PHILOSOPHICAL TRANSACTIONS.

XI. *On the Amount of the Radiation of Heat, at night, from the Earth, and from various bodies placed on or near the surface of the Earth.* *By* JAMES GLAISHER, *Esq., of the Royal Observatory at Greenwich.* *Communicated by* G. B. AIRY, *Esq., F.R.S., Astronomer Royal, &c.*

Received January 14,—Read February 4, 1847.

IN the Report of the Committee of Physics of this Society in the year 1840, the measure of the radiation of heat at night from the earth was specially mentioned as being of importance to meteorology; and it may be added that it is of the utmost importance to the economy of nature.

As soon as the duties of the Magnetical and Meteorological Observatory permitted, I employed some time in making myself acquainted with all that was known upon the subject of radiation. The results of my researches were only a few papers in the Transactions of this Society, and the Treatise on Dew by Dr. WELLS; and in general I found a great want of good observations; I therefore determined to pursue the subject with some degree of steadiness. The instrument recommended to be used in the report above referred to, was a self-registering minimum thermometer, placed in the focus of a polished metallic reflector; and, in consequence of this recommendation, the instrument has been in very general use; it was, however, mentioned as being an imperfect instrument.

The instrument being thus confessedly imperfect, it became exceedingly desirable to ascertain the amount of its errors; and, to this end, to have very many comparisons made between it and those instruments or methods which might be found less imperfect, so as to have a ready and certain means of converting the results derived from observations by it to other results, if it were found desirable so to do. With this view the thermometer, whose bulb was placed in the focus of a reflector, has been read, almost without exception, in every series of experiments.

My first object was the obtaining instruments of the best possible kind, and I con-

sidered that the essentials of the thermometers adapted to the investigation were threefold, viz.—

1st. That the points corresponding to the freezing and boiling of water be exactly determined.

2nd. That the column of mercury which fills the tube be exactly uniform throughout.

3rd. As bodies exposed to the sky must radiate as much heat to it during the prevalence of wind as they would do if the air were still, and as I had always found, during the continuance of the strongest and most steady winds, that there were periods of calms of some duration, it was necessary that the thermometers should be of the most delicate kind, and the most sensitive to the variations of heat, so that they would mark a superficial or transitory cold, as, if not, the frequent application of warm air in windy weather would quickly return a heat equal to that lost by radiation.

With the view of obtaining instruments combining these essentials, I placed myself in correspondence with Mr. Watkins, optician, in the year 1842, described to him the kind of instrument I wanted, and the purpose for which I required them, and after this time I frequently received different thermometers from him for the purpose of experiment. I was thus occupied during many months in making these experiments upon thermometers whose stems were varied in their lengths, some embracing an extent of upwards of 212°; others of a less extent, but whose lengths for a degree were different; to some of these divided scales were applied, varied in their kind and form, hinges being furnished to several, so that a part of the stem and the bulb were free; and others were without any scales affixed to them whatever, the divisions being cut on their own stems; other experiments were made upon thermometers whose bulbs were varied with respect to their form, size and colour; and in general, the results of the experiments tended to the obtaining of instruments which would give the most accurate results.

The following are some of the results of these experiments:—

Being desirous of testing the points 32° and 212° myself, so that I could determine their errors, as also the errors of the other parts of the scale by means of Bessel's formula (Konigsberg Astronomical Observations for 1821, p. 9)*, I was anxious for instruments whose extent of division should embrace these points; I soon, however, abandoned this idea, as it would have required thermometers with very long stems, a circumstance I found materially to affect their readings, which varied with every different inclination of the thermometer to the horizon, and were correct only when placed horizontally. I did this the more readily as I was in possession of an instrument which had been made for me by Messrs. Watkins and Hill ten years previously, the point corresponding to 32° of which had been examined every year, and found to be correct; the readings of this instrument had also been compared with the best standard instruments we possess, and found to agree with them at every part

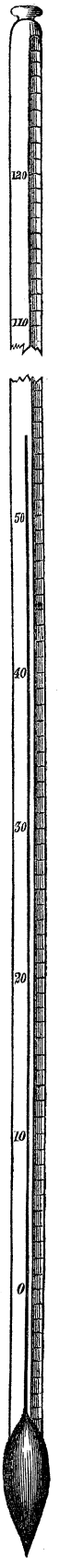
* See a full illustration of this method in Kupffer, Annuaire Magnétique et Météorologique for the year 1841, pp. 41 to 51.

of the scale; I therefore determined to use this as a standard with which to compare every thermometer.

I also found that it was absolutely necessary to have the division marked on the thermometer stems themselves; for those to which scales were affixed, even those furnished with hinges, so that a part of the stem and the bulb were free, and those whose bulbs projected beyond the scale could not be laid so nicely on different substances as those without scales; for that and other reasons all the thermometers used in the following experiments were without scales affixed to them, the divisions being engraved and coloured upon the stems themselves.

In the course of the experiments I found that circular bulbs were the more sensible in proportion to their smallness, but with a bulb sufficiently small to have the desired sensibility, the column of mercury was so fine that it would have been impossible to observe accurately with it at night in the position in which the instruments were necessarily placed in these observations.

The length of the thermometer finally used was thirteen inches, including the bulb, whose diameter was a quarter of an inch, and length three quarters of an inch (as shown in the figure); therefore, as the instruments were divided from 0° to 130°, each degree was about 0·1 inch in length; these were used during the night observations, and they were left on their respective substances till about 9 o'clock in the morning, until it was found that many of them were broken; the absorptive power of grass and the filamentous substances being such that before this time a temperature of more than 130° had taken place even in the month of April; other instruments were afterwards constructed both of the same length and of the same form, and graduated as far as 160° or 170°. These were occasionally used during the night observations, and always during those of the day in experiments upon the absorptive powers of different substances.



These instruments were so delicate that on taking them from air of the temperature of 60° to that of 37°, the latter temperature was indicated in about two minutes; and therefore if at any time a lull took place in a gale of wind of two minutes' duration, or even less, the amount of heat lost by radiation under the then state of the sky would be correctly registered by these instruments.

On September 13, 1843, I received twenty-five mercurial thermometers of the above form, and as many self-registering minimum thermometers, with circular bulbs, whose divisions were also on their own glass stems; and at this time I commenced the regular series of observations with the mercurial thermometers; that with the minimum thermometers had been begun long before. A year was consumed in these preliminary experiments, and in ascertaining the precautions necessary to obtain correct determinations; in consequence of several of these being neglected before this time, the previous observations must be regarded as undeserving of confidence; the results from them therefore have been omitted in the following Tables.

I now proceed to speak of the comparison of the thermometers with the

standard. Among others received in January 1843, were five of the form finally adopted for use, and the following are the comparisons with the standard, made by hanging them in the air and near to the latter :—

1843. Month, day, and hour.	Reading of standard thermometer.	Reading of thermometers.				
		a.	*b.*	*c.*	*d.*	*e.*
d. h.	°	°	°	°	°	°
Feb. 5 22	34·8	34·8	34·8	34·8	34·8	34·7
6 0	35·7	35·4	35·6	35·6	35·6	35·7
6 1	36·4	36·2	36·3	36·2	36·3	36·3
13 22	35·9	35·8	36·0	35·8	35·9	35·9
13 22½	36·4	35·9	36·0	36·1	36·2	36·3
13 23	37·0	36·8	37·0	37·0	37·0	37·4
14 1	39·0	38·8	39·0	39·2	39·2	39·2

The following comparisons were made of those received on September 13th by means of water of different temperatures in the following manner. Water of a higher temperature than needed was placed in a vessel, and the required temperature was obtained by the application of cold water, the two being well mixed together till the standard thermometer read the same at every part of the mixture. The thermometers were then all placed in it and parallel to each other ; they were thus allowed to remain for one hour, and their readings were taken quickly. Water of a different temperature was then prepared in a similar way, and so on successively. The comparisons occupied an entire night, and during this interval of time the temperature of the room was kept uniform, in fact it did not vary one degree.

This method was found to be very troublesome, and to ensure accuracy a long time was required to be devoted to it. The mixing of water of different temperatures together, so that the whole mixture became of the same temperature, from the circumstance of its being so bad a conductor of heat, was found to be difficult. After this time I adopted the following method in all subsequent comparisons :—

1st. The water was heated to a temperature above the highest required.

2nd. The standard and all the thermometers for comparison were placed, in this water, parallel to each other, and after some time their readings were taken as quickly as possible.

3rd. The readings were afterwards taken as the temperature of the water declined every 2° or 3°, till the temperature of the water was at or near that of the apartment ; in case the decline of temperature was found to be too rapid, the surface of the water was covered by flannel.

4th. A quantity of water was cooled to a point lower than the lowest required temperature, by means of ice, or of ice and salt, and the thermometers were placed in this as before.

5th. The readings of all the thermometers were taken as this mixture increased 2° or 3° in temperature, till it was at or near the temperature of the apartment, its surface being covered by flannel if the increase of heat was thought to be too rapid.

By this means the comparisons were made with ease and certainty, and they readily indicated every inequality of the thermometer tubes.

1843.	Greenwich mean time Oct. 21d.				Correction to be added to readings of the thermometers.
Name or letter of reference of the thermometer.	7h 30m.	11h 30m.	15h 30m.	17h 40m	
	°	°	°	°	
Standard.	45·1	49·8	69·3	90·5	
A.	45·1	49·8	69·3	90·5	
B.	45·1	49·8	69·3	90·5	
C.	45·1	49·8	69·2	90·5	
D.	45·0	49·8	69·3	90·4	
E.	45·1	49·8	69·3	90·3	
F.	45·1	49·8	69·3	90·4	
G.	45·0	49·8	69·3	90·4	
H.	45·1	49·9	69·3	90·5	
I.	45·1	49·8	69·2	90·4	
J.	45·0	49·7	69·3	90·4	
K.	45·0	49·7	69·3	90·4	
L.	45·0	49·8	69·3	90·4	
M.	45·0	49·8	69·3	90·4	
N.	45·1	49·8	69·3	90·5	
O.	45·1	49·9	69·4	90·5	
P.	44·6	49·4	69·0	90·0	Add 0°·5 to all readings.
Q.	44·9	49·6	69·2	90·3	Add 0°·2 to all readings.
R.	45·0	49·8	69·3	90·5	
S.	44·8	49·5	69·0	90·2	Add 0°·3 to all readings.
T.	44·8	49·5	69·0	90·2	Add 0°·3 to all readings.
U.	45·1	49·8	69·2	90·5	
V.	45·1	49·6	69·2	90·5	
W.	45·1	49·7	69·1	90·5	
X.	45·1	49·8	69·1	90·5	
Y.	45·1	49·6	69·0	90·4	

During the operation of comparing the thermometers, it was found absolutely necessary to have all of them in the same position with respect to the vertical, for it sometimes happened that their readings varied with their position; this variation with the self-registering minimum thermometers was so great that I could not compare them at this time; afterwards I procured a shallow vessel of sufficient extent to receive them horizontally; in this vessel the comparisons were taken, and their readings were found to agree with those of the standard to 0°·1 or 0°·2, the same thermometer being frequently as much in excess at one part of the stem, and as much in defect at another.

The possession of upwards of fifty instruments whose extreme difference of reading from the standard was a constant quantity of half a degree in one thermometer, and a constant quantity of 0°·2 or of 0°·3 in three others, the remainder being absolutely free from error, was exceedingly gratifying. I felt that all the time and trouble I had bestowed on them was well repaid. I had not expected to be so successful in obtaining so many essentially good thermometers, and I had prepared myself to ascertain their errors at every division by Bessel's formula, which, although implying a long process, gives good results; all this trouble, however, I was saved, and also

all the work which would have been necessary in applying the correction, had such been needed.

The construction of such instruments must be considered as highly creditable to Messrs. WATKINS and HILL, and I feel that I should be doing an injustice to Mr. WATKINS, did I not here mention my obligations to him for his readiness at all times to meet my wishes, which I fear were sometimes troublesome.

The observations were made in the grounds attached to the Royal Observatory, being S.S.E. of the Magnetic Observatory, and distant from it about forty feet.

The form of the piece of ground is nearly square; its extent about 10,000 square feet, and its surface nearly level. At one end is the extreme south arm of the Magnetic Observatory, whose height is twelve feet and breadth thirteen feet; at fourteen feet north of this arm, the two east and west arms project each fourteen feet, and their height is the same as the south arm. On each of the three remaining sides, at the distance of about forty-five feet, is a close wooden fence, between five feet and six feet high. At the distance of ninety feet north-west is a fine and spreading oak-tree, and a little beyond it are other trees but of a less elevation. On the east and near the outside of the fence are chestnut-trees. All these circumstances had influence on the readings, and caused them to be higher (particularly those that were made on or near the surface of the ground), and therefore the differences of the readings, as compared with those in the air, were less than they would have been if the surrounding fence and trees had been further removed, or the observations had been made in a wide and open plain, and I have reason to believe to a much greater extent than would at first appear to be the case.

A portion of the grass plat containing 210 square feet, whose nearest part was twenty-eight feet south of the Magnetic Observatory, was enclosed by low and open palings; within this enclosure the self-registering minimum thermometers were placed after April 1843, and some of them continued to be regularly observed till the present time (1847). At one angle of this enclosure a piece of board six feet long, four feet wide, and $1\frac{1}{4}$ inch thick, was elevated three feet above the grass plat, by means of four props of equal height; upon this raised board all experiments upon substances in the shape of powder were made.

I now proceed to speak of some of the substances upon which experiments have been made. Those on the temperature of grass were always made both on long and on short grass, the blades of the former being bent by strong pressure towards the earth, and overlapping each other so as to completely cover the surface of the ground; the blades of the latter, being less than an inch in height, were erect and stiff; in this respect only did the latter differ from the former, each portion being a part of the same grass plat, separated from each other by a few feet only, and therefore exposed to the same portions of the sky. The metallic plates used had generally a surface of more than 100 square inches. The thermometers for ascertaining the temperature of the air at distances from one inch to twelve feet irom the earth, were placed with

their stems passing through a piece of wood planted firmly in the ground, and whose thickness was two inches and breadth three inches, with the bulbs at least nine inches from the wood.

Bodies in the state of powder were generally in quantity such that about thirty square inches of surface were exposed, and their thickness was about half an inch. The filamentous substances exposed a surface of about 100 square inches, and their thickness was about half an inch. With respect to the other substances, the circumstances under which the observations have been made are sufficiently explained in the section of observations. The thermometer was laid on long grass in such a manner that the bulb was not covered by a single blade; on short grass it rested on the fork of two Y's, so that the bulb was sustained on the top of the grass; on metallic plates it was so laid that the bulb occupied the centre of the plate; on substances in powder it was so placed that the bulb occupied the centre of the mass, and just in contact with it, the stem being supported by pieces of wood; on filamentous substances the bulb occupied the centre, and care was taken that it did not sink within, or was covered by any portion of the substance; and the same plan was adopted throughout all the experiments.

During a series of observations the thermometers were frequently removed from one substance to another; those whose readings were the highest were interchanged with those which were the lowest, and so on: in the case of observations of the same kind of metals at different heights, or of different thicknesses, or indeed in any specific comparison, they were always interchanged among themselves; it is possible that had the same instrument remained on the same substance, or in the same position, a more even set of readings in some cases might have been made: but this interchange of instruments removed all doubt as to the cause of the differences in the readings being altogether due to the difference of position, or to the inherent quality of the body itself upon which the instrument was placed. Some of the other precautions used in taking the observations were as follows. First, the observer approached the instrument at that end which was the most distant from the bulb, and held his breath during the time; and the readings were taken as quickly as possible, so that no heat should be imparted to them from the observer's body. In consequence of their divisions being cut on glass, a difficulty was at first experienced in reading them without placing the reading-lamp too near to the instruments: habit after some time enabled the observer to place the lamp so that the divisions were instantly perceived. Another and a greater difficulty was that of readily seeing the top of the mercury, in consequence of the fineness of its column: after various experiments it was found that this became readily seen by slipping a piece of coloured card under the instrument at about the place where it was known the column terminated: the colours found to answer best were drab and yellow. I may mention here that attention was paid to every precaution that experience suggested, or reflection pointed out as desirable.

Each set of observations may be looked upon as a series of experiments made for the purpose of ascertaining the different tendencies of various bodies to become cold upon exposure to a cloudless sky at night. To many persons it must be a new fact, that a perfectly dry body, placed in contact on all sides with other bodies of the same temperature with itself when the sky is covered by clouds, shall on the sky becoming less cloudy or cloudless, become much colder than those bodies, to so great an amount as is exhibited in the following tables, and that it shall remain so for many hours; yet these circumstances were exhibited in every series of observations*.

The formation of dew was found to depend solely on the temperature of the bodies upon which it was deposited, and it never appeared upon them till their temperatures had descended below that of the dew-point in their locality, as found by observations of a dry and wet bulb thermometer placed in their vicinity.

The amount of water thus deposited was the greatest upon the substances whose temperatures were the lowest: among these bodies glass was found to radiate heat freely, and it very readily became wet with dew. In consequence of this property, the tube of a naked thermometer, which was lying on a substance entirely free from moisture, was frequently found covered by dew, and therefore it seemed probable that the temperature exhibited by the instrument was not that of the body in question. On such instances occurring an attempt was made to correct the error by enclosing the thermometer stem in a tube made of gilt paper; the bulb alone, resting on the substance, remained exposed to the sky. The differences between the readings of a thermometer thus enclosed, and when naked, were found to be sensible, but small in amount; it was observed that when the thermometer was wholly naked, the stem was at times wet when the bulb itself was dry; and at all times much less moisture appeared on the bulb than on the stem, unless the disposition of the substance in question to become cold was the same, or greater than that of glass. The error arising from this cause was chiefly confined to the consequent contraction of the mercury in the stem, and not in the bulb, and which was considered to be avoided by the use of gilt paper: the error in all cases must have been small. It was found that the differences between the temperature of the air and of bodies on the earth, at night, in equally calm and clear weather, was the same at every period of the year, but it was found that the amount of dew deposited during such times was much greater in summer than in winter. This is easily accounted for, from the now well-known relation existing between temperature and moisture. At all seasons of the year, at night, the depression of the temperature of the dew-point below that of the air is small, or the air is in a state of saturation nearly, and therefore in summer a certain diminution of temperature would cause much more vapour to be changed into water, than an equal diminution in winter would do.

Radiation of heat from the earth to the heavens must exist at all times both day and night, and in all states of the sky. Generally, when the sun is above the

* The whole of these observations are placed in the Archives of the Royal Society.

horizon, the heat emitted by it to the earth will overbalance that which the earth radiates upwards; at times however, in places shaded from its direct beams, the amount of heat radiated exceeds that received from the sun and all other sources, and dew will be continually deposited throughout the day. Some instances of this are exhibited in the following Tables.

In taking these observations I have been much assisted by my then colleagues in the Magnetical and Meteorological Department of the Royal Observatory, viz. Messrs. DUNKIN, HIND and PAUL: these gentlemen frequently, on my commencing a series of observations, continued them as long as circumstances required, or they have begun a series which were continued by myself; and whenever any doubt attached to the readings from the unexpected lowness of the thermometers or other causes, they were always confirmed by one or other of these gentlemen, and afterwards by an interchange of instruments.

I have also to acknowledge my obligations to the Astronomer Royal for his kindness in permitting me to carry on these experiments within the grounds of the Royal Observatory; also for providing me with a skeleton form in which the observations were registered; and also for inclosing the piece of ground within which the registering instruments were placed.

The whole of the calculations have been twice performed by myself at different times, and parts of them, which appeared to be more liable to error than others, have been examined by another person. I believe, therefore, the whole to be nearly correct.

SECTION I.—*Results of Simultaneous Observations made by Mercurial Thermometers, not self-registering.*

The first process in the reduction of these observations, was to take the difference between the reading of the thermometer, freely suspended in air, at the height of four feet, and protected from the effects of radiation, and the simultaneous reading of every other thermometer.

The next process was to divide these differences into groups, arranged according to the excess of the reading of the thermometer, suspended in the air, above that placed on long grass.

The next step was to collect all these differences under the head of their respective substances for every degree of such excess of air temperature above that of long grass temperature.

The next step was to arrange these numbers according to the dates of their occurrence, and to write out abbreviative remarks which were made at the time of observation; and in this way the following Tables have been formed.

Tables I. to XVI. contain the results deduced from the observations taken between 1843, September 13, and 1843, November 15; Tables XVII. to XXVIII. contain the results from the observations taken between 1843, November 16, and December 31; and Tables XXIX. to XLIV. contain those from observations taken between 1844, January 1, and 1844, May, 1.

Excess of the reading of a thermometer placed in air at the height of 4 feet, protected from the effects of radiation, above the readings of thermometers placed on different substances fully exposed to the

Number of the Tables.	1843. Astronomical day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	Excess of the reading of the thermometer in air above that placed: On long grass.	On short grass.	On raw wool on grass.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On garden mould.	On gravel.	On river sand.	On river sand on the raised board.	One inch high above grass.	Two inches high above grass.	Three inches high above grass.	Six inches high above grass.	Twelve inches high above grass.	On unwrought white cotton wool on grass.	On unwrought white cotton wool on raised board.	On raw wool on raised board.	On flax on raised board.
	h m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
I.	Sept. 13. 19 20	54·8	−2·2	−2·2	...	...	...	...	...	...	...	...	0·0	−2·2	−2·2	−2·2	0·8	.....	...	...	−2·2	−2·2	...	...
	17. 19 20	61·5	−0·7	−0·2	...	...	−1·0	...	...	...	...	−1·0	0·0	−0·5	−1·3	−1·2	...	1·7	...	...	...	...	...	...
	22. 18 0	52·2	−1·1	−0·8	...	...	0·0	...	...	...	...	...	...	−1·4	...	0·4	...	0·4	...	...	−2·3	...	...	...
	22. 19 20	54·2	−2·3	−1·1	...	...	−0·8	...	...	...	...	...	...	−1·8	...	0·2	...	0·9	...	...	−3·8	...	...	...
II.	24. 18 40	49·0	0·2	0·9	...	...	2·0	1·0	...	...	...	...	...	0·0	...	1·0	...	1·7	...	...	−0·8	...	...	...
	26. 19 20	44·5	0·8	1·3	...	...	0·5	...	...	...	...	...	...	−1·7	...	0·5	...	1·3	...	...	−2·7	...	...	...
	Oct. 15. 19 20	32·0	0·4	1·7	2·4	2·2	−0·1	1·3	...	...	...	...	...	...	...	1·7	...	...	1·2	...	2·2	...	...	...
III.	Sept. 24. 18 15	48·7	1·3	1·6	...	...	2·6	1·6	...	...	...	−0·1	...	...	...	1·7	...	1·8	...	...	0·4	...	...	...
	26. 17 35	40·8	1·7	1·4	...	...	2·4	...	...	...	...	...	...	0·3	...	1·2	...	1·6	...	...	1·0	...	...	...
	Oct. 16. 14 50	40·0	1·0	1·0	1·0	1·0	2·0	0·5	...	...	...	...	...	...	...	1·0	...	1·0	...	...	1·0	...	...	...
IV.	Sept. 18. 17 30	60·3	2·5	2·1	...	...	...	...	...	...	...	1·3	2·5	2·3	...	2·3	...	1·7	...	...	2·0	...	...	...
	Oct. 3. 11 35	58·3	2·6	2·3	...	...	1·7	0·4	...	...	...	1·8	...	...	...	1·6	...	...	0·7	...	2·5	...	...	...
	4. 11 20	55·7	2·7	2·7	...	...	1·9	1·7	...	...	...	...	...	2·7	...	2·7	...	...	2·7	...	2·5	...	...	...
	12. 18 25	38·5	2·5	2·5	2·0	2·5	2·5	2·5	...	...	...	...	...	...	...	2·5	...	...	2·0	...	2·5	...	...	...
V.	Sept. 20. 18 20	50·7	3·7	3·0	...	...	2·5	...	...	...	...	1·5	...	...	...	1·9	...	2·1	...	...	4·7	...	...	...
	21. 13 20	57·2	3·2	3·0	2·9	...	0·7	...	...	...	...	...	...	2·6	...	2·1	...	0·6	...	...	...	...	...	...
	22. 15 30	50·5	3·3	2·9	1·3	...	2·9	1·1	...	...	...	...	...	2·3	...	3·3	...	1·2	...	...	...	...	...	...
	Oct. 12. 17 15	38·0	3·2	3·2	5·0	5·0	3·0	2·0	...	...	...	...	...	...	...	3·0	...	...	2·0	...	5·0	...	...	...
	13. 15 20	41·5	3·5	3·0	3·0	2·2	2·7	0·9	...	...	...	...	...	...	...	1·9	...	...	1·2	...	3·0	...	...	...
	18. 21 0	38·2	3·0	3·0	5·5	4·0	4·5	...	...	...	...	2·7	2·8	0·8	...	3·0	...	...	1·0	0·8	...	3·5	...	...
	27. 5 0	44·0	3·3	1·8	2·2	2·9	2·0	1·0	−3·0	−1·5	...	0·8	−0·7	0·4	...	2·0	...	...	1·0	0·9	2·7	...	...	...
	Nov. 3. 7 40	48·1	3·1	3·8	6·7	6·1	3·9	1·1	−0·5	−2·1	...	1·9	2·1	3·3	...	3·1	...	...	0·5	−0·1	5·0	...	...	...
	4. 7 0	42·5	3·8	2·0	7·0	6·3	2·7	1·5	−5·5	−1·0	...	−0·5	−2·5	−0·6	...	1·5	...	...	0·7	0·2	3·0	...	...	...
	9. 6 30	32·5	3·5	2·7	2·0	2 0	2·5	0·9	−6·0	−2·3	...	0·5	0·7	0·5	...	...	...	...	−0·3	−0·2	3·5	...	...	...
VI.	Sept. 13. 15 37	49·5	4·5	4·5	...	...	6·5	...	...	...	...	...	0·5	4·5	4·0	4·5	3·0	...	...	...	4·5	4·5	...	...
	21. 9 10	60·7	4·7	4·7	...	...	3·9	...	...	...	...	...	...	4·3	...	4·3	...	2·4	...	...	4·5	...	...	...
	Oct. 3. 15 20	55·6	4·9	4·0	...	...	3·6	2·4	...	...	...	3·2	...	...	...	3·3	...	...	2·4	...	7·3	...	...	...
	5. 11 0	54·5	4·5	4·1	...	...	3·5	2·0	...	...	...	3·3	...	...	...	3·3	...	...	2·5	...	...	...	...	...
	13. 11 0	41·5	4·8	4·5	4·7	3·5	4·3	2·0	...	...	...	...	...	...	...	3·5	...	...	1·5	...	4·5	...	...	...
	13. 20 40	40·5	4·5	3·5	8·5	4·5	2·5	...	...	...	...	...	...	...	...	2·5	...	...	1·5	...	8·5	...	...	...
	20. 11 20	42·3	4·8	3·8	5·8	5·5	3·8	0·8	−0·7	0·3	...	1·5	1·8	1·5	...	2·3	...	...	0·1	0·1	5·1	...	...	...
	20. 13 0	44·8	4·0	1·8	3·6	4·0	1·8	0·0	−1·3	1·3	...	0·8	1·0	0·8	...	1·6	...	...	−0·2	−0·2	2·6	...	...	...
	23. 7 30	49·2	4·3	3·0	5·2	5·0	3·6	0·7	0·0	0·5	...	1·2	1·1	2·0	...	2·4	...	...	0·0	−0·6	4·2	...	...	...
	Nov. 3. 10 30	52·1	4·1	2·3	4·6	6·1	3·6	0·6	−3·3	4·0	...	2·9	3·6	3·3	...	3·9	...	...	0·6	0·1	4·6	...	...	...
	7. 9 0	43·1	4·1	5·9	9·1	7·9	5·3	2·3	−3·0	1·9	...	2·3	2·1	1·6	...	3·5	...	...	0·3	0·1	6·1	...	...	...
	15. 5 10	37·0	4·0	4·0	4·4	4·0	4·2	1·8	−3·0	...	...	...	...	...	...	...	...	...	1·0	0·2	4·0	...	...	...
VII.	Sept. 13. 15 24	50·0	5·5	6·0	...	...	8 0	...	...	...	...	...	1·0	6·0	5·0	6·0	3·5	...	...	...	6·0	5·5	...	...
	13. 17 20	51·5	5·5	5·5	...	...	...	...	...	...	...	...	1·0	5·5	4·5	5·5	3·5	...	...	...	5·5	5·5	...	...
	17. 17 20	58·0	5·2	3·0	...	...	...	...	...	...	...	2·8	1·2	2·9	2·6	2·3	...	1·8	...	...	...	...	...	...
	20. 16 20	51·0	5·0	3·8	...	...	3·0	...	...	...	...	...	3·8	...	...	4·0	...	2·0	...	...	6·7	...	...	...
	20. 17 20	50·0	5·8	3·8	...	...	2·2	...	...	...	...	...	3·0	...	...	3·0	...	2·6	...	...	6·9	...	...	...
	Oct. 2. 9 20	57·2	5·9	4·7	...	...	3·6	1·2	...	...	...	...	...	3·6	...	3·4	...	...	1·8	...	5·2	...	...	...
	3. 11 10	58·3	5·8	5·7	...	...	3·5	2·3	...	...	...	2·7	...	...	...	2·8	...	...	1·9	...	6·3	...	...	...
	5. 9 30	53·5	5·2	4·5	...	...	3·5	2·0	...	...	...	.....	...	3·2	...	3·5	...	...	2·5	...	...	...	...	...
	9. 18 0	39·2	5·2	3·8	...	...	2·7	2·4	...	...	...	−0·8	...	2·7	...	2·2	...	...	2·2	...	...	...	...	...
	12. 15 15	35·7	5·7	5·9	10·0	7·0	5·9	3·2	...	...	...	...	...	...	...	3·9	...	...	3·2	...	8·2	...	...	...
	16. 13 0	36·5	5·5	3·5	4·5	4·5	5·5	1·0	...	...	...	...	...	...	...	3·5	...	...	2·5	...	4·5	...	...	...
	23. 5 15	50·5	5·3	4·7	14·4	9·0	5·5	2·0	−0·4	1·0	...	2·3	2·0	3·5	...	3·3	...	...	1·0	0·3	12·7	...	...	...

Oct. 16, $14^h\ 50^m$; rain falling. Sept. 18, $17^h\ 30^m$; after a heavy rain. Sept. 20, $18^h\ 20^m$; after the sun had risen, clouds thin in zenith. Oct. 12, $17^h\ 15^m$; rain. Oct. 18, $21^h\ 0^m$; sun high. Oct. 3, $15^h\ 20^m$; the stars are shining dimly. Oct. 5, $11^h\ 0^m$; a few stars have been visible occasionally east of zenith. Oct. 13, $20^h\ 40^m$; the sun had risen more than two hours. Nov. 3, $10^h\ 30^m$; nocturnal rising temperature of the air, and the reading of the barometer is decreasing. Sept. 17, $17^h\ 20^m$; deposition of moisture. Oct. 9, $18^h\ 0^m$; clouds in every direction. Oct. 12, $15^h\ 15^m$; some rain had fallen.

Oct. 18, $21^h\ 0^m$. The observations at this time have not been used in subsequent calculations, they were taken after a long series of observations, extending over the whole night. On examining the state of the different substances at this time, it was found that every fibre of cotton wool was encrusted with a beautiful fringe of hoar-frost, and there were a few spikes of ice: raw wool was covered with lumps of ice, and there were some clear transparent flakes of ice, resembling

sky, arranged according to the difference of the readings of the one on Long Grass and that in Air, from observations taken between 1843 Sept. 13 and Nov. 15.

Excess of the reading of the thermometer in air above that placed																									Clouds.		Wind.		
On coarse flax on grass.	On yellow cotton wool on grass.	On yellow cotton wool on raised board.	On blue cotton wool on grass.	On blue cotton wool on raised board.	On white wadding on grass.	On black wadding on grass.	On flannel on grass.	On flannel on raised board.	On raw silk on grass.	On raw silk on raised board.	On silk from cocoon.	On the raised board.	On saw-dust on the raised board.	On black-lead on raised board.	On charcoal on raised board.	On lamp-black on raised board.	On whiting on raised board.	On chalk on raised board.	On tinfoil.	On lead.	On pantile.	On slate.	One-fourth of an inch above water.	On paper on raised board.	Modification.	Amount 0–10.	High or low.	Direction.	Strength 0–6.	Haze, fog, mist, or vapour.
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	−0·9	−0·9	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	−1·3	−3·0	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	0·9	0·7	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	−0·9	−1·3	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
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...	...	...	...	...	...	...	...	...	...	...	...	...	...	1·5	1·0	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
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2·2	2·8	...	3·0	...	...	...	...	...	2·5	...	3·0	2·5	3·2	3·0	3·0	...	3·8	...	...	...	...	...	...	...	Clear	...				
1·8	...	1·3	...	0·4	...	...	...	1·5	...	1·0	...	...	1·4	1·4	1·2	...	1·8	...	...	...	...	...	1·0	...	Cirrostratus	10				
7·2	...	3·4	...	3·1	...	...	...	3·0	3·1	...	...	1·1	...	3·1	2·6	...	2·8	3·8	...	...	0·5	1·5	1·9	...	Cirrostratus	10	H.			
5·3	...	1·0	...	0·5	...	...	4·3	...	3·0	...	...	...	...	1·5	0·5	...	0·3	0·5	−0·3	1·0	0·5	0·5	−0·5	...	Cirrostratus	10	H.			
2·5	1·5	...	1·5	...	1·3	...	1·5	...	2·0	...	...	...	...	−0·3	1·0	...	...	...	...	...	...	...	0·2	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·5	3·3	...	...	...	...	...	...	...	...	...	Cirrostratus	10	H.			
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·6	...	...	...	...	...	...	...	...	...	Cirrostratus	10	H.			
...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·5	3·4	...	...	...	...	...	...	...	...	...	Clear	...	...	...	...	Vap.
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...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Fleecy cl....	10				
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5·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	8	H.			
3·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10	H.			
4·5	...	2·6	...	3·0	...	...	...	2·4	...	...	...	...	...	2·9	2·3	...	3·6	...	...	...	...	...	1·6	...	Cirrostratus	10				
6·1	...	4·1	...	4·1	...	...	...	4·1	4·1	...	...	2·1	...	...	...	...	...	2·6	...	...	...	...	3·1	...	Cirrostratus	10	H.			
8·1	5·1	...	3·1	...	...	...	4·0	...	3·9	...	...	...	...	...	...	...	...	...	...	2·7	2·0	2·0	...	...	Clear, nearly	1	...	s.	2	
4·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	9				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
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...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·8	3·0	...	...	...	...	...	...	...	...	...	Clear	...	...	...	...	Vap.
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...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·2	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·3	...	...	...	...	...	...	...	...	...	Clear	...	...	...	...	Vap.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·9	4·1	...	...	...	...	...	...	...	...	...	Cirrostratus	7				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·6	...	...	...	...	...	...	...	...	...	Cirrus	8				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10	...	N.	1	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
7·5	5·5	...	6·3	...	...	...	5·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear					

mica when abundant in granite; every fibre of flax was encrusted with ice, mixed with a few small flakes: raw silk was covered with spikes one-sixteenth of an inch in length, two of which emanated from the same point, and whose angle of separation was 30°: on blue and yellow wool there were many perpendicular spikes one-fourth of an inch in length: flannel was covered with spikes one-eighth of an inch in length, all of which were inclined to the horizon at an angle of 60°: saw-dust was very beautifully covered with spiculæ fans, formed by several spikes emanating from the same point at all angles greater than 30° with the horizon; these spikes were connected with each other by lateral spikes or bands; the whole forming the appearance of a fan, whose extent was 120°.

Sept. 23, $5^h\ 15^m$. The observations taken at this time have been inadvertently omitted in subsequent calculations.

In the column whose heading is "Direction of Wind," N. denotes north; E. east; S. south; W. west; C. calm, and G. gusts.

TABLE (Continued).

