 that month was 2°·0 above the average, in 1846 2°·4 in excess, in 1859 6°·0 in excess, in 1868 5°·4 above, in 1872 almost 3°·0 above, and in 1876, that month was 3°·8 above the average. This year the mean of the period referred to was 45°·6; so according to this rule, we have good reason to believe that unusually hot weather will occur during the coming summer, and that the hot periods will be of considerable duration. It will be seen from the above table, that although we have always had a warmer summer than the average, after the mean temperature of the period referred to has been about or above 44°, we have sometimes had a hot summer without this particular sign having preceded it.

As regards cold summers, the converse of the rule I have given is

generally true, for, whenever the mean temperature of the period referred to in the table has been below 34½°, the following summer has been colder than the average. A glance at the above table will show that the years when the mean temperature of the period was below 34°·5 were 1814, 1845, 1855, and 1860, and in each case the succeeding summer was colder than the average. In 1858 the mean of the period was just 34½°, and, although June was a very hot month, the following month of July was as much as 1½° colder than the average. In most cases when the period has been below 37° or 38°, the succeeding summer has been colder than the average, as in 1820, 1829, 1832, &c.—Yours very sincerely, GEORGE D. BRUMHAM.

*Barnsbury, 2nd April*, 1878.

## SUPPLEMENTARY TABLE OF RAINFALL IN APRIL, 1878.

[For the Counties, Latitudes, and Longitudes of most of these Stations, see Met. Mag., Vol. XI., p. 28., but the list is under revision.]

| Div. | Station. | Total Rain. | Div. | Station. | Total Rain. |
|---|---|---|---|---|---|
| | | in. | | | in. |
| II. | Acol | 2·50 | XI. | Solva | 2·42 |
| ,, | Littlehampton | 2·56 | ,, | Castle Malgwyn | 1·73 |
| ,, | Hailsham | ... | ,, | Nantgwilt, Rhayader | 3·22 |
| ,, | St. Lawrence, I. of W. | 2·78 | ,, | Carno | 2·60 |
| ,, | Strathfield Turgiss | 2·23 | ,, | Rhug, Corwen | 1·46 |
| III. | Addington Manor | 2·52 | ,, | Port Madoc | 1·84 |
| ,, | Oxford | 2·25 | XII. | Carsphairn | 3·34 |
| ,, | Northampton | 1·84 | ,, | Melrose | 2·09 |
| ,, | Cambridge | 1·44 | XV. | Gruinart | 2·52 |
| IV. | Sheering | 1·78 | XVI. | Grandtully | ... |
| ,, | Diss | ·98 | XVII. | Tomintoul | ·43 |
| ,, | Swaffham | 1·11 | ,, | Keith | ·37 |
| V. | Alderbury, Salisbury | 2·65 | XVIII. | Dalwhinnie | ·50 |
| ,, | Compton Bassett | 2·34 | ,, | Auchnasheen | 1·38 |
| ,, | Dartmoor | 5·19 | ,, | Springfield, Tain | ·32 |
| ,, | Teignmouth | 5·47 | ,, | Glenfinnan | 3·64 |
| ,, | Langtree, Torrington | 2·81 | XIX. | Watten | 1·04 |
| ,, | Cosgarne, St. Austell | 3·99 | XX. | Glenville, Fermoy | 3·57 |
| ,, | Taunton | 3·80 | ,, | Tralee | 2·35 |
| VI. | Bristol | 2·98 | ,, | Tipperary | 2·76 |
| ,, | Sansaw | 1·86 | ,, | Newcastle W., Limerick | 1·81 |
| ,, | Cheadle | 2·20 | ,, | Kilrush | 2·22 |
| ,, | Bickenhill Vicarage | 1·97 | XXI. | Kilkenny | 2·38 |
| VII. | Coston, Melton Mowbray | 1·56 | ,, | Kilsallaghan | 3·62 |
| ,, | Bucknall | 1·16 | ,, | Twyford, Athlone | 2·15 |
| VIII. | Walton, Liverpool | 1·31 | ,, | Belvedere, Mullingar | ... |
| ,, | Broughton-in-Furness | 2·58 | XXII. | Ballinasloe | 1·73 |
| IX. | Stanley, Wakefield | 2·20 | ,, | Kylemore | 6·00 |
| ,, | Mickley, Ripon | 2·11 | ,, | Carrick on Shannon | 2·39 |
| ,, | Whitby | ... | XXIII. | Rockcorry | 1·60 |
| X. | Gainford | 1·84 | ,, | Warrenpoint | 2·67 |
| ,, | Unthank Hall | 2·49 | ,, | Newtownards | 1·78 |
| ,, | Shap | 2·92 | ,, | Bushmills | 1·82 |
| IX. | Llanfrechfa | 4·60 | ,, | Buncrana | 2·74 |