Number of the Tables.	1843. Astronomical day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	Excess of the reading of the thermometer in air above that placed																					
			On long grass.	On short grass.	On raw wool on grass.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On garden mould.	On gravel.	On river sand.	On river sand on the raised board.	One inch high above grass.	Two inches high above grass.	Three inches high above grass.	Six inches high above grass.	Twelve inches high above grass.	On unwrought white cotton wool on grass.	On unwrought white cotton wool on raised board.	On raw wool on raised board.	On flax on raised board.
	h m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
VII. (Continued.)	Oct. 25. 21 0	34·1	5·1	4·1	6·1	6·1	4·1	2·1	−7·9	−5·4	...	6·1	4·1	2·1	...	3·1	...	...	1·9	1·9	6·1	2·6	...	...
	26. 17 30	33·1	5·8	2·6	5·4	5·4	4·5	1·2	−7·7	−5·0	...	2·4	3·2	2·0	...	2·3	...	...	1·1	0·0	5·6	...	...	...
	Nov. 3. 5 30	49·3	5·3	5·3	7·5	8·1	6·3	2·0	...	...	...	...	1·5	2·5	...	3·7	...	...	1·4	0·7	7·1	...	...	...
	7. 10 0	42·5	5·0	5·3	8·5	6·5	5·7	2·2	−4·5	0·0	...	3·0	2·7	3·0	...	4·5	...	...	0·3	−0·2	7·0	...	...	5·5
	7. 11 10	43·5	5·5	6·3	9·5	6·5	6·5	2·1	−1·7	2·5	...	3·5	2·5	2·5	...	4·5	...	...	0·5	−0·3	8·5	...	...	4·3
	10. 17 30	34·7	5·7	5·5	6·6	5·5	7·7	3·3	−4·3	1·7	...	3·7	1·7	2·5	...	...	...	...	1·5	0·0	6·1	...	...	...
	12. 13 5	33·0	5·7	5·7	7·7	6·7	4·2	3·7	−3·9	−0·3	...	...	...	...	...	...	...	...	0·7	0·5	5·7	...	...	...
	13. 10 10	34·5	5·5	4·5	4·0	3·5	4·5	2·5	−2·5	2·5	...	...	...	...	...	...	...	...	1·3	1·3	4·0	...	...	...
	15. 4 15	38·0	5·9	5·0	6·5	5·7	7·0	2·5	−2·7	0·7	...	...	...	...	...	...	...	...	3·2	0·8	5·7	...	...	...
VIII.	Sept. 16. 11 20	58·7	6·0	3·7	...	...	4·7	...	...	...	...	4·2	2·7	3·4	3·5	3·5	...	1·2	...	...	...	...	...	...
	17. 12 30	61·9	6·9	3·5	...	...	5·0	...	...	...	...	4·1	2·2	3·6	4·2	3·8	...	2·5	...	...	...	...	...	...
	17. 13 20	60·4	6·5	4·3	...	...	4·2	...	...	...	...	4·2	2·1	3·4	3·3	3·4	...	2·3	...	...	...	...	...	...
	17. 15 20	59·4	6·9	4·4	...	...	3·7	...	...	...	...	3·8	2·7	2·8	2·7	3·6	...	2·4	...	...	...	...	...	...
	20. 13 0	52·8	6·1	4·4	...	...	4·8	...	...	...	...	4·0	...	...	...	3·6	...	2·8	...	...	7·2	...	...	...
	20. 13 50	51·4	6·7	4·6	...	...	5·2	...	...	...	...	...	...	...	...	4·1	...	3·0	...	...	8·4	...	...	...
	Oct. 2. 5 0	61·0	6·0	5·0	...	...	5·0	...	...	...	...	...	...	...	...	4·5	...	...	3·5	...	...	...	...	...
	2. 11 15	53·3	6·3	5·8	...	...	6·0	3·6	...	...	...	...	...	3·3	...	5·5	...	...	3·1	...	3·9	...	...	...
	5. 9 0	53·9	6·3	6·9	...	...	5·4	2·3	...	...	...	...	...	2·7	...	4·7	...	...	2·9	...	...	...	...	...
	5. 10 40	54·0	6·0	4·2	...	...	4·5	2·3	...	...	...	...	...	3·2	...	3·8	...	...	2·6	...	...	...	...	...
	12. 14 0	35·5	6·5	6·0	11·5	7·5	5·5	3·3	...	...	...	...	...	...	...	4·5	...	...	2·5	...	8·0	...	...	...
	12. 18 0	38·0	6·0	6·0	...	...	5·0	2·5	...	...	...	3·2	3·2	3·0	...	5·8	...	...	2·0	...	...	...	...	...
	12. 18 15	38·5	6·5	6·5	9·0	9·5	5·5	2·5	...	...	...	...	...	...	...	4·5	...	...	3·7	...	9·7	...	...	...
	13. 8 0	41·2	6·7	6·2	11·2	9·2	6·2	3·2	...	...	...	...	...	...	...	4·2	...	...	2·2	...	9·2	...	...	...
	16. 9 20	33·7	6·5	4·5	8·7	10·1	7·0	2·2	...	...	...	...	...	...	...	2·7	...	...	1·9	...	8·1	...	...	...
	16. 11 0	32·8	6·8	5·8	9·3	9·3	7·3	3·0	...	...	...	...	...	...	...	4·3	...	...	2·3	...	7·8	...	...	...
	16. 12 10	34·4	6·4	5·4	6·4	6·4	6·7	2·4	...	...	...	...	...	...	...	3·4	...	...	1·6	...	6·4	...	...	...
	16. 14 0	38·0	6·0	3·0	6·0	6·0	2·0	0·5	...	...	...	...	...	...	...	2·0	...	...	1·0	...	6·0	...	...	...
	17. 7 0	39·3	6·8	4·5	9·8	9·3	5·3	2·8	...	...	...	2·8	2·3	2·3	...	3·8	...	...	2·3	1·3	9·3	...	...	...
	18. 17 0	28·5	6·5	6·3	10·5	8·5	9·7	4·7	...	...	...	3·9	0·8	3·0	...	6·1	...	...	3·5	0·3	10·5	...	...	...
	19. 15 30	29·6	6·5	4·6	10·8	10·6	7·1	6·6	...	...	...	4·8	3·6	4·4	...	4·6	...	...	0·6	0·6	10·6	...	...	...
	19. 17 30	29·6	6·6	6·1	9·0	10·6	4·7	3·9	...	...	...	1·8	3·6	5·8	...	5·6	...	...	2·0	1·8	9·0	...	...	...
	19. 19 30	32·5	6·3	5·7	5·7	5·9	5·0	3·3	...	...	...	3·3	1·5	3·5	...	5·5	...	...	2·7	1·5	6·3	...	...	...
	21. 4 25	49·5	6·5	4·3	7·0	6·5	5·5	1·5	−0·5	0·0	...	1·3	2·5	2·7	...	4·0	...	...	2·5	2·0	6·0	...	...	...
	21. 11 30	39·0	6·7	4·5	9·0	8·0	5·3	2·6	−4·0	−1·3	...	3·0	2·0	2·4	...	2·8	...	...	0·6	0·2	6·5	...	...	...
	23. 5 0	50·3	6·5	4·1	8·0	6·5	4·9	1·4	−0·5	0·5	...	2·3	1·0	2·6	...	3·0	...	...	0·1	−0·3	7·1	...	...	...
	26. 5 10	43·5	6·7	2·8	5·0	5·0	3·1	2·0	−4·3	−2·4	...	1·7	0·3	1·3	...	1·7	...	...	−0·7	−0·9	5·0	...	...	...
	26. 15 30	33·1	6·3	3·5	6·4	6·7	4·1	2·6	−7·7	−5·0	...	2·6	4·3	1·7	...	3·8	...	...	1·1	0·0	6·3	...	...	...
	26. 19 0	33·3	6·3	4·3	6·7	7·1	3·0	2·5	−6·7	−8·0	...	2·3	4·3	3·5	...	4·7	...	...	1·3	1·3	5·3	...	...	...
	Nov. 8. 9 10	37·8	6·7	6·7	7·8	8·0	7·8	4·3	−3·4	4·8	...	4·1	3·8	4·1	...	5·8	...	...	2·6	1·8	8·6	...	...	5·8
	8. 11 0	36·6	6·6	6·6	8·6	8·6	7·1	3·6	−4·5	4·6	...	4·6	3·6	4·6	...	6·6	...	...	1·8	1·6	8·6	...	...	6·1
	8. 12 40	41·4	6·4	5·9	7·9	5·9	5·9	1·4	−1·6	1·4	...	1·6	0·9	1·9	...	...	...	...	0·2	0·2	7·4	...	...	4·3
IX.	Sept. 16. 9 10	61·5	7·6	8·3	...	...	5·5	...	...	...	...	6·0	0·7	3·6	4·5	7·5	...	3·7	...	...	...	...	...	...
	17. 11 0	62·3	7·0	6·0	...	...	5·3	...	...	...	...	3·8	1·5	3·3	3·8	4·3	...	2·7	...	...	...	...	...	...
	17. 11 30	62·4	7·6	6·6	...	...	5·6	...	...	...	...	4·5	2·0	4·2	4·3	4·6	...	2·7	...	...	...	...	...	...
	18. 7 30	66·1	7·8	6·3	...	...	6·6	...	...	...	...	5·1	1·8	4·0	3·8	5·5	...	3·4	...	...	...	...	...	...
	20. 10 50	54·5	7·5	5·5	...	...	4·5	...	...	...	...	...	...	3·5	...	7·0	...	3·0	...	...	7·5	...	...	...
	20. 11 20	54·2	7·7	6·0	...	...	6·2	...	...	...	...	4·2	...	...	...	4·2	...	3·0	...	...	8·7	...	...	...
	20. 14 30	51·7	7·3	5·0	...	...	4·7	...	...	...	...	...	...	3·4	...	4·3	...	2·9	...	...	8·7	...	...	...
	24. 17 35	47·5	7·1	7·7	...	...	8·4	2·5	...	...	...	...	2·8	...	...	5·0	...	3·2	...	...	7·5	...	...	...
	27. 18 0	40·4	7·9	6·6	...	...	6·0	4·4	...	...	...	...	5·4	...	...	5·9	...	4·4	...	...	9·9	...	...	...
	27. 18 22	39·7	7·5	7·4	...	...	7·9	3·2	...	...	...	...	...	4·9	...	4·7	...	3·7	...	...	8·2	...	...	...
	27. 19 10	41·0	7·0	6·2	...	...	6·5	...	...	...	...	...	...	4·5	...	5·0	...	3·5	...	...	9·0	...	...	...
	Oct. 5. 5 20	60·3	7·3	6·1	...	...	5·8	0·8	...	...	...	...	−0·2	...	...	3·7	...	...	2·9	...	...	...	...	...

Oct. 25, $21^h\ 0^m$; the ice in evaporator is 0·5 in thickness three hours after sun-rise. Nov. 3, $5^h\ 30^m$; scud and vapour. Nov. 7, $11^h\ 10^m$; dew abundant. Sept. 16, $11^h\ 20^m$; a great deposition of moisture. Sept. 17, $12^h\ 30^m$; the stars nearly obscured. Sept. 17, $13^h\ 20^m$; a few stars visible in the zenith. Sept. 20, $13^h\ 0^m$; dew. Sept. 20, $13^h\ 50^m$; dew. Oct. 2, $5^h\ 0^m$; zenith clear. Oct. 12, $18^h\ 15^m$; zenith clear. Oct. 17, $7^h\ 0^m$; shortly after rain had fallen. Nov. 8, $9^h\ 10^m$; no dew. Sept. 16, $9^h\ 10^m$; the stars look small. Sept. 17, $11^h\ 0^m$; zenith clear. Sept. 20, $11^h\ 20^m$; dew. Sept. 20, $14^h\ 30^m$; dew. Sept. 27, $18^h\ 0^m$; hoar-frost. Sept. 27, $18^h\ 22^m$; hoar-frost; the sun up. Sept. 27, $19^h 10^m$; hoar-frost disappearing.

Oct. 25, $20^h\ 0^m$. On examining the several substances at this time, it was found that cotton wool was covered with spikes of ice one-sixteenth of an inch in thickness: on raw wool there were a few flakes of clear ice, and a few spikes; also each fibre was encrusted with small round particles of ice: on blue and yellow wool the spikes were abundant, and all were inclined to the horizon at an angle of 30°: on every fibre of raw silk there were two spikes emanating from the same point and at right angles to the fibre, and inclined to the horizon at an angle of 30°: on black-lead, which substance was white with hoar-frost very early, there were clusters of spikes one-tenth of an inch in length, and inclined to the horizon at all angles: on charcoal there were clusters of spikes: on whiting there were spikes at all angles: on flannel the spikes were one-eighth of an inch in length: on saw-dust the spikes were in bunches, many of which were of a fan-like shape: and on wood there were many spikes.

Oct. 13, $20^h\ 40^m$. After this observation, the three substances, raw wool, cotton wool and flax, were frequently examined, for the purpose of ascertaining the time that each substance became free from dew; the sun was shining on all of them; it was noticed at $22^h\ 30^m$ that flax was free; at $14^d\ 1^h\ 30^m$ cotton wool was just free, but on raw wool small drops of water continued throughout the day.

Table (Continued).

Excess of the reading of the thermometer in air above that placed																									Clouds.			Wind.		Haze, fog, mist or vapour.
On coarse flax on grass.	On yellow cotton wool on grass.	On yellow cotton wool on raised board.	On blue cotton wool on grass.	On blue cotton wool on raised board.	On white wadding on grass.	On black wadding on grass.	On flannel on grass.	On flannel on raised board.	On raw silk on grass.	On raw silk on raised board.	On silk from cocoon.	On the raised board.	On saw-dust on the raised board.	On black-lead on raised board.	On charcoal on raised board.	On lamp-black on raised board.	On whiting on raised board.	On chalk on raised board.	On tinfoil.	On lead.	On pantile.	On slate.	One-fourth of an inch above water.	On paper on raised board.	Modification.	Amount 0—10.	High or low.	Direction.	Strength 0—6.	
5·6	…	4·3	…	4·3	…	…	…	6·6	…	4·3	…	3·3	3·0	4·3	3·6	…	4·3	…	…	…	…	…	…	…	Clear					
5·3	5·2	4·6	…	4·1	…	…	…	4·0	4·4	…	…	4·8	2·8	5·6	5·4	…	3·4	…	…	…	…	…	2·1							
8·3	…	5·2	…	…	…	…	…	3·5	…	4·1	…	3·3	…	4·1	3·9	…	4·1	4·7	…	…	…	…	2·1	…	……	2				
6·2	4·7	…	5·3	…	5·7	…	5·0	…	6·0	…	…	…	…	…	…	…	…	…	3·3	5·0	3·7	4·3	2·3	…	Clear ……	…	…	s.	2	
7·5	4·5	…	3·5	…	5·5	…	4·3	…	6·7	…	…	…	…	…	…	…	…	…	2·7	4·3	2·7	3·5	1·7	…	……	…	…	s.	2	
6·5	…	…	…	…	…	…	…	…	…	…	…	…	…	2·7	2·7	…	…	…	…	…	2 6	3·3	2·7	…	Cirrostratus	7				
7·7	…	…	…	…	2·7	3·7	4·7	…	4·9	…	…	…	…	2·7	1·7	2·7	4·7	3·2	0·7	1·7	2·7	2·5	…	…	Cirrostratus	10	H.			
3·5	…	…	…	…	3·3	3·3	3·3	…	4·7	…	…	…	…	4·7	3·3	4·0	4·5	5·6	0·5	2·5	3·0	2·5	…	…	Cirrostratus	10	H.			
6·0	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	4·0	2·7	2·8	…	…	Cirrostratus	10	H.			
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Clear					
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Clear ……	…	…	…	…	H. v.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Cirrostratus	9	H.			
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Thin clouds	1				
…	…	…	…	…	…	…	…	…	…	…	…	…	…	3·8	4·0	…	…	…	…	…	…	…	…	…	Clear					
…	…	…	…	…	…	…	…	…	…	…	…	…	…	4·7	4·2	…	…	…	…	…	…	…	…	…	Clear					
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Thin clouds	9				
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	5·2	…	…	…	…	…	…	…	…	…	Thin cirrost.	10	H.			
…	…	…	…	…	…	…	…	…	…	…	…	…	…	5·3	5·6	…	…	…	…	…	…	…	…	…	Clear					
…	…	…	…	…	…	…	…	…	…	…	…	…	…	4·0	4·0	…	…	…	…	…	…	…	…	…	Cirrostratus	10				
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Clear ……	…	…	N.	1	
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Thin clouds	5	…	N.	1	
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Thin clouds	4				
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	……	4				
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Clear					
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Clear ……	…	…	…	…	Haze
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	A thin veil	10				
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	A thin veil	10				
…	…	…	…	…	…	…	…	…	…	0·3	0·3	…	4·3	2·3	5·3	…	…	…	…	…	…	…	…	…	Nimbus …	8				
…	…	10·2	…	8·7	…	…	…	8·5	…	9·3	4·3	7·3	4·2	6·7	6·8	…	7·3	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	8·1	…	7·8	…	…	…	6·6	…	5·6	4·4	5·4	…	6·6	6·3	…	7·4	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	8·6	…	8·6	…	…	…	7·6	…	7·2	5·3	5·1	3·0	6·4	6·1	…	7·6	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	6·0	…	6·7	…	…	…	5·5	…	4·5	4·5	5·3	3·2	6·2	6·5	…	6·5	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Cumuli……	5				
…	…	6·0	…	6·0	…	…	…	6·5	…	6·4	…	3·2	3·2	5·8	4·8										……	…	…	G.		
…	…	4·0	…	5·5	…	…	…	5·5	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	……	…	…	…	…	
…	…	3·3	…	2·3	…	…	…	1·7	…	1·7	…	0·8	2·2	2·7	1·5	…	2·2	…	…	…	…	…	1·0	1·8	Clear ……	…	…	c.		
…	…	5·3	…	5·1	…	…	…	5 3	…	5·1	…	2·8	3·1	4·0	5·1	…	3·8	…	…	…	…	…	1·4	5·9	Clear ……	…	…	c.		
…	…	5·5	…	4·5	…	…	…	4·5	…	4·5	…	2·6	2·5	3·6	3·7	…	4·5	…	…	…	…	…	2·0	4·7	Clear ……	…	…	c.		
…	4·0	…	8·0	…	7·6	…	5·8	…	5·3	…	…	…	…	…	…	…	…	…	3·8	5·8	4·6	…	…	…	Clear ……	…	…	N.	1	
…	5·6	…	7·1	…	8·1	…	5·6	…	7·1	…	…	…	…	…	…	…	…	…	3·6	5·3	4·6	6·6	2·6	…	Clear ……	…	…	N.	1	
…	…	…	…	…	5·3	5·1	5·4	…	5·4	…	…	…	…	…	…	…	…	…	2·4	4·4	2·4	2·2	0·4	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Clear ……	…	…	…	…	Vap.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Cirrostratus	8	…	…	…	Vap.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Cirrostratus	5	…	…	…	Vap.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Nearly clear	…	…	…	…	Vap.
…	…	…	…	…	…	…	…	…	…	…	…	…	…	4·3	4·3	…	…	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	5·2	5·4	…	…	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	5·7	4·3	…	…	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	5·5	6·4	…	…	…	…	9	…	…	…	…	Cirrostratus	9	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	4·9	5·8	…	…	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	3·5	5·3	…	…	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	3·5	4·5	…	…	…	…	…	…	…	…	…	Clear ……	…	…	c.		
…	…	…	…	…	…	…	…	…	…	…	…	…	…	2·5	4·1	…	…	…	…	…	…	…	…	…	Clear ……	…	…	c.		

Oct. 19, 19h 30m. At 21h the whole of the thermometers were read again; that in air had increased to 38°·2, and an increase from 10° to 20° had taken place in the readings of the other thermometers.

Oct. 16, 11h. The thermometer in the reflector is covered with dew: there is hoar-frost on long grass: on raw wool there are many square pieces of ice one-twentieth of an inch in thickness: at 11h 25m one piece of ice was removed from raw wool, which was three-fourths of an inch in length, half an inch in breadth, and one-sixteenth of an inch in thickness: on cotton wool the ice is forming in flakes, and there are some frozen dew drops on the grass.

Oct. 16, 14h 50m. All the thermometers which were on substances, with frozen particles about them, continued to read 32° till this minute, and now they all read 39°; the increase of 7° must have been sudden. The circumstance of these readings continuing to read 32° for nearly three hours after the sky was cloudy, illustrates the effect of sensible heat becoming latent whilst the frozen particles were changing into a liquid state. At 17h 20m the clouds became broken and the sky was partially clear, rain having fallen within the interval; the reading of all the instruments decreased, but as the substances were all wet, it is probable that a part of the decrease was owing to evaporation; no use was therefore made of these observations.

Sept. 20, 10h 50m. At this time a sudden deposition of moisture took place whilst I was looking at the instruments, and they all became wet with dew, except that which was placed on sand. The readings of those instruments thus bedewed increased between 3° and 4°; the temperature of the air continued to decline as before, so that the difference between the temperature of the air and those of the bedewed substances became less by the above amounts.

Table (Continued).

Number of the Tables.	1843. Astronomical day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	Excess of the reading of the thermometer in air above that placed																					
			On long grass.	On short grass.	On raw wool on grass.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On garden mould.	On gravel.	On river sand.	On river sand on the raised board.	One inch high above grass.	Two inches high above grass.	Three inches high above grass.	Six inches high above grass.	Twelve inches high above grass	On unwrought white cotton wool on grass.	On unwrought white cotton wool on raised board.	On raw wool on raised board.	On flax on raised board.
	h m																							
IX. (Continued.)	Oct. 5. 7 20	55·4	7·4	6·6	...	...	5·2	0·9	...	...	...	...	1·4	...	...	4·6	...	...	3·2	...	...	...	...	...
	9. 10 20	44·5	7·7	5·3	...	...	5·2	5·1	...	...	...	...	1·7	2·0	...	5·0	...	...	4·0	...	...	...	...	...
	9. 11 10	44·0	7·7	6·0	...	...	5·4	3·5	...	...	...	6·0	2·6	...	...	6·0	...	...	4·3	...	...	...	...	...
	12. 11 0	37·1	7·1	3·6	...	...	5·1	2·8	...	...	...	3·1	2·3	2·6	...	3·6	...	...	2·1	...	...	...	...	...
	12. 11 23	36·8	7·0	4·8	7·8	8·8	5·3	2·8	...	...	...	...	...	...	...	3·8	...	...	2·3	...	8·8	...	...	...
	12. 12 0	36·5	7·0	4·7	9·0	8·5	5·5	3·5	...	...	...	...	...	...	...	4·2	...	...	2·3	...	9·0	...	...	...
	13. 5 15	43·5	7·5	5 5	...	...	5·5	1·5	...	...	...	3·5	1·5	1·5	...	4·0	...	...	1·5	...	...	...	...	...
	13. 18 55	37·6	7·9	7·0	7·8	9·9	8·2	3·6	...	...	...	...	...	...	...	5·3	...	...	4·1	...	10·6	...	...	...
	14. 9 30	36·8	7·4	6·3	7·8	9·3	8·2	2·8	...	...	...	...	...	...	...	5·0	...	...	3·1	...	8·1	...	...	...
	16. 7 20	35·0	7·8	5·7	8·2	12 0	7·2	2·6	...	...	...	...	...	...	...	4·0	...	...	1·8	...	8·8	...	...	...
	16. 11 25	33·8	7·8	5·8	10 3	10·5	7·8	2·8	...	...	...	...	...	...	...	3·8	...	...	2·0	...	9·0	...	...	...
	16. 12 0	34·0	7·0	6·0	9·0	10·0	7·5	2·0	...	...	...	...	...	...	...	3·5	...	...	1·2	...	8·0	...	...	...
	20. 9 20	42·1	7·1	4·1	7·3	9·1	5·1	1·4	− 1·9	−0·1	3·1	2·3	2·4	2·9	...	3·1	...	...	...	...	9·1	...	...	...
	20. 11 0	42·0	7·0	4·5	10·8	10·0	7·0	2·0	− 1·0	0·0	3·0	3·0	3·0	3·3	...	3 0	...	...	1·0	0·2	6·8	...	...	...
	25. 19 30	31·0	7·0	5·0	9·0	8·7	5·0	3·0	−10·3	−6·3	4·2	1·4	−0·2	0·6	...	4·2	...	...	1·4	1·3	7·5	6·2	...	...
	26. 11 30	35·6	7·2	4·9	5·8	8·4	5·6	3·1	− 6·4	−4·4	5·3	1·4	5·8	2·8	...	5·3	...	...	1·4	0·9	6·2	...	...	...
	Nov. 7. 7 30	46·2	7·6	7·4	14·2	11·9	9·0	4·5	− 1·6	5·2	7·2	...	3·4	3·6	...	7·2	...	...	3·0	1·2	12·2	...	...	...
	11. 9 50	37·5	7·0	7·0	10·3	9·5	9·7	2·2	− 0·5	3·5	...	4·5	3·5	3·7	...	...	...	...	3·1	1·7	7·7	...	...	7·5
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X.	Sept. 13. 15 20	49·5	8·7	8·5	...	...	11·0	...	...	...	...	...	1·5	7·0	5·0	8·5	4·5	...	...	...	9·5	8·3	...	...
	15. 9 10	61·5	8·5	7·0	...	...	6·0	...	...	...	...	5·0	1·9	3·5	5·3	5·5	...	2·5	...	...	8·5	...	...	...
	18. 8 0	65·3	8·0	5·9	...	...	6·2	...	...	...	...	3·5	5·3	3·8	...	6·1	...	3·1	...	...	...	...	...	...
	18. 11 20	60·3	8·0	6·1	...	...	8·6	...	...	...	...	...	0·1	...	...	7·6	...	4·1	...	...	9·4	...	...	...
	20. 8 45	57·6	8·6	8·6	...	...	8·8	...	...	...	...	5·8	2·8	...	...	7·8	...	4·3	...	...	10·8	...	...	...
	20. 9 55	57·3	8·5	8·8	...	...	6·1	...	...	...	...	4·3	1·3	4·1	3·9	5·3	...	3·3	...	...	...	...	...	...
	20. 11 40	54·2	8·4	7·5	...	...	6·2	...	...	...	...	...	2·0	...	...	4·2	...	3·0	...	...	8·7	...	...	...
	20. 15 20	52·0	8·5	7·6	...	...	6·0	...	...	...	...	...	2·7	...	...	6·4	...	4·0	...	...	9·2	...	...	...
	21. 18 45	51·8	8·3	7·4	...	...	5·8	...	...	...	...	...	...	4·0	...	6·0	...	3·1	...	...	8·1	...	...	...
	23. 5 40	62·6	8·1	6·6	...	...	6·2	1·6	...	...	...	...	...	2·6	...	4·4	...	3·4	...	...	9·4	...	...	...
	23. 7 30	58·3	8·3	6·8	...	...	7·3	2·3	...	...	...	...	1·1	...	...	8·1	...	3·7	...	...	9·5	...	...	...
	23. 11 35	52·1	8·2	7·1	...	...	5·6	2·1	...	...	...	6·6	...	...	...	7·1	...	3·9	...	...	7·2	...	...	...
	24. 13 30	52·5	8·5	7·1	...	...	6·8	3·5	...	...	...	5·5	...	...	...	5·0	...	3·8	...	...	8·0	...	...	...
	27. 11 30	41·2	8·7	7·4	...	...	8·2	4·2	...	...	...	7·2	...	...	...	6·2	...	4·0	...	...	11·4	...	...	...
	27. 15 15	39·8	8·8	7·3	...	...	7·3	3·8	...	...	...	...	...	6·0	...	5·0	...	3·8	...	...	10 3	...	...	...
	27. 17 15	39·5	8·0	8·0	...	...	7·5	3·9	...	...	...	5·0	...	...	...	5·5	...	4·5	...	...	10·0	...	...	...
	27. 18 48	40·4	8·4	8·4	...	...	8·6	...	...	...	...	...	...	4·9	...	5·4	...	3·4	...	...	10·9	...	...	...
	Oct. 2. 7 30	57·4	8·4	8·9	...	...	8·5	4·8	...	...	...	...	...	5·4	...	7·4	...	4·6	...	...	9·4	...	...	...
	4. 7 30	58·0	8·0	7·0	...	...	5·0	3·2	...	...	...	3·0	...	...	...	5·5	...	3·7	...	...	8·8	...	...	...
	9. 9 20	45·5	8·1	5·5	...	...	6·3	2·9	...	...	...	...	0·3	1·5	...	6 3	...	4·0	...	...	...	...	...	...
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	12. 13 10	36·2	8·0	6·2	12·2	9·2	6·7	4·0	...	...	...	...	...	...	...	4·8	...	3·2	...	...	9·7	...	...	...
	13. 18 0	38·4	8·8	6·9	7·1	6·9	8·0	3·3	...	...	...	...	...	...	...	5·4	...	...	3·9	...	9·6	...	...	...
	13. 18 20	38·1	8·4	6·5	6·8	6·5	7·7	3·6	...	...	...	...	...	...	...	5·3	...	...	4·1	...	9·1	...	...	...
	13. 18 40	37·6	8·1	7·1	8·8	11·0	8·6	3·6	...	...	...	...	...	...	...	5·9	...	...	4·2	...	11·6	...	...	...
	13. 19 20	37·2	8·7	7·0	10·2	9·2	8·4	3·1	...	...	...	...	...	...	...	5·5	...	...	4·2	...	9·7	...	...	...
	14. 5 25	44·6	8·9	7·4	12·0	11·6	8·2	3·6	...	...	...	...	...	...	...	5·4	...	...	3·9	...	11·6	...	...	...
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	20. 5 20	45·6	8·9	4·6	10·2	9·1	11·0	...	− 1·6	0·8	...	2·0	1·4	3·0	...	3·1	...	...	0·6	−0·2	7·4	...	...	...
	21. 5 0	48·2	8·2	5·5	9·2	8·9	5·2	2·1	− 1·0	0·0	...	2·2	2·2	3·2	...	4·5	...	...	2·5	2·1	8·7	...	...	...
	25. 15 0	32·9	8·1	7·5	11·0	11·5	7·9	4·4	− 9·6	−3·4	...	2·8	−0·1	2·4	...	...	...	...	2·2	1·3	8·9	...	...	...
	25. 18 15	30·3	8·0	6·7	10·6	11·1	6·8	3·9	−11·0	−6·7	...	2·5	0·3	1·3	...	...	...	...	1·9	1·4	9·0	8·8	...	...
	26. 9 0	38·3	8·3	7·1	10·0	9·8	7·3	3·0	− 4·7	−1·7	...	2·7	2·3	2·7	...	...	...	...	1·3	0·8	8·3	...	...	...
	Nov. 1. 8 30	38·0	8·0	6·0	10·5	10·5	6·0	3·0	− 6·0	−4·0	...	2·5	−1·0	2·0	...	...	...	...	2·0	1·5	10·0	...	...	...
	11. 5 30	40·5	8·3	5·4	8·5	8·3	6·0	2·5	− 2·3	−2·5	...	1·7	1·3	2·4	...	...	...	...	5·3	1·3	8·8	...	...	8·3
	12. 20 30	30·6	8·6	7·6	10·1	9·8	6·1	3·9	− 4·2	0·6	...	...	...	...	...	...	...	...	2·6	2·3	9·6	...	...	...
	13. 9 0	33·0	8·1	6·0	9·2	8·6	8·4	3·5	− 4·0	2·0	...	...	...	...	...	...	...	...	1·9	1·7	7·0	...	...	...

Oct. 14, $9^h\ 30^m$; the stars very dim. Sept. 15, $9^h\ 10^m$; horizon thick. Sept. 21, $18^h\ 45^m$; great deposition of moisture. Sept. 24, $13^h\ 30^m$; the stars appear to be dim and small. Sept. 27, $15^h\ 15^m$; hoar-frost. Sept. 27, $17^h\ 15^m$; hoar-frost. Sept. 27, $18^h\ 48^m$; hoar-frost.

Oct. 12, $11^h\ 0^m$. The thermometer placed on long grass was thickly encrusted with hoar frost. At the time of the deposition of dew the readings of all the thermometers increased which became wetted by it; that is, of every instrument whose reading was less than the temperature of the dew-point. The first appearance of dew was in very minute drops on the pointed ends of long grass, which on receiving an increase of water flowed down the blades.

Oct. 21, $5^h\ 0^m$. At this time 10 grains of wool were placed on grass, and a similar parcel was placed on the raised board; at $7^h\ 30^m$ the former was found to weigh 12·1 grains, and the latter 10·7 grains; the glass stems of all the thermometers were wet with dew, though the substances upon which they were placed were not yet wet; at 19^h the weight of the parcel which was placed on grass was 17 grains, that placed on the raised board had blown away.

Nov. 12, $20^h\ 0^m$. Wood was covered with spikes of ice one-fourth of an inch in thickness, inclined to the horizon at an angle of 60°, and at all azimuths; on

Table (Continued).

Excess of the reading of the thermometer in air above that placed																									Clouds.			Wind.		
On coarse flax on grass.	On yellow cotton wool on grass.	On yellow cotton wool on raised board.	On blue cotton wool on grass.	On blue cotton wool on raised board.	On white wadding on grass.	On black wadding on grass.	On flannel on grass.	On flannel on raised board.	On raw silk on grass.	On raw silk on raised board.	On silk from cocoon.	On the raised board.	On saw-dust on the raised board.	On black-lead on raised board.	On charcoal on raised board.	On lamp-black on raised board.	On whiting on raised board.	On chalk on raised board.	On tinfoil.	On lead.	On pantile.	On slate.	One-fourth of an inch above water.	On paper on raised board.	Modification.	Amount 0–10.	High or low.	Direction.	Strength 0–6.	Haze, fog, mist, or vapour.
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...	7·2	...	7·2	...	...	...	...	...	7·2	...	...	2·2	3·0	4·7	5·0	...	7·4	...	...	...	...	...	...	...	.....	5				
11·6	...	9·9	...	9·3	...	...	...	8·4	...	9·7	9·9	7·1	4·9	8·9	8·7	...	8·9	...	...	...	...	...	2·6	...	Clear					
11·5	...	9·1	...	7·3	...	...	...	8·5	...	9·3	...	7·3	3·8	8·8	8·8	...	7·5	...	...	...	...	...	2·3	...	Clear					
9·8	...	8·1	...	7·3	...	...	...	5·8	...	7·5	4·0	4·2	5·1	6·1	5·2	...	5·8	...	...	...	...	...	4·2	6·8	Clear					
9·0	...	4·0	...	4·0	...	...	...	3·0	...	...	...	4·5	4·0	6·0	5·0	...	3·2	4·0	...	...	...	...	2·0	...	Clear					
9·3	...	...	...	...	...	...	...	...	6·3	...	...	...	...	...	...	...	...	...	2·5	3·5	2·5	3·5	2·0	...	Clear					
10·4	...	...	...	...	8·6	4·6	7·4	...	8·1	...	...	...	...	7·9	6·8	6·6	9·4	9·4	2·4	6·1	4·4	3·4	...	...	Clear					
8·0	...	...	...	...	6·0	7·0	6·0	...	...	...	...	...	...	6·0	3·0	6·5	7·0	6·5	2·0	6·8	2·2	3·2	...	...	Cirrostratus	9½				

charcoal and on black-lead there were spikes in rich clusters; those forming one cluster all emanated from the same point, and they were inclined at all angles; on lampblack the spikes were very numerous, being about three-eighths of an inch in thickness, and inclined to the horizon at an angle of about 30°, and at all azimuths, so that each cluster formed a circle, in the centre of which there were no spikes: on sand there were spikes one-fourth of an inch in length, inclined at all angles to the horizon: chalk was covered with a mass of spikes one-fourth of an inch in length: whiting was covered with rich bunches of spikes three-eighths of an inch in length: flax was covered with small sparkling flakes of ice: raw wool was encrusted on each fibre so as to be about six times its own size: cotton wool was completely covered with spikes, and paper was covered with small round particles and a few spikes.

Oct. 13, $17^h\ 50^m$. At this time the sky was overcast and the readings of all the thermometers were nearly alike; at $18^h\ 0^m$ the instruments were read exhibiting the above large differences.

Table (Continued).

Number of the Tables.	1843. Astronomical day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	Excess of the reading of the thermometer in air above that placed																				
			On long grass.	On short grass.	On raw wool on grass.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On garden mould.	On gravel.	On river sand.	On river sand on the raised board.	One inch high above grass.	Two inches high above grass.	Three inches high above grass.	Six inches high above grass.	Twelve inches high above grass.	On unwrought white cotton wool on grass.	On unwrought white cotton wool on raised board.	On raw wool on raised board.	On flax on raised board.
	h m		°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
XI.	Sept. 15. 7 20	63·2	9·9	8·4	…	…	7·7	…	…	…	…	5·2	1·2	3·2	2·2	6·2	…	3·2	…	…	9·2	…	…	…
	15. 11 0	58·8	9·9	8·8	…	…	7·8	…	…	…	…	6·8	3·6	5·3	6·8	7·0	…	3·6	…	…	10·8	…	…	…
	16. 7 40	65·0	9·1	9·0	…	…	7·3	…	…	…	…	6·5	0·3	4·0	3·4	7·0	…	4·2	…	…	…	…	…	…
	18. 9 30	63·0	9·5	9·0	…	…	7·5	…	…	…	…	6·0	3·0	5·3	…	7·2	…	4·5	…	…	10·0	…	…	…
	19. 15 10	53·0	9·3	7·8	…	…	11·0	…	…	…	…	…	3·5	…	…	7·5	…	3·1	…	…	8·7	…	…	…
	20. 10 25	55·5	9·5	9·0	…	…	8·0	…	…	…	…	…	3·0	…	…	7·0	…	4·0	…	…	10·5	…	…	…
	20. 15 0	52·6	9·7	8·3	…	…	6·1	…	…	…	…	5·1	…	…	…	6·9	…	4·6	…	…	10·7	…	…	…
	21. 6 55	62·7	9·7	9·2	…	…	9·2	…	…	…	…	…	1·7	…	…	7·0	…	4·5	…	…	8·2	…	…	…
	21. 7 30	61·5	9·5	8·5	…	…	7·3	…	…	…	…	6·5	…	…	…	7·8	…	4·5	…	…	10·5	…	…	…
	21. 18 20	51·3	9·0	9·0	…	…	8·0	…	…	…	…	…	…	5·9	…	7·5	…	3·5	…	…	10·0	…	…	…
	23. 6 0	61·4	9·7	7·4	…	…	7·4	2·4	…	…	…	5·0	…	…	…	6·4	…	4·1	…	…	11·4	…	…	…
	24. 15 10	50·5	9·0	7·0	…	…	7·9	3·0	…	…	…	…	…	5·5	…	6·0	…	4·1	…	…	10·5	…	…	…
	28. 11 35	45·3	9·5	6·3	…	…	7·3	2·8	…	…	…	…	…	3·9	…	4·8	…	3·4	…	…	10·0	…	…	…
	28. 13 25	43·5	9·6	8·0	…	…	11·3	3·0	…	…	…	7·7	…	…	…	5·5	…	3·8	…	…	12·5	…	…	…
	Oct. 15. 4 50	41·0	9·2	7·1	11·7	12·8	7·6	2·7	…	…	…	…	…	…	…	5·0	…	…	3·0	…	11·8	…	…	…
	15. 5 5	40·5	9·8	7·8	11·7	13·2	9·1	3·2	…	…	…	…	…	…	…	6·2	…	…	3·1	…	12·3	…	…	…
	18. 5 20	42·2	9·8	6·9	12·9	…	7·9	2·8	…	…	…	5·2	4·0	3·9	…	5·2	…	…	3·0	2·1	9·4	…	…	…
	18. 8 30	35·7	9·7	8·9	11·6	8·2	8·7	3·4	…	…	…	5·7	4·5	4·7	…	6·5	…	…	4·5	3·5	11·7	…	…	…
	19. 7 40	35·6	9·6	7·8	12·4	12·1	8·6	3·9	−6·9	−1·1	…	5·4	2·4	3·8	…	6·6	…	…	2·6	1·8	10·5	…	…	…
	19. 10 0	33·2	9·0	8·7	11·7	14·7	7·4	4·0	−6·8	−2·3	…	2·7	1·7	2·7	…	6·2	…	…	2·3	1·8	10·4	…	…	…
	19. 12 0	31·0	9·5	8·5	13·0	12·8	7·8	3·8	…	…	…	1·8	0·8	3·0	…	8·0	…	…	1·9	0·8	11·5	…	…	…
	21. 9 20	42·1	9·9	7·8	12·9	11·3	7·1	3·5	−1·1	−1·3	…	4·7	2·9	4·9	…	7·5	…	…	3·3	2·9	9·9	…	…	…
	25. 13 0	35·5	9·3	8·0	12·1	12·5	7·9	4·7	−7·5	−0·5	…	4·5	1·9	3·0	…	6·5	…	…	1·9	1·1	9·5	…	…	…
	26. 7 35	40·5	9·3	2·8	10·1	8·9	6·5	3·1	−3·5	−1·0	…	3·0	1·2	3·5	…	5·5	…	…	1·3	0·7	8·0	…	…	…
	Nov. 8. 12 0	35·5	9·5	8·3	12·0	11·8	9·3	4·3	−4·5	1·5	…	4·0	4·0	4·0	…	6·5	…	…	3·5	2·7	12·0	…	…	…
	8. 13 0	35·1	9·1	7·9	11·6	11·6	9·1	4·1	−4·1	1·1	…	4·1	4·1	3·6	…	5·6	…	…	3·0	2·3	11·6	…	…	…
	8. 17 0	33·5	9·0	8·0	11·2	9·5	8·5	3·5	−4·5	1·0	…	4·0	3·0	4·5	…	6·0	…	…	2·7	2·2	11·2	…	…	…
	9. 5 30	33·0	9·5	9·5	13·5	13·0	11·5	3·5	−6·0	−1·5	…	2·5	3·2	3·0	…	…	…	…	3·2	2·9	13·0	…	…	…
	10. 19 30	33·5	9·3	7·5	10·5	10·5	9·3	2·5	−4·3	−0·7	…	2·0	1·2	2·0	…	…	…	…	2·5	1·5	10·5	…	…	…
	11. 7 30	38·8	9·8	8·7	13·8	13·2	9·5	3·3	−1·6	1·8	…	6·0	4·2	4·8	…	…	…	…	3·8	2·6	13·7	…	…	10·2
	11. 10 35	37·0	9·2	9·5	10·8	10·5	8·8	3·8	−1·0	3·0	…	5·0	4·0	4·0	…	…	…	…	3·8	2·8	10·0	…	…	7·4
	12. 13 5	31·7	9·5	7·2	11·0	10·8	6·0	5·5	−6·2	0·0	…	…	…	…	…	…	…	…	1·0	1·0	7·2	…	…	…
XII.	Sept. 15. 10 33	59·5	10·0	7·9	…	…	8·0	…	…	…	…	5·5	2·3	5·0	…	6·5	…	3·5	…	…	12·0	…	…	…
	18. 9 0	64·0	10·0	9·0	…	…	7·0	…	…	…	…	8·0	3·0	8·0	…	7·0	…	5·5	…	…	10·0	…	…	…
	19. 10 0	59·2	10·7	9·5	…	…	9·2	…	…	…	…	…	4·2	…	…	9·2	…	4·7	…	…	11·2	…	…	…
	19. 11 10	55·5	10·5	10·3	…	…	10·3	…	…	…	…	…	2·5	…	…	9·0	…	5·3	…	…	11·1	…	…	…
	19. 13 10	53·7	10·7	7·7	…	…	11·7	…	…	…	…	…	3·7	…	…	7·1	…	4·4	…	…	6·7	…	…	…
	20. 9 25	57·7	10·2	9·2	…	…	9·2	4·2	…	…	…	…	…	3·7	…	7·7	…	4·2	…	…	10·6	…	…	…
	21. 6 10	63·6	10·1	7·4	…	…	…	…	…	…	…	…	…	4·5	…	5·3	…	4·3	…	…	9·9	…	…	…
	22. 5 40	62·6	10·1	9·2	…	…	7·2	…	…	…	…	4·1	…	…	…	5·9	…	3·8	…	…	12·3	…	…	…
	22. 7 20	58·3	10·6	10·5	…	…	9·3	…	…	…	…	…	0·6	…	…	8·1	…	4·5	…	…	12·7	…	…	…
	22. 8 10	56·2	10·5	10·3	…	…	7·4	…	…	…	…	…	…	5·0	…	7·2	…	4·3	…	…	11·2	…	…	…
	22. 11 30	52·0	10·9	12·0	…	…	9·5	3·6	…	…	…	…	…	…	…	7·8	…	4·8	…	…	11·5	…	…	…
	22. 13 30	50·7	10·0	8·5	…	…	8·7	3·6	…	…	…	…	2·2	…	…	7·7	…	3·5	…	…	9·9	…	…	…
	23. 8 30	56·5	10·5	9·3	…	…	7·5	3·0	…	…	…	…	…	6·5	…	8·5	…	4·1	…	…	11·5	…	…	…
	23. 10 50	52·8	10·8	8·3	…	…	7·8	2·8	…	…	…	…	…	7·1	…	8·8	…	4·8	…	…	12·3	…	…	…
	23. 11 10	52·2	10·7	9·1	…	…	7·2	2·7	…	…	…	7·5	…	…	…	8·6	…	4·6	…	…	12·2	…	…	…
	26. 11 30	41·4	10·1	10·0	…	…	9·1	3·9	…	…	…	…	…	3·9	…	8·6	…	4·2	…	…	11·4	…	…	…
	27. 9 10	41·5	10·7	9·3	…	…	10·5	5·2	…	…	…	9·5	…	…	…	5·8	…	5·5	…	…	11·5	…	…	…
	27. 11 0	41·5	10·0	7·7	…	…	8·0	4·3	…	…	…	…	…	6·7	…	7·0	…	4·3	…	…	11·5	…	…	…
	Oct. 2. 7 25	57·0	10·5	9·5	…	…	8·5	4·8	…	…	…	…	2·5	…	…	9·0	…	4·5	…	…	11·8	…	…	…
	15. 15 20	29·8	10·0	9·4	…	…	10·8	5·3	…	…	…	…	…	…	…	9·4	…	…	3·6	…	…	…	…	…
	18. 7 40	38·0	10·0	8·0	13·3	…	7·6	2·4	…	…	…	4·6	4·0	4·3	…	6·5	…	…	2·8	1·7	10·0	…	…	…
	18. 9 30	36·8	10·8	8·8	12·8	10·8	9·8	3·8	…	…	…	6·8	6·1	5·9	…	7·8	…	…	4·8	3·4	13·8	…	…	…
	18. 14 30	30·6	10·8	9·8	14·6	14·7	10·9	5·1	…	…	…	4·4	3·6	5·1	…	8·1	…	…	4·1	3·3	12·8	…	…	…
	18. 18 0	30·0	10·4	8·9	12·0	12·0	12·8	5·2	…	…	…	4·8	2·9	5·8	…	8·9	…	…	4·5	4·0	13·2	…	…	…
	19. 4 30	43·5	10·3	7·0	13·5	11·6	7·0	2·1	…	…	…	7·9	0·7	2·8	…	5·0	…	…	2·3	1·6	11·5	…	…	…
	19. 8 10	35·9	10·7	10·7	15·9	15·9	11·4	4·9	−6·1	0·9	…	5·1	3·7	6·1	…	9·1	…	…	3·9	3·2	13·7	…	…	…
	21. 7 30	44·0	10·0	7·8	12·5	12·5	7·5	3·5	−4·0	−0·5	…	4·5	2·8	4·0	…	6·0	…	…	2·0	2·5	10·2	…	…	…
	25. 9 30	38·2	10·4	8·2	13·2	13·2	7·2	4·2	−6·8	−0·2	…	3·7	1·0	0·7	…	7·7	…	…	1·2	0·7	13·0	11·7	…	…
	25. 11 40	36·6	10·4	8·4	12·6	12·8	8·4	3·6	−5·7	0·9	…	5·1	2·6	3·6	…	7·5	…	…	1·8	1·4	10·8	11·0	…	…
	Nov. 7. 5 30	51·7	10·5	9·7	13·7	11·4	9·7	4·2	2·6	5·7	…	4·1	4·1	5·4	…	7·6	…	…	4·5	1·7	11·7	…	…	…
	12. 19 20	33·0	10·0	7·9	10·4	11·0	7·4	5·8	−6·2	1·2	…	…	…	…	…	…	…	…	2·7	2·3	9·0	…	…	…

Sept. 15, $11^h\ 0^m$; a thin cloud passing zenith. Sept. 18, $9^h\ 30^m$; the stars seem small. Sept. 19, $15^h\ 10^m$; the stars seem small, and they have a waterish appearance. Sept. 20, $15^h\ 0^m$; deposition of moisture. Sept. 21, $6^h\ 55^m$; the clouds are confined to the zenith and around it. Sept. 21, $7^h\ 30^m$; the clouds are confined to the zenith and around it. Sept. 21, $18^h\ 20^m$; deposition of moisture. Sept. 24, $15^h\ 10^m$; the stars are dim and small. Sept. 28, $11^h\ 35^m$; a few clouds near S. horizon, and the stars are dim. Sept. 28, $13^h\ 25^m$; stars seem small and shine dimly. Oct. 19, $7^h\ 40^m$; dew just forming. Sept. 19, $10^h\ 0^m$; a few clouds. Sept. 19, $11^h\ 10^m$; stars seem small and watery. Sept. 19, $13^h\ 10^m$; stars seem small and watery. Sept. 23, $10^h\ 50^m$; the south portion of sky very clear. Sept. 23, $11^h\ 10^m$; the stars have become dim. Oct. 2, $7^h\ 25^m$; dew being deposited. Oct. 19, $8^h\ 10^m$; dew. Oct. 21, $7^h\ 30^m$; dew.

Oct. 19, $7^h\ 40^m$. At $7^h\ 0^m$ a parcel of 10 grains of wool was placed on grass, and at this time it was found to weigh 11 grains. The temperature of the air at $7^h\ 40^m$ was 3° less than it was $7^h\ 0^m$, and yet the differences between the readings of the several thermometers and that in air, is less by 2° or 3° than they were

Table (Continued).

Excess of the reading of the thermometer in air above that placed																								Clouds.			Wind.		Haze, fog, mist, or vapour.
On coarse flax on grass.	On yellow cotton wool on grass.	On yellow cotton wool on raised board.	On blue cotton wool on grass.	On blue cotton wool on raised board.	On white wadding on grass.	On black wadding on grass.	On flannel on grass.	On flannel on raised board.	On raw silk on grass.	On raw silk on raised board.	On silk from cocoon.	On the raised board.	On saw-dust on the raised board.	On black-lead on raised board.	On charcoal on raised board.	On lamp-black on raised board.	On whiting on raised board.	On chalk on raised board.	On tinfoil.	On lead.	On pantile.	On slate.	One-fourth of an inch above water.	On paper on raised board.	Modification.	Amount 0–10.	High or low.	Direction.	Strength 0–6.	
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	2			
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	... Vap.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	... Vap.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·0	8·7	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	... Mist
...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·0	6·6	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·8	5·6	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·7	5·2	...	...	...	...	...	...	...	...	...	Thin clouds	4	H.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·2	7·1	...	...	...	...	...	...	...	...	...	Thin clouds	4			
...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·5	6·8	...	...	...	...	...	...	...	...	...	Clear				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·4	4·2	...	...	...	...	...	...	...	...	...	Clear				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·0	5·9	...	...	...	...	...	...	...	...	...	Clear				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·3	4·5	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·7	5·3	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	2	...	...	... Haz.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	2	...	...	... Haz.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	...	... Haz.
7·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	...	... Haz.
12·1	...	11·4	...	10·8	...	...	...	8·4	...	11·4	9·4	7·6	5·8	7·4	7·6	...	7·8	...	...	...	...	...	...	...	Clear	...	...	...	... Haz.
12·2	...	8·0	...	9·0	...	...	...	7·2	...	10·2	7·7	5·4	4·2	6·5	6·2	...	6·2	...	...	...	...	...	...	...	Clear	...	...	c.	
9·8	...	10·0	...	10·0	...	...	...	8·8	...	10·0	7·7	4·8	4·0	7·7	7·5	...	7·8	...	...	...	...	...	...	...	Clear	...	...	c.	
12·9	...	9·6	...	9·4	...	...	...	8·9	...	10·8	...	5·1	3·9	8·1	6·9	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	
12·5	...	10·5	...	10·5	...	...	...	8·5	...	9·1	10·2	7·5	5·2	8·0	7·4	...	8·5	...	...	...	...	...	3·5	...	Clear	...	...	c.	
10·5	...	6·2	...	5·4	...	...	...	2·3	...	6·3	...	3·5	4·3	5·5	4·7	...	4·9	...	...	...	...	...	...	4·5	Clear	...	...	c.	
9·9	10·5	...	10·5	...	9·3	9·7	7·5	...	10·3	...	...	...	...	...	...	...	...	...	6·3	9·0	4·3	6·5	4·5	...	Clear	...	...	N.	1/2
10·1	9·1	...	9·1	...	8·1	8·6	8·1	...	9·9	...	...	...	...	...	...	...	...	...	4·1	6·1	4·1	6·1	3·1	...	Clear	...	...	N.	3/4
9·5	7·5	...	8·5	...	7·5	8·5	6·5	...	8·5	...	...	...	...	...	...	...	...	...	5·0	6·5	6·3	6·5	3·0	...	Clear	...	...	N.	
13·0	10·0	...	9·0	...	11·5	...	9·0	...	9·5	...	...	...	...	...	...	...	...	...	4·8	7·5	3·2	6·0	4·0	...	.....	2			
13·2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·3	4·3	2·3	4·7	2·3	...	Clear	...	...	c.	
13·3	...	...	...	...	8·8	7·0	8·8	...	10·0	...	...	...	...	...	...	...	...	...	6·8	7·0	6·6	6·7	4·4	...	Clear	...	...	c.	
11·4	...	...	...	...	5·8	7·0	9·0	...	10·5	...	...	...	...	...	...	...	...	...	4·8	6·0	5·5	6·0	4·0	...	Clear	...	...	c.	
10·0	...	...	...	...	8·0	...	5·8	...	7·0	...	...	...	...	7·0	6·0	7·0	...	9·0	2·4	5·0	3·0	4·6	...	...	Thin clouds	10			
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10·8	...	11·8	...	9·8	...	...	...	9·3	...	12·2	10·3	...	...	6·5	7·3	...	5·8	...	...	...	...	...	...	...	Clear	...	...	...	... Haz.
13·6	...	12·5	...	12·6	...	...	...	12·4	...	13·6	9·9	8·4	5·6	9·4	9·6	...	11·6	...	...	...	...	...	...	...	Clear	...	...	L.	
12·0	...	13·8	...	13·6	...	...	...	10·8	...	10·2	11·8	11·3	6·9	10·8	11·4	...	12·0	...	...	...	...	...	...	...	Clear	...	...	L.	
10·9	...	5·0	...	5·2	...	...	...	4·9	...	9·1	4·4	2·9	3·7	3·3	2·7	...	6·0	...	...	...	...	...	...	...	Cirrus	1/2			
15·4	...	13·7	...	13·4	...	...	...	12·7	...	13·2	11·7	8·9	6·7	8·7	9·1	...	10·3	...	...	...	...	...	...	...	Clear	...	...	c.	
10·2	...	10·0	...	10·0	...	...	...	10·6	...	10·2	...	5·8	5·0	7·0	7·0	...	...	...	...	...	...	...	...	...	Clear				
12·9	...	12·2	...	13·0	...	...	...	11·4	...	10·2	...	8·4	7·0	7·9	7·0	...	9·7	...	...	...	...	...	3·7	...	Clear	...	...	...	... Haz.
12·9	...	11·5	...	11·4	...	...	...	8·9	...	9·3	...	8·4	5·6	8·6	8·1	...	9·6	...	...	...	...	...	4·4	...	Clear	...	...	...	... Haz.
11·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·7	...	Clear				
12·0	...	8·9	...	8·0	...	...	...	8·4	...	8·8	...	...	...	5·6	4·4	6·7	7·2	7·0	3·2	7·0	3·8	5·7	...	...	Clear	...	...	c.	

at the former time (see Table XIV.). It would seem from this circumstance that the heat evolved at the time of the deposit of dew was about 4°. At Oct. 19, 21^h the wool was found to weigh 21 grains, and the thickness of ice in the evaporator was found to be 0·5 inch.

Oct. 15, 4^h 35^m. At this time the thermometers were placed on their different substances, and large differences were almost immediately exhibited.

Oct. 19, 4^h 30^m. These observations were taken two hours before sun-set; during the whole of this day the temperature of vegetation in the shade was much below the temperature of the air; at 19^d 1^h the reading of a thermometer on grass was 39°·0, whilst that in air was 47°·2.

Oct. 25, 11^h 40^m. The water which was placed in the evaporating dish exposed to the whole sky is frozen, whilst that placed in a similar dish exposed to one-half of the sky only is not frozen.

Table (Continued).

Number of the Tables.	1843. Astronomical day, hour and minute.			Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	Excess of the reading of the thermometer in air above that placed																				
		h	m		On long grass.	On short grass.	On raw wool on grass.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On garden mould.	On gravel.	On river sand.	On river sand on the raised board.	One inch high above grass.	Two inches high above grass.	Three inches high above grass.	Six inches high above grass.	Twelve inches high above grass.	On unwrought white cotton wool on grass.	On unwrought white cotton wool on raised board.	On raw wool on raised board.	On flax on raised board.
XIII.	Sept. 13.	15	15	49·8	11·3	10·3	°	°	11·8	°	°	°	°	°	2·8	8·8	8·3	10·3	5·3	°	°	°	12·3	°	°	°
	19.	7	20	62·4	11·4	10·4	...	...	...	...	...	...	...	7·4	6·3	6·4	...	8·2	...	6·0	...	...	11·7	...	...	...
	19.	9	20	58·7	11·2	9·2	...	...	9·2	...	...	...	...	6·7	3·2	5·7	...	8·7	...	3·7	...	...	10·5	...	...	...
	19.	9	40	59·3	11·3	9·8	...	...	9·3	...	...	...	...	7·3	4·3	6·3	...	9·3	...	4·8	...	...	12·3	...	...	...
	26.	9	10	47·2	11·7	10·7	...	...	10·7	6·2	...	...	...	...	...	5·7	...	7·2	...	5·7	...	...	13·7	...	...	...
	27.	6	40	44·5	11·7	8·3	...	...	10·5	5·3	...	...	...	...	...	3·7	...	9·3	...	5·4	...	...	12·7	...	...	...
	27.	7	30	44·0	11·7	8·7	...	...	10·1	5·0	...	...	...	...	2·7	...	...	7·8	...	7·8	...	...	13·0	...	...	...
	27.	13	0	40·3	11·1	9·1	...	...	8·8	3·8	...	...	...	...	4·8	...	...	8·1	...	4·3	...	...	13·3	...	...	...
	28.	17	25	38·1	11·7	10·1	...	...	10·1	4·6	...	...	...	...	...	7·3	...	8·1	...	5·2	...	...	12·6	...	...	...
	Oct. 18.	10	20	36·8	11·8	9·5	15·3	15·3	10·8	4·3	...	...	...	6·3	6·3	6·3	...	8·8	...	...	4·8	3·8	13·8	...	...	...
	18.	11	0	35·5	11·5	9·5	15·0	14·5	9·5	4·3	...	...	...	5·5	5·5	5·5	...	8·5	...	...	4·5	3·7	13·0	...	...	...
	18.	11	30	35·0	11·5	9·7	15·0	15·0	10·2	4·5	...	...	...	5·0	5·0	5·0	...	8·5	...	...	4·7	3·8	13·8	...	...	...
	19.	9	0	34·5	11·0	11·0	15·3	15·3	10·0	5·5	−5·5	−0·5	...	3·7	3·0	4·5	...	8·5	...	...	3·5	2·8	12·0	...	...	...
	25.	8	0	39·8	11·7	10·0	15·3	14·8	9·8	4·3	−5·7	−1·4	...	4·3	2·3	2·8	...	8·8	...	...	1·8	1·3	11·6	10·3	...	...
	26.	5	40	42·5	11·5	8·5	12·6	11·8	8·8	3·9	−3·5	−1·5	...	5·0	1·5	3·2	...	7·0	...	...	2·3	1·9	10·7	...	...	...
	29.	9	0	40·6	11·4	7·9	13·8	13·1	7·1	2·6	−2·4	−0·4	...	3·1	2·6	2·9	...	7·5	...	...	1·4	1·6	11·8	...	...	...
	Nov. 1.	4	30	43·0	11·1	9·0	14·5	13·5	8·5	5·0	−5·0	0·0	...	2·0	1·0	1·0	...	8·5	...	...	2·5	2·0	13·0	...	...	...
	1.	7	0	40·0	11·0	6·5	15·0	15·0	6·0	3·2	−5·0	−1·0	...	5·0	3·0	3·0	...	3·0	...	...	4·0	3·5	14·0	...	...	...
	4.	5	10	47·0	11·8	8·5	14·5	14·0	8·0	3·8	−3·0	1·5	...	5·0	0·0	2·8	...	7·5	...	...	2·2	1·8	12·8	...	...	...
	12.	6	0	37·5	11·0	11·5	13·7	13·5	9·5	4·0	−2·5	2·5	...	...	...	...	...	...	...	...	2·3	1·5	11·4	...	...	...
XIV.	Sept. 21.	8	30	41·0	12·2	9·5	...	...	7·0	...	...	...	...	4·8	...	...	...	8·0	...	4·5	...	...	14·8	...	...	...
	Oct. 16.	5	20	38·4	12·4	9·4	12·6	14·8	10·2	3·7	...	...	...	...	...	...	...	7·4	...	...	2·9	...	7·9	...	...	...
	18.	12	0	34·5	12·7	10·0	16·7	16·0	10·5	5·5	...	...	...	5·3	4·7	5·7	...	9·0	...	...	5·2	4·2	14·5	...	...	...
	19.	5	0	41·8	12·8	9·9	16·0	14·3	11·3	3·3	...	...	...	4·3	1·3	4·0	...	8·0	...	...	2·6	2·0	13·0	...	...	...
	19.	5	30	40·4	12·9	10·5	16·4	15·6	10·5	3·9	...	...	...	4·1	1·8	3·6	...	8·2	...	...	2·4	1·7	13·8	...	...	...
	Nov. 8.	19	0	31·3	12·3	9·3	16·3	13·3	11·3	5·8	−6·7	0·7	...	3·3	2·3	4·8	...	7·3	...	...	4·3	3·8	15·3	...	...	...
	12.	8	45	33·6	12·4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	12.	9	20	33·0	12·0	12·0	17·0	15·5	9·5	6·0	−5·0	4·0	...	...	...	...	...	...	...	...	2·5	2·2	12·0	...	...	13·2
	12.	10	10	32·3	12·5	12·1	17·3	15·1	10·3	6·3	−5·2	1·2	...	...	...	...	...	...	...	...	...	...	14·8	...	...	...
	13.	5	10	37·5	12·5	11·7	19·5	14·5	12·0	6·0	−1·8	1·7	...	...	...	...	...	...	...	...	...	...	14·0	...	...	...
	13.	5	30	37·6	12·6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	13.	7	0	36·0	12·5	11·0	11·4	12·0	11·0	5·4	−2·0	2·5	...	...	...	...	...	...	...	...	...	...	9·0	...	...	...
XV.	Sept. 13.	11	10	51·0	13·5	12·0	...	...	12·0	...	...	...	...	...	4·0	...	...	...	...	...	...	...	...	...	...	...
	13.	12	0	50·5	13·5	12·5	...	...	12·5	...	...	...	...	...	3·5	7·5	7·5	12·0	7·5	...	...	...	...	9·5	...	...
	13.	14	30	50·0	13·0	12·0	...	...	11·5	...	...	...	...	...	3·0	8·5	7·5	10·5	5·2	...	...	...	11·5	10·0	...	...
	28.	15	15	40·2	13·2	10·3	...	...	11·2	5·2	...	...	...	6·0	...	...	...	10·2	...	6·7	...	...	13·9	...	...	...
	Oct. 18.	13	0	33·4	13·2	10·4	15·9	15·9	10·4	...	...	...	...	4·1	3·4	5·2	...	8·6	...	...	4·0	3·1	14·1	...	...	13·6
	18.	16	0	30·0	13·2	9·7	14·0	13·2	8·2	4·5	...	...	...	4·0	3·5	3·8	...	8·9	...	...	6·0	5·0	12·8	...	...	9·0
	19.	5	50	40·3	13·9	12·1	16·3	16·3	11·6	4·5	...	...	...	6·7	3·2	6·3	...	9·9	...	...	4·7	3·7	15·0	...	...	10·3
	25.	5	15	45·5	13·0	10·3	16·5	16·1	11·5	10·5	−4·5	0·0	...	2·3	0·1	2·1	...	9·3	...	...	5·3	4·7	13·4	14·5	...	13·3
	Nov. 12.	8	30	33·6	13·1	12·4	16·8	16·1	10·6	5·6	−4·9	0·6	...	...	...	...	...	...	...	...	3·3	2·5	15·1	...	...	...
XVI.	Sept. 13.	12	30	50·8	14·6	13·3	...	...	13·3	...	...	...	...	...	3·8	7·8	8·3	12·3	6·8	...	...	...	...	11·6	...	...
	13.	13	30	50·7	14·2	12·7	...	...	13·2	...	...	...	...	...	3·7	9·2	8·9	11·7	5·7	...	...	...	11·7	11·8	...	...
	Oct. 19.	6	15	40·3	14·1	11·5	16·3	16·8	12·8	6·2	...	...	...	7·5	4·8	7·1	...	10·3	...	...	4·5	3·8	15·3	...	...	11·5

Sept. 13, $15^h\ 15^m$; the sky is cloudy to 30° high. Sept. 19, $9^h\ 20^m$; clouds all round to 10° high. Sept. 19, $9^h\ 40^m$; a few clouds to the north. Nov. 13, $5^h\ 10^m$; dark clouds. Sept. 13, $11^h\ 10^m$; great deposition of moisture. Sept. 13, $12^h\ 0^m$; great deposition of moisture. Sept. 13, $14^h\ 30^m$; great deposition of moisture. Sept. 28, $15^h\ 15^m$; the stars small and dim. Sept. 13, $12^h\ 30^m$; great deposition of moisture. Sept. 13, $13^h\ 30^m$; great deposition of moisture.

Sept. 27, $13^h\ 0^m$. Dew had been deposited previous to this observation: the thermometer placed on long grass was covered with hoar-frost, so much so that its stem had to be scraped before the reading could be taken: that placed on raw wool was similarly circumstanced, and it was firmly frozen to the wool.

Oct. 18, $12^h\ 0^m$. The charcoal is white with hoar-frost: wool and flax are each a mass of ice, and the thermometers are firmly frozen to them. The thickness of ice in the evaporator was 0·82 inch.

Table (Continued).

Excess of the reading of the thermometer in air above that placed																									Clouds.			Wind.		
On coarse flax on grass.	On yellow cotton wool on grass.	On yellow cotton wool on raised board.	On blue cotton wool on grass.	On blue cotton wool on raised board.	On white wadding on grass.	On black wadding on grass.	On flannel on grass.	On flannel on raised board.	On raw silk on grass.	On raw silk on raised board.	On silk from cocoon.	On the raised board.	On saw-dust on the raised board.	On black-lead on raised board.	On charcoal on raised board.	On lamp-black on raised board.	On whiting on raised board.	On chalk on raised board.	On tinfoil.	On lead.	On pantile.	On slate.	One-fourth of an inch above water.	On paper on raised board.	Modification.	Amount 0—10.	High or low.	Direction.	Strength 0—6.	Haze, fog, mist, or vapour.
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°						
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...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·1	8·7	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	...	Vap.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·1	8·5	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·7	9·0	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	...	Vap.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·5	8·3	...	...	...	...	...	...	...	...	...	Clear					
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11·8	...	11·0	...	11·1	...	...	...	8·8	...	10·8	11·6	8·8	6·8	7·6	8·8	...	7·8	...	...	...	...	...	...	...	Clear	...	...	...	...	Haze
13·5	...	11·0	...	11·5	...	...	...	8·5	...	12·0	12·0	9·5	5·5	7·5	8·6	...	7·5	...	...	...	...	...	...	...	Clear	...	...	...	...	Haze
13·8	...	10·5	...	12·7	...	...	...	9·5	...	12·5	11·5	9·2	6·5	9·0	8·8	...	9·2	...	...	...	...	...	...	...	Clear	...	...	...		
14·0	...	12·5	...	12·3	...	...	...	9·5	...	12·5	10·5	7·3	5·0	7·3	7·5	...	11·0	...	...	...	...	...	...	...	Clear	...	...	c.	...	Haze
13·8	...	11·6	...	11·6	...	...	...	11·3	...	10·7	...	7·8	6·8	9·0	7·9	...	8·8	...	...	...	...	...	4·8	...	Clear					
12·9	...	9·7	...	8·9	...	...	...	7·7	...	7·5	...	6·0	5·7	6·9	4·5	...	6·5	...	...	...	...	...	3·7	7·5	.....	1				
11·6	...	4·6	...	4·6	...	...	...	2·6	...	5·6	...	5·0	...	...	3·8	...	5·4	...	...	...	...	...	2·4	...	Clear					
13·0	...	7·8	...	9·2	...	...	...	9·0	...	9·0	...	5·2	...	8·5	7·0	...	7·0	7·0	8·0	...	...	...	3·0	...	Clear					
14·0	...	5·0	...	5·0	...	...	...	6·0	...	6·0	...	6·0	...	6·2	6·0	...	7·5	7·5	7·0	...	...	...	5·0	...	Clear	...	...	c.	...	Fog.
13·0	...	6·5	...	8·0	...	...	8·6	6·5	12·5	...	...	9·5	...	6·2	5·8	...	6·4	6·0	...	...	5·5	5·5	2·8	...	Clear					
14·9	...	...	...	...	7·5	7·0	...	...	...	...	...	...	...	6·0	6·2	7·3	6·5	7·1	5·7	...	5·9	6·3	...	...	Clear					
...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·0	3·5	...	...	...	...	...	...	...	...	...	Clear					
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14·2	...	11·7	...	12·7	...	...	...	11·7	...	13·3	10·5	8·0	8·0	8·3	10·0	...	9·3	...	...	...	...	...	...	...	Clear	...	...	c.	...	Haze
15·3	...	9·6	...	9·6	...	...	...	9·6	...	12·6	8·6	7·0	6·6	7·0	7·6	...	7·8	...	...	...	...	...	...	...	Clear					
16·4	...	10·4	...	10·8	12·8	13·3	9·3	9·3	...	11·9	9·9	7·2	7·2	6·4	7·6	...	7·2	...	...	...	...	...	...	...	Clear	...	...	c.		
13·3	10·3	...	12·1	...	...	...	...	...	9·8	...	...	...	...	...	...	...	...	...	6·3	9·3	5·8	7·3	2·8	...	Clear	...	...	c.		
...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·4	7·8	11·5	11·2	10·4	...	...	...	...	...	...	Clear	...	...	c.		
16·0	...	...	...	...	15·5	12·8	...	...	13·0	...	...	...	...	9·8	7·0	9·8	9·5	9·8	5·0	9·0	5·0	8·0	...	...	Clear	...	...	c.		
15·8	...	...	...	...	12·8	11·3	12·8	...	12·3	...	...	...	...	10·1	6·8	10·5	10·5	10·3	4·8	9·1	5·1	7·8	...	...	Clear	...	...	c.		
14·5	...	...	...	...	12·5	13·5	12·5	...	10·5	...	...	...	...	8·5	7·5	10·5	7·5	9·5	5·5	9·3	6·0	9·5	...	...	.....	3				
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12·0	...	...	...	...	9·4	9·0	10·5	...	9·2	...	...	...	...	8·0	7·0	10·5	9·0	9·5	5·0	8·2	5·2	7·0	...	...	Clear					
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...	...	...	...	...	...	...	...	...	...	...	...	7·2	...	...	...	...	...	...	...	...	...	...	...	...	.....	1				
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...	13·4	...	14·4	...	14·9	...	...	...	...	15·3	12·2	10·4	7·2	9·9	10·9	...	10·2	...	...	...	...	...	...	...	Clear	...	...	c.		
...	11·0	...	12·0	...	11·0	...	...	...	...	12·2	7·6	9·3	4·8	8·5	11·0	...	9·8	...	...	...	...	...	...	...	Clear	...	...	c.		
...	16·5	...	12·2	...	12·5	...	...	...	...	13·3	11·5	9·8	8·1	7·5	9·7	...	8·3	...	...	...	...	...	...	...	Clear	...	...	c.		
...	15·8	...	14·5	...	14·5	14·6	12·6	12·6	14·6	14·3	11·3	8·5	...	10·5	10·3	...	10·0	...	...	...	...	...	6·0	...	Clear	...	...	c.		
...	18·5	...	...	...	...	...	...	...	...	...	...	...	...	9·6	7·1	10·6	9·6	...	5·1	8·4	3·5	7·1	...	...	Clear	...	...	c.		
...	...	...	...	...	...	...	...	...	...	...	...	8·3	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
...	...	...	...	...	...	...	...	...	...	...	...	8·2	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
...	16·5	...	13·8	...	14·1	...	...	...	...	16·1	12·1	10·1	9·3	10·3	11·5	...	10·1	...	...	...	...	...	...	...	Clear	...	...	c.		

Nov. 1, 4^h 25. An inch of rain had fallen previously, and at this time the sky became suddenly clear; dry substances were placed, and immediately the above large differences were exhibited.

Nov. 12, 8^h 30^m. The reading of the thermometer on coarse flax was 18°·5 below that in air (see Table XV.); and Nov. 13, at 5^h 10^m, the difference between the readings of the thermometer in air and that on raw wool was as large as 19°·5 (see Table XIV.). These differences were greater than any hitherto met with by any person, and especial care was taken so as to be certain of their correctness.