# APRIL, 1878.

| Div. | | STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.] | RAINFALL. Total Fall. | Difference from average 1860–5 | Greatest Fall in 24 hours. Dpth | Date. | Days on which ·01 or more fell. | TEMPERATURE. Max. Deg. | Date. | Min. Deg. | Date. | No. of Nights below 32° In shade | On grass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | inches | inches. | in. | | | | | | | | |
| I. | ENGLAND. | Camden Town | 4·97 | + 3·84 | 2·56 | 10 | 16 | 69·4 | 30 | 27·2 | 1 | 5 | 11 |
| II. | | Maidstone (Hunton Court) | 3·62 | + 2·47 | 1·67 | 10 | 15 | ... | ... | ... | ... | ... | ... |
| ,, | | Selborne (The Wakes) | 2·80 | + 1·30 | ·78 | 10 | 20 | 65·0 | 28 | 28·0 | 1 | 6 | 9 |
| III. | | Hitchen | 2·35 | + 1·35 | ·86 | 10 | 16 | 65·0 | 30 | 28·0 | 5 | 5 | ... |
| ,, | | Banbury | 2·27 | + 1·11 | ·54 | 10 | 18 | 65·0 | 28 | 25·0 | 1 | 8 | ... |
| IV. | | Bury St. Edmunds (Culford) | 1·23 | + ·48 | ·37 | 23 | 9 | 69·0 | 30 | 25·0 | 5 | 5 | 10 |
| ,, | | Norwich (Sprowston) | 1·68 | ... | ·85 | 16 | 10 | ... | ... | ... | ... | ... | ... |
| V. | | Bridport | 3·53 | + 2·05 | ·59 | 9 | 18 | ... | ... | ... | ... | ... | ... |
| ,, | | Barnstaple | 2·53 | + ·52 | ·40 | 18 | 18 | 67·0 | 29 | 35·0 | 1,6 | 0 | ... |
| ,, | | Bodmin | 3·25 | + 1·55 | ·60 | 12 | 21 | 63·0 | 28 | 34·0 | 1 | 0 | 2 |
| VI. | | Cirencester | 3·02 | + 1·73 | ·85 | 10 | 20 | ... | ... | ... | ... | ... | ... |
| ,, | | Shifnal (Haughton Hall) | 1·93 | + ·78 | ·47 | 23 | 15 | 63·0 | 29 | 25·0 | 1 | 6 | 11 |
| ,, | | Tenbury (Orleton) | 2·56 | + 1·02 | ·48 | 10 | 20 | 65·2 | 30 | 25·3 | 1 | 6 | 7 |
| VII. | | Leicester (Town Museum) | 1·57 | ... | ·47 | 20 | 14 | 64·0 | 29 | 27·2 | 1 | 3 | 14 |
| ,, | | Boston | 1·19 | + ·22 | ·54 | 20 | 10 | 68·0 | 29 | 24·0 | 1 | 5 | .. |
| ,, | | Grimsby (Killingholme) | 1·19 | ... | ·54 | 20 | 10 | 64·0 | 15 | 26·0 | 1 | 2 | ... |
| ,, | | Mansfield | 1·53 | ... | ·61 | 20 | 14 | 65·0 | 29 | 25·0 | 1 | 5 | 11 |
| VIII. | | Manchester (Ardwick) | 1·71 | + ·29 | ·52 | 21 | 11 | 69·0 | 28 | 28·0 | 1 | 2 | ... |
| IX. | | York | 1·30 | + ·20 | ·49 | 20 | 7 | 65·0 | 15 | 29·0 | 1 | 3 | ... |
| ,, | | Skipton (Arncliffe) | 2·74 | — ·30 | 1·09 | 20 | 11 | ... | ... | ... | ... | ... | ... |
| X. | | North Shields | 1·88 | + ·57 | ·52 | 20 | 13 | 61·2 | 16 | 28·2 | 1 | 2 | 4 |
| ,, | | Borrowdale (Seathwaite) | 4·19 | — 2·71 | ·77 | 3 | 11 | ... | ... | ... | ... | ... | ... |