Excess of the reading of a thermometer placed in air at the height of 4 feet, protected from the effects of radiation, above the readings of thermometers placed on different substances fully exposed to the

Number of the Tables.	1843. Day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	Excess of the reading of the thermometer in air above that placed																									
			On long grass.	On short grass.	On raw wool on grass.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On long grass covered by							On garden mould.	Six inches high above grass.	One foot high above grass.	Two feet high above grass.	On lambs' wool on grass.					
												White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Glass.	Glass one inch high.					Jet black.	White.	Green.	Light blue.	Dark blue.	Orange.
	h m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
XVII.	Dec. 13. 17 15	41·5	0·5	0·5	1·5	1·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
XVIII.	Nov. 27. 19 30	48·3	2·8	2·7	3·5	2·2	2·9	0·3	1·6	2·1	...	...	...	...	...	...	...	...	1·6	...	−0·2	−0·4	...	...	...	...	...	...
	29. 21 0	35·0	2·5	3·8	2·0	1·5	2·0	−0·5	−5·0	−2·0	...	...	...	...	...	...	...	...	...	...	−0·2	−0·5	...	...	...	...	...	...
	Dec. 13. 17 0	41·5	2·5	2·5	2·5	2·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
XIX.	Nov. 20. 5 30	43·2	3·4	3·7	...	...	3·5	−0·8	−3·6	3·2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	20. 8 0	43·7	3·9	5·4	5·7	5·4	5·2	1·7	−0·5	3·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	29. 18 0	33·7	3·9	3·9	5·7	5·7	3·9	1·7	−6·3	−2·3	...	...	...	...	...	...	...	...	...	...	0·5	0·2	...	...	...	...	...	...
XX.	Nov. 15. 5 10	37·0	4·0	4·0	4·4	4 0	4·2	1·8	−3·0	1·9	...	...	...	...	...	...	...	...	...	1·0	0·2	...	...	...	...	...	...	...
	27. 4 10	51·8	4·8	4·3	6·8	5·8	4·8	0·8	−2·8	3·0	0·0	...	...	...	...	...	...	...	3·3	...	−0·4	−0·4	3·4	2·9	3·3	3·0	3·0	3·0
	27. 11 30	48·5	4·7	4·5	5·9	4·2	4·7	1·3	1·0	1·5	...	...	...	...	...	...	...	...	3·5	...	−0·3	−0·6	...	...	...	...	...	...
	27. 13 30	47·0	4·0	4·0	5·5	3·4	4·7	0·6	0·6	1·0	...	...	...	...	...	...	...	...	3·0	...	−0·2	−0·5	...	...	...	...	...	...
	29. 19 0	34·5	4·7	4·7	6·7	5·7	4·0	2·4	−5·0	−1·0	...	...	...	...	...	...	...	...	...	...	1·4	0·7	...	...	...	...	...	...
	Dec. 6. 11 0	41·2	4·8	5·2	6·2	5·2	5·2	1·4	−0·8	3·2	−0·8	...	...	2·2	2·2	...	2·2	4·7	...	...	−0·2	0·0	...	...	...	...	...	...
	13. 18 0	40·0	4·5	4·5	4·5	4·5	3·0	1·8	−1·0	1·8	−0·5	1·5	1·5	2·5	2·5	4·5	5·0	2·5	...	...	−0·5	−0·5	...	...	...	...	...	...
	15. 3 45	48·7	4·7	4·7	3·7	4·6	4·5	0·6	2·7	3·4	3·3	...	...	...	...	3·4	3·9	1·5	...	...	−0·1	−0·3	...	...	...	...	...	...
	15. 19 30	43·0	4·0	5 0	4·0	5·0	5·0	1·2	1·2	3·0	−1·0	...	...	...	...	...	3·0	1·5	...	...	0·8	0·8	...	...	...	...	...	...
XXI.	Nov. 15. 4 15	38·0	5·9	5·0	6·5	5·7	7·0	2·5	−2·7	0·7	...	...	...	...	...	...	...	...	...	3·2	0·8	...	...	...	...	...	...	...
	18. 9 30	40·1	5·1	...	4·3	5·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	18. 10 0	40·3	5·3	5·3	4·3	5·5	5·3	1·5	−0·7	2·1	...	...	...	...	...	...	...	...	...	0·3	0·1	...	...	...	...	...	...	...
	20. 9 30	42·0	5·5	4·5	5·2	6·0	5·6	1·0	...	3·7	...	...	...	...	...	...	...	...	...	−0·2	...	...	...	...	...	...	...	...
	23. 11 0	37·8	5·0	5·0	6·3	6·8	6·3	1·3	−3·2	−0·2	...	...	...	...	...	...	...	...	3·3	...	−0·2	−0·2	4·7	4·2	4·3	4·3	3·5	4·0
	28. 4 10	48·5	5·9	5·2	6·0	5·6	5·4	0·9	1·3	2·3	...	...	...	...	...	...	...	...	3·0	...	0·0	−0·3	1·9	2·0	2·4	3·1	2·6	2·1
	28. 5 0	47·4	5·2	4·5	5·4	4·3	4·7	0·7	0·7	1·8	...	...	...	...	...	...	...	...	2·8	...	−0·4	−0·6	3·1	3·3	2·8	3·3	3·1	2·3
	29. 17 0	33·8	5·8	4·3	6·6	5·8	3·8	0·8	−7·2	−2·2	...	...	...	...	...	...	...	...	...	...	−0·4	−0·9	...	...	...	...	...	...
	Dec. 5. 21 0	41·5	5·3	5·0	5·5	5·0	4·7	1·5	−0·7	1·5	0·5	...	...	3·8	3·7	...	2·7	2·3	...	...	0 3	0 0	...	...	...	...	...	...
	6. 3 45	46·2	5·8	6·2	6·9	6·1	5·5	1·2	0·4	3·0	2·1	...	...	3·2	3·5	...	4·4	3·2	...	...	−0·7	−0·5	...	...	...	...	...	...
	14. 3 0	45·7	5·9	5·2	5·2	4·5	6·7	0·5	1·7	3·7	2·9	3·7	3·7	2·9	2·9	4·9	4·5	2·5	...	...	−0·1	−0·3	...	...	...	...	...	...
	14. 4 0	44·7	5·7	5·8	5·8	5·5	5·7	1·2	1·7	2·9	2·5	3·7	3·7	4·2	2·5	4·7	3·8	1·7	...	...	−0·3	−0·3	...	...	...	...	...	...
	15. 5 0	47·6	5·6	5·3	5·4	5·9	5·6	1·4	2·6	4·1	2·6	...	...	...	...	...	4·2	...	...	...	−0·2	−0·4	...	...	...	...	...	...
	15. 18 0	43·2	5·4	5·2	4·6	4·7	4·4	1·4	1·2	2·9	1·2	...	...	...	...	...	3·6	...	...	...	−0·6	−0·8	...	...	...	...	...	...
	15. 21 0	45·0	5·0	4·5	4·3	5·8	5·0	1·8	2·7	3·0	2·2	2·3	...	...	...	...	3·0	...	...	...	−0·3	0·0	...	...	...	...	...	...
XXII.	Nov. 16. 13 5	31·0	6·3	6·0	5·8	6·2	4·5	2·8	−4·0	1·0	...	...	...	...	...	...	...	...	...	1·0	1·0	...	...	...	...	...	...	...
	18. 5 30	41·6	6 8	...	5·8	8·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·8	3·5	4·1	3·5	2·4	3·4
	23. 14 0	35·7	6·7	6·7	9·5	9·5	8·7	...	−3·8	−1·1	...	...	...	...	...	...	...	...	4·5	...	1·2	1·2	...	...	...	...	...	...
	23. 15 0	35·0	6·5	6·8	10·0	9·8	9·0	2·7	−4·0	−2·0	...	...	...	...	...	...	...	...	4·0	...	1·2	1·0	...	...	...	...	...	...
	24. 4 0	40·7	6·7	6·2	6·7	6·7	6·7	3·0	−2·3	−0·3	...	...	...	...	...	...	...	...	4·2	...	1·9	1·7	...	...	...	...	...	...
	28. 3 45	49·1	6·1	4·1	5·6	5·5	5·6	2·7	1·7	1·6	...	...	...	...	...	...	...	...	3·1	...	0·1	−0·1	...	...	...	...	...	...
	28. 21 0	44·8	6·6	7·0	7·8	6·6	6·3	0·7	1·8	3·6	...	...	...	...	...	...	...	...	4·8	...	1·1	0·8	...	...	...	...	...	...
	Dec. 5. 17 30	40·6	6·6	5·6	6·1	6·3	6·1	2·0	−2·6	−0·6	...	...	...	...	...	...	4·1	...	...	...	−0·1	−0·3	...	...	...	...	...	...
	5. 19 30	40·5	6·7	5·5	6·5	7·0	6·5	2·1	−2·2	0·9	...	...	...	...	...	...	4·2	...	...	...	0·0	−0·3	...	...	...	...	...	...
	6. 7 10	42·4	6·9	6·4	6·4	6·4	5·4	2·3	−0·6	1·6	0·4	...	...	...	...	...	3·8	...	...	...	−0·6	−1·0	...	...	...	...	...	...
	6. 14 0	41·0	6·0	6·0	5·7	5·0	6·0	1·4	−0·2	2·0	−0·5	...	...	2·0	...	...	4·8	4·0	...	...	−0·2	−0·2	...	...	...	...	...	...
	11. 6 30	39·0	6·8	6·0	7·0	7·2	5·0	1·8	−2·5	0·0	−2·5	4·0	5·0	3·5	3·0	5·5	4·4	3·0	...	...	1·2	2 0	...	...	...	...	...	...
	11. 9 30	36·6	6·4	5·8	6·1	7·6	6·1	2·3	−3·3	−0·1	−3·3	3·1	3·6	2·6	3·1	4·1	2·8	1·3	...	...	0·6	0·4	...	...	...	...	...	...
	Dec. 13. 17 5	41·5	6·5	5·5	6·5	6·5	...	2·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	14. 5 0	44·4	6·2	5·9	5·2	5·2	5·4	1·2	1·9	3·2	2·2	3·4	3·4	2·4	2·4	4·4	4·6	1·9	...	...	−0·7	−0·6	...	...	...	...	...	...

Dec. 6, 11h 0m. Dew is abundant, yet the temperature of the dew-point is from 4° to 5° below that of the air, being about the same as that of the metals which are thickly covered with dew (see Table XX.).

Dec. 13, 12h 0m. The sky was overcast with a high and very black cirrostratus. The temperature of the air was 45°; the readings of the thermometers at both

sky, arranged according to the difference of the readings of the one on Long Grass and that in Air, from observations between 1843, Nov. 16, and the end of the year 1843.

Excess of the reading of the thermometer in air above that placed																								Clouds.		Wind.		Haze, fog, mist, or vapour.
On lambs' wool on grass.			On copper on grass.	On lead on grass.	On iron on grass.	On zinc on grass.			On tin.			On tin-foil.	On pantile.	On slate.	On stone.			On brick.	On glass on grass.	On glass one inch high.	On unwrought white cotton wool on grass.	On the raised board.	One-fourth of an inch above water.	On coarse flax on grass.	Modification.	Amount 0—10.	High or low.	Direction.	Strength 0—6.	
Yellow.	Crimson.	Scarlet.				Thick.	Of moderate thickness.	Thin.	White on grass.	White one inch high.	Blackened on grass.				Firestone.	Purbeck.	Portland.												
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°					
...	...	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10			
...	...	...	2·5	2·3	1·2	...	...	...	2·0	...	...	...	1·8	2·4	1·6	...	...	0·7	...	1·0	...	...	0·7	...	Cirrostratus	10	...	...	2	
...	...	...	0 0	2·0	−0·6	...	...	0·1	0·0	...	1·4	...	1·5	1·6	...	...	...	1·6											
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	4·2	...	2·5	...	...	...	2·5	2·7	4·5	...	...	...	1·7	...	...	1·7	3·9	3·8	...	...	...	...	Cirrostratus	10				
...	...	...	...	4·0	...	...	...	...	...	...	...	2·7	2·9	4·7	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10				
...	...	...	...	5·7	...	3·7	3·9	2·5	...	...	...	...	2·5	3·9	...	...	...	...	...	...	...	...	1·5	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·0	...	...	...	Cirrostratus	10				
3·5	3·0	2·0	3·3	2·7	2·6	...	...	...	2·8	...	...	...	2·0	2·0	1·8	...	...	1·3	...	...	...	...	...	4·5	.....	1	...	w.	1	
...	...	...	3·5	2·3	2·9	...	...	...	4·5	...	...	...	2·8	3·0	1·9	...	...	1·7	...	...	...	...	2·8	...	Clear	.....	...	w.	1	
...	...	...	3·0	3·2	2·5	...	...	...	3·5	...	...	...	2·7	3·2	1·5	...	...	1·0	...	...	...	...	0·7	...	Clear	.....	...	w.	1	
...	...	...	3·3	2·1	4·0	4·5	4·7	4·0	3·3	4·0	5·0	...	2·0	2·2	2·5	...	...	3·0	5·7	6·0	...	...	1·0	...	Cirrostratus	10	...	w.	1	
...	...	...	4·7	4·5	3·7	4·2	3·2	3·2	5·0	3·5	4·7	...	4·0	4·0	4·7	...	...	3·0	2·7	3·0	...	...	...	...	Wh. fleecy cl	7	...	w.	L.	
...	...	...	4·0	4·4	3·8	3·2	3·5	3·5	3·0	3·0	4·5	...	3·7	5·2	3·0	2·5	2·0	...	4·5	3·0	...	...	1·7	...	Cirrostratus	10				
...	...	...	3·2	4·0	3·2	3·1	3·5	3·2	...	...	3·9	...	...	...	1·9	1·7	1·7	2·5	4·2	2·3	...	...	...	...	Clear					
...	...	...	...	2·6	...	...	4·2	2·2	...	...	3·0	...	...	...	...	...	...	...	2·6	1·4	...	...	...	...	Clear					
...	...	...	...	4·0	...	...	...	...	...	...	...	3·2	2·7	2·8	...	...	...	...	...	...	5·7	...	...	...	Cirrostratus	10				
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	.....	...	...	2	
...	...	...	...	3·5	...	...	...	...	...	...	...	...	3·1	3·8	...	...	...	...	...	...	...	3·5	...	2·5	Clear					
...	...	...	...	3·5	...	...	...	...	...	...	...	...	3·2	3·8																
4·7	3·7	3·4	3·3	2·8	3·8	...	...	...	...	...	...	...	2·8	3·8	3·0	...	...	2·8	...	...	...	...	1·8	...	.....	5	...	w.	L.	Vap.
2·9	2·3	2·3	4·3	2 8	3·3	...	...	...	3·3	...	...	...	3·2	3·4	2·3	...	...	1·9	...	...	...	...	1·6	...	Cirrus	5	...	w.	1	
4·1	2·3	3·3	3·2	2·2	2·4	...	...	...	2·9	...	...	...	2·6	2·7	2·1	...	...	1·6	...	...	...	...	1·9	...	Cirrus	5	...	w.	1	
...	...	...	4·3	4·0	2·6	3·8	3·9	1·8	2·6	2·3	8·3	...	2·8	3·3	1·8	...	...	1·8	4·6	2·8	...	...	1·0							
...	...	...	4·7	4·7	3·5	4·3	4·7	4·5	5·0	4·3	4·7	...	3·3	4·3	2·7	...	...	...	4·3	4·0	...	...	...	...	Clear					
...	...	...	4·4	3·4	3·5	4·2	4·1	4·6	4·4	4·2	4·8	...	3·2	3·2	3·0	...	...	2·9	5·1	3·2	...	...	2·2	...	Clear					
...	...	...	4·5	2·9	3·5	3·7	3·7	3·9	3·5	3·7	4·2	...	...	...	2·2	2·4	1·9	...	4·9	3·5	...	...	...	...	Thin clouds	8	H.			
...	...	...	4·9	1·4	3·5	4·5	4·5	4·5	3·5	2·8	4·2	...	...	...	2·5	2·6	2·5	...	4·9	3·2	...	...	...	...	.....	3	...	w.	½	
...	...	...	3·9	3·8	3·8	3·8	3·8	4·0	...	...	4·6	...	...	...	2·9	2·6	2·9	2·8	3·8	2·5	...	...	...	...	Clear					
...	...	...	3·9	...	3·9	...	...	...	...	...	3·4	...	...	...	2·0	...	...	...	4·1	...	...	...	...	...	Clear					
...	...	...	3·5	3·5	3·8	...	3·5	3·3	4·0	3·5	4·2	...	...	...	3·0	3·8	2·8	...	4·2	2·5	...	...	...	...	Clear					
...	...	...	...	3·8	...	...	...	...	...	...	...	...	2·3	3·8	...	...	...	...	...	...	6·0	...	...	6·0	.....	10				
4·6	3·3	3·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Nearly clear					
...	...	...	4·7	3·5	3·8	...	...	...	4·0	...	...	...	4·5	4·2	3·7	...	...	2·7	...	...	...	...	2·7	...	.....	2	...	c.	....	Vap.
...	...	...	4·5	3·3	3·8	...	...	...	3·1	...	...	...	3·5	4·0	3·8	...	...	2·9	...	...	...	...	2·0							
...	...	...	6·5	4·9	4·2	...	...	...	3·7	...	...	...	2·9	3·9	1·5	...	...	2·2	...	...	...	...	2·2	...	.....	5	...	s.e.	L.	
...	...	...	4·6	3·4	3·9	...	...	...	3·5	...	...	...	3·6	3·8	2·3	...	...	2·3	...	...	...	...	2·1	...	Cirrus	2				
...	...	...	5·0	5·6	4·6	...	...	...	6·0	...	...	...	4·7	5·6	4·8	...	...	1 8	...	...	...	...	1·8							
...	...	...	6·1	5·6	4·6	5·3	5·3	5·6	5·4	...	5·5	...	2·6	4·7	...	...	...	...	5·6	...	...	...	...	...	Clear					
...	...	...	6·3	5·6	4·7	5·8	5·5	5·8	5·5	...	5·5	...	2·4	4·7	...	...	...	...	5·5	...	...	...	...	...	Clear					
...	...	...	...	4·2	4·4	...	...	...	4·4	...	3·6	...	4·4	4·4	...	...	...	...	5·4	...	...	...	2·1	...	Clear					
...	...	...	5·0	4·5	4·2	4·8	4·5	5·0	4·0	3·5	4·8	...	4·0	4·0	3·8	...	...	3·8	4·5	3·0	...	...	1·5	...	Wh. fleecy cl	7	...	w.	L.	
...	...	...	4·8	4·2	4·0	4·8	4·8	4·8	3·8	4·0	5·8	...	...	...	3·0	4·0	3·0	3·8	5·5	5·0	...	...	1·0							
...	...	...	4·6	4·6	3·4	5·3	5·2	5·6	3·6	3·6	4·3	...	...	...	2·3	2·6	1·9	1·8	4·6	3·5	...	...	0·6							
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	1				
...	...	...	5·2	4·1	3·2	4·2	4·2	4·2	3·4	3·2	4·4	...	...	...	2·6	2·9	2·2	...	4·6	2·9	...	...	...	...	Clear	.....	...	...	¾	

one and two feet high were 45°; the readings of those placed on long grass, short grass, raw wool and flax were all 41°·5, and those on all metals read 43°; the temperature on the surface of the ground was 42°·5, and the air was in gentle motion from the west; yet there was a small portion of dew on most substances, which seems anomalous as the temperature of the dew-point was 40°.

TABLE (Continued).

Number of the Tables.	1843. Day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	Excess of the reading of the thermometer in air above that placed																							
			On long grass.	On short grass.	On raw wool on grass.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On long grass covered by						On garden mould.	Six inches high above grass.	One foot high above grass.	Two feet high above grass.	On lambs' wool on grass.					
												White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Glass.	Glass one inch high.					Jet black.	White.	Green.	Light blue.	Dark blue.	Orange.
	h m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
XXIII.	Nov. 18. 7 30	39·8	7·3	6·8	8·8	8·8	7·0	1·8	−1·5	2·2	...	...	...	...	...	...	...	...	...	0·6	1·0	...	3·6	4·0	3·8	5·1	3·6	3·8
	23. 12 0	36·5	7·0	6·3	8·0	8·5	8·0	2·5	−3·5	−1·0	...	...	...	...	...	...	...	...	4·0	...	0·0	0·0	...	...	...	...	...	...
	29. 4 40	46·7	7·7	6·7	9·7	8·7	6·1	2·7	1·2	2·9	...	...	...	...	...	...	...	...	...	...	1·7	1·2	...	...	...	...	...	...
	29. 11 0	42·8	7·8	7·8	7·8	8·8	7·8	2·3	3·8	−0·2	...	...	...	...	...	...	...	...	...	...	1·3	1·3	...	...	...	...	...	...
	Dec. 2. 3 40	40·8	7·0	5·9	5·8	6·9	6·8	1·6	−4·0	3·7	2·4	...	...	2·5	2·3	...	3·4	2·8	...	...	0·3	0·2	...	...	...	...	...	...
	2. 4 30	39·5	7·9	6·5	9·0	9·3	6·7	2·0	−4·3	1·2	2·2	...	...	2·2	2·5	...	4·2	3·0	...	...	−0·3	−0·5	...	...	...	...	...	...
	6. 4 15	45·8	7·6	6·8	8·4	6·8	6·3	2·2	0·4	3·0	2·5	...	...	3·3	3·3	...	4·8	4·0	...	...	0·8	0·5	...	...	...	...	...	...
	7. 19 0	49·0	7·0	6·0	9·0	6·5	5·0	2·0	2·7	4·0	2·2	...	...	...	...	...	3·0	...	...	...	−0·3	−0·3	...	...	...	...	...	...
	7. 21 0	45·0	7·3	5·8	7·8	6·6	6·0	1·8	4·6	5·6	3·8	...	...	...	4·8	...	2·8	1·8	...	...	1·6	0·8	...	...	...	...	...	...
	8. 7 30	45·0	7·8	8·0	10·0	9·0	5·4	3·0	1·8	6·0	3·0	...	...	5·2	6·2	...	...	4·8	...	...	1·2	0·2	...	...	...	...	...	...
	15. 15 30	46·5	7·3	6·5	6·0	7·3	5·9	2·1	3·2	4·3	2·5	6·0	...	...	...	...	4·7	3·2	...	...	0·5	−0·3	...	...	...	...	...	...
	17. 4 0	46·0	7·0	7·0	7·9	6·0	6·5	1·0	1·2	4·2	3·2	7·9	3·0	6·0	5·8	6·0	4·2	4·0	...	...	−0·2	0·0	...	...	...	...	...	...
XXIV.	Nov. 16. 11 25	32·2	8·0	6·8	10·8	7·2	4·7	1·5	−3·2	2·4	...	...	...	...	...	...	...	...	...	0·6	0·2	...	5·2	7·2	7·2	6·2	7·2	6·0
	18. 4 30	42·5	8·3	7·3	9·5	8·5	10·5	2·9	−1·0	2·0	...	...	...	...	...	...	...	...	...	0·5	−0·3	...	4·0	5·0	3·4	5·0	4·7	4·5
	18. 5 0	41·5	8·5	7·5	8·8	9·5	7·5	2·0	−1·2	4·5	...	...	...	...	...	...	...	...	...	0·3	0·5	...	4·3	5·2	4·4	4·7	4·0	5·0
	28. 16 0	49·0	8·8	7·8	9·4	7·5	7·4	2·8	−3·7	4·0	...	...	...	...	...	...	...	...	5·5	...	2·0	1·0	...	...	...	...	...	...
	29. 4 15	46·6	8·6	8·6	9·6	9·8	7·6	3·6	0·5	3·6	...	...	...	...	...	...	...	...	...	...	2·1	1·6	...	...	...	...	...	...
	29. 5 10	45·3	8·3	7·1	8·3	6·8	7·0	2·3	−0·2	3·6	...	...	...	...	...	...	...	...	...	...	0·6	0·3	...	...	...	...	...	...
	29. 9 10	42·5	8·5	8·5	9·9	11·0	7·5	3·5	0·2	4·7	...	...	...	...	...	...	...	...	...	...	1·5	0·9	...	...	...	...	...	...
	Dec. 1. 9 5	42·3	8·1	7·3	5·3	7·2	8·3	4·3	...	1·3	...	...	...	...	...	...	...	...	...	...	...	1·1	...	...	...	...	...	...
	5. 16 15	42·7	8·0	7·7	7·7	7·7	7·3	3·7	−1·3	2·0	...	...	...	...	...	...	5·6	...	...	...	0·9	0·4	...	...	...	...	...	...
	6. 4 45	45·2	8·2	7·2	9·7	8·6	6·5	3·2	0·4	3·2	...	...	...	3·0	4·8	...	5·2	4·8	...	...	0·5	0·2	...	...	...	...	...	...
	6. 5 10	44·5	8·0	7·0	8·9	7·9	6·6	2·8	...	...	2·4	...	...	...	...	...	...	...	...	...	1·0	0·7	...	...	...	...	...	...
	8. 13 35	38·1	8·3	4·1	9·6	6·9	6·6	4·1	−2·5	2·3	2·1	...	...	...	...	...	...	...	...	...	...	2·1	...	...	...	...	...	...
	11. 3 55	42·8	8·9	7·8	9·7	10·2	8·8	...	−2·7	3·3	−0·4	...	...	...	...	...	...	...	...	...	1·0	0·8	...	...	...	...	...	...
	17. 13 35	38·6	8·4	6·3	6·6	6·4	4·6	2·0	−2·2	−0·4	2·9	...	...	...	1·6	5·1	...	...	...	...	...	1·4	...	...	...	...	...	...
XXV.	Nov. 29. 7 30	43·7	9·7	8·7	10·7	11·7	9·2	5·2	−0·3	3·7	...	...	...	...	...	...	...	...	...	...	2·5	2·2	...	...	...	...	...	...
	29. 13 45	41·2	9·5	8·2	9·0	6·7	8·2	3·7	−0·8	3·0	...	...	...	...	...	...	...	...	...	...	2·0	2·0	...	...	...	...	...	...
	Dec. 8. 5 0	46·3	9·3	9·3	13·5	13·3	7·3	3·3	1·3	4·3	1·5	...	...	...	...	...	...	5·3	...	...	1·5	1·1	...	...	...	...	...	...
	8. 12 15	40·5	9·3	6·0	9·5	8·7	7·0	3·3	−0·5	2·5	1·3	...	...	...	...	...	...	4·3	...	...	...	2·5	...	...	...	...	...	...
	11. 4 30	41·2	9·7	8·7	10·7	11·2	9·2	2·4	−2·8	0·7	−1·6	5·2	4·2	4·2	4·2	8·2	5·4	5·0	...	...	1·0	0·7	...	...	...	...	...	...
	11. 5 30	40·1	9·3	9·1	9·1	9·3	9·1	3·3	−2·2	0·4	−1·1	...	...	...	...	...	5·5	3·5	...	...	0·6	0·4	...	...	...	...	...	...
XXVI.	Nov. 16. 7 10	38·5	10·8	10·8	18·5	13·5	11·5	7·0	−0·5	3·5	...	...	...	...	...	...	...	...	6·5	5·4	4·7	...	11·0	13·5	12·3	13·7	12·5	12·7
	18. 4 35	42·5	10·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·5	11·5	10·6	11·6	12·0	11·0
	28. 18 50	45·5	10·5	9·3	10·5	7·7	8·7	3·8	1·5	6·5	...	...	...	...	...	...	...	...	...	...	1·9	1·2	...	...	...	...	...	...
	29. 12 30	41·5	10·3	7·6	9·9	10·0	9·5	3·5	−0·5	2·6	...	...	...	...	...	...	...	...	...	...	1·5	1·0	...	...	...	...	...	...
	29. 15 0	37·5	10·5	7·5	14·0	13·0	10·0	3·3	−3·5	2·0	...	...	...	...	...	...	...	...	...	...	1·5	1·2	...	...	...	...	...	...
	Dec. 8. 4 10	48·0	10·0	10·7	12·2	11·8	...	...	1·8	...	...	...	...	...	...	...	8·0	...	...	...	1·7	2·0	...	...	...	...	...	...
	8. 9 30	43·5	10·3	8·5	13·3	12·2	7·1	3·2	0·8	6·5	1·7	...	...	7·7	9·2	...	7·5	4·9	...	...	1·9	1·5	...	...	...	...	...	...
XXVII.	Nov. 16. 5 10	40·5	12·5	9·5	15·3	12·0	8·6	5·5	0·5	2·5	...	...	...	...	...	...	...	...	...	2·5	2·0	...	11·5	11·0	10·7	10·7	10·5	11·7
	16. 7 45	36·2	12·7	11·2	17·2	12·7	9·2	5·0	−1·3	1·7	...	...	...	...	...	...	...	...	...	3·1	2·4	...	10·2	11·5	10·2	10·7	9·0	11·2
	16. 8 45	34·8	12·8	9·8	16·8	12·0	8·8	5·6	−2·2	1·8	...	...	...	...	...	...	...	...	...	3·3	2·8	...	10·3	11·3	11·8	14·3	12·8	13·6
	Dec. 8. 4 30	47·6	12·1	11·4	13·6	11·6	8·6	4·3	2·6	2·6	...	...	...	6·6	8·6	8·6	...	...	...	...	0·9	1·6	...	...	...	...	...	...
XXVIII.	Nov. 16. 9 40	35·5	13·5	12·0	17·5	12·0	10·3	5·7	−1·0	2·5	...	...	...	...	...	...	...	...	...	4·3	3·7	...	13·7	13·5	14·0	15·0	14·5	14·7

Nov. 29, $13^h\ 45^m$; there is a small quantity of cloud over the zenith. Dec. 8, $5^h\ 0^m$; there are a few light clouds scattered about the sky. Dec. 8, $12^h\ 15^m$; dew is abundant.

TABLE (Continued).

Excess of the reading of the thermometer in air above that placed																									Clouds.			Wind.		
On lambs' wool on grass.			On copper on grass.	On lead on grass.	On iron on grass.	On zinc on grass.			On tin.			On tin-foil.	On pantile.	On slate.	On stone.			On brick.	On glass on grass.	On glass one inch high.	On unwrought white cotton wool on grass.	On the raised board.	One-fourth of an inch above water.	On coarse flax on grass.	Modification.	Amount 0–10.	High or low.	Direction.	Strength 0–6.	Haze, fog, mist, or vapour.
Yellow.	Crimson.	Scarlet.				Thick.	Of moderate thickness.	Thin.	White on grass.	White one inch high.	Blackened on grass.				Firestone.	Purbeck.	Portland.													
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°						
4·8	4·0	4·8	...	4·8	...	...	...	...	...	...	...	...	3·8	4·4	...	...	...	...	...	...	...	4·8	...	2·6	Clear					
...	...	...	4·3	3·0	4·7	...	...	...	...	...	...	...	3·7	4·3	2·7	...	...	2·7	...	...	...	...	2·5	...	.....	4	...	w.	L.	Vap.
...	...	...	4·5	2·5	4·7	...	3·9	...	...	4·2	5·7	...	4·9	4·5	5·1	...	...	2·9	...	...	...	...	...	...	.....	5				
...	...	...	...	5·3	5·6	4·0	...	...	...	4·6	6·7	...	5·8	6·3	5·3	...	...	4·6	...	5·8	...	...	...	...	.....	3				
...	...	...	5·0	2·1	3·3	3·0	3·3	3·6	4·3	3·3	5·4	...	2·9	3·3	3·4	...	...	1·6	6·5	4·3	...	...	2·0	...	Light clouds	...	...	...	...	Haze.
...	...	...	5·3	3·3	3·7	4·0	4·5	4·7	4·0	2·9	5·5	...	3·7	3·3	3·5	...	...	2·4	5·5	4·0	...	...	2·3	...	Light clouds	...	...	...	...	Haze.
...	...	...	5·8	4·3	4·8	5·0	5·2	5·3	5·3	5·0	6·0	...	4·6	4·6	4·0	...	...	3·6	6·3	4·6	...	...	3·0	...	Clear	...	...	c.		
...	...	...	...	4·0	...	4·0	4·0	...	5·0	...	5·8	...	...	4·2	...	...	...	...	4·2	2·8	...	...	...	...	Clear	...	...	c.		
...	...	...	4·8	5·3	4·6	5·6	4·6	...	5·0	4·8	5·6	...	...	4·8	4·6	...	...	3·3	5·6	4·8	...	...	...	...	Clear	...	...	c.		
...	...	...	7·8	7·0	6·2	...	7·0	7·0	6·0	6·0	8·0	...	6·0	7·0	5·0	...	...	5·4	7·5	6·0	...	...	...	...	Clear	...	...	c.		
...	...	...	...	3·2	...	...	4·5	...	...	...	5·5	...	...	...	3·3	...	...	...	5·3	3·5	...	...	...	...	Clear	...	...	c.		
...	...	...	6·2	1·2	4·5	5·5	5·5	5·5	4·5	4·5	4·5	...	...	...	2·2	3·2	3·2	...	6·0	4·0	...	...	4·0	...	Clear	...	...	c.		
2·2	8·2	5·2	...	5·4	...	...	...	...	...	...	...	...	1·8	3·7	...	...	...	...	...	...	10·7	...	...	8·0	.....	8				
5·5	4·0	6·3	...	6·0	...	...	...	...	...	...	...	...	6·0	4·5	...	...	...	...	...	...	...	...	...	...	Clear	...	...	...	2	
6·6	4·3	5·0	...	4·3	...	...	...	...	...	...	...	...	4·3	4·0	...	...	...	...	...	...	...	2·7	...	3·7	Light clouds	...	...	...	2	
...	...	...	7·5	6·7	5·7	...	...	...	5·8	...	...	...	2·9	6·0	4·2	...	...	4·0	...	...	...	...	4·0							
...	...	...	7·4	5·6	6·1	...	...	4·8	5·6	...	7·6	...	6·1	5·8	4·8	...	...	4·6	...	...	...	...	...	...	.....	4				
...	...	...	4·6	4·3	4·8	3·7	...	...	6·3	...	6·3	...	4·5	5·1	3·7	...	...	3·7	...	1·0	...	...	...	...	.....	7				
...	...	...	6·5	4·5	3·8	...	...	4·0	5·5	...	8·0	...	5·5	4·7	5·5	...	...	4·7	...	...	...	...	...	...	.....	3				
...	...	...	4·8	3·7	...	...	4·5	...	4·3	...	6·1	...	4·3	6·3	...	...	...	...	5·8	4·8	...	...	...	...	.....	5				
...	...	...	7·1	6·9	5·7	6·9	6·7	7·2	6·9	5·6	6·9	...	4·9	5·9	...	...	...	...	6·9	...	...	...	...	...	Clear					
...	...	...	5·9	5·2	5·0	5·9	5·7	5·9	5·6	...	6·2	...	4·6	4·7	3·7	...	...	3·4	6·4	5·3	...	...	2·9	...	Clear					
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear					
...	...	...	...	5·5	...	7·1	8·1	...	...	5·1	7·9	...	6·5	4·9	...	...	...	...	6·3	4·1	...	...	2·1							
...	...	...	6·8	4·8	5·8	6·8	6·8	7·0	5·7	...	8·6	...	...	...	1·8	...	...	...	8·0											
...	...	...	4·1	4·6	...	5·2	6·0	...	4·4	...	5·1	...	...	...	...	...	1·5													
...	...	...	7·5	5·9	6·4	...	...	...	...	6·7	8·7	...	6·7	6·9	4·7	...	...	5·2	...	...	...	...	...	...	Clear	...	...	...	1	
...	...	...	10·3	8·2	7·0	6·0	6·0	5·7	6·3	6·0	6·8	...	6·7	7·4	6·4	...	...	5·7	9·0	8·0	...	...	5·2	...	.....	...	...	...	...	Vap.
...	...	...	9·5	8·3	6·3	9·3	9·1	...	7·1	7·3	9·3	...	6·1	6·3	3·5	...	...	...	11·3	5·7	...	...	4·3	...	.....	...	...	...	...	H. V.
...	...	...	...	9·0	6·0	...	...	7·5	7·3	...	6·5	...	...	7·8	5·0	...	...	...	8·2	6·0	...	...	3·5	...	.....	...	...	...	...	H. V.
...	...	...	8·7	6·2	5·7	7·2	7·2	7·2	5·2	6·2	9·2	...	...	...	2·2	2·4	2·7	3·2	8·4	6·4	...	...	3·4	...	Nearly clear	...	...	...	...	Mist.
...	...	...	6·1	6·0	5·4	6·1	6·0	6·4	5·1	5·1	7·1	...	...	...	2·5	2·9	3·1	3·3	7·1	5·1	...	...	2·3	...	.....	...	...	...	...	Mist.
12·5	11·0	11·7	...	...	...	...	...	...	...	...	...	...	7·0	8·7	...	...	...	...	...	...	16·4	...	...	11·8	Clear	...	...	...	...	Fog.
11·3	11·3	11·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear					
...	...	...	9·3	7·5	6·5	...	...	...	6·5	...	...	...	4·3	5·5	5·5	...	...	3·3	...	...	...	4·5	...	...	.....	1				
...	...	...	8·7	9·5	6·5	5·0	4·3	6·0	5·0	5·1	7·3	...	8·0	6·5	6·0	...	...	5·5	8·7	7·2	...	5·0	...	...	A few clouds					
...	...	...	7·5	6·3	5·5	5·8	5·5	5·3	6·5	4·5	7·5	...	5·5	5·5	4·7	...	...	5·0	7·5	5·5	...	3·5	...	...	A few clouds	...	...	...	...	Vap.
...	...	...	8·0	7·5	6·4	...	8·0	8·5	6·7	...	8·0	...	6·0	6·0	...	...	...	4·0	8·2	...	...	...	...	...	Light clouds	...	...	...	...	H. V.
...	...	...	9·1	8·3	7·3	8·3	8·5	8·5	8·5	9·5	10·3	...	7·0	7·5	6·0	...	...	5·0	8·5	...	...	4·5	...	...	Light clouds	...	...	...	...	H. V.
11·5	10·0	11·5	...	6·5	...	...	...	...	...	...	...	...	5·7	7·3	...	...	...	...	...	...	8·7	...	...	11·0	Clear	1	...	c.		
12·0	10·2	12·2	...	8·7	...	...	...	...	...	...	...	...	4·4	7·2	...	...	...	...	...	...	16·2	...	...	12·0	Clear	...	...	c.	...	Fog.
12·8	12·3	12·8	...	8·6	...	...	...	...	...	...	...	...	4·3	7·8	...	...	...	...	...	...	14·8	...	...	12·0	Clear					
...	...	...	8·6	7·3	6·8	9·1	8·1	9·1	8·1	8·4	9·0	...	6·1	5·6	5·6	...	...	4·8	10·4	7·4	...	...	...	...	Clear	...	...	c.		
15·9	14·3	13·7	...	9·9	...	...	...	...	...	...	...	...	5·0	9·3	...	...	...	...	...	...	16·7	...	...	12·0	Clear					

In addition to the tabulated experiments, a variety of others were always in progress. I may mention the results of a few of these.

I placed a large sheet of pasteboard vertically on the grass plat, and laid a thermometer close to its lower edge on each side of it; the readings of both these thermometers thus placed were found to be identical and intermediate to that placed in air at the height of four feet and protected from the effects of radiation, and that placed on grass fully exposed to the sky; the same relation was found to exist in what azimuth soever the board was placed.

I then placed the pasteboard at an angle of 45° nearly with the horizon, and laid the thermometers as before. In this situation their readings were found to be intermediate as before, but that which was exposed to three-fourths of the sky, read most nearly to that on the grass fully exposed to the sky, and the one which was exposed to one-fourth part of the sky only, read most nearly to that in air. The amount of these differences of readings was as nearly as could be determined exactly proportional to the amount of the exposed sky.

Hence, as a general fact it may be considered, that whatever diminishes the view of the sky as seen from an exposed body, causes its temperature to decrease less than it would if the exposure to the sky be complete.

Various experiments were made to ascertain the effect of covering plants at night by matting, or other thin substances; and it was always found that when the protecting substances touched the plant, much heat was conducted away from it, and such plant was at a lower temperature than when the substance was merely interposed between it and the sky; the thinnest substance thus interposed, at any distance from the plant, was found to be effectual in preventing the loss of its heat by radiation. It was found, however, that when a plant was thus itself protected, but yet was exposed to any body which was exposed to the sky, more heat radiated from the former to the latter, than from the exposed body to the plant, and thus it lost some heat.

The several thermometers at the different distances from the earth were for some time read at short intervals during the night and day, and it was found that except after noon, the reading of the thermometer at twelve feet from the earth was very nearly identical with the true temperature of the air.

The bulb of the thermometer thus exposed to the full rays of the sun was situated nine inches west of the plank which carried it, and whose width was three inches; and the cause of its readings being about 1° too high during the afternoon, was owing to the heat reflected from the plank to it.

During the summer of 1844 and the year 1845, the reading of this thermometer was frequently examined, and found always thus to agree. Hence there is no doubt that if a thermometer be freely suspended in the air with its bulb at the height of thirteen feet above the soil, and far from any object to reflect heat to it, its readings will represent the true temperature of the air at the time, and much more truly than those of any one placed near the ground, or within a few feet of walls or buildings.

Excess of the reading of a thermometer placed in air at the height of 4 feet, protected from th the one on Lon

Number of the Tables.	1844. Day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	On long grass.	On short grass.	On raw wool.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On long grass covered by									
												White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Lead.	Lead six inches high.	Glass.	Glass one inch high.	Hare skin.	Rabbit skin.
	h m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
XXIX.	Feb. 21. 11 0	34·1	0·8	0·8	...	...	...	...	...	−1·8	−1·4	...	...	...	...	...	...	...	...	...	...	...
XXX.	Apr. 25. 5 45	60·7	2·9	6·2	5·2	2·5	0·2	0·7	−0·3	...	0·7	...	...	...	...	...	...	...	...	...	...	...
XXXI.	Feb. 16. 3 0	45·3	3·8	0·2	3·3	−0·7	3·8	−2·4	4·5	2·1	4·8	3·3	3·8	3·3	3·3	3·3	3·3	1·6	−2·5	3·2	...	...
	Mar. 6. 19 0	32·7	3·1	2·2	2·2	2·7	3·9	1·1	...	...	−0·6	...	...	...	...	...	...	...	...	0·7	...	...
XXXII.	Jan. 6. 7 30	42·5	4·3	3·7	3·7	3·5	5·8	1·5	0·3	3·5	...	...	...	...	...	...	...	...	...	2·2	...	...
	Feb. 1. 3 30	35·2	4·3	3·4	2·7	4·3	6·2	1·2	−0·8	0·7	0·2	...	1·7	3·0	3·7	3·7	...	...	3·0	−0·1	...	...
	Mar. 1. 11 0	41·8	4·3	3·5	2·0	2·9	3·8	0·3	...	...	0·7	...	...	...	...	...	...	...	1·8	1·2	...	...
XXXIII.	Feb. 7. 19 0	32·3	5·1	4·9	6·1	5·2	7·3	2·1	8·1	0·2	1·7	...	...	...	2·2	...	...	...	...	...	...	...
	22. 18 45	24·5	5·8	4·4	5·9	6·0	9·5	3·1	−7·3	−6·2	−6·5	...	...	...	...	...	...	...	4·5	1·5	...	...
	28. 12 0	38·2	5·0	3·7	3·2	3·2	3·2	1·7	0·4	...	...	...	...	...	...	...	...	...	...	...	...	...
	Mar. 20. 20 10	31·3	5·9	3·5	2·8	5·3	...	...	...	...	...	...	...	...	...	...	...	...	2·1	1·3	...	...
	Apr. 11. 13 0	46·8	5·8	5·3	7·8	7·6	2·8	1·8	...	...	−0·9	1·3	3·5	...	...	...	...	...	...	...	...	...
	15. 9 0	48·2	5·2	6·2	8·2	8·2	5·0	1·0	...	...	...	...	...	...	...	...	...	...	...	1·9	...	3·4
	23. 8 55	53·3	5·7	7·1	10·3	7·8	6·5	1·6	1·1	3·3	1·3	...	...	...	...	...	...	...	...	...	...	...
XXXIV.	Jan. 18. 19 0	39·5	6·7	5·7	7·3	4·5	6·8	1·9	1·7	4·3	3·1	...	...	...	...	...	...	...	4·7	3·1	...	...
	Feb. 1. 9 0	28·2	6·7	4·7	7·2	5·7	9·2	3·2	−6·0	−4·2	−5·0	−4·2	−3·3	−2·3	−1·8	3·2	...	3·7	4·4	1·2	...	...
	20. 9 10	30·1	6·9	5·1	3·5	4·9	5·8	...	...	−5·6	−1·9	...	...	...	...	...	...	...	...	...	...	...
	22. 14 30	24·4	6·4	5·4	7·3	7·3	10·4	4·8	−8·1	−5·6	−6·8	...	...	...	...	...	...	...	4·8	2·8	...	...
	22. 16 0	24·3	6·2	5·1	7·3	7·1	10·3	4·4	−8·2	−5·7	−6·7	...	...	...	...	...	...	...	4·3	2·1	...	...
	22. 17 30	23·6	6·1	4·8	6·9	6·7	9·6	3·0	−8·6	−6·7	−7·4	...	...	...	...	...	...	...	3·8	1·6	...	...
	28. 18 30	33·0	6·0	5·0	5·0	5·2	4·0	2·0	...	...	2·5	...	...	...	...	...	...	...	2·0	0·8	...	...
	Apr. 1. 15 30	39·1	6·3	5·1	9·1	9·1	3·6	1·9	−4·4	0·1	−3·5	−6·4	−5·9	...	...	...	...	...	4·1	3·9	−4·9	−2·9
	1. 17 0	37·5	6·6	6·5	9·5	9·0	4·5	3·0	−5·5	1·5	1·5	−7·0	−7·5	...	...	...	...	...	3·3	3·0	−5·5	−5·5
	17. 17 0	44·2	6·2	5·7	11·2	12·0	3·7	1·7	−0·8	4·2	0·7	−3·3	−2·8	...	...	...	...	...	4·7	4·2	−0·8	−0·8
	25. 6 15	59·4	6·9	7·4	8·4	6·9	4·4	...	−0·6	3·4	−0·6	...	...	...	...	...	...	...	...	...	...	...
XXXV.	Jan. 6. 5 0	44·5	7·2	6·5	6·9	5·5	4·5	2·5	0·3	3·2	...	...	...	...	...	...	...	...	...	2·9	...	...
	10. 7 0	39·0	7·0	5·8	7·0	3·4	3·5	1·6	0·5	4·0	...	...	...	...	...	...	...	...	...	2·8	...	...
	22. 7 30	37·0	7·5	6·8	11·2	8·0	9·5	3·1	0·2	1·5	2·0	...	...	...	...	...	...	...	4·9	5·8	...	...
	Feb. 22. 6 45	30·6	7·8	6·9	8·8	8·6	11·6	3·6	−3·4	−2·4	−3·7	...	...	...	...	...	...	...	5·6	3·3	...	...
	22. 12 30	25·3	7·0	5·0	7·2	7·5	10·7	3·8	−7·4	−5·5	−6·9	...	...	...	...	...	...	...	3·8	2·2	...	...
	23. 13 0	25·1	7·1	5·8	8·0	7·8	11·3	3·9	−7·4	−4·8	−7·1	...	...	...	...	...	...	...	4·8	2·8	...	...
	28. 17 0	33·7	7·7	5·5	8·7	6·7	5·2	...	...	...	−3·3	...	...	...	...	...	...	...	0·7	0·5	...	...
	Mar. 12. 9 0	38·0	7·9	4·6	7·0	6·0	8·2	2·7	...	...	1·0	...	...	...	...	...	...	...	...	3·4	...	...
	Apr. 1. 14 30	40·2	7·5	5·0	9·9	10·0	4·2	1·7	−4·8	0·2	−2·2	−5·8	−5·3	...	...	...	−4·8	4·8	4·4	3·2	...	...
	5. 17 30	41·0	7·2	6·2	7·4	7·8	9·0	2·0	−1·3	...	−1·0	...	...	...	−3·3	...	−0·3	−0·3	3·0	...	...	...
	17. 16 0	44·7	7·2	6·7	14·2	14·7	3·7	1·7	−1·3	3·7	0·7	−3·3	...	...	...	...	...	...	6·7	5·7	...	...
	29. 9 0	42·2	7·0	6·2	12·2	11·6	7·2	2·7	−2·8	1·7	2·7	...	...	...	...	...	...	...	...	...	...	...
XXXVI.	Jan. 17. 5 0	41·2	8·7	7·2	6·4	6·2	9·4	2·4	2·2	4·4	4·7	...	4·2	4·9	...	5·7	...	...	5·7	4·0	...	...
	30. 4 30	46·2	8·2	7·0	7·7	6·4	7·6	1·2	5·0	4·7	3·7	...	...	...	...	...	...	...	5·4	4·3	...	...
	30. 5 30	43·6	8·6	6·3	9·6	5·6	6·5	1·3	3·5	5·6	2·1	...	...	...	...	...	...	...	5·8	3·6	...	...
	Feb. 1. 7 0	30·0	8·8	6·0	10·8	8·8	10·0	4·0	−5·0	−2·2	−3·0	2·2	−1·5	2·8	...	4·5	...	3·0	3·5	3·8	...	...
	16. 8 0	37·5	8·0	7·0	7·0	7·5	7·5	2·5	−1·0	1·7	1·0	0·3	1·0	2·3	...	2·0	4·0	3·5	6·3	3·7	...	...
	Mar. 6. 11 0	33·6	8·6	5·1	8·6	7·4	8·8	2·9	...	...	−1·2	...	...	...	...	...	...	...	...	2·4	...	...
	20. 9 0	32·5	8·5	6·0	8·5	8·5	7·0	3·6	...	1·5	−3·5	...	...	...	...	...	...	...	3·5	1·5	...	...
	20. 10 0	31·2	8·2	5·2	8·2	7·2	7·2	3·5	...	1·2	−4·0	−6·8	−5·8	...	...	...	...	...	6·7	4·2	...	...
	20. 11 0	31·0	8·2	5·5	9·0	9·0	7·0	3·8	...	0·5	−5·0	−5·5	−5·0	...	...	...	...	...	5·0	3·2	...	...
	20. 11 30	30·9	8·4	5·4	10·4	11·4	7·4	3·9	...	−0·1	−4·6	−6·5	−6·1	...	...	...	...	...	6·4	2·9	...	...
	20. 18 20	38·5	8·8	6·3	13·5	13·3	9·2	4·5	...	−0·3	−5·3	1·3	1·8	...	...	...	...	...	3·5	2·9	...	...
	Apr. 1. 18 30	40·0	8·6	7·0	8·5	8·5	5·0	3·5	−3·0	1·0	1·0	−3·0	−3·0	...	...	...	...	...	4·5	3·0	−3·0	−3·0
	2. 9 0	48·5	8·7	8·7	12·0	12·0	8·5	3·7	−1·5	5·5	1·5	...	...	...	...	...	...	...	...	...	...	...
	8. 13 30	42·1	8·6	9·3	14·3	12·8	6·5	2·4	0·0	2·5	−1·2	...	...	...	...	...	...	...	8·7	6·8	...	...
	8. 15 30	41·2	8·7	9·5	15·5	13·8	6·5	2·2	−0·9	2·1	1·2	...	...	...	...	...	...	...	7·8	6·8	...	...
	8. 17 30	39·4	8·6	9·6	15·7	15·8	8·4	2·4	−2·1	2·4	1·6	...	...	...	...	...	...	...	6·4	6·0	...	...
	17. 15 0	45·5	8·5	8·5	16·5	16·5	4·5	2·5	−1·5	3·5	0·5	−4·5	−4·5	...	...	...	...	...	8·0	7·0	−0·5	−0·5
	17. 18 30	47·5	8·0	6·3	10·5	8·0	6·5	...	...	...	...	...	...	...	...	...	...	...	5·5	3·0	...	...
	23. 7 25	56·0	8·8	7·0	12·0	10·7	6·3	1·7	1·5	4·7	2·2	...	...	...	...	...	...	...	4·0	6·0	...	...
	27. 7 3	48·5	8·5	8·5	13·5	12·3	5·5	2·7	−7·8	−1·5	−3·7	...	...	...	...	...	...	...	...	...	...	...

from the effects of radiation, above the readings of thermometers placed on different substances fu
on Long Grass and that in Air, from observations taken between 1844 January 1 and 1844 May.

Excess of the reading of the thermometer in air above that placed																										
		Above grass in feet.							On lead.				On zinc.					On copper on grass.	On iron on grass.	On tin.			On glass on grass.	On glass one inch high.	On pantile.	On slate.	
Hare skin.	Rabbit skin.	1.	2.	4.	6.	8.	10.	12.	On grass.	Six inches high.	One foot high.	Three feet high.	On grass.	Six inches high.	One foot high.	Three feet high.	Four feet high.			White on grass.	White one inch high.	Blackened on grass.					
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
...	...	...	0·1	0·2	0·3	0·0	0·3	0·2	...	...	...	...	0·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	−1·4	0·7	0·7	...	0·9	...	1·0	3·2	...	...	...	0·7	−1·3	...	...	...	...	0·7	...	...	...	...	...	...	...	3·
...	...	1·7	−1·4	...	...	...	...	...	0·3	−1·2	...	...	−3·7	...	...	...	...	−0·2	−5·2	0·8	0·3	1·3	2·6	2·1	−1·7	...	...
...	...	−0·8	0·0	...	...	0·3	...	0·5	2·9	...	...	...	...	...	...	...	...	1·5	...	...	...	...	2·5	2·9	...	...	...
...	...	...	0·3	...	...	...	...	...	...	...	...	...	3·3	...	...	...	...	...	2·7	4·0	...	4·5	4·3	3·5	2·9	...	...
...	...	...	−0·8	...	...	...	...	...	1·4	...	...	...	1·0	...	...	...	...	2·7	3·3	4·0	2·7	2·4	3·2	0·2	2·7	...	...
...	...	...	...	...	...	...	...	...	3·8	...	...	...	...	...	...	...	...	2·8	...	...	...	...	3·3	1·5	...	...	...
...	...	0·3	0·2	...	...	...	...	...	5·3	...	...	...	6·3	...	...	...	...	4·5	4·1	...	...	...	5·1	4·1	...	...	...
...	...	...	0·3	−0·2	0·2	−0·1	0·0	0·0	2·9	...	...	...	4·5	...	...	...	...	3·3	3·6	4·7	4·2	4·9	5·3	4·2	...	...	...
...	...	...	0·5	0·4	0·2	0·3	...	0·2	...	...	...	...	...	...	...	...	...	...	...	5·4	...	4·7	...	...	...	...	...
...	...	...	...	...	...	...	...	...	0·8	...	...	...	−0·5	...	...	...	...	1·1	−0·5	...	...	...	3·5	3·5	...	...	1·
...	...	...	−0·2	...	...	−0·2	...	−0·2	3·3	...	...	...	...	...	...	...	...	3·8	...	...	...	...	3·8	3·8			
...	3·4	...	0·2	−0·4	...	−1·0	...	−1·0	4·2	...	...	...	...	...	...	...	...	4·2	6·2	...	...	...	4·2	3·2			
...	...	...	0·1	...	...	0·0	...	−0·2	5·8	...	...	...	...	...	...	...	...	...	...	...	...	...	5·7	7·3	...	...	...
...	...	1·0	0·7	...	...	...	...	...	...	...	...	...	5·1	...	...	...	...	...	...	5·5	...	5·3	5·7	4·3	...	...	...
...	...	0·7	0·2	...	...	...	...	...	3·7	4·7	...	...	4·2	...	...	...	...	4·7	4·2	6·2	4·7	5·2	5·4	3·7	4·0	1·2	...
...	...	1·1	1·0	...	...	...	...	...	6·4	...	...	...	7·3	...	...	...	...	...	...	5·0	4·4	5·4	7·5	6·0	...	...	...
...	...	...	1·4	0·6	0·9	0·9	0·8	1·0	3·6	...	...	...	6·3	...	...	...	...	5·8	4·9	5·8	5·1	6·0	...	...	...	...	...
...	...	...	1·3	0·3	0·8	0·6	0·8	0·7	3·1	...	...	...	5·3	...	...	...	...	4·7	4·0	3·9	3·8	4·6	6·8	5·3	...	...	...
...	...	...	0·8	0·1	0·6	0·2	−0·1	0·1	2·4	...	...	...	4·3	...	...	...	...	3·1	3·2	...	...	...	5·3	4·3	...	...	...
...	...	...	0·7	0·6	0·8	0·5	...	0·3	...	...	...	...	...	...	...	...	...	4·8	4·0	6·0	...	5·8	2·5	0·5	...	...	...
−4·9	−2·9	...	0·7	0·1	...	−1·8	...	−3·4	5·1	...	2·1	...	1·1	...	...	...	...	4·6	2·1	2·3	4·3	5·8	5·1	3·9	...	...	6·9
−5·5	−5·5	...	...	...	...	...	...	...	6·5	...	4·5	...	1·5	...	...	...	...	6·5	3·5	5·6	6·5	8·0	5·2	5·3	...	...	7·3
−0·8	−0·8	...	0·7	0·3	...	−0·8	...	−0·8	5·7	...	2·2	...	6·4	...	3·2	...	...	6·7	5·7	...	...	...	6·2	5·0	...	...	7·0
...	...	...	1·2	1·1	...	0·2	...	0·4	7·2	...	4·4	...	6·4	...	2·4	...	...	...	0·2	...	...	...	...	...	...	...	...
...	...	0·5	0·1	...	...	...	...	...	...	...	...	...	4·5	...	...	...	...	...	3·3	5·5	5·5	...	5·8	4·5	3·1	...	...
...	...	0·0	0·2	...	...	...	...	...	...	...	...	...	5·0	...	...	...	...	...	3·3	4·7	5·0	...	5·0	4·4	3·7	...	...
...	...	2·2	1·8	...	...	...	...	...	...	...	...	...	5·5	...	...	...	...	...	...	7·2	...	7·0	9·5	6·8	...	...	...
...	...	...	1·6	1·4	1·4	1·4	1·3	1·3	...	...	...	...	6·4	...	...	...	...	6·6	5·5	6·5	5·1	7·1	7·9	6·6	...	...	...
...	...	...	2·5	0·3	1·1	0·8	0·8	0·8	3·2	...	...	...	5·3	...	...	...	...	4·5	5·2	5·5	4·7	5·8	6·3	4·7	...	...	...
...	...	...	2·1	1·1	1·7	1·3	1·3	1·6	3·6	...	...	...	6·3	...	...	...	...	5·8	4·9	5·8	5·1	6·0	7·5	6·0	...	...	...
...	...	...	1·5	0·9	0·9	0·8	...	0·7	6·2	...	3·7	...	...	...	...	...	...	5·7	4·9	...	...	...	4·2	2·7	...	...	...
...	...	...	1·8	−0·2	...	...	...	...	5·5	...	...	...	...	...	...	...	...	5·8	...	...	...	...	6·0	5·5	...	...	...
...	...	...	1·6	0·4	...	−0·3	...	−2·0	5·7	...	4·7	...	3·1	...	...	...	...	5·7	2·4	3·4	6·2	7·2	5·7	4·7	...	...	7·2
...	...	...	0·0	−0·3	...	−0·2	...	−0·4	4·2	...	...	...	...	...	...	...	...	2·8	...	...	...	...	...	3·5	...	...	6·9
...	...	...	0·7	0·3	...	−1·3	...	−1·8	6·4	...	2·7	...	7·2	3·7	...	...	...	6·7	5·7	...	...	...	6·7	5·7	...	...	11·1
...	...	...	1·0	1·0	...	1·0	...	1·0	7·1	...	3·2	...	8·4	8·0	...	...	...	7·3	7·0	...	...	...	5·2	5·0	...	...	...
...	...	...	1·0	...	...	...	...	...	...	...	...	...	5·3	...	...	...	...	6·7	4·6	6·4	3·2	7·0	6·8	5·6	4·0	3·9	...
...	...	...	1·2	...	...	...	...	...	...	...	...	...	5·0	...	...	...	...	6·4	5·2	5·4	5·2	5·7	7·9	5·1	...	...	...
...	...	...	0·6	...	...	...	...	...	...	...	...	...	4·9	...	...	...	...	5·6	3·5	5·6	5·1	6·3	9·4	3·6	...	...	...
...	...	...	0·8	...	...	...	...	...	3·8	4·0	...	...	5·2	...	...	...	...	6·5	4·8	8·2	5·2	7·5	5·5	5·0	3·5	...	...
...	...	...	0·0	...	...	...	...	...	5·5	2·5	...	...	5·7	...	...	...	...	5·8	4·4	4·5	4·5	6·0	7·0	5·0	3·8	...	...
...	...	...	1·6	...	...	...	...	...	8·8	...	...	...	...	...	...	...	...	4·4	...	...	...	...	5·8	5·4	...	...	...
...	...	...	1·0	1·0	0·6	0·5	...	0·5	6·0	...	4·7	...	4·5	...	...	...	...	6·5	4·5	7·3	...	7·5	7·7	7·7	...	...	12·2
...	...	...	1·2	0·8	0·9	0·2	...	0·2	6·2	...	5·2	...	4·2	...	...	...	...	6·4	4·2	7·2	...	6·7	7·2	6·2	...	...	11·2
...	...	...	1·2	0·8	0·8	0·5	...	0·2	7·0	...	4·0	...	3·8	...	...	...	...	6·2	4·0	6·5	...	6·0	7·0	5·5	...	...	11·0
...	...	...	1·0	0·7	0·7	−0·4	...	0·6	5·9	...	5·7	...	3·4	...	...	...	...	6·8	4·1	6·7	...	7·0	7·7	6·4	...	...	10·9
...	...	...	1·7	1·1	1·5	0·5	...	0·5	5·9	...	4·5	...	5·5	...	...	...	...	6·2	4·7	4·5	...	5·0	8·5	5·9	...	...	7·5
−3·0	−3·0	...	2·0	1·5	...	0·0	...	1·3	5·5	...	4·5	...	2·0	...	...	...	...	7·8	2·3	...	...	...	7·0	7·0	...	...	6·5
...	...	...	−0·7	−0·7	...	−1·0	...	−0·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	−1·3	−1·3	...	−1·3	...	...	7·8	...	...	...	3·1	...	...	...	...	7·3	5·1	...	...	...	9·9	6·4	...	...	7·1
...	...	...	−0·4	−0·5	...	−0·7	...	...	7·4	...	...	...	3·7	...	...	...	...	7·3	4·9	...	...	...	10·1	7·7	...	...	8·9
...	...	...	0·0	−0·1	...	−0·3	...	...	8·1	...	...	...	3·3	...	...	...	...	7·3	4·6	...	...	...	10·0	8·1	...	...	10·4
−0·5	−0·5	...	0·0	0·0	...	−1·3	...	−1·3	7·5	...	3·3	...	8·0	3·0	...	...	...	7·5	6·3	...	...	...	7·7	6·5	...	...	7·5
...	...	...	−2·0	...	...	−0·5	...	−0·5	...	...	...	...	...	...	...	...	...	3·3	...	...	...	...	5·5	...	...	...	...
...	...	...	0·2	−0·1	...	0·0	...	−0·3	3·8	...	...	...	...	...	...	...	...	...	...	...	...	...	5·0	7·0	...	...	...
...	...	...	1·1	1·0	...	0·9	...	1·0	3·5	...	...	...	...	...	...	...	...	...	...	...	...	...	9·5	9·5	...	...	...

[*To face page* 142.]

nces fully exposed to the sky, arranged according to the difference of the readings of May.

On slate.	On hare-skin.	On rabbit-skin.	On stone. Firestone.	On stone. Purbeck.	On stone. Portland.	On Lamb's wool on grass. Yellow.	White.	Jet black.	Crimson.	Orange.	Light blue.	Dark blue.	Green.	Scarlet.	Clouds. Modification.	Amount 0–10.	High or low.	Wind. Direction.	Wind. Strength 0–6.	Haze, fog, mist, or vapour.	1844, Day, hour and minute.	Number of the Tables.
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°							h m	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10	L.	E.	L.		Feb. 21. 11 0	XXIX.
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·7 ...	...	...	−0·2	−0·2	−0·2	...	...	...	...	...	...	...	...	...	Cumuli.....	5					Feb. 16. 3 0	XXXI.
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·9 ...	...	...	2·7	2·4	2·7	...	...	...	...	...	...	...	...	...	Clear	...	...	W.	½		Jan. 6. 7 30	XXXII.
·7 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	W.	1		Feb. 1. 3 30	
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																					Apr. 11. 13 0	
																					15. 9 0	
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...	6·9	6·9	...	...	...	5·1	4·1	4·6	3·9	6·0	4·1	5·1	5·3	3·9	Clear	...	...	C.			Apr. 1. 15 30	
...	7·3	6·5	...	...	...	6·3	6·0	5·3	6·0	7·0	6·3	7·0	5·5	5·3	Clear	...	...	C.			1. 17 0	
...	7·0	6·2	...	...	...	3·7	3·2	3·2	4·4	4·4	3·2	3·7	4·2	3·7	Clear	...	...	C.			17. 17 0	
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...	6·9	6·7	...	...	...	4·2	4·2	4·2	4·7	4·2	4·7	4·4	4·5	4·3	Clear	...	...	C.			5. 17 30	
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0 3·9	...	...	4·3	3·4	3·5	...	...	...	...	...	...	...	...	...	Light clouds	5	H.	N.	L.	Haze	Jan. 17. 5 0	XXXVI.
...	...	...	5·3	4·0	4·6	...	...	...	...	...	...	...	...	...	Clear	...	...	W.	¾		30. 4 30	
...	...	...	3·5	2·6	3·1	...	...	...	...	...	...	...	...	...	Clear	...	...	W.	½		30. 5 30	
5 ...	...	...	0·5	2·0	4·2	...	...	...	...	...	...	...	...	...	Clear	...	...	W.	L.		Feb. 1. 7 0	
8 ...	...	...	3·5	4·0	3·3	...	...	...	...	...	...	...	...	...	Clear	...	...	W.	L.		16. 8 0	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	1		Mar. 6. 11 0	
...	12·2	11·5	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	¾		20. 9 0	
...	11·2	12·7	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	½		20. 10 0	
...	11·0	13·0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	¼		20. 11 0	
...	10·9	11·4	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	¼		20. 11 30	
...	7·5	6·1	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			20. 18 20	
...	6·5	6·5	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			Apr. 1. 18 30	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	...	S.	1		2. 9 0	
...	7·1	10·8	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			8. 13 30	
...	8·9	9·5	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			8. 15 30	
...	10·4	10·8	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			8. 17 30	
...	7·5	7·0	...	...	...	5·0	4·7	4·7	4·5	4·8	6·5	5·3	5·0	5·2	Clear	...	...	C.			17. 15 0	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			17. 18 30	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			23. 7 25	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	C.			27. 7 3	

	17.	18	30	47·5	8·0	6·3	10·5	8·0	6·5	...	...	...	...	...	...	...	...	...	...	...	5·5	3·0	...	...
	23.	7	25	56·0	8·8	7·0	12·0	10·7	6·3	1·7	1·5	4·7	2·2	...	...	...	...	...	...	...	4·0	6·0	...	...
	27.	7	3	48·5	8·5	8·5	13·5	12·3	5·5	2·7	−7·8	−1·5	−3·7	...	...	...	...	...	...	...	...	...	...	...

Feb. 21, $11^h\ 0^m$; a thin rain was fall

...	...	...	−2·0	...	...	−0·3	...	−0·3	...	...	...	...	...	...	...	...	...	3·3	...	...	...	...	5·5	...	...	...	...
...	...	...	0·2	−0·1	...	0·0	...	−0·3	3·8	...	...	...	...	...	...	...	...	...	...	...	...	...	5·0	7·0	...	...	...
...	...	...	1·1	1·0	...	0·9	...	1·0	3·5	...	...	...	...	...	...	...	...	...	...	...	...	...	9·5	9·5	...	...	...

ain was falling. Feb. 16, $3^h\ 0^m$; the sun is shining brightly. Feb. 22, $18^h\ 45^m$; the sun is high and shining. Feb. 20, $9^h\ 10^m$; the larger stars are visible

...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	.....	...	...	c.			17.	18	30
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	.....	...	...	c.			23.	7	25
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	.....	...	...	c.			27.	7	3

s are visible only.

Number of the Tables.	1844. Day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	On long grass.	On short grass.	On white raw wool.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On long grass covered by: White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Lead.	Lead six inches high.	Glass.	Glass one inch high.	Hare skin.	Rabbit skin.
	h m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
XXXVII.	Jan. 22. 10 30	34·8	9·2	8·6	13·5	8·6	7·6	2·8	0·2	3·0	1·0	...	...	...	...	...	...	...	6·2	4·3	...	...
	26. 7 30	42·5	9·2	6·9	6·9	5·5	7·3	2·9	4·3	7·3	5·4	...	...	...	...	6·0	...	...	7·0	4·5	...	...
	Feb. 1. 5 0	33·5	9·0	8·0	10·3	7·3	10·0	6·0	−2·0	0·0	−0·5	3·0	1·0	3·5	3·0	7·0	...	4·5	2·0	4·5	...	...
	15. 19 15	34·0	9·8	8·0	7·0	8·5	8·5	4·0	−1·2	1·0	−1·0	2·0	4·0	3·5	6·0	2·0	3·5	2·0	5·0	4·5	...	...
	16. 7 0	39·2	9·0	7·2	6·7	7·7	8·5	2·7	1·7	3·0	2·7	0·7	1·7	2·2	2·2	5·4	3·7	3·7	7·2	4·2	...	...
	16. 9 0	36·8	9·3	6·8	5·8	7·8	7·6	2·8	0·7	1·3	0·8	1·2	1·1	2·3	1·3	4·3	4·0	3·6	5·6	3·6	...	...
	20. 5 0	36·7	9·3	7·2	10·5	9·1	8·7	3·4	0·1	2·3	1·5	0·7	−0·1	−0·4	0·0	...	...	...	...	...	...	...
	Apr. 1. 12 30	42·7	9·5	8·2	14·5	12·7	6·7	2·7	−2·8	3·7	−2·3	−2·3	−2·3	...	...	...	...	...	6·7	5·7	−1·3	−0·
	1. 13 30	41·3	9·4	9·3	13·3	13·3	6·3	3·1	−3·7	1·3	−2·8	−4·2	−4·2	...	...	...	...	...	6·3	4·3	−3·7	−3·
	1. 18 0	39·7	9·2	8·9	11·2	9·9	6·7	5·2	−3·3	2·7	1·3	−4·3	−4·3	...	...	...	...	...	5·7	3·7	−3·8	−3·
	2. 7 0	51·9	9·9	6·1	9·9	9·9	8·9	2·9	−0·6	1·9	−0·1	...	−1·6	...	...	...	...	...	6·9	4·9	...	...
	3. 17 30	45·6	9·0	7·9	12·6	15·9	7·0	3·0	1·0	5·1	2·2	...	...	...	...	...	...	...	6·4	5·5	...	...
	17. 12 0	48·5	9·3	9·6	14·5	15·3	5·5	2·5	0·5	7·0	3·5	−2·5	−1·5	...	...	...	...	...	7·5	7·5	0·5	0·
	29. 11 0	39·4	9·6	8·3	12·1	12·8	7·5	4·9	−6·9	−0·4	2·3	...	...	...	...	...	...	...	...	...	...	...
	30. 7 40	48·6	9·0	7·3	8·4	7·8	6·6	2·4	−5·8	−0·3	−2·6	...	...	...	...	...	...	...	...	...	...	...
	Feb. 13. 20 0																					
XXXVIII.	Jan. 26. 5 10	42·8	10·3	7·8	9·8	6·8	8·0	3·3	2·8	6·3	5·1	...	...	...	...	5·7	...	...	6·7	4·8	...	...
	Feb. 15. 15 0	36·8	10·6	8·3	10·8	10·3	9·4	4·4	−0·2	3·3	0·3	2·3	2·8	6·3	5·3	6·3	4·8	5·3	6·3	3·8	...	...
	15. 17 30	34·0	10·8	7·8	7·0	10·5	10·0	4·5	−2·0	1·0	−1·0	2·0	2·0	6·0	6·5	4·2	4·7	2·0	6·5	3·5	...	...
	16. 4 30	42·7	10·2	8·9	7·5	9·2	9·5	3·2	3·2	4·9	4·5	4·2	3·9	3·7	3·7	4·7	5·7	4·7	5·7	5·7	...	...
	22. 9 0	28·1	10·1	7·3	11·6	10·1	11·9	−1·6	−5·9	−3·3	−4·9	...	...	...	...	...	...	...	...	...	...	...
	Mar. 21. 8 40	35·7	10·2	10·2	15·5	15·5	7·7	2·7	...	...	0·2	...	...	...	...	...	...	...	5·0	7·1	...	...
	Apr. 2 8 0	49·2	10·0	9·0	11·9	10·2	6·7	4·2	−0·8	3·2	1·9	0·8	−0·8	...	...	...	...	...	4·2	2·0	1·2	1·
	2. 11 0	47·0	10·0	9·2	12·3	10·0	...	6·0	−0·6	1·0	2·0	7·0	4·0	...	...	...	...	...	5·5	3·7	6·0	5·
	8. 11 0	44·4	10·4	10·0	14·2	14·2	6·9	1·8	1·0	4·3	1·4	...	...	...	...	...	...	...	...	...	...	...
	9. 8 50	51·6	10·2	8·6	12·4	11·6	5·4	2·3	2·3	6·6	3·0	...	...	...	...	...	...	...	9·5	4·6	...	...
	17. 13 0	48·8	10·8	10·8	14·8	15·8	6·8	2·8	0·8	6·3	3·3	−1·2	−1·2	...	...	...	...	...	8·3	8·3	0·8	0·
	17. 14 0	47·2	10·2	9·2	14·7	15·2	6·2	3·7	0·2	4·7	2·2	−3·3	−3·3	...	...	...	...	...	7·4	6·2	0·2	0·
	17. 18 0	44·2	10·2	9·7	14·7	15·7	5·2	2·2	−1·3	5·0	−0·8	−0·8	−0·8	...	...	...	...	...	5·2	5·2	2·2	2·
	18. 17 30	36·3	10·1	9·1	12·5	13·5	11·0	4·7	...	...	−3·0	...	...	...	...	...	...	...	...	...	...	...
	25. 6 40	57·7	10·5	8·9	9·2	8·7	6·7	2·7	0·2	2·2	1·2	...	...	...	...	...	...	...	...	...	...	...
	25. 17 20	41·6	10·8	9·3	12·1	11·1	5·3	3·6	−3·4	4·6	1·9	...	...	...	...	...	...	...	...	...	...	...
	27. 9 30	45·6	10·6	9·6	13·0	14·3	11·6	4·0	−6·4	−0·2	−1·2	...	...	...	...	...	...	...	...	...	...	...
	May 1. 9 5	49·7	10·7	10·7	12·5	13·9	10·8	3·2	−1·6	5·4	0·9	...	...	...	...	...	...	...	...	...	...	...
	1. 11 0	46·7	10·7	7·9	10·7	10·2	7·2	3·2	−1·3	4·8	0·5	1·7	1·7	...	...	...	...	...	6·2	6·2	2·7	...
XXXIX.	Jan. 22. 8 15	36·1	11·7	10·3	16·3	10·7	10·6	3·3	0·2	1·2	3·2	...	...	...	...	...	...	...	6·0	6·0	...	...
	22. 9 0	35·7	11·7	9·9	16·1	10·8	10·7	3·1	0·3	1·1	3·9	...	...	...	...	...	...	...	5·4	5·5	...	...
	Feb. 15. 18 30	33·5	11·5	9·0	10·0	10·5	7·5	3·5	2·0	0·7	1·7	1·5	2·5	3·0	3·5	4·5	4·5	2·0	2·0	3·4	...	...
	22. 11 30	26·7	11·5	10·2	13·3	13·7	16·1	5·7	−4·8	−3·2	−3·4	...	...	...	...	...	...	...	6·8	4·4	...	...
	Mar. 21. 6 30	39·4	11·4	11·2	13·4	13·2	9·4	3·1	...	5·4	3·1	7·4	5·2	...	...	...	...	...	6·4	5·2	...	...
	23. 8 40	38·5	11·3	9·0	10·7	12·0	8·7	2·9	...	1·4	0·0	−0·3	0·5	...	...	...	...	...	7·2	6·3	...	...
	Apr. 1. 9 0	48·5	11·3	9·9	11·3	12·5	8·3	2·3	...	...	1·2	...	...	...	...	...	...	...	6·5	6·5	...	...
	3. 9 0	47·5	11·7	10·3	17·5	11·7	9·5	2·3	−0·8	...	0·5	...	...	...	...	...	...	...	6·5	4·8	...	...
	3. 11 30	45·9	11·4	8·4	12·4	13·2	9·4	2·1	−1·2	4·7	3·7	...	...	...	...	...	...	...	6·4	5·7	...	...
	3. 12 45	45·9	11·9	9·7	13·9	15·4	10·3	2·3	−0·3	4·9	2·9	...	...	...	...	...	...	...	6·4	5·9	...	...
	3. 15 30	45·8	11·3	9·0	14·5	17·0	9·8	2·8	0·3	5·0	2·7	...	...	...	...	...	...	...	6·3	5·5	...	...
	10. 7 0	55·7	11·9	10·7	13·7	12·7	6·3	2·2	...	...	...	...	...	...	...	...	...	...	5·5	4·9	...	...
	17. 9 30	52·5	11·2	9·9	15·4	16·5	8·8	3·5	...	...	...	...	...	...	...	...	...	...	8·3	6·1	...	...
	May 1. 7 30	53·1	11·1	10·5	12·1	10·1	10·6	3·1	−0·2	4·1	0·1	...	...	...	...	...	...	...	...	...	...	...
	1. 15 0	44·8	11·3	8·8	11·8	12·3	7·3	2·6	−2·7	2·3	−0·7	−0·2	−3·2	...	...	...	...	...	6·3	5·3	...	...
XL.	Feb. 16. 5 30	42·0	12·0	10·0	11·5	12·0	10·0	4·5	3·0	4·5	4·8	4·5	4·5	5·0	8·0	5·0	8·5	6·5	9·2	6·5	...	...
	Apr. 1. 12 0	44·4	12·9	12·2	16·4	16·4	9·4	4·6	−1·6	−4·6	−1·8	−3·6	...	...	...	...	...	...	5·9	6·6	−1·3	−1·
	10. 8 0	53·5	12·5	...	11·5	10·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	10. 9 0	50·8	12·6	11·5	11·6	15·2	7·1	0·0	...	...	...	...	...	...	...	...	...	...	9·6	6·3	...	...
	18. 9 0	47·5	12·0	9·5	14·5	14·5	8·0	2·3	1·5	6·5	2·3	1·5	...	...	...	...	...	...	9·7	7·7	...	...
	25. 11 30	47·9	12·4	9·7	13·4	12·9	8·9	3·9	−3·3	4·7	0·1	...	...	...	...	...	...	...	...	...	...	...
	25. 16 30	41·7	12·4	10·4	15·7	15·5	9·7	6·3	−3·5	6·6	1·8	...	...	...	...	...	...	...	...	...	...	...
	May 1. 15 0	41·2	12·2	10·2	15·2	15·2	6·7	5·7	−1·8	4·2	−1·2	−3·8	...	...	...	...	...	...	7·2	6·4	...	...
	1. 17 0	40·7	12·2	12·2	12·7	16·5	10·7	5·2	−2·3	3·7	−0·7	−2·8	...	...	...	...	...	...	...	...	...	...
	13. 19 0	54·0	12·7	11·0	15·7	14·0	8·0	4·0	−8·0	...	...	...	...	...	...	...	...	...	6·2	6·0	...	...