| XI. | WALES. | Cardiff (Crockherbtown) | 4·10 | ... | ·75 | 9 | 21 | ... | ... | ... | ... | 3 | ... |
| ,, | | Haverfordwest | 2·76 | + ·90 | ·55 | 13 | 13 | 63·0 | 29 | 29·0 | 5 | 3 | 8 |
| ,, | | Aberdovey | 1·68 | ... | ·34 | 29 | 14 | 75·0 | 28 | 27·0 | 1 | 2 | ... |
| ,, | | Llandudno | 1·39 | — ·11 | ·26 | 3 | 12 | 70·7 | 12 | 34·0 | 1 | 0 | ... |
| XII. | SCOTLAND. | Dumfries (Crichton Asylum) | 3·36 | ... | 1·18 | 20 | 12 | 63·4 | 29 | 27·0 | 6 | 7 | 10 |
| ,, | | Hawick (Silverbut Hall) | 1·90 | ... | ·50 | 19 | 13 | ... | ... | ... | ... | ... | ... |
| XIV. | | Glasgow (Cessnock Park) | 2·46 | + ·64 | ... | .. | ... | ... | ... | ... | ... | ... | ... |
| XVI. | | Mull (Quinish) | 2·67 | .. | ·98 | 20 | 14 | ... | ... | ... | ... | ... | .. |
| ,, | | Loch Leven | 1·70 | + ·18 | ·60 | 21 | ... | ... | ... | ... | ... | ... | .. |
| ,, | | Tyndrum (Ewick) | 4·50 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| ,, | | Arbroath | 1·41 | + ·22 | ·30 | 1,16 | 11 | 61·0 | 14* | 30·0 | 2 | 6 | ... |
| XVII. | | Braemar | ·82 | — ·58 | ·45 | 20 | 5 | 59·2 | 30 | 20·0 | 6 | 11 | 21 |
| ,, | | Aberdeen | ·96 | ... | ·20 | 17 | 15 | 62·6 | 14 | 28·4 | 2 | 3 | 7 |
| XVIII | | Gairloch | ·64 | ... | ·30 | 1 | 7 | ... | ... | ... | ... | .. | ... |
| ,, | | Portree | 2·15 | — 3·12 | ·39 | 20 | 14 | ... | ... | ... | ... | ... | ... |
| ,, | | Inverness (Culloden) | ·37 | — 1·10 | ·16 | 2 | 8 | 64·9 | 29 | 30·0 | 6 | 6 | 15 |
| XIX. | | Dunrobin | ·35 | — ·89 | ·20 | 1 | 6 | 60·0 | 14 | 29·8 | 1 | 7 | ... |
| ,, | | Sandwick | ·24 | — 1·50 | ·09 | 15 | 6 | 57·0 | 16 | 28·8 | 1 | 3 | 7 |
| XX. | IRELAND. | Caherciveen Darrynane Abbey | 3·99 | ... | 1·53 | 12 | 17 | ... | ... | ... | ... | ... | ... |
| ,, | | Cork | 4·85 | ... | 1·30 | 9 | 15 | ... | ... | ... | ... | ... | ... |
| ,, | | Waterford | 3·72 | + 1·49 | 1·20 | 13 | 14 | 60·0 | 24 | 30·0 | 1‡ | 5 | ... |
| ,, | | Killaloe | 1·73 | — ·40 | ·53 | 20 | 15 | 70·0 | 30 | 25·0 | 4 | 8 | ... |
| XXI. | | Portarlington | 1·47 | — ·55 | ·37 | 12 | 19 | 62·0 | 16 | 28·0 | 3 | 8 | ... |
| ,, | | Monkstown, Dublin | 1·63 | — ·01 | ·62 | 29 | 12 | 70·0 | 26 | 28·0 | 1‖ | 5 | ... |
| XXII. | | Galway | 2·50 | ... | ·57 | 12 | 18 | 66·0 | 20 | 29·0 | 2 | 4 | ... |
| XXIII | | Waringstown | 1·68 | ... | ·77 | 12 | 17 | 66·0 | 19 | 28·0 | 1, 2 | 5 | 11 |
| ,, | | Edenfel (Omagh) | 1·92 | ... | ·82 | 12 | 13 | 62·0 | 19† | 28·0 | 2, 3 | 5 | ... |
| ,, | | Ballyshannon | 1·12 | ... | ·40 | 4 | 5 | ... | ... | ... | ... | ... | ... |