Feb. 13, 20h. The minimum temperature of the air the preceding night was 19°, and the lowest reading on raw wool was 7°·8. (See section of s
The appearance of trees and shrubs as covered with hoar-frost was very rich, and on examination it appeared that the edges of the leaves of la
length down each fibre; the intermediate spaces on the leaf itself were covered with small particles. Privet: every leaf was covered from the edge f
branch, by far the greater number, and much larger than the rest springing from the sides; from part of each branch towards the zenith there were
increased to spikes, becoming longer and longer as the distance from the root increased, terminating at the top in a rich cluster of spikes one-tenth
one inch high was covered with spikes one-sixteenth of an inch in length, with horizontal spikes one-tenth of an inch in length from its edges. G
direction of the fibres. Raw wool was richly encrusted in each fibre, and in some parts spikes were piled on spikes, forming a cluster three-fourths

TABLE (Continued).

Excess of the reading of the thermometer in air, above that placed

Above grass in feet.								On lead.				On zinc.					On copper on grass.	On iron on grass.	On tin.			On glass on grass.	On glass one inch high.	On pantile.	On slate.	On hare-skin.
Hare skin.	Rabbit skin.	1.	2.	4.	6.	8.	10.	12.	On grass.	Six inches high.	One foot high.	Three feet high.	On grass.	Six inches high.	One foot high.	Three feet high.	Four feet high.			White on grass.	White one inch high.	Blackened on grass.					
°	°	0·4	0·8	°	°	°	°	°	°	°	°	°	°	°	°	°	°	8·3	6·4	8·6	°	9·0	8·5	5·6	°	°	°
...	...	0·9	0·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·5	5·0	5·3	3·9	6·5	7·7	5·7	...	...	...
...	...	2·5	2·0	...	...	...	...	...	8·3	4·5	...	...	5·3	...	...	...	...	9·5	7·0	7·0	7·0	7·0	7·5	7·0	3·0	...	...
...	...	2·0	2·0	...	...	...	...	...	6·5	5·0	...	...	8·0	...	...	...	...	7·2	5·0	4·5	4·5	6·0	7·0	5·0	3·8	...	...
...	...	0·7	0·7	...	...	...	...	...	5·7	3·2	...	...	6·0	...	...	...	...	6·3	5·6	6·5	6·1	6·2	7·7	6·2	6·2	...	...
...	...	0·8	0·6	...	...	...	...	...	6·3	2·8	...	...	5·6	...	...	...	...	...	6·0	5·8	4·8	5·8	7·6	4·8	4·7	...	...
...	...	2·3	1·7	...	...	−0·1	...	...	6·9	...	...	...	6·9	...	...	...	...	9·2	4·5	6·9	6·5	7·4	8·7	8·0	4·7	...	...
−1·3	−0·8	...	0·9	0·5	...	−0·3	...	−0·8	9·2	...	5·7	...	2·1	...	...	...	...	6·3	3·3	4·9	7·9	7·9	8·7	7·9	...	...	9·
−3·7	−3·7	...	2·5	0·8	...	1·9	...	−2·0	8·3	...	5·3	...	1·5	...	...	...	...	6·7	4·2	6·3	8·3	9·3	7·1	6·3	...	...	7·
−3·8	−3·8	...	3·0	2·5	...	...	...	1·7	7·7	...	4·5	...	2·7	...	...	...	...	4·9	2·9	6·7	8·7	9·2	5·6	6·5	...	...	8·
...	...	...	−1·6	−2·1	...	−4·1	...	−1·9	6·4	...	2·7	...	2·4	...	...	...	...	6·6	3·1	5·4	4·7	4·9	6·9	4·1	...	...	6·
...	...	...	−0·8	−0·9	...	−0·9	...	...	9·0	...	...	...	...	...	...	...	...	9·3	5·5	...	...	...	7·8	6·1	...	...	10·
0·5	0·5	...	0·5	0·0	...	−1·3	...	−1·3	8·7	...	5·5	...	4·0	...	...	...	...	9·2	8·3	...	...	...	8·5	7·5	...	...	10·
...	...	...	1·6	1·2	...	1·2	...	...	8·4	...	4·7	...	8·5	5·2	...	...	...	6·2	5·3	...	...	...	...	...	...	...	...
...	...	...	1·4	0·8	...	1·2	...	1·1	5·5	...	3·7	...	6·4	4·0	...	...	...	...	...	...	...	...	...	...	...	...	...
		...																									
...	...	1·0	0·7	...	...	...	...	...	...	...	...	...	5·7	...	...	...	...	9·0	6·8	6·5	5·3	7·1	9·2	7·0	...	...	...
...	...	2·3	2·1	...	...	...	...	...	6·3	5·0	...	...	6·3	...	...	...	...	6·0	6·8	9·0	6·8	8·8	7·3	4·8	4·8	...	...
...	...	2·0	2·0	...	...	...	...	...	7·5	4·9	...	...	6·7	...	...	...	...	9·0	6·5	10·0	7·8	8·5	9·0	6·5	3·5	...	...
...	...	1·7	1·2	...	...	...	...	...	7·7	4·5	...	...	8·5	...	...	...	...	8·9	6·7	7·7	9·9	7·7	10·5	7·7	6·5	...	...
...	...	...	2·1	1·1	1·1	0·8	0·8	0·1	8·0	...	...	...	7·4	...	...	...	...	7·3	6·6	8·1	...	8·1	9·5	7·7	...	...	...
...	...	...	−0·9	−0·8	1·1	−0·5	...	...	6·4	...	...	...	...	...	...	...	...	6·5	...	...	...	...	8·7	5·9	...	...	...
1·2	1·2	...	−1·3	−1·3	...	−1·3	...	−1·3	7·2	...	1·0	...	2·2	...	...	...	...	6·2	3·0	4·4	3·2	4·4	6·2	3·2	...	5·7	8·
6·0	5·7	...	−1·4	−1·4	...	−1·0	...	−2·6	...	...	...	...	...	...	...	...	...	6·0	...	...	...	...	5·2	4·5	...	7·5	8·
...	...	...	−0·7	−0·7	...	−0·6	...	...	7·9	...	...	...	2·7	...	...	...	...	7·9	5·4	...	...	...	10·3	7·5	...	7·4	8·
...	...	...	−0·6	−0·6	...	−0·9	...	...	6·8	...	...	...	...	...	...	...	...	6·5	3·6	...	...	...	10·4	7·4	...	7·4	7·
0·8	0·8	...	0·6	0·6	...	−0·2	...	−0·2	8·8	...	5·8	...	7·8	5·0	...	...	...	8·8	6·3	...	...	...	8·8	8·8	...	10·8	9·
0·2	0·2	...	1·0	0·7	...	−0·8	...	−0·8	8·7	...	5·2	...	10·2	6·2	...	...	...	7·7	9·7	...	...	...	8·2	7·2	...	10·7	10·
2·2	2·2	...	0·0	0·0	...	0·0	...	0·0	8·0	...	4·7	...	8·0	4·2	...	...	...	7·2	6·4	...	...	...	6·2	5·2	...	7·2	6·
...	...	...	1·6	1·3	...	1·5	...	1·7	10·3	...	...	...	8·7	...	...	...	...	6·7	...	...	...	...	8·5	8·3	...	13·3	10·
...	...	...	2·6	2·4	...	2·3	...	2·5	8·2	...	5·2	...	9·6	4·4	...	...	...	7·2	...	...	...	...	...	...	...	10·9	...
...	...	...	−0·2	−0·2	...	0·0	...	−0·1	10·5	...	6·6	...	...	...	...	...	...	9·6	8·3	...	...	...	...	...	...	10·1	...
...	...	...	2·6	2·0	...	1·6	...	1·6	7·6	...	...	...	...	...	...	...	...	...	...	...	...	...	10·8	9·4	...	...	...
...	...	...	2·3	2·0	...	1·0	...	1·2	8·9	...	...	...	...	...	...	...	...	...	...	...	...	...	10·7	9·3	...	...	...
2·7	...	...	1·7	1·3	...	1·2	...	1·2	8·2	...	4·2	...	7·2	4·5	...	3·5	2·9	8·7	6·2	...	...	...	8·9	7·7	...	9·5	9·
...	...	1·5	1·3	...	...	...	...	...	...	...	...	...	4·6	...	...	...	...	...	6·6	11·7	...	11·4	11·1	9·4	...	...	...
...	...	1·2	1·0	...	...	...	...	...	...	...	...	...	4·6	...	...	...	...	...	6·7	11·2	...	10·9	10·7	8·7	...	...	...
...	...	1·8	1·5	...	...	...	...	...	7·3	6·3	...	...	5·5	...	...	...	...	9·5	5·3	10·0	10·5	6·5	9·5	6·0	3·0	...	...
...	...	...	2·7	2·4	2·5	2·4	2·1	2·4	5·7	...	...	...	7·7	...	...	...	...	7·4	6·4	10·0	7·3	10·5	11·2	9·4	...	...	...
...	...	...	0·2	0·1	...	...	...	...	7·4	...	...	...	...	...	...	...	...	9·3	...	...	...	...	10·3	8·4	...	...	11·
...	...	...	0·3	0·0	...	−0·8	...	...	7·5	...	...	...	...	...	...	...	...	8·4	5·7	6·0	...	...	10·1	8·3	...	...	10·
...	...	...	0·1	0·5	...	...	...	...	8·5	...	...	...	...	...	...	...	...	8·5	4·5	...	...	...	8·5	7·5	...	...	11·
...	...	...	0·2	0·5	...	−0·7	...	−0·8	9·3	...	...	...	...	...	...	...	...	6·5	...	...	...	...	9·5	7·5	...	...	11·
...	...	...	−0·3	−0·4	...	−0·4	...	...	7·6	...	...	...	...	...	...	...	...	7·9	3·8	...	...	...	8·1	6·9	...	...	9·
...	...	...	−0·3	−0·3	...	−0·3	...	...	8·3	...	...	...	...	...	...	...	...	7·9	3·9	...	...	...	8·4	7·1	...	...	11·
...	...	...	−0·4	−0·4	...	−0·4	...	...	8·7	...	...	...	...	...	...	...	...	7·6	3·8	...	...	...	8·3	6·8	...	...	11·
...	...	...	0·0	0·9	...	...	...	...	6·5	...	...	...	...	...	...	...	...	7·5	...	...	...	...	6·7	6·5	...	...	12·
...	...	...	1·6	1·6	...	0·7	...	...	8·9	...	...	...	...	...	...	...	...	8·2	5·4	...	...	...	10·5	8·7	...	...	...
...	...	...	2·3	2·1	...	1·5	...	1·7	8·9	...	...	...	...	...	...	...	...	...	...	...	...	...	10·8	9·8	...	...	...
...	...	...	2·0	1·6	...	1·1	...	1·1	7·3	...	4·3	...	7·2	5·6	...	4·5	4·1	8·6	8·6	...	...	...	7·6	5·8	...	...	13·
...	...	2·0	1·5	...	...	...	...	...	10·0	7·0	...	...	9·0	...	...	...	...	9·5	7·2	9·8	6·8	9·0	10·8	8·5	7·0	...	...
−1·3	−1·1	...	1·4	1·2	...	0·4	...	0·6	10·9	...	5·6	...	3·9	...	...	...	...	11·4	6·9	5·9	9·2	8·6	11·9	10·4	...	...	13·
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	8·6	...	...	...	...	...	...	...	...	8·5	...	...	...	...	12·8	7·6	...	...	8·
...	...	...	1·3	1·3	...	−0·5	...	−0·5	7·5	...	5·5	...	12·3	6·5	...	...	...	10·3	8·5	...	...	...	10·3	10·3	...	...	10·
...	...	...	1·9	1·6	...	1·6	...	...	11·7	...	8·5	...	11·5	6·6	...	...	...	11·5	...	...	...	...	...	...	...	...	12·
...	...	...	2·1	0·9	...	1·6	...	1·1	12·0	...	7·3	...	10·8	5·9	...	...	...	11·9	9·2	...	...	...	...	...	...	...	12·
...	...	...	2·4	1·9	...	1·4	...	1·5	9·2	...	6·7	...	10·4	7·2	...	5·3	4·0	10·4	10·0	...	...	...	9·0	9·0	...	...	12·
...	...	...	2·5	2·0	...	1·5	...	1·4	10·2	...	4·2	...	8·5	4·7	...	2·7	2·2	10·2	8·8	...	...	...	10·5	9·7	...	...	13·
...	...	...	2·0	...	...	1·0	...	1·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·0	9·0	...	...	...

section of self-registering thermometers.)

leaves of laurel were fringed with spikes one-tenth of an inch in length, and inclined to the leaf, both upwards and downwards, at an angle of about 60 the edge for one-fourth of an inch within the leaf, with spikes one-fourth of an inch in length; the other parts of the leaf were free from frost; the cruci there were comparatively but few spikes, and none of them vertical: this shrub, from its graceful form, had a peculiarly rich appearance. Grass: the lo one-tenth of an inch in length, and inclined at all angles from 0° to 90° all round; the spikes on the blade below the top were nearly horizontal, and in the s edges. Glass on grass was free of hoar-frost, and so were copper, lead, zinc, tin, and iron. Tin one inch high was a little white at the edges. Wood or ree-fourths of an inch in length. On flax there were no spikes, it being covered with white round particles on each fibre. Stone was free from hoar-frost.

On pasteboard.	On slate.	On hare-skin.	On rabbit-skin.	On stone.			On Lamb's wool on grass.								Clouds.			Wind.		Haze, fog, mist, or vapour.	1844. Day, hour and minute.			Number of the Tables.
				Firestone.	Purbeck.	Portland.	Yellow.	White.	Jet black.	Crimson.	Orange.	Light blue.	Dark blue.	Green.	Scarlet.	Modification.	Amount 0–10.	High or low.	Direction.	Strength 0–6.					
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°							h	m	
..	...	...	...	3·5	2·8	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	...		Jan. 22.	10	30	XXXVII.
..	...	...	...	4·7	4·5	4·1	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	½	Haze	26.	7	30	
0	...	...	...	4·5	4·0	6·0	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	L.		Feb. 1.	5	0	
8	...	...	...	3·5	4·0	3·3	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	L.		15.	19	15	
2	...	...	...	4·4	5·4	4·7	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	½	Vap.	16.	7	0	
7	...	...	...	4·6	5·1	4·0	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	½		16.	9	0	
7	...	...	...	4·5	4·7	4·9	...	...	...	...	...	...	...	...	...	A thin cloud	10					20.	5	0	
..	...	9·2	9·2	...	...	...	7·5	7·9	5·5	7·2	8·2	8·2	6·7	7·7	6·6	Clear	...	...	c.			Apr. 1.	12	30	
..	...	7·8	8·1	...	...	...	8·3	4·3	4·3	4·3	5·3	5·8	7·8	6·8	7·1	Clear	...	...	c.			1.	13	30	
..	...	8·7	9·2	...	...	...	5·9	5·9	2·5	5·2	6·7	5·9	5·7	4·2	4·5	Clear	...	...	c.			1.	18	0	
..	...	6·9	6·9	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	1	...	s.	1		2.	7	0	
..	...	10·6	10·4	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			3.	17	30	
..	...	10·3	9·5	...	...	...	6·5	7·5	5·3	6·0	6·0	6·5	7·3	6·0	5·3	Clear	...	...	s.	1		17.	12	0	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	E.	1		29.	11	0	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	E.	1		30.	7	40	
																						Feb. 13.	20	0	
..	...	...	...	5·3	5·0	4·8	...	...	...	...	...	...	...	...	...	Nearly cl....	1	...	N.	⅛	Haze	Jan. 26.	5	10	XXXVIII.
8	...	...	...	4·3	4·6	4·3	...	...	...	...	...	...	...	...	...	.....	2	...	N.	L.	Vap.	Feb. 15.	15	0	
5	...	...	...	2·8	5·0	2·8	...	...	...	...	...	...	...	...	...	.....	1	...	N.	L.	Vap.	15.	17	30	
5	...	...	...	4·5	5·7	4·7	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			16.	4	30	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			22.	9	0	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	...	Haze	Mar. 21.	8	40	
..	5·7	8·2	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	...	s.	⅛		Apr. 2.	8	0	
..	7·5	8·8	...	...	...	...	...	...	...	...	...	...	...	...	...	.....	...	...	s.	L.		2.	11	0	
..	7·4	8·8	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			8.	11	0	
..	7·4	7·2	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			9.	8	50	
..	10·8	9·8	...	...	...	...	6·3	7·8	5·8	8·0	7·6	8·8	7·7	7·8	7·6	Clear	...	...	c.			17.	13	0	
..	10·7	10·0	...	...	...	...	6·2	6·0	6·0	6·7	6·0	7·0	6·0	6·0	5·2	Clear	...	...	c.			17.	14	0	
..	7·2	6·7	...	...	...	...	3·7	5·7	5·7	4·4	5·0	5·4	4·0	5·0	4·7	Clear	...	...	c.			17.	18	0	
..	13·3	10·1	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			18.	17	30	
..	10·9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			25.	6	40	
..	10·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			25.	17	20	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			27.	9	30	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			May 1.	9	5	
..	9·5	9·2	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			1.	11	0	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Jan. 22.	8	15	XXXIX.
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			22.	9	0	
0	...	...	...	2·5	4·5	1·5	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Feb. 15.	18	30	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear						22.	11	30	
..	...	11·4	8·9	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		Haze	Mar. 21.	6	30	
..	...	10·5	10·0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			23.	8	40	
..	...	11·5	10·0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Apr. 1.	9	0	
..	...	11·5	8·7	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			3.	9	0	
..	...	9·3	11·9	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	s.	L.		3.	11	30	
..	...	11·3	11·1	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	s.	L.		3.	12	45	
..	...	11·4	10·4	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	s.	L.		3.	15	30	
..	...	12·6	12·0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			10.	7	0	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			17.	9	30	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			May 1.	7	30	
..	...	13.3	11·8	...	...	...	10 0	8·3	8·1	8·6	10·0	8·3	9·6	8·1	10·0	Clear	...	...	c.			1.	15	0	
0	...	...	...	5·0	5·8	5·0	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Feb. 16.	5	30	XL.
.	...	13·9	12·9	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Apr. 1.	12	0	
.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			10.	8	0	
.	...	8·3	10·8	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			10.	9	0	
.	...	10·5	9·5	...	...	...	9·3	9·3	10·3	8·3	8·0	10·0	8·7	8·3	9·0	A thin cloud	...	...	w.	L.		18.	9	0	
.	...	12·0	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			25.	11	30	
.	...	12·3	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			25.	16	30	
.	...	12·7	11·2	...	...	...	9·7	9·4	9·2	9·2	9·7	10·7	11·7	7·2	11·7	Clear	...	...	c.			May 1.	15	0	
.	...	13·2	12·7	...	...	...	11·2	10·2	8·7	10·7	9·7	11·5	9·2	9·5	9·2	Clear	...	...	c.			1.	17	0	
.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			13.	19	0	

of about 60°; none were in the plane of the leaf continued; on the surface of the leaf there were spikes one-sixteenth of an inch in ; the cruciform end of each branch was very rich with spikes. Broom: this shrub was richly encrusted with spikes all around each ass: the lower part of the blade was free from frost; immediately above this the blade was just covered with white particles, which , and in the plane of the blade. Wooden palings: at all points and angles there were clusters of spikes half an inch in length. Glass . Wood on grass was free from hoar-frost; wood raised from the ground was covered with white particles, and many spikes in the hoar-frost.

branch, by far the greater number, and much larger than the rest springing from the sides; from part of each branch towards the zenith there wer
increased to spikes, becoming longer and longer as the distance from the root increased, terminating at the top in a rich cluster of spikes one-tenth
one inch high was covered with spikes one-sixteenth of an inch in length, with horizontal spikes one-tenth of an inch in length from its edges. G
direction of the fibres. Raw wool was richly encrusted in each fibre, and in some parts spikes were piled on spikes, forming a cluster three-fourths

there were comparatively but few spikes, and none of them vertical: this shrub, from its graceful form, had a peculiarly rich appearance. Grass: the lo
one-tenth of an inch in length, and inclined at all angles from 0° to 90° all round; the spikes on the blade below the top were nearly horizontal, and in the
s edges. Glass on grass was free of hoar-frost, and so were copper, lead, zinc, tin, and iron. Tin one inch high was a little white at the edges. Wood or
ree-fourths of an inch in length. On flax there were no spikes, it being covered with white round particles on each fibre. Stone was free from hoar-frost.

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Wood on grass was free from hoar-frost; wood raised from the ground was covered with white particles, and many spikes in the hoar-frost.

Number of the Tables.	1844. Day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	On long grass.	On short grass.	On white raw wool.	On flax on grass.	In focus of reflector.	Nine inches above wood.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On long grass covered by									
												White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Lead.	Lead six inches high.	Glass.	Glass one inch high.	Hare skin.
	h m	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
XLI.	Mar. 23. 7 45	40·9	13·6	11·1	14·9	15·7	10·1	3·8	...	3·2	2·1	1·9	3·5	...	...	...	...	...	6·4	7·8	...
	Apr. 3. 7 0	51·3	13·1	11·5	18·3	17·3	9·2	2·3	0·4	...	3·6	...	...	...	...	...	...	...	...	5·3	...
	6. 7 25	49·2	13·2	10·2	14·2	13·2	9·2	3·5	0·2	...	3·0	...	...	...	...	...	...	...	...	...	...
	9. 7 50	52·3	13·1	10·8	17·1	17·8	9·3	1·7	2·1	7·6	4·5	...	...	...	...	...	...	...	10·5	7·7	...
	17. 11 0	48·5	13·0	12·0	18·5	18·5	7·5	3·0	0·0	6·0	5·0	−2·5	−3·5	...	...	...	...	...	10·0	6·5	−1·1
	18. 11 5	42·5	13·5	12·0	17·5	17·7	12·2	0·7	...	...	0·7	...	...	...	...	...	...	...	...	...	...
	24. 14 40	40·0	13·2	12·0	18·0	18·0	10·4	6·0	...	...	...	...	...	...	...	...	...	...	...	...	...
XLII.	Apr. 24. 9 30	48·5	14·5	12·5	18·0	16·5	9·5	5·5	1·0	6·5	3·0	...	...	...	...	...	...	...	11·0	8·3	...
	24. 10 0	47·5	14·5	12·3	18·5	16 3	9·8	5·3	0·5	7·0	1·5	...	...	...	...	...	...	...	9·5	7·0	...
	24. 10 30	46·8	14·8	12·7	18·3	16·8	8·8	6·1	−0·2	6·3	1·6	...	...	...	...	...	...	...	11·6	6·3	...
	24. 12 40	44·1	14·5	12·7	17·9	16·9	8·1	6·6	...	...	...	...	...	...	...	...	...	...	...	...	...
	24. 13 40	42·8	14·4	10·8	17·3	15·8	9·6	5·8	...	...	...	...	...	...	...	...	...	...	...	...	...
	25. 15 40	42·3	14·3	12·1	17·2	17·8	12·1	6·2	−4·3	8·3	0·4	...	...	...	...	...	...	...	...	...	...
XLIII.	Apr. 1. 11 0	46·7	15·2	13·2	17·2	17·2	9·7	5·7	0·7	3·7	1·2	−1·3	−1·7	...	...	...	...	...	10·2	9·5	−0·3
	8. 9 0	46·3	15·9	14·4	21·3	22·3	11·3	...	...	...	...	−2·0	...	...	...	...	...	...	...	...	...
	9. 7 30	53·8	15·8	14·3	14·8	16·0	13·8	1·2	2·6	8·6	4·0	−1·2	...	...	...	...	...	...	13·2	8·6	...
	24. 9 0	49·5	15·5	13·5	17·5	17·5	10·5	5·3	1·5	7·5	1·5	1·3	...	...	3·5	...	...	...	11·5	7·5	...
	24. 11 0	45·7	15·2	12·5	19·2	16·5	10·2	6·8	−1·3	8·0	0·7	1·4	...	...	−0·3	...	...	...	11·2	7·7	...
	24. 11 30	45·6	15·6	13·1	19·6	18·1	10·2	7·1	−1·4	8·6	0·6	1·6	...	...	−0·4	...	...	...	11·1	9·1	...
	24. 12 0	44·7	15·2	12·7	19·5	18·2	9·7	7·2	−2·3	7·2	−0·3	1·7	...	...	−0·8	...	...	...	10·2	8·2	...
XLIV.	Apr. 8. 7 20	52·7	19·2	17·5	21·7	22·7	12·7	...	2·7	...	8·7	...	2·2	...	...	...	...	...	16·2	...	...
	8. 8 0	48·0	19·6	18·0	25·0	23·0	12·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE (Continued).

Excess of the reading of the thermometer in air, above that placed

		Above grass in feet.							On lead.				On zinc.							On tin.							
Hare skin.	Rabbit skin.	1.	2.	4.	6.	8.	10.	12.	On grass.	Six inches high.	One foot high.	Three feet high.	On grass.	Six inches high.	One foot high.	Three feet high.	Four feet high.	On copper on grass.	On iron on grass.	White on grass.	White one inch high.	Blackened on grass.	On glass on grass.	On glass one inch high.	On pantile.	On slate.	On hare-skin.
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
...	...	...	−0·1	−0·1	...	−0·3	...	...	9·6	...	...	...	...	...	...	...	...	10·4	7·4	...	7·9	9·6	10·8	...	...	...	13·
...	...	...	−0·4	−0·5	...	0·0	...	−0·1	10·3	...	...	...	...	...	...	...	...	...	...	8·1	...	...	10·5	8·1	...	...	13·
...	...	...	1·9	−1·2	...	−1·2	...	−1·2	5·1	...	...	...	...	...	...	...	...	10·9	...	9·6	...	...	9·8	9·6	...	...	...
...	...	...	−0·4	−0·5	...	−3·6	...	...	9·3	...	...	...	...	...	...	...	...	13·3	8·8	10·3	...	...	12·3	10·3	...	...	15·
−1·1	−0·5	...	−0·6	−1·0	...	−1·5	...	−2·0	10·3	...	5·7	...	...	...	...	...	...	11·0	5·5	10·0	...	...	12·0	10·0	...	...	11·
...	...	...	1·7	1·3	...	−0·3	...	−0·2	9·9	...	...	...	4·5	...	...	...	...	12·7	...	13·0	...	...	12·5	13·0	...	...	...
...	...	...	2·0	2·0	...	1·5	...	1·5	10·0	...	...	...	11·7	6·8	...	...	...	10·0	10·2	...	...	...	...	...	...	...	13·
...	...	...	1·7	1·2	...	0·7	...	0·5	10·5	...	7·3	...	13·0	8·0	5·3	5·0	...	14·0	12·5	...	...	...	13·3	11·5	...	...	15·
...	...	...	2·0	1·8	...	1·3	...	1·2	11·5	...	8·0	...	13·7	9·0	5·5	4·5	...	13·3	12·5	...	...	...	13·0	11·5	...	...	15·
...	...	...	0·9	0·6	...	0·6	...	0·5	12·8	...	8·3	...	12·1	7·9	4·8	3·3	...	12·8	12·6	...	...	...	12·0	11·6	...	...	15·
...	...	...	1·9	1·5	...	0·9	...	0·6	12·1	...	7·5	...	12·9	7·9	...	...	...	13·1	12·8	...	...	...	...	...	...	...	16·
...	...	...	1·2	1·1	...	1·0	...	0·6	12·8	...	6·0	...	13·0	6·6	...	...	...	12·9	12·1	...	...	...	...	...	...	...	16·
...	...	...	2·5	0·9	...	0·8	...	...	13·2	...	8·1	...	10·5	6·0	...	...	...	12·0	...	...	...	...	...	...	...	...	14·
−0·3	−0·3	...	2·7	2·5	...	0·7	...	0·7	11·5	...	7·5	...	5·2	...	...	...	...	13·2	8·2	7·7	10·7	...	13·9	11·9	...	...	13·
...	...	...	−1·7	...	...	−3·7	...	−3·7	11·5	...	...	...	...	...	...	...	...	14·6	...	...	...	...	...	12·3	...	...	14·
...	...	...	−0·9	...	...	−3·2	...	...	10·3	...	...	...	...	...	...	...	...	14·4	9·8	...	...	...	15·0	11·6	...	...	11·
...	...	...	1·7	...	...	1·0	...	0·8	9·7	...	7·0	...	13·5	9·5	...	...	...	12·0	12·7	...	...	...	13·5	12·3	...	...	14·
...	...	...	1·6	...	...	0·9	...	0·9	12·2	...	9·7	...	12·7	7·7	4·7	4·9	...	13·7	12·9	...	...	...	10·7	10·2	...	...	14·
...	...	...	1·6	...	...	0·8	...	0·8	12·1	...	9·6	...	12·9	8·1	4·4	4·4	...	13·3	12·8	...	...	...	13·6	12·1	...	...	15·
...	...	...	1·9	...	...	1·5	...	1·2	9·9	...	3·7	...	13·2	7·4	4·7	4·9	...	13·9	12·2	...	...	...	12·2	10·7	...	...	15·
...	...	...	1·4	2·0	...	1·2	...	0·5	14·7	...	12·2	...	17·7	...	...	...	...	17·5	14·5	...	...	13·7	18·7	16·7	...	...	..
...	...	...	...	...	...	−3·5	...	−3·5	13·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·

On pantile.	On slate.	On hare-skin.	On rabbit-skin.	On stone.			On Lamb's wool on grass.									Clouds.			Wind.		Haze, fog, mist, or vapour.	1844. Day, hour and minute.	Number of the Tables.
				Firestone.	Purbeck.	Portland.	Yellow.	White.	Jet black.	Crimson.	Orange.	Light blue.	Dark blue.	Green.	Scarlet.	Modification.	Amount 0—10.	High or low.	Direction.	Strength 0—6.			
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°							h m	
..	...	13·6	12·9	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	...	Haze	Mar. 23. 7 45	XLI.
..	...	13·1	16·1	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Apr. 3. 7 0	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			6. 7 25	
..	...	15·3	13·9	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			9. 7 50	
..	...	11·5	11·5	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			17. 11 0	
..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			18. 11 5	
..	...	13·0	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 14 40	
..	...	15·5	15·5	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Apr. 24. 9 30	XLII.
..	...	15·0	15·0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 10 0	
..	...	15·0	15·0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 10 30	
..	...	16·1	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 12 40	
..	...	16·3	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 13 40	
..	...	14·3	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			25. 15 40	
...	...	13·3	13·2	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Apr. 1. 11 0	XLIII.
...	...	14·3	11·7	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			8. 9 0	
...	...	11·8	10·6	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			9. 7 30	
...	...	14·5	14·5	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 9 0	
...	...	14·7	14·7	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 11 0	
...	...	15·1	15·1	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 11 30	
...	...	15·9	15·7	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			24. 12 0	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			Apr. 8. 7 20	XLIV.
...	...	16·4	...	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.			8. 8 0	

From the preceding tables we learn the following particulars:—Tables I. to VI., XVII. to XX., and XXIX. to XXXII. contain the results of observations when the excess of air-temperature above that of long grass was less than 5°; such observations having been taken at times when the sky was wholly covered with cirro-stratus cloud, after having been cloudless, during which state a series of observations had been taken. By examining the last column of these Tables, it will be seen that when the excess of air-temperature above that of long grass has amounted to 4° or 5°, the clouds have been noted as being high, and when the excess was less than 3°, they have been mentioned as being low, or no mention has been made as to their height. Tables VII. to X., XXI. to XXIV., and XXXIII. to XXXVI. contain the results of observations at times when the excess amounted to 5°, 6°, 7°, or 8°; and from the last columns in those tables, it appears that at such times the sky was frequently cloudy, and when wholly so, that the clouds were high; that the air was in frequent motion, and at times the wind was blowing with a pressure of 4 lbs. on the square foot; that the atmosphere was occasionally thick by haze or vapour, and that dew was seldom deposited. Tables XI. to XIV., XXV. to XXVII., XXXVII. to XL. contain the results of the observations at times when the excess was 9°, 11°, or 12°; and at those times the sky has been generally clear, the air calm, and the atmosphere frequently hazy, misty, or vapour or fog was prevalent. Dew was also frequently deposited; in two cases contained in Tables XI. and XXXVII. occurring 1843, Nov. $12^d\ 13^h\ 5^m$, and in 1844, Feb. $20^d\ 5^h$, the sky was wholly covered by high and thin clouds. Tables XV. and XVI., XXVIII., XLI. and XLII., exhibit the results when the excess was 13° and 14°, and at those times the sky was generally clear, and the air was calm; haze and vapour were occasionally prevalent. Tables XLIII. and XLIV. contain the results when the air-temperature exceeded that of long grass by quantities varying from 15° to 19°; and by examining the last column of these Tables, it appears that at those times the sky was cloudless and bright, the atmosphere was clear without haze, mist or vapour, and a perfect calm prevailed.

From the above particulars it appears that at times when the sky was entirely covered with low cirrostratus clouds, the readings of a thermometer placed on long grass was the same as that in the air; that with the same clouds at a moderate elevation, the reading of the thermometer in air has exceeded that on long grass by 3°; and on those clouds being high, this excess has amounted frequently to 5°; and if other clouds than cirrostratus covered the whole sky this excess has been as large as 10°. At times when the sky has been free from clouds but not bright, haze and vapour being prevalent, the above excess has amounted to 10°, 11°, or 12°; and at times when the sky has been both bright and clear, with the air calm, no mist, haze, vapour or fog being prevalent, this difference has frequently amounted to 14°, less frequently to 19°, and sometimes to 20°.

In Tables XLII. to XLIV. are exhibited the great excess of the reading of a thermometer in air above those of thermometers placed on substances whose power for

conducting heat was bad, such as raw wool, flax, hare-skin and rabbit-skin, and contrary to expectation, even on metals, whose power for conducting heat is good.

In Table XLIV. the reading of a thermometer on raw wool was 25° less, whilst another placed at 8 feet from the ground and fully exposed to the sky, was 3°·5 greater than that in air at the height of 4 feet and protected from radiation, and thus a difference of 28°·5 existed between the readings of two thermometers, the one placed on raw wool, and the other in air at the height of 8 feet. This difference was the greatest that I have ever seen, and it occurred in 1844, on April 8^d, at 8^h.

The general agreement in the relative radiating powers of the different substances on different nights, and many other particulars, will be best seen by consulting Tables I. to XLIV.

I shall now proceed to explain the formation of the following table of the mean results derived from all the observations.

The mean of the numbers was taken in every group of results contained in Tables I. to XLV., for every different substance or different position of the thermometer in each period of observation, thus forming three large tables; from these a fourth table was formed by combining the mean results for every substance, according to the number of observations from which each had been deduced, omitting, however, all those which had been taken when the excess of air-temperature above that of long grass temperature was less than 2°*. From the numbers in this last table the next table was formed.

The last column but two in the following table contains the mean excess of the reading of the thermometer in air above those placed as stated in the first column, derived from all the observations made on each substance, &c. These numbers are smaller than they would have been had the observations been made in a wide and open plain (see introductory remarks), and also if the thermometer in the air had been perfectly protected from the effects of radiation (see remarks following Table XLV.). The numbers in the last column but one represent the relative radiating power of the several substances, that of long grass being considered as 1000. It is probable that these numbers are very accurate, for had the results in the preceding columns been larger than they are, they would have been relatively so, consequently the numbers in this column would not have been affected.

In most cases the experiments have been sufficiently numerous to give results worthy of entire confidence, the numbers in this column having been deduced from upwards of 10,000 experiments.

* These four Tables are in MSS. and placed with the series of observations.

Table XLV.

The mean excess of the reading of a thermometer placed in air at the height of four feet above the soil and protected from the effects of radiation, above those of thermometers placed on different substances, or in different situations, fully exposed to the sky.

Situation of the thermometer, its bulb, or the substance under which it was placed, being fully exposed to the sky.	Whole number of comparisons.	Whole sum of the excesses of the readings of the thermometer in air at the height of four feet, above those placed as stated in the first column.	Mean excess of the reading of the thermometer in air.	Relative excess, that of long grass being represented by 1000, or comparative radiating power.	Remarks.
On long grass	479	4017·7	8·39	1000	
On short grass	473	3454·7	7·30	870	
One inch below the surface of ground under grass	273	− 476·1	− 1·75	− 209	
On surface of ground under long grass	156	85·0	0·55	66	
On surface of ground under short grass	259	437·3	1·69	200	
On long grass covered by white raw wool	66	11·9	0·18	22	
On long grass covered by flax	61	20·4	0·35	42	
On long grass covered by white tin	35	119·3	3·41	406	
On long grass covered by white tin one inch high	42	126·3	3·00	357	
On long grass covered by blackened tin	28	131·9	4·71	561	
On long grass covered by lead	10	46·7	4·67	556	These observations were generally simultaneous.
On long grass covered by lead six inches high	13	40·1	3·08	367	
On long grass covered by glass	127	727·9	6·01	716	These observations were generally simultaneous.
On long grass covered by glass one inch high	128	557·5	3·35	399	
On long grass covered by hare-skin	18	13·6	0·75	89	These observations were simultaneous.
On long grass covered by rabbit-skin	17	10·1	0·60	72	
One inch high above the top of grass (in air)	226	1272·9	5·63	671	These factors, multiplied into the mean radiating power of any substance, will show the cooling effect of that substance upon the air, at that distance above it corresponding to the factor used.
Two inches high above the top of grass (in air)	9	43·0	4·78	570	
Three inches high above the top of grass (in air)	89	336·1	4·00	477	
Six inches high above the top of grass (in air)	165	394·1	2·37	282	
One foot high above the top of grass (in air)	212	229·4	1·08	129	
Two feet high above the top of grass (in air)	199	143·3	0·72	86	
Four feet high above the top of grass (in air)	87	50·3	0·58	69	
Six feet high above the top of grass (in air)	18	7·9	0·44	52	
Eight feet high above the top of grass (in air)	96	13·4	0·14	17	
Ten feet high above the top of grass (in air)	9	80·0	0·89		See simultaneous observations at 8 feet and 10 feet.
Twelve feet high above the top of grass (in air)	77	9·0	0·12	14	
On black-lead in powder on the raised board	138	808·1	5·85	697	
On charcoal in powder on the raised board	153	996·2	6·51	776	
On whiting in powder on the raised board	67	465·5	6·94	827	
On chalk in powder on the raised board	21	142·1	7·05	840	
On lamp-black in powder on the raised board	14	113·0	8·06	961	
On unwrought white cotton wool on grass	228	2074·6	9·10	1085	See simultaneous observations.
On unwrought white cotton wool on the raised board	15	127·7	8·52		
On white raw wool on grass	357	3655·1	10·24	1222	
On flax on grass	461	4563·6	9·90	1186	See simultaneous observations.
On flax on the raised board	17	76·3	6·94		
On yellow cotton, jeweller's wool, on grass	13	84·1	6·46	770	None of these observations were simultaneous.
On yellow cotton, jeweller's wool, on the raised board	56	472·0	8·43	1005	
On blue cotton, jeweller's wool, on grass	12	84·6	7·05	840	None of these observations were simultaneous.
On blue cotton, jeweller's wool, on the raised board	55	460·3	8·37	997	
On white wadding on grass	27	223·1	8·27	986	
On black wadding on grass	20	166·6	8·33	993	
On flannel on grass	29	212·1	7·31	871	None of these observations were simultaneous.
On flannel on raised board	55	408·7	7·43	886	
On raw silk on grass	32	254·0	7·84	934	None of these observations were simultaneous.
On raw silk on the raised board	50	464·3	9·29	1107	
On silk from the cocoon	24	208·1	8·67	1034	
On jet black lambs' wool	33	205·4	6·22	741	These observations were always simultaneous.
On white lambs' wool	33	227·5	6·89	821	
On green lambs' wool	33	220·2	6·76	806	
On light blue lambs' wool	33	242·6	7·35	876	
On dark blue lambs' wool	33	230·2	6·98	832	

The observations in air at the height of ten feet above grass, were made on one night only, viz. on 1844 April 24, and the readings were between those of eight feet and twelve feet.

No certain difference appeared from many simultaneous observations of fine and coarse flax, and consequently their results have been combined in the formation of the final values for flax.

TABLE (Continued).

Situation of the thermometer, its bulb, or the substance under which it was placed, being fully exposed to the sky.	Whole number of comparisons.	Whole sum of the excesses of the readings of the thermometer in air at the height of 4 feet, above those placed as stated in the first column.	Mean excess of the reading of the thermometer in air.	Relative excess, that of long grass being represented by 1000, or comparative radiating power.	Remarks.
On orange lambs' wool	33	233·3	7·07	844	These observations were always simultaneous.
On yellow lambs' wool	33	239·5	7·26	855	
On red lambs' wool	33	223·3	6·77	807	
On crimson lambs' wool	33	225·3	6·83	814	
On garden mould	151	598·5	3·96	472	These observations were generally simultaneous.
On gravel	149	361·4	2·42	288	
On river sand	157	599·0	3·81	454	See simultaneous observations.
On river sand on the raised board	25	127·6	5·10		
On tinfoil	33	129·8	3·94	470	
On lead	224	1421·7	6·35	757	See simultaneous observations.
On lead six inches high	13	53·2	4·10		
On lead one foot high	48	261·3	5·44		
On lead three feet high	2	10·5	5·25		
On copper	172	1210·5	7·04	839	
On iron	161	868·2	5·39	642	See simultaneous observations.
On zinc	213	1217·9	5·71	681	
On zinc six inches high	29	175·2	6·04		
On zinc one foot high	6	29·4	4·90		
On zinc three feet high	6	27·0	4·50		
On zinc four feet high	4	13·2	3·30		
On white tin	112	616·6	5·51	657	
On white tin one inch high	75	378·0	5·04	601	Generally simultaneous observations.
On blackened tin	104	672·2	6·46	770	
In focus of metallic parabolic reflector	464	3340·7	7·20	858	
On the raised board	50	323·4	6·49	773	
On saw-dust in a box on the raised board	37	189·3	5·12	610	
Nine inches above wood and protected from lateral wind	394	1236·8	3·11	371	
On brick	46	143·5	3·12	372	
On pantile	111	437·2	3·94	470	
On slate	100	481·1	4·81	573	
On glass	163	1182·3	7·25	864	These observations were generally simultaneous, and with them the observation of grass under the glass.
On glass one inch high	156	954·1	6·11	728	
One quarter of an inch above water	83	225·7	2·72	324	
On paper on the raised board	8	41·2	5·15	614	
On hare-skin	70	773·1	11·04	1316	
On rabbit-skin	59	613·2	10·40	1240	See simultaneous observations.
On stone	154	503·3	3·27	390	
Number of observations of the thermometer in air, and its mean reading	487		43·7		

No certain difference was found from many simultaneous experiments on lead less than the twentieth of an inch in thickness, and lead a quarter of an inch in thickness; the observations are everywhere used as lead, independently of its thickness. The same remark applies to the three different thicknesses of zinc, and to the three different stones used; and their results have been combined as one result for "zinc," and as one result for "stones" in the final result.

Some of the particulars which we may learn from the preceding table are the following.

The first results contained in it are those relating to grass, whose radiating power appears to be such, that the reading of a thermometer when placed on it when long, is less than when it is placed on short by 1°·1; the next result relating to grass is that of the temperature on the surface of the soil under it, which is such that the reading of a thermometer under long, exceeds that under short by 1°·1; being exactly the same amount in excess under as it was in defect on the top; and hence the cause of the difference of the readings on the top of long and short grass arises solely from the greater quantity of heat conducted to the surface of the latter from

the soil, over that conducted to the surface of the former, and not from the greater quantity of heat radiated into space from the long, over that radiated from the short; such being the case, it was to be expected that the readings of a thermometer would vary with every variation of the length of grass upon which it was placed, and such was found to be the case.

In fact, the readings of thermometers placed on grass were found to differ with every variation of length, fineness and closeness of its blades. My experiments have been made on that differing only in the length of its blades, and the differences arising from this cause were found to vary with every variation of the excess of the temperature of the air over that of long grass. The following are the mean results of experiments in this respect:—

When the excess of air-temperature at the height of 4 feet above that of long grass was			
	between 3° and 7°	the reading of the thermometer on short grass was higher than that on long grass by	0°·8 from 125 comparisons.
	between 7° and 10°		1°·3 from 231 comparisons.
	between 10° and 19°		1°·9 from 86 comparisons.

These differences were found to correspond to a mean temperature of the air of 44°, and that of long grass of 36°, or generally to all temperatures above 30°; but when the reading of long grass declined below 30°, that of short grass was found not to decline nearly so rapidly: investigating the temperatures at readings below 30°, the following are the mean results:—

That when the reading on long grass was between		it exceeded that on short grass by ...	
	25° and 30°		2°·0 from 10
	20 and 25		2·4 from 31
	15 and 20		3·3 from 19
	10 and 15		4·8 from 14
	5 and 10		6·4 from 9
	0 and 5		9·4 from 2

Comparisons.

From another investigation, it appeared that these differences were connected with the difference between the readings of the thermometer in air and that on long grass as follows:—

When the reading of the thermometer on long grass was	at and above 30°	the excess of the reading of the thermometer on short grass was	one-eighth part,	of the excess of the reading of the thermometer in air at 4 feet high, above that on long grass.
	at 20°		one-fourth part,	
	at 10°		one-half,	
	at 0°		the whole,	

Hence it appears that at the reading of 0° of the thermometer on long grass, the reading of a thermometer on short grass is as much higher than 0°, as the reading of the thermometer in air at the height of 4 feet is higher than 0°; or that the readings on short grass and that in air are alike, and therefore that the heat conducted from the earth equals in amount the heat lost by radiation; and that for readings on long grass increasing from 0° in an arithmetical progression with a common difference of 10°, the difference between the readings on long and on short grass becomes less in geometrical progression with a common ratio of one-half; till attaining a reading of 30° the difference equals the fourth term of the series, and this difference continues very nearly constant till 60°, above which temperature I have had but few experiments. If we call the excess of air-temperature above that of long grass temperature by e, then the excess of the readings on short grass above those on long grass at

0°, 10°, 20° and at 30°, and above 30°, will be respectively e, $\frac{1}{2}e$, $\left(\frac{1}{2}\right)^2 e$, $\left(\frac{1}{2}\right)^3 e$; and for any intermediate reading the difference can be easily calculated from these terms. The very singular and unexpected facts now detailed, merit attention and suggest the necessity of carefully noting the position of a thermometer in any investigation in which such instrument is needed, as indeed do all the experiments that I have made, though not in so marked a manner as does this. I now proceed to the results of those experiments in which grass was covered by different substances, which are as follows:—

The covering of long grass by	caused the thermometer to read higher than one placed on uncovered grass by	the whole	of the difference between the thermometer in air at the height of 4 feet and that on long grass	or in its mean, caused the covered grass to be warmer by.....
raw wool, flax, hare-skin or rabbit-skin				° 8·0
a sheet of white tin ...	,, ...	five-eighths	... ,, ...	,, ... 5·0
a sheet of white tin one inch high ...	... ,, ...	five-eighths	... ,, ...	,, ... 5·4
a sheet of blackened tin	,, ...	three-eighths	... ,, ...	,, ... 3·6
a sheet of lead..... ...	,, ...	three-eighths	... ,, ...	,, ... 3·6
a sheet of lead 6 inches high	... ,, ...	five-eighths	... ,, ...	,, ... 5·4
a sheet of colourless glass.....	... ,, ...	one-fourth ...	... ,, ...	,, ... 2·4
a sheet of colourless glass 1 inch high	... ,, ...	five-eighths	... ,, ...	,, ... 5·0

The following are some of the particulars that we may collect from these results. The filamentous substances and skins did not allow any heat to escape from the grass they covered, thus proving them to be very bad conductors of heat. The raising any substance above the grass caused the thermometer reading to increase, although in this case it must have been exposed to a portion of the sky: this in the case of tin was a small quantity; in the cases of lead and of glass the quantity was large, with the former amounting to 1°·7, and with the latter to 2°·7 in their means. The amount of heat transmitted through a colourless medium, as glass, is remarkable, the mean amount of radiation from grass thus covered being less by only one-fourth part of that of uncovered grass.

The next investigation connected with grass was that of placing thermometers at different distances from it, with the view of determining the cooling effect of a body, as cooled by radiation, upon the air in contact with it; the results of these experiments as contained in the table, will probably be more clearly seen by arranging the numbers on the supposition that the reading of a thermometer on long grass was 0°, and combining with them those of 1 inch below and on the surface of the soil as follows:—

At one inch below the surface of the soil the mean reading would be . . .	° 10·24
On the surface of the soil under long grass the mean reading would be . .	7·84
On long grass fully exposed to the sky the mean reading would be	0·00
One inch above long grass fully exposed to the sky the mean reading would be	2·76
Two inches above long grass fully exposed to the sky the mean reading would be	3·61

Three inches above long grass fully exposed to the sky the mean reading would be 4°·39
Six inches above long grass fully exposed to the sky the mean reading would be 6·02
One foot above long grass fully exposed to the sky the mean reading would be 7·31
Two feet above long grass fully exposed to the sky the mean reading would be 7·67
Four feet above long grass fully exposed to the sky the mean reading would be 7·81
Six feet above long grass fully exposed to the sky the mean reading would be 7·96
Eight feet above long grass fully exposed to the sky the mean reading would be 8·26
Twelve feet above long grass fully exposed to the sky the mean reading would be 8·27
And the one in air at the height of four feet, protected from six-tenths of the sky, would be . . . . . 8·39

The numbers in the last column of Table XLV., opposite to the respective heights above long grass, are factors deduced by considering the radiation from long grass to be represented by unity, and therefore the numbers represent the factors corresponding to the cooling effect of a body cooled by radiation upon the air at different heights above it. They may be considered to apply to all bodies whose radiating powers are known, the cooling effect of which upon the air at any particular distance above them, less than twelve feet, will be known by multiplying the mean radiating power into the factor corresponding to that distance.

The greater coldness of grass than that of the air in clear and calm weather, in places sheltered from the sun but open to a considerable portion of the sky, may continue all the day as well as night, and from many unrecorded observations, this appears to occur frequently. On September 22d, 1843, this was observed to be the case; the day was fine, the sky was nearly cloudless, and the reading of the barometer was high. A thermometer on the grass was placed in the shade, and exposed to as much of the sky as possible, and the following observations were taken:—

1843. Month, day, and hour.	Reading of thermometer		Excess of reading of thermometer in air above that on grass.	Remarks.
	In air.	On the grass.		
h m	°	°	°	
Sept. 21. 21 30	62·8	58·5	4·3	Cloudless; dew abundant.
22 15	60·0	54·3	5·7	Cloudless; dew in globules on grass.
23 20	65·5	64·0	1·5	Large clouds to the north; dew abundant.
23 50	66·5	61·5	5·0	Cloudless; dew abundant.
Sept. 22. 0 0	69·0	62·0	7·0	A few clouds to the north.
1 0	68·9	61·5	7·4	Thin clouds to the north.
1 40	68·7	59·0	9·7	Cloudless.
1 53	68·7	58·8	9·9	Cloudless.
3 30	67·0	58·4	8·6	Cloudless.
4 0	66·6	59·4	7·2	Cloudless.
4 20	66·3	58·7	7·6	Cloudless.
4 35	65·8	57·5	8·3	Cloudless.
5 0	65·2	56·8	8·4	Cloudless.

The thermometer was frequently moved so as to keep it in the shade, and on grass upon which the sun had not shone for a long time.

At noon on this day a thermometer was placed on grass upon which the sun had been shining till Sept. 21^{d}, 23^{h} 45^{m}, and the following observations were taken :—

1843. Month, day, and hour.		Reading of thermometer		Excess of reading of thermometer in air above that on grass.	Remarks.
		In air.	On the grass.		
	h m	°	°	°	
Sept. 22.	0 0	69·0	67·0	2·0	A few clouds to the north.
	1 0	68·9	64·5	4·4	Thin clouds to the north.
	1 40	68·7	64·0	4·7	Cloudless.
	3 30	67·0	61·7	5·3	Cloudless.
	4 0	66·6	61·5	5·1	Cloudless.
	4 20	66·3	61·0	5·3	Cloudless.
	4 35	65·8	59·7	6·1	Cloudless.
	5 0	65·2	59·0	6·2	Cloudless.

During the whole of this day the temperature of the grass in the shade was several degrees below that of the air at four feet above it, and dew remained all day upon that portion of grass upon which the sun had not shone. Also the temperature of that upon which the sun had been shining soon began to decline, but it did not descend so low as that of the dew-point, which was about 58°, and therefore no dew was deposited upon it.

This day followed a long period of hot weather without rain, and the day was nearly cloudless, with the sun shining brightly.

This closes the experiments connected with grass with mercurial thermometers, and it will be seen that I have paid very much attention to them, as grass is a substance upon which many former experiments have been made, the discrepancies between which are now fully accounted for.

I may here point out one important result of the preceding experiments; viz. the amount of the corrections dependent upon the portion of clear sky to which the bulb of a thermometer is exposed, necessary to be applied to its readings to obtain from them the true temperature of the air. As a thermometer at the height of four feet, protected from six-tenths of the sky, was found to read 0°·58 higher than another at the same height fully exposed to the sky, it follows that the effect of protecting the bulb of a thermometer from the sky, whose height from the ground was four feet, was to cause the readings to increase 0°·1 for every tenth part of the sky protected: hence, if a thermometer be wholly exposed to the sky, it is necessary to increase its readings by

$$0°{\cdot}1 \times \text{number of tenths of cloudless sky ;}$$

and if the bulb be partially protected from the sky, the correction is

$$\left(10 - \left\{\begin{array}{l}\text{quantity of sky in tenths from}\\ \text{which the bulb is protected}\end{array}\right\}\right) \times 0°{\cdot}1 \times \text{number of tenths of clear sky.}$$

From this it appears that the thermometer, which throughout all the experiments has been considered to have been protected from the effects of radiation, was yet subjected to it to the amount of 0°·4 on a cloudless sky, or to 0°·4 × number of tenths of clear sky at times when the sky was partially cloudy.

If attention be paid to the placing of thermometers, so that their bulbs be in the shade, protected from rain and from the effects of radiation from walls (by placing their bulbs at least six inches from them), but in other respects freely exposed to the air, and correcting their readings by the preceding formulæ, it will ensure the obtaining the true temperature of the air from them at night. To avoid the effects of reflected heat during the day, the thermometers should be placed at a greater distance than six inches from walls, &c., and their readings corrected as before by the preceding formulæ. No simple rules have hitherto been given for placing a thermometer so that from its readings the true temperature of the air could be deduced.

The readings of thermometers placed on grass being found so variable, the unfitness of it to furnish the means of comparing the degrees of cold at night on the surface of the earth was evident. A much greater uniformity was observed in the results of experiments made with other substances, which were bad conductors of heat, and whose condition was always the same.

Of all the substances experimented upon, those on which the readings of the thermometers have been the lowest were hare-skin and rabbit-skin*; and upon the filamentous, as raw wool, flax, unwrought cotton wool, and raw silk, the readings upon all of which were more steadily less, on clear and calm nights, and exhibited a greater degree of cold, than those on grass. Among bodies of this class, raw wool exhibited a lower reading at all times than any of the rest; the circumstance of hare-skin and rabbit-skin exhibiting a lower mean in the table is accidental, experiments on these substances having been made only during the finest nights, and on which nights raw wool exhibited lower readings than they did. The next in order is flax, both fine and coarse, and in its mean it exhibits a radiating power very nearly equal to that of raw wool; but the last-mentioned substance was much more sensible on the approach of a cloud than any other substance: on those nights which were clear for many hours, raw wool obtained its lowest readings long before flax; and the readings on wool, on the approach of a cloud, increased much sooner than those on flax; and in consequence of the latter circumstance, the mean values deduced from raw wool and flax were nearly the same. In intervals of clear sky, between cloudy states of it, the difference between the readings of two thermometers, the one in air and the other on raw wool, was the greatest of any of the differences. The rapidity of the decrease of the readings on raw wool from a cloudy to a clear sky was about a degree per minute, so that a change in the readings of 15° has taken place in a quarter of an hour. The greatest difference between the temperature of a body at night on the surface of the earth, and that of air a few feet above the earth, was 28°·5; this extraordinary difference occurred in 1844, April 8^{d}, at 8^{h} (See Table XLIV.). The times

* Thus explaining the fact frequently noticed by sportsmen, that the snow upon which hares have been lying is never in the slightest degree melted.

at which other large differences took place, with their amounts, will be seen in Section II.

The next class of bodies consisted of black and white wadding, flannel, and wool of different kinds and colours. Of these, black and white wadding exhibited the lowest readings, and were nearly equal in amount; flannel was the next in order, and the various-coloured lambs' wool were the next; but the differences between those bodies with respect to their radiating powers were not large; they were all, however, inferior in their radiating powers to bodies of the first class. It will be seen in Table XLV. that the numbers opposite to flannel, yellow and blue cotton wool, when those substances were placed on the raised board, are larger than those numbers with the same substances placed upon grass; these differences most probably arose from the different quantities of heat which they received from the parts beneath, the several substances being slow conductors of heat.

The observations upon the coloured wools were too few to indicate positively the influence of colour, nevertheless they were all good and simultaneous experiments. The order of their radiating power is black the lowest, then green, white, crimson, scarlet, orange, yellow, dark blue and light blue successively, the difference between light blue and black being 1°·3. The same parcels of wool were exposed to the direct rays of the sun many times, and as nearly similarly situated as possible. The mean of fifty-eight simultaneous readings of the thermometers placed on them gave—

Black	105°
Yellow	105
Scarlet	107
Orange	109
White	110
Green	110
Crimson	110
Dark blue	110
Light blue	121

Thus black and light blue are at the extremes of the absorptive powers, and so far confirm the results obtained by the night observations, as the absorptive power of substances is proportional to their radiating power.

But as these results with respect to colours may have been affected with the particular parcels of wool I used, and different results might have been obtained had other parcels been used, I do not place much confidence in them; yet, so far as I could discover, each parcel was equal in thickness, hardness, and in fact in every respect except that of colour.

Bodies in the state of powder, placed on the raised board, formed a third class of substances. These were black-lead, charcoal, whiting, chalk, lamp-black and river-

sand. The lowest readings occurred on lamp-black; the next in order were chalk, whiting, charcoal, black-lead and sand; a quantity of the last-mentioned substance was also placed on the ground to the depth of three inches, and to an extent of nine square feet; the difference between the mean readings of thermometers placed on sand in these two positions is probably accidental, arising from the observations in the former case having been taken on very fine nights only.

Building materials formed a fourth class; these consisted of glass, stone, brick, pantile, wood and slate. The lowest readings occurred on glass, and therefore this substance exhibited the greatest radiating power; the next in order were wood, slate, pantile, brick and stone successively; the three last-named substances were nearly equal.

Metals formed a fifth class; these consisted of tinfoil, lead, zinc, copper, iron, white tin, blackened tin, and the thermometer placed in the focus of a polished metallic reflector; of these lead and zinc of different thicknesses were experimented upon, and the same results were obtained (see Table XLVII.), from which circumstance it is inferred that the thickness of a metal has no effect on its radiating power. The metals were all placed on grass, and from the circumstance of the ready passage of heat from one part of a metal to another, much heat must have passed from the earth to their upper surface when so placed. The lowest readings of this class were those of the thermometer in the focus of the reflector; the next in order, and very nearly equal to it in amount, was copper, then blackened tin, lead, zinc, iron and white tin. Two of these metals, viz. lead and zinc, were placed at different distances from the earth, the plane of each sheet being parallel to the horizon in all cases, and in every individual experiment the same result was obtained as that exhibited in the means, viz. that a metal when raised above the ground, though only by one inch, was always warmer than one on the grass, though in the latter case, from its great conducting power for heat, some must have been received from the earth, whilst in the former case, heat only could have been derived from the air flowing past both its under as well as its upper surface.

The temperature of metals as exhibited in these results, contrary to what was expected, is much below that of the surrounding air; this is particularly the case with copper; this metal radiates heat so freely, that with respect to its amount, it would be placed in the second class of substances. Many simultaneous experiments were made with copper when placed on one of the angles of the box, within which was placed the thermometer in the parabolic reflector, with the readings of the latter thermometer; thus situated, the thermometer in the box was protected from lateral wind, whilst that on the copper was subject to the passing air; and thus situated the readings on the copper were lower than those in the reflector, except at times when the air was passing quickly.

Whilst speaking of metals, I may remark here that I never found the reading of a thermometer placed on a metal which had been moved successively from one part of

the grass plat to another, was lower than when it was placed on a similar piece of metal which had remained unmoved.

A piece of metal, if so placed that part of it be in contact with grass and the other part not, that part of it in contact with the grass will be at a lower temperature than that which is not in contact.

The thermometer whose bulb is in the focus of the mirror when the clouds are low remains stationary and frequently reads higher than any other thermometer however placed; the reason seems to be, that the heat radiated from the cloud being received on the reflector and reflected to the bulb in the focus, exceeds that radiated from the thermometer.

The remaining results in Table XLV. are from experiments on garden mould, gravel, saw-dust and paper; also from those made by placing the bulb of a thermometer nine inches above wood, and protected from lateral wind by wood one foot high, at the distance of nine inches from the bulb all round; and from those made by placing the bulb of a thermometer a quarter of an inch above water. Of these, paper exhibited the greatest cold; and from many unrecorded experiments, it always exhibited a great degree of cold. The next in order were saw-dust, garden mould, nine inches above wood, a quarter of an inch above water, and lastly gravel; this last-mentioned substance apparently exhibited the lowest radiating power of any substance contained in this class; but the circumstance of thermometers placed on garden mould and on gravel reading higher than when placed on other substances, was found to be in consequence of the observations having always been made on the ground, of which they formed a part, and the respective surfaces of which were readily supplied with heat from beneath, and thus prevented from exhibiting a great degree of cold from their situation and not from the nature of their substance. This was proved from the circumstance that small parcels of garden mould and gravel placed on the raised board, in which situation but little heat passed from the board to their surface, were found in a few nights to exhibit very low readings of thermometers placed on them. After having found this, I placed a thermometer with its bulb one inch below the surface of the garden mould, and at the same time another one inch below the surface of the ground under grass, and I found that the readings of the latter were usually some degrees higher than those of the former at times when the sky had been clear for some time, plainly indicating the cause of the higher readings on the surface of the mould to be the very ready passage of the heat from beneath to its surface; and, therefore, as before observed, arising from its situation and not from a property inherent in itself. I made no experiments on the amount of heat thus conducted to the surface of the mould and of gravel, but it evidently must be equal, or very nearly so, to the amount radiated from those substances. I made some experiments on the quantity and on the rapidity of heat conducted upwards from one inch below the surface of the ground under grass; these were made by placing thermometers with their bulbs one inch below the ground, on the surface of

the ground immediately under others placed on the top of long and short grass; all the observations thus taken have been copied out, and the difference between every consecutive pair of observations has been consulted with respect to the interval of time between them. The results of this investigation are contained in the following tables:—

Table XLVI.

Showing the quantity and the rapidity of heat conducted from one inch below the surface of the soil, to the surface and to the top of grass.

Year, month and day.	Mean reading of a thermometer in air at the height of four feet.	Long grass.		Short grass.				The decrease per hour in the reading of a thermometer placed			Number of hours during which the readings were frequently examined and from which the results were deduced.	
		Amount by which the reading of a thermometer read less when placed										
		On the top of long grass than that in air at the height of four feet.	On the top of long grass than that on the surface of ground under long grass.	On the top of short grass than that in air at the height of four feet.	On the top of short grass than that under short grass.	Under short grass than that one inch beneath the surface of ground.	On the top of short grass than that one inch below the surface immediately under.	On the surface of ground under long grass.	On the surface of ground under short grass.	One inch below the surface of ground under short grass.	Long grass.	Short grass.
	°	°	°	°	°	°	°	°	°	°	h	h
1843, Dec. 11.	40·0	8·2	10·0	7·4	7·2	3·7	10·9	0·5	0·8	0·6	6	5
14.	44·9	6·0	3·4	5·6	2·6	1·5	4·1	0·3	0·4	0·7	2	2
15.	45·7	5·3	3·5	5·2	1·8	1·2	3·0	0·3	1·3	0·7	13	1
15.	45·7	...	...	...	...	...	...	...	0·6	0·4	...	4
17.	42·3	7·7	7·2	6·8	4·9	2·4	7·3	0·2	0·3	0·4	10	10
1844, Jan. 6.	43·5	...	...	5·1	1·9	3·4	5·3	...	1·0	1·0	...	2
22.	35·9	10·0	7·5	8·9	7·2	1·8	9·0	1·1	1·2	0·6	2	3
26.	42·7	9·8	4·5	7·4	1·5	3·3	4·8	0·3	0·6	0·8	2	2
30.	44·9	8·4	5·5	6·6	1·5	1·4	2·9	0·5	...	1·1	1	1
Feb. 1.	31·7	7·2	9·2	5·5	6·9	2·1	9·0	0·4	0·4	0·4	6	6
15.	34·6	10·6	11·5	7·7	7·3	2·9	10·2	0·4	0·1	0·4	4	4
16.	39·6	8·7	7·0	8·0	4·9	1·2	6·1	0·7	0·5	0·8	6	5
20.	33·4	...	...	6·7	6·5	3·0	9·5	...	1·1	0·3	...	3
22.	25·8	7·5	13·7	6·1	10·9	2·1	13·0	0·3	0·2	0·2	12	12
28.	35·0	6·2	8·0	...	...	...	...	0·3	...	...	7	
March 20.	30·8	8·4	12·8	...	...	...	...	0·3	...	...	9	
21.	37·6	10·8	9·2	...	...	...	...	0·4	...	...	2	
23.	39·7	12·5	11·4	...	...	...	...	0·3	...	...	1	
April 1.	42·0	9·7	11·1	8·4	5·8	5·4	11·2	0·6	0·3	0·2	10	8
2.	49·2	9·7	8·4	8·2	5·4	3·8	9·2	1·8	1·0	1·2	4	4
3.	47·0	11·4	8·8	9·5	2·5	3·3	5·8	0·4	0·1	0·6	11	6
8.	44·9	13·0	8·3	11·2	6·8	3·4	10·2	0·6	0·4	0·8	10	7
9.	52·6	13·0	9·2	11·2	3·6	5·3	8·9	0·8	1·0	1·0	1	1
17.	46·5	9·4	7·5	9·0	4·0	5·5	9·5	0·4	0·3	0·4	6	8
18.	42·1	11·9	12·4	...	...	...	...	0·7	...	...	9	
23.	54·7	7·3	5·5	7·0	3·0	2·7	5·7	1·2	0·8	1·6	2	1
24.	45·5	15·0	13·7	12·8	5·4	7·7	13·1	1·0	1·2	0·3	3	3
25.	50·2	10·0	9·2	9·1	4·0	6·0	10·0	2·0	2·0	1·5	12	10
27.	47·0	...	...	9·0	9·9	6·3	16·2	...	2·1	2·2	...	2
29.	40·8	8·3	5·8	7·3	7·8	1·9	9·7	1·2	0·6	0·2	2	4
May 1.	46·0	11·4	11·0	9·9	5·8	6·1	11·9	1·2	1·2	1·2	10	9

By taking the mean of the numbers in each column, we find that—

The mean reading of a thermometer placed on long grass was less than that in air by . . . . . 9·5°

The mean reading of a thermometer placed on short grass was less than that in air by . . . . . 8·0

The mean reading of a thermometer placed on long grass was less than that under long grass by . . . . . 8·7

The mean reading of a thermometer placed on short grass was less than that under short grass by . . . . . 5°·2
The mean reading of a thermometer placed under short grass was less than that one inch below the surface of the ground under short grass by . . 3·5
The mean reading of a thermometer placed on short grass was less than that one inch below the surface of the ground under short grass by . . . . 8·7
The mean rate of decrease in the reading of a thermometer placed under long grass was, per hour . . . . . 0·7
The mean rate of decrease in the reading of a thermometer placed under short grass was, per hour . . . . . 0·8
And the mean rate of decrease in the reading of a thermometer placed one inch below the surface under short grass was, per hour . . . . . 0·75

In this investigation the excess of the reading of a thermometer placed one inch below the surface of the ground under long grass, above that placed on the surface of the ground, has not been deduced; from a few experiments it appeared to be exactly the same as that of short grass; and assuming such to be the case, the mean difference on clear and calm nights between the reading of two thermometers, the one placed on long grass and the other placed one inch below the ground immediately underneath the other, was 13°·0; and the same difference with respect to short grass was 11°·5. As the results contained in this table were deduced from observations taken at times when the temperature of the long grass was above 30° generally, and occasionally a little below 30°; and as it appears from the remarks following Table XLV. that at temperatures much below 30° very great differences occurred with grass of different lengths, it was desirable to investigate observations similar to the above at low temperatures: such observations I took only on one night, viz. that of March 13, 1845; during this night the thermometers were read hourly for eight hours, and during the time—

The mean reading of the thermometer in air at the height of four feet was . 15°·1
The mean reading of the thermometer on long grass was . . . . . 5·6
The mean reading of the thermometer on the surface of the soil under long grass was . . . . . 26·9
The mean reading of the thermometer one inch beneath the surface of the ground under long grass was . . . . . 33·1
The mean reading of the thermometer on short grass was . . . . . 11·1
The mean reading of the thermometer on the surface of the ground under short grass was . . . . . 21·4
The mean reading of the thermometer one inch beneath the surface of the ground under short grass was . . . . . 28·2

The results of these experiments exhibit in a marked manner the badness of the conducting power of grass for heat, the reading on long grass being less than that on

the surface of the ground immediately beneath it by 21°·3, and less than that one inch below the surface by 27°·5; and the reading of that on short grass was less than that on the ground immediately beneath it by 10°·3, and less than that one inch beneath the surface of the ground by 17°·1. The mean rate of decrease of temperature at one inch beneath the surface of the ground under long grass was 0°·2 per hour, and under short grass was 0°·3 per hour; and on the surface of the ground under short grass was 0°·4 per hour. The difference between the readings at one inch beneath the surface under long grass and under short grass was 4°·9, the former being the higher by this amount; the difference between the readings on the surface of the soil under long grass and under short grass was 5°·4, that under long grass being the higher of the two; and the difference of readings on long grass and on short grass was 5°·4, that on long grass being the lower of the two; and thus the reading on long grass was as much less than that on short grass as that under long exceeded that under short: this circumstance affords a sufficient reason for the temperature of short grass being warmer than that of long grass, the heat passing so much more freely from the earth to it than in the case of long grass.

I shall conclude this part of this section, with remarking that the various amounts of dew deposited, at the same time, on different bodies at night, were found to be, as near as could be determined, proportional to the amounts of the depression of their temperature below that of the dew-point. Hence, it is evident that all hygrometers formed of any of these substances, or of any animal or vegetable substance, when exposed to the clear sky at night, will be cooled by the radiation of their heat, and will cool the air in contact with them; and thus indicate a greater degree of humidity than actually exists; and particularly so, should their temperatures descend below that of the dew-point, and dew be actually deposited upon them.