* And 15. † And 22, 29. ‡ And 2, 4, 5. ‖ And 7, 19.

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

# METEOROLOGICAL NOTES ON APRIL.

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

## ENGLAND.

CULFORD.—The weather throughout the month was favourable, with a mean temp. above the average (49°·1); swallows first seen and nightingale first heard on the 18th, cuckoo first heard on 29th, TS, with H, on 23rd.

BODMIN.—Mean temp. of month 46°·8, being 4°·1 below average.

SHIFNAL.—On the whole a genuine April, although it came in with a "white world" and frosts; for the first nine days the ther. never rose to 50°, and was below 32° at night; from that time the temp. rose, and it was genial weather with fine showers; pastures unusually forward, but the severe frost of the 1st damaged gooseberry and apricot blossoms. Bar. very equable throughout, and little wind; damson in blossom on 10th, wild cherry on 16th, stitchwort flowers on 12th, asparagus cut on 20th, sand martins arrived on 11th, willow wrens on 15th, cuckoo seen 17th, heard 27th, swallow seen 25th.

ORLETON.—The weather was dry and cold, with severe frosts almost every day till the 10th, when a gentle rain set in at 6 p.m., and continued till nearly 9 a.m. on the following day. It was afterwards warm, with frequent R and very favourable for vegetation; mean temp. slightly below the average; distant T on the 5th, 17th, 19th and 30th; cuckoo heard and swallows seen on 16th, chiff-chaff on 18th, early plums in full bloom about 5th, damsons on 14th, and cherry trees on 19th.

BOSTON.—On the 5th a very heavy rain fell on the E. coast, at the villages of Frieston and Butterwick, which was scarcely felt here. The inhabitants report that the rain was quite black, and made the water in the ponds, ditches, and tanks quite dark-coloured. The temp. on the night of the 1st was the lowest recorded during the last 14 years.

MANSFIELD.—S and R on 1st, lunar halo on 8th, T on 14th, 24th and 30th.

MANCHESTER.—The month opened with cold ungenial weather, easterly winds set in on 5th and prevailed to the 12th, when we had some genial showers, which were very beneficial to vegetation. On the 21st cold E. wind set in again, but the weather was fine, and continued so to the close of the month.

YORK.—Mean bar. nearly half-an-inch below last month: wind E. on 19 days, bringing several almost cloudless days at end of month. Vegetation rather backward; first swallow seen on Good Friday.

ARNCLIFFE.—S and sleet on 1st; very cold N.E. wind on 8th.

NORTH SHIELDS.—S on 1st and 2nd.

## WALES.

HAVERFORDWEST.—Very fine growing weather; the finest April for many years; heavy gale from E. on 7th and 8th, with S showers; air very cold at this time, and again during the last six days; vegetation much more forward than for many years past.

ABERDOVEY.—A fine warm month, with the exception of two nights of frost, and the prevalence of easterly wind for about half the month; most genial R at the close of the month.

LLANDUDNO.—A fine spring month, without any frost; all crops looking well. Mean temp. about half a degree above average, in spite of a general prevalence of polar winds. Plum and cherry in bloom on 3rd, sycamore in leaf on 18th, apple in blossom, and swallows seen on 19th, oak and elm in leaf on 23rd, chestnut in flower on 25th, ash in leaf on 29th.

## SCOTLAND.

DUMFRIES.—The rainfall, one-third of which fell on one day, is rather below the average; mean temp. about the average; easterly winds prevailed during the greater part of the month, and the weather was therefore rather ungenial.

HAWICK.—Heavy snowstorm on 1st; frosty for the first nine nights. The late rains drowned out the bees. I have only seen one alive here this season. On the morning of the 3rd a shower of S fell near to Cavers, and so limited was the fall, that only one large field, and a small strip of ground were covered white, while all the surrounding district was free from S.

QUINISH.—A very fine warm month, vegetation and foliage as far advanced at the end of the month as they were in the beginning of June last season.

ARBROATH.—Foggy for the last ten days of the month.

BRAEMAR.—A very excellent but dry month.

ABERDEEN.—A month of rather mild and dry, but somewhat dull weather; mean height of bar. a little below 21 years' average; mean temp. 44°·9, or 0°·8 above average of 21 years; rainfall 1·17 in. below 21 years' average.

PORTREE.—A very fine month; farming operations carried on briskly, and sowing nearly completed; grass backward from want of rain, and lambs suffering slightly on dry farms.

DUNROBIN.—With one or two exceptions the driest month we have had in Sutherland for the last ten years; easterly winds prevailed most of the month; atmosphere cold and dry, slight frosts at night early in the month, but vegetation is healthy, and so far promises well.

## IRELAND.

WATERFORD.—Mean bar. 29·82 in.; mean temp. 45°; wind N. and S.; H and rainbow on 3rd.

KILLALOE.—Deficient rainfall and E. winds. Some sharp frosts in the early part of the month. Rising temp., and vegetation very good at end of month.

MONKSTOWN.—The earlier part of the month was very cold, with N. and E. winds. The remainder was fine and warm, with some heavy showers; vegetation progressing rapidly.

WARINGSTOWN.—Very favourable for farming operations; the crops better got in than for many years past.

EDENFEL.—The most exacting farmer could not desire April weather more favourable than that of the past month. With drought sufficient for all tillage purposes there was rain and warmth sufficient to produce a luxuriance of vegetation, to which we have long been strangers at this season.

BALLYSHANNON.—The month was unusually fine and favourable for spring work; the temp. was high and there was no frost to damage fruit trees, which promise an abundant crop.

## METEOR IN SUNSHINE.

*To the Editor of the Meteorological Magazine.*

SIR,—It may interest you and the readers of your journal to know that yesterday, the 25th, I saw a magnificent meteor in broad daylight, the sun shining in an unclouded sky at the time. The time was 10.17 a.m.; the position of the meteor was a little to the east of true north, (I had nothing to guide me in this except the sun, as I was walking along the road); the direction (falling) was perpendicular to the horizon; the train some five to six deg. long.; its size seemed at least equal to 3′ or 4′ of arc; in brilliancy it was something marvellous, apparently equal to that of the sun, *proportionately;* it lasted from four to five seconds. Its brightness may be imagined from its brilliant appearance during intense sunlight.

I shall be interested to know if anyone else observed it. Two men walking along at the same time saw it on my calling their attention to it.—Yours truly, WM. GARNETT, F.R.A.S.

*Bashall Lodge, Clitheroe, March 26th,* 1878.

[Probably the same as reported from near Hawick. See p. 48.—*Ed.*]