The following table contains the results of special simultaneous observations, made in some cases in consequence of the results as deduced from the ordinary observations not agreeing with each other, and in others to determine the amount of the correction due to the placing of the different substances on the raised board.

Table XLVII.—Results of Special Simultaneous Observations.

Excess of the reading of the thermometer in air at the height of four feet protected from the effects of radiation, above those of thermometers, in simultaneous observations, placed

1843. Day, hour and minute.	One inch above grass.	Two inches above grass.	1843. Day, hour and minute.	On white unwrought cotton wool. On grass.	On white unwrought cotton wool. On the raised board.	1843. Day, hour and minute.	On flax. On grass.	On flax. On the raised board.	1843. Day, hour and minute.	On sand. On the ground.	On sand. On the raised board.	1843. Day, hour and minute.	On zinc. Thin.	On zinc. Moderately thick.	On zinc. Thick.	1843. Day, hour and minute.	On stone. Fire.	On stone. Portland.	On stone. Purbeck.	1844. Day, hour and minute.	On lead. On grass.	On lead. Six inches above grass.	1844. Day, hour and minute.	In air. Height in feet. 8.	In air. Height in feet. 10.	In air. Height in feet. 12.
Sept. h m	°	°	h m	°	°	Nov. h m	°	°	Sept. h m	°	°	h m	°	°	°	h m	°	°	°	Feb. h m	°	°	Feb. h m	°	°	°
13. 12 0	12·0	7·5	Sept. 13. 13 30	11·7	11·8	7. 10 0	6·5	5·5	13. 12 0	7·5	7·5	Nov. 29. 12 30	6·0	4·3	5·0	Dec. 11. 4 30	2·2	2·4	2·7	1. 5 0	8·3	4·5	21. 11 0	0·0	0·1	0·2
13. 12 30	12·3	6·8	13. 14 30	11·5	10·0	7. 11 10	6·5	4·3	13. 12 30	7·8	8·3	29. 13 45	5·7	6·0	6·0	11. 5 30	2·5	2·9	3·1	1. 7 0	3·8	4·0	22. 6 45	1·2	1·3	1·3
13. 13 20	11·7	5·7	13. 15 15	12·3	10·0	8. 9 10	8·0	5·8	13. 13 30	9·2	8·9	29. 15 0	5·3	5·5	5·8	11. 6 30	3·0	4·0	3·0	1. 9 0	3·7	4·7	22. 9 0	0·8	0·8	0·1
13. 14 30	10·5	5·2	13. 15 20	9·5	8·3	8. 11 0	8·6	6·1	13. 14 30	8·5	7·5	29. 17 0	1·8	3·9	3·8	11. 9 30	2·3	2·6	1·9	15. 15 0	6·3	5·0	22. 11 30	2·4	2·1	2·4
13. 15 15	10·3	5·3	13. 15 24	6·0	5·5	11. 5 30	8·3	8·3	13. 15 15	8·8	8·3	29. 18 0	2·5	3·9	3·7	13. 18 0	3·0	2·5	2·0	15. 17 30	7·5	4·9	22. 12 30	0·8	0·8	0·8
13. 15 20	8·5	4·5	13. 15 37	4·5	4·5	11. 7 30	13·2	10·2	13. 15 20	7·0	5·0	29. 19 0	4·0	4·7	4·5	14. 3 0	2·2	2·4	1·9	15. 18 30	7·3	6·3	22. 13 0	1·3	1·3	1·6
13. 15 24	6·0	3·5	13. 17 20	5·5	5·5	11. 9 50	9·5	7·5	13. 15 24	6·0	5·0	Dec. 2. 3 40	3·6	3·3	3·0	14. 4 0	2·5	2·6	2·5	15. 19 15	6·5	5·0	22. 14 30	0·9	0·8	1·0
13. 15 37	4·5	3·0	Oct. 25. 5 15	13·4	14·5	11. 10 35	10·5	7·4	13. 15 37	4·5	4·0	2. 4 30	4·7	4·5	4·0	14. 5 0	2·6	2·9	2·2	16. 4 30	7·7	4·5	22. 16 0	0·6	0·8	0·7
13. 17 20	5·5	3·5	25. 8 0	11·6	10·3	11. 11 10	13·3	9·7	13. 17 20	5·5	4·5	5. 16 15	7·2	6·7	6·9	15. 3 45	1·9	1·7	1·7	16. 5 30	10·0	7·0	22. 17 30	0·2	−0·1	0·1
			25. 9 30	13·0	11·7	11. 12 0	9·5	7·5	15. 7 20	3·2	2·2	5. 17 30	5·6	5·3	5·3	15. 5 0	2·9	2·6	2·9	16. 7 0	5·7	3·2	22. 18 45	−0·1	0·0	0·0
			25. 11 40	10·8	11·0	12. 4 0	5·9	4·3	15. 9 10	3·5	5·3	5. 19 30	5·8	5·5	5·8	15. 21 0	3·0	3·8	2·8	16. 8 0	5·5	2·5				
			25. 13 0	9·5	10·2				15. 10 33	5·0	7·3	5. 21 0	4·5	4·7	4·3	17. 4 0	2·2	3·2	3·2	16. 9 0	6·3	2·8				
			25. 15 0	8·9	9·9				15. 11 0	5·3	6·8	6. 3 45	4·6	4·1	4·2	1844.											
			25. 18 15	9·0	8·8				16. 7 40	4·0	3·4	6. 4 15	5·3	5·2	5·0	Jan. 17. 5 0	4·3	3·5	3·4							
			25. 19 30	7·5	6·2				16. 9 10	3·6	4·8	6. 4 45	5·9	5·7	5·9	26. 5 10	5·3	4·8	5·0		One foot high.	Three feet high.				
			25. 21 0	6·1	2·6				16. 11 20	3·4	3·5	6. 11 0	3·2	3·2	4·2	26. 7 30	4·7	4·1	4·5							
									17. 11 0	3·3	3·8	6. 14 0	5·0	4·5	4·8	30. 4 30	5·3	4·0	4·6	May h m	°	°				
									17. 11 30	4·2	4·3	8. 4 30	9·1	8·1	9·1	30. 5 30	3·5	2·6	3·1	1. 15 0	6·7	5·7				
									17. 12 30	3·6	4·2	8. 9 30	8·5	8·5	8·3	Feb. 1. 3 30	2·7	2·7	2·4	1. 17 0	4·2	4·8				
									17. 13 20	3·4	3·3	11. 3 55	7·0	6·8	6·8	1. 5 0	4·5	6·0	4·0							
									17. 15 20	2·8	2·7	11. 4 30	7·2	7·2	7·2	1. 7 0	0·5	2·0	4·2							
									17. 17 20	2·9	2·6	11. 5 30	5·4	6·0	6·1	1. 9 0	2·7	2·0	2·7							
									18. 7 30	4·0	3·8	11. 6 30	4·8	4·8	4·8	15. 15 0	4·3	4·3	4·6							
									18. 8 0	4·1	3·9	11. 9 30	5·6	5·2	5·2	15. 17 30	2·8	2·8	5·0							
									18. 9 0	8·0	6·0	13. 18 0	3·5	3·5	3·2	15. 18 30	2·5	1·5	4·5							
												14. 3 0	3·9	3·7	3·7	15. 19 15	3·8	3·3	6·0							
												14. 4 0	4·5	4·5	4·5	16. 4 30	4·5	4·7	5·7							
												14. 5 0	4·2	4·2	4·2	16. 5 30	5·0	5·0	5·8							
												15. 3 45	3·2	3·5	3·1	16. 7 0	4·4	4·7	5·4							
												15. 5 0	4·0	3·8	3·8	16. 8 0	3·5	3·3	4·0							
												17. 4 0	5·5	5·5	5·5	16. 9 0	4·6	4·0	5·1							
																20. 5 0	4·5	4·9	4·7							

TABLE XLVIII. Abstract of Special Simultaneous Observations.

Situation of the thermometer.	Excesss of air-temperature above the reading of thermometer.	Number of simultaneous observations.	Remarks.
	°		
One inch above grass	9·0	9	The observations at the height of two inches were made on one night only.
Two inches above grass	5·0		
On white unwrought cotton wool { on grass	9·4	16	It would seem that the amount of radiation from the raised board was less than that from the same substance on the ground.
on the raised board	8·8		
On flax { on grass	9·0	11	The amount of radiation from flax on the raised board decidedly the smaller.
on the raised board	6·9		
On sand { on the ground	5·6	25	The sand on the board was a small quantity, whilst that on the ground was a large quantity; the amount of radiation from sand on the raised board was the smaller.
on the raised board	5·1		
On zinc { thin	5·1	31	From these it would appear that the thickness of a metal has no influence on the amount of its radiating power.
moderately thick	5·0		
thick	5·1		
On firestone	3·3	31	The circumstance of Purbeck stone having a result larger than the other two is probably accidental, as on many nights its results were less than those of the other stones.
On Purbeck stone	3·7		
On Portland stone	3·3		
On lead on grass	6·5	12	The increase in the readings of a thermometer placed on a metal, raised in the air, is decided.
On lead six inches above grass placed horizontally	4·5		
In air at eight feet high	0·8	10	The results are identical, and therefore in Table XLV. such should be the case in the mean.
In air at ten feet high	0·8		The observations at ten feet were made on one night only.
In air at twelve feet high	0·8		
On lead one foot high	5·5	2	The increase in the readings of a thermometer with height is indicated.
On lead three feet high	5·3		

The remarks in the last column indicate the results of the experiments; those relating to the different readings of a thermometer when placed on the same substance on the raised board and on the grass, seem to exhibit in a decided manner that more heat had passed from the board to the surface of the substance than had passed from the grass to it, causing the reading of the thermometers to be increased; the amount of this increase appears to be about half a degree, and this amount should be applied subtractively to all readings on substances placed on the raised board, or additively to all differences between their readings and those in air at the height of four feet.

In Table XLV. the results from all substances in powder were deduced from observations on the raised board, and from this investigation all these results should be increased by half a degree; in the same table the results from blue and yellow jeweller's wool and from raw silk exhibit a greater degree of cold on the raised board than when they were on grass; but these substances were never observed simultaneously in both positions, and they were only placed on the raised board on the finest and calmest nights, and in this latter position they require the same correction to be applied to them as it is necessary to apply to the other substances, whose results are deduced from observations taken on the raised board alone.

TABLE XLIX.

Observations connected with Snow.

1844. Day, hour and minute.	Reading of thermometer in air at four feet high protected from radiation.	Excess of the reading of a thermometer placed in air at the height of four feet and protected from the effects of radiation, above that of a thermometer fully exposed to the sky, and placed																								Clouds.			Wind.		Haze, fog, mist, or vapour.	Remarks.
		On long grass clear of snow.	On long grass covered by snow.	On short grass clear of snow.	On short grass covered by snow.	On surface of ground under short grass clear of snow.	On surface of ground under long grass clear of snow.	One inch below surface of ground under grass covered by snow.	On grass cleared of snow covered by glass free of snow one inch high.	On grass clear of snow covered by white tin one inch high.	On snow.	On raw wool on snow.	On flax on snow.	In focus of metallic reflector cleared of snow.	Nine inches above wood cleared of snow.	One foot above snow.	Two feet above snow.	On lead six inches high cleared of snow.	On copper on snow.	On zinc on snow.	On zinc on grass cleared of snow.	On Purbeck stone cleared of snow.	On glass on snow.	On glass one inch high cleared of snow.	On white tin on snow.	On black tin on snow.	Modification.	Amount 0 – 10.	High or low.	Direction.	Strength 0 – 6.		
Feb.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°							
4. 15 0	31·6	7·6	...	5·4	...	...	...	...	...	...	...	9·8	9·8	9·3	...	1·8	1·9	...	...	...	...	...	...	...	4·8	9·0	Clear	...	...	...	...	H.	Snow to the depth of three inches was on the ground.
4. 19 0	29·7	6·5	...	5·1	...	...	...	...	...	...	...	8·1	8·0	8·7	...	2·3	2·7	...	...	...	...	...	...	...	3·5	7·5	Cirro-stratus	9	...	c.			
5. 5 0	31·0	8·0	−2·0	6·4	−2·7	1·8	...	−5·5	...	...	5·0	7·0	6·5	9·9	...	1·7	1·7	...	...	5·2	...	...	6·8	7·8	7·8	9·7	Clear	...	...	...	...	H.	
5. 7 25	29·0	9·2	−3·0	9·6	−2·8	−1·8	...	−5·3	4·2	...	6·8	8·2	9·2	10·9	...	2·0	2·0	6·2	...	6·0	...	...	10·4	5·6	7·8	8·8	Flying clouds	3	...	...	...	H.	
6. 11 0	33·1	5·1	1·1	5·9	2·6	2·6	0·1	−1·9	1·6	3·6	2·6	7·6	8·0	7·6	2·1	0·9	0·9	...	5·1	3 9	3·6	2·6	5·6	4·0	5·6	6·1	Cirro-stratus	9½	H.	c.			

By taking the mean of the numbers in each column, the following results are obtained:—

TABLE L. Experiments connected with Snow.

Situation of the thermometer, its bulb, or the substance under which it was placed being fully exposed to the sky.	Mean excess of the reading of the thermometer in air at the height of four feet, protected from radiation.	Number of comparisons.
	°	
On long grass clear of snow	7·3	5
On long grass covered by snow	−1·3	3
On short grass clear of snow	5·5	5
On short grass covered by snow	−1·0	3
On surface of ground under short grass clear of snow	0·9	3
On surface of ground under long grass clear of snow	0·1	1
One inch below surface of ground under long grass covered by snow	−4·2	3
On grass cleared of snow covered by glass free from snow one inch high	2·9	2
On grass clear of snow covered by white tin one inch high	3·6	1
On snow	4·8	3
On raw wool on snow	8·2	5
On flax on snow	8·3	5
In focus of metallic reflector cleared of snow	9·3	5
Nine inches above wood cleared of snow	2·1	1
One foot above snow	1·7	5
Two feet above snow	1·8	5
On lead six inches high cleared of snow	6·2	1
On copper on snow	5·1	1
On zinc on snow	5·0	3
On zinc on grass cleared of snow	3·6	1
On Purbeck stone cleared of snow	2·6	1
On glass on snow	7·6	3
On glass one inch high cleared of snow	5·8	3
On white tin on snow	5·9	5
On blackened tin on snow	8·2	5

At the time of two of these five sets of observations the sky was nearly covered with cloud; at one other time one-third part of the sky was clouded over and much haze prevailed; and at the remaining times the sky was not bright, and there was a perceptible haze. The mean temperature of the air was 30°·9; the mean reading of the thermometer on long grass clear of snow was 1°·8 less than that on short grass, also clear of snow; and the readings were nearly alike when the two were covered with snow. The effects of snow on long grass was to cause the thermometers on the grass to read higher by 8°·6, but this difference does not fully represent the non-conducting power of snow, as the temperature of the air varied very little whilst these experiments were being made; had the temperature of the air fallen or risen much whilst the snow had been on the ground, the temperature of the earth under the snow would have continued nearly at the same reading, and in that case the effects of the snow would have been much more decided. The next favourable opportunity I had of repeating my experiments on snow was 1845, February 12*. Snow had previously fallen to the depth of three inches, and during the night, which was cloudless, the reading of a thermometer which was placed on long grass was −6°, whilst that covered by snow was 28°·0; the effect of the snow was therefore to keep the grass warmer by 34°, and therefore vegetation was kept warmer by this amount than it would have been had there been no snow. The reading of a thermometer placed on the snow was −12°, and the difference between the readings of two thermometers, the one placed on snow and the other under the snow, was 40°. After this time the reading on grass clear of snow rose to 24°, and that on snow increased to 15°, without causing any variation in the reading of that under the snow, which still read 28°. Snow would therefore appear to be a very perfect non-conductor of heat. The lowest reading of a thermometer on flax was $-12^{\circ}\frac{1}{2}$; that on short grass was 5°, being 11° higher than that on long grass; this heat (see remarks following Table XLV.) represents the difference between the quantities of heat conducted from beneath the surface to long and to short grass, and it would represent also the greater quantity of heat lost from the earth as covered by short grass than that by long grass; and if to this 11° we add the heat conducted beneath the surface to long grass, which did not differ much from 6°, it would appear that heat to the amount of 17° was conducted to the short grass from the earth beneath it. Snow being so perfect a non-conductor of heat, evidently prevents to a high degree the loss of heat by radiation from bodies covered by it; and it also prevents the loss of heat from such bodies by conduction, at times when the temperature of the air is lower than they are. Raw wool, flax, straw, and other bodies which are bad conductors of heat, act in a similar way and prevent the injurious effects of cold to bodies covered by them, to which injurious effects vegetation is liable in this climate in every month of the year, as it is liable to a temperature at night below the freezing-point of water in every month.

* For these observations, see the Greenwich Magnetical and Meteorological volume for the year 1845, pages 256 and 257.

SECTION II.—*Results of Observations made by Self-registering Minimum Thermometers.*

These observations extend over a period of time of nearly four years' duration, viz. from 1841 February to the end of 1844*.

The observations consist of the daily reading of a self-registering minimum thermometer with its bulb placed at the height of four feet above the ground, protected from the effects of radiation and rain, but in other respects freely exposed to the air, and the daily reading of a similar thermometer placed with its bulb in the focus of a metallic parabolic reflector, and fully exposed to the sky.

The kind and average amount of cloud by which the sky was covered were also noted every night. The average direction and strength of the wind were also determined every night.

From 1843 April and extending to the end of 1844, several similar thermometers were placed on or near different substances, and their readings were taken daily.

The first process in the reduction of the observations was the taking the difference between the reading of the thermometer in air and the simultaneous reading of every other thermometer.

The second process was the forming all those differences into groups, according to the variable state of the sky, depending only on the kind and amount of cloud, but independently of its height. The result of this investigation was found to be that the amount of the difference varied with every variation of the amount of the clouds.

The third process was the forming groups of the differences derived from the same cloudy state of the sky, but with the clouds at different distances from the earth. The result was found to be that the amount of the numbers was different according to the variable distance that the clouds were from the earth.

The fourth step was the forming groups of numbers derived from observations on different nights with the same state of the sky, but with the wind blowing from different quarters, independently of its strength. The result of this investigation was that no certain difference existed depending on the quarter from whence the wind blew.

The fifth step was the forming groups of the numbers found from observations on different nights with the same state of the sky, on calm nights, and on nights when the wind has been blowing strongly, at times amounting to a gale, independently of its direction. The result was found to be that no certain difference existed, depending on the strength or velocity of the wind, showing clearly that on every windy night a portion of time had been calm of sufficient duration for the instruments to register the loss of heat by radiation, and to the same amount as would have been shown had the air been in a calm state during the night.

Having thus explained the manner in which the preliminary steps in the reduction

* The observations are placed in the Archives of the Royal Society.

of the observations have been made, I shall proceed with the explanation of the process for the formation of the following tables.

As the variations of the excess of the readings of the thermometer in the air, above those otherwise placed, were thus found to depend on the variations in the amount and in the height of the clouds only, the next operation was dividing the results of each month's observations into five groups as follow.

The first group was formed from the observations taken on nights which were cloudy throughout.

The second group from those taken on nights which were principally cloudy, but the clouds frequently broken.

The third group from those taken on nights which were half-clear and half-cloudy.

The fourth group from those taken on nights which were principally cloudless, but yet clouds were frequent.

The fifth group from those taken on cloudless nights, and in this way Tables LI. to XCIX. were formed; the successive results in each class being arranged according to their dates of occurrence.

The examination of the columns in each month as to the distribution of the numbers, gives a good knowledge of the distribution of the clouds at night during the month.

Excess of the reading of a self-registering minimum thermometer placed in air at the height of four feet, protected from the effects of radiation, above that of a similar thermometer placed in the focus of a metallic parabolic reflector fully exposed to the sky on every night, arranged according to the state of the sky with respect to the quantity of clouds.

Number of the Tables.	1841. Month.	General state of the sky during the night previous to reading the instruments.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.
		d h	°	d h	°	d h	°	d h	°	d h	°
LI.	Feb.	4 21	4·8	24 21	3·8	17 21	.....	.....	.....	19 21	5·8
		5 21	3·0	28 21	4·1	18 21	3·2				
		6 21	0·8								
		7 21	2·8								
		8 21	2·3								
		9 21	2·8								
		10 21	5·7								
		11 21	1·9								
		12 21	1·7								
		13 21	0·8								
		14 21	−0·6								
		15 21	1·2								
		16 21	2·9								
		20 21	2·3								
		21 21	2·1								
		22 21	1·1								
		23 21	1·5								
		25 21	2·4								
		27 21	1·3								
LII.	March	13 21	−0·5	1 21	1·8	7 21	5·8	2 21	5·2	6 21	9·4
				4 21	2·1	9 21	5·3	3 21	4·9	8 21	7·2
		30 21	2·0	20 21	3·5	14 21	4·2	5 21	5·1	10 21	4·7
		31 21	0·2	23 21	4·0	22 21	4·3	17 21	9·7	11 21	7·0
				28 21	4·4	26 21	5·9	18 21	5·4	12 21	5·3
										15 21	8·8
										16 21	13·4
										19 21	6·7
										24 21	7·3
										25 21	6·9
										27 21	5·7
										29 21	2·7
LIII.	April	10 21	2·1	1 21	3·5	5 21	4·5	14 21	7·2	2 21	8·6
		13 21	2·8	6 21	2·7	9 21	4·7	21 21	3·5	3 21	7·8
		22 21	0·7	7 21	1·9	12 21	6·6	23 21	6·5	4 21	11·5
		24 21	2·1	11 21	1·3	19 21	7·9	26 21	5·6	8 21	11·8
				18 21	(−2·4)	20 21	4·7	28 21	5·6	15 21	7·6
				25 21	6·3	27 21	5·4	29 21	6·2	16 21	10·2
										30 21	8·1

Table (Continued).

Number of the Tables.	1841. Month.	General state of the sky during the night previous to reading the instruments.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.
		d h	°	d h	°	d h	°	d h	°	d h	°
LIV.	May	2 21	0·2	5 21	3·9	10 21	5·3	24 21	6·6	1 21	7·7
		3 21	0·1	6 21	3·2	16 21	5·5	28 21	5·4	12 21	8·5
		4 21	−0·1	7 21	−0·4	17 21	5·4	30 21	7·5	13 21	7·8
		21 21	0·2	8 21	2·5	19 21	3·7	31 21	8·4	14 21	7·5
		25 21	0·6	9 21	1·1	22 21	5·5	.....	.....	15 21	8·0
		29 21	1·5	11 21	3·5	23 21	5·4	.....	.....	20 21	5·9
				18 21	0·5	.....	.....	.....	.....	26 21	5·3
				27 21	2·1						
LV.	June	5 11	−0·7	2 21	2·3	4 21	7·9	1 21	5·9	3 21	9·2
		7 21	−1·1	6 21	5·6	16 21	5·1	10 21	7·8	9 21	9·4
		8 21	0·8	14 21	3·7	19 21	4·9	13 21	6·7	12 21	11·2
		11 21	−0·4	.....	.....	21 21	4·9	15 21	8·3	20 21	3·5
		18 21	1·4	28 21	1·9	22 21	4·6	17 21	9·4	26 21	(−0·3)
		24 21	.....	30 21	3·5	25 21	(−0·3)	23 21	6·2		
		27 21	0·6	.....	.....	29 21	4·5				
LVI.	July	1 21	−0·3	4 21	3·6	12 21	5·3	4 21	7·0	3 21	10·9
		2 21	1·4	11 21	2·8	18 21	5·2	8 21	2·1	9 21	3·8
		3 21	1·3	14 21	1·9	24 21	4·6	13 21	4·9	16 21	8·0
		7 21	−0·3	19 21	3·1	28 21	4·1	.....	.....	17 21	6·8
		10 21	0·3	20 21	3·6	29 21	4·7				
		15 21	1·5	21 21	2·9	30 21	4·2				
		23 21	1·7	22 21	2·3						
				25 21	2·1						
				26 21	3·4						
				27 21	3·7						
				31 21	2·2						
LVII.	August	1 21	0·1	4 21	5·0	6 21	7·9	9 21	3·3	20 21	7·0
		2 21	−0·6	5 21	3·5	11 21	4·5	15 21	6·5	24 21	10·5
		3 21	−1·3	7 21	3·8	12 21	6·5	18 21	6·4	28 21	8·2
		10 21	0·5	8 21	3·0	14 21	5·5	19 21	5·2	29 21	14·0
		17 21	1·8	13 21	2·5	23 21	5·1	21 21	6·2		
		22 21	0·3	16 21	3·9	30 21	5·0	27 21	6·0		
		25 21	1·6	26 21	3·2						
		31 21	2·2								
LVIII.	Sept.	4 21	2·9	27 21	4·0	3 21	8·4	1 21	6·7	6 21	4·5
		20 21	2·3	29 21	4·5	5 21	5·6	2 21	6·1	10 21	10·5
						7 21	5·3	13 21	3·6	12 21	11·7
						8 21	4·5	16 21	5·8	15 21	7·1
						9 21	4·8	.....	.....	17 21	7·1
						11 21	4·1	.....	.....	18 21	7·9
						14 21	5·5				
						19 21	4·1				
						21 21	3·3				
						22 21	4·3				
						23 21	4·7				
						24 21	5·2				
						25 21	4·3				
						26 21	2·7				
						28 21	4·0				
						30 21	4·1				

TABLE (Continued).

Number of the Tables.	1841. Month.	General state of the sky during the night previous to reading the instruments.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.
LIX.	Oct.	d h 27 21 28 21 29 21 30 21 31 21	° 0·6 2·1 2·7 0·0 2·1	d h 1 21 2 21 3 21 4 21 5 21 10 21 11 21 13 21 26 21	° 3·6 2·5 1·0 3·1 3·1 3·8 3·2 3·4 2·1	d h 6 21 7 21 8 21 9 21 12 21 14 21 18 21 22 21 23 21 24 21 25 21	° 2·4 2·4 3·9 4·6 4·8 4·1 4·5 5·9 4·7 4·2 3·5	d h 15 21	° 7·0	d h 16 21 17 21 19 21 20 21 21 21	° 8·2 12·9 6·7 7·9 7·9
LX.	Nov.	1 21 21 21 27 21	2·4 2·0 2·7	3 21 4 21 7 21 9 21 13 21 15 21 20 21 28 21 29 21	2·2 −1·1 4·1 3·2 0·9 1·1 2·4 4·9 5·0	2 21 5 21 10 21 24 21 25 21 30 21	8·9 4·3 5·7 5·6 5·7 6·1	22 21 23 21 26 21	7·0 6·7 7·9	6 21 8 21 11 21 12 21 14 21 16 21 17 21 18 21 19 21	9·0 8·8 9·4 5·4 8·2 10·0 9·2 8·6 3·6
LXI.	Dec.	19 21 28 21 29 21	4·5 4·3 4·2	2 21 7 21 12 21 24 21 25 21 27 21	5·3 3·9 4·0 1·0 3·7 4·4	1 21 4 21 5 21 9 21 11 21 13 21 15 21 22 21 30 21	5·1 5·0 5·9 6·1 5·9 4·4 5·8 8·2 5·6	3 21 8 21 16 21 21 21 23 21	6·9 7·1 8·0 6·6 6·7	6 21 10 21 14 21 17 21 18 21 20 21 26 21	8·2 7·8 8·9 8·9 11·8 8·5 6·5
LXII.	1842. Jan.	8 21 9 21 10 21 11 21 13 21 18 21 19 21 20 21 21 21 29 21	2·1 2·5 4·5 1·8 2·4 2·0 2·2 0·6 3·8 1·5	0 21 2 21	5·0 2·7	1 21 3 21 4 21 5 21 17 21 28 21 30 21	7·6 8·7 4·7 4·5 3·6 6·6 5·3	6 21 12 21 15 21 16 21 22 21 26 21 31 21	5·5 7·8 7·0 4·9 6·4 5·5 6·1	7 21 14 21 23 21 24 21 25 21 27 21	6·0 9·1 10·7 10·7 8·1 12·0
LXIII.	Feb.	7 21 11 21 16 21 23 21 24 21	1·6 1·0 2·8 1·4 2·3	2 21 4 21 8 21 9 21 10 21 22 21	3·7 3·3 1·2 2·5 3·8 3·9	3 21 5 21 12 21 20 21 21 21 27 21 28 21	4·3 5·0 7·2 6·4 5·4 5·4 5·6	1 21 6 21 14 21 18 21 19 21	7·3 5·7 5·4 5·0 5·5	13 21 15 21 17 21 25 21	6·0 8·9 8·4 9·3

Table (Continued).

Number of the Tables.	1842. Month.	General state of the sky during the night previous to reading the instruments.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.
		d h	°	d h	°	d h	°	d h	°	d h	°
LXIV.	March	2 21	3·2	19 21	1·6	3 21	4·1	18 21	7·4	1 21	7·4
		7 21	1·4	.....	.....	5 21	4·9	22 21	5·6	4 21	4·1
		9 21	2·5	.....	.....	8 21	4·3	23 21	6·7	6 21	6·4
		14 21	0·5	.....	.....	11 21	4·1	.....	.....	10 21	8·2
		15 21	1·3	.....	.....	16 21	6·4	.....	.....	12 21	6·8
		24 21	2·5	.....	.....	17 21	4·5	.....	.....	13 21	6·5
		29 21	2·5	.....	.....	20 21	3·8	.....	.....	25 21	6·3
		31 21	1·6	.....	.....	21 21	3·6	.....	.....	26 21	6·3
						27 21	3·3				
						28 21	3·2				
						30 21	4·2				
LXV.	April	12 21	2·2	11 21	3·9	1 21	4·9	3 21	7·9	5 21	7·5
		13 21	0·9	.....	.....	2 21	4·9	4 21	7·7	8 21	4·4
		14 21	2·8	.....	.....	7 21	4·8	6 21	3·8	17 21	8·1
		18 21	0·7	.....	.....	9 21	4·6	15 21	3·7	19 21	5·6
		21 21	0·6	.....	.....	10 21	4·3	16 21	4·3	25 21	6·6
						22 21	4·6	20 21	2·5	26 21	7·0
						23 21	6·9	24 21	5·9	27 21	9·3
						29 21	3·7	.....	.....	28 21	7·6
										30 21	7·7
LXVI.	May	3 21	2·3	5 21	5·7	7 21	5·9	4 21	6·5	1 21	8·1
		11 21	1·7	6 21	1·6	14 21	4·4	8 21	6·7	2 21	7·1
		27 21	1·7	12 21	6·1	15 21	5·7	10 21	7·4	9 21	9·0
				20 21	5·3	18 21	7·7	16 21	6·9	13 21	7·6
				21 21	6·4	25 21	6·9	17 21	5·2	23 21	9·5
								19 21	6·6	28 21	8·4
								22 21	8·2	29 21	9·2
								24 21	6·8	31 21	8·7
								26 21	6·2		
								30 21	7·2		
LXVII.	June	25 21	2·4	24 21	5·8	14 21	5·2	1 21	8·3	2 21	9·7
		30 21	−0·1	.....	.....	16 21	6·5	4 21	6·5	3 21	8·9
						17 21	6·2	13 21	5·8	5 21	9·1
						18 21	6·2	15 21	6·7	6 21	15·6
						19 21	5·5	21 21	5·3	7 21	16·0
						20 21	5·8	27 21	5·7	8 21	7·9
						23 21	4·9	28 21	6·0	9 21	7·3
								29 21	7·0	10 21	6·4
										11 21	6·9
										12 21	7·2
										22 21	12·8
										26 21	14·2

TABLE (Continued).

Number of the Tables.	1842. Month.	General state of the sky during the night previous to reading the instruments.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.
		d h	°	d h	°	d h	°	d h	°	d h	°
LXVIII.	July	7 21	5·9	18 21	4·4	1 21	5·2	2 21	5·7	13 21	10·2
		22 21	2·6	19 21	4·6	3 21	4·9	5 21	7·2	14 21	10·4
		27 21	2·6	28 21	2·3	4 21	2·5	6 21	8·0	15 21	7·9
						8 21	4·8	9 21	5·9	23 21	8·1
						11 21	5·1	10 21	6·1	24 21	9·0
						20 21	6·9	12 21	5·8	25 21	6·6
								16 21	5·6		
								17 21	8·1		
								21 21	6·7		
								26 21	4·4		
								29 21	6·1		
								30 21	7·1		
								31 21	7·3		
LXIX.	August	10 21	1·5	19 21	3·6	4 21	6·0	2 21	5·7	1 21	7·0
		24 21	2·8	.....	.....	5 21	4·5	12 21	5·5	3 21	3·4
		25 21	4·5	.....	.....	6 21	4·4	13 21	5·5	7 21	6·6
						18 21	7·8	26 21	6·2	8 21	7·4
						20 21	4·4	.....	.....	9 21	8·3
						22 21	5·5	.....	.....	11 21	6·7
						23 21	6·8	.....	.....	14 21	7·3
						27 21	4·3	.....	.....	15 21	7·2
						29 21	0·4	.....	.....	16 21	4·1
						30 21	5·2	.....	.....	17 21	3·3
						31 21	6·0	.....	.....	21 21	7·3
										28 21	−0·6
LXX.	Sept.	1 21	1·1	7 21	3·6	4 21	6·3	3 21	1·4	2 21	2·5
		11 21	3·2	8 21	4·8	9 21	5·2	5 21	8·0	14 21	6·4
		17 21	1·7	25 21	1·7	13 21	5·7	6 21	6·5	15 21	4·6
		23 21	2·3	26 21	0·5	16 21	1·0	10 21	6·1		
		24 21	1·7	.....	.....	18 21	3·9	12 21	6·6		
						22 21	0·1				
						27 21	5·7	19 21	5·0		
						28 21	4·4	20 21	6·1		
						30 21	5·7	21 21	4·6		
								29 21	6·8		
LXXI.	Oct.	9 21	3·4	12 21	5·0	8 21	4·9	1 21	4·0	2 21	7·0
		14 21	3·0	17 21	4·1	11 21	5·8	5 21	8·0	3 21	8·7
		15 21	3·2	27 21	4·8	13 21	9·7	6 21	8·8	4 21	10·1
		16 21	2·5	.....	.....	26 21	4·4	7 21	7·1	19 21	9·2
		18 21	1·7	.....	.....	.....	.....	10 21	7·8	20 21	11·1
		22 21	2·8	.....	.....	.....	.....	23 21	3·9	21 21	11·4
		30 21	2·5	.....	.....	.....	.....	24 21	5·6	28 21	5·2
								25 21	7·5	29 21	14·2
										31 21	5·2

TABLE (Continued).

Number of the Tables.	1842. Month.	General state of the sky during the night previous to reading the instruments.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.
		d h	°	d h	°	d h	°	d h	°	d h	°
LXXII.	Nov.	7 21	(9·3)	13 21	4·4	11 21	4·2	1 21	8·9	2 21	11·9
		8 21	4·5	23 21	4·5	21 21	8·7	3 21	9·1	16 21	8·0
		9 21	(9·0)	.....	.....	24 21	4·7	4 21	8·0	18 21	11·9
		10 21	3·1	.....	.....	28 21	5·5	5 21	7·3		
		14 21	4·5	.....	.....	29 21	6·7	6 21	9·3		
		15 21	1·0	.....	.....	.....	.....	12 21	4·9		
		17 21	(9·4)	.....	.....	.....	.....	22 21	5·0		
		19 21	2·0	.....	.....	.....	.....	25 21	7·0		
		20 21	8·7	.....	.....	.....	.....	26 21	8·4		
								27 21	6·6		
								30 21	8·2		
LXXIII.	Dec.	1 21	3·3	9 21	8·0	4 21	5·5	13 21	7·1	2 21	9·4
		3 21	1·8	.....	.....	16 21	4·8	15 21	8·2	5 21	4·8
		6 21	2·0	.....	.....	22 21	5·1	18 21	2·8	14 21	7·7
		7 21	2·3	.....	.....	.....	.....	23 21	4·6	17 21	5·7
		8 21	5·1	.....	.....	.....	.....	28 21	5·3	24 21	6·5
		10 21	3·0	.....	.....	.....	.....	31 21	9·4	27 21	5·2
		11 21	1·2								
		12 21	5·7								
		19 21	3·7								
		20 21	1·8								
		21 21	2·3								
		25 21	3·0								
		26 21	1·7								
		29 21	1·8								
		30 21	3·1								
LXXIV.	1843. Jan.	.....	.....	3 21	(8·2)	9 21	8·4	12 21	6·9	1 21	10·9
		11 21	4·8	6 21	3·9	13 21	5·5	15 21	9·1	2 21	11·7
		19 21	2·0	7 21	1·8	14 21	5·9	30 21	5·8	4 21	7·7
		22 21	(6·2)	17 21	3·8	24 21	6·3	.....	.....	5 21	9·5
		23 21	(9·9)	18 21	4·5	25 21	4·4	.....	.....	8 21	10·0
		26 21	3·6	20 21	5·4	28 21	5·7	.....	.....	10 21	6·7
		27 21	3·8	29 21	5·0	.....	.....	.....	.....	16 21	8·5
		31 21	2·8		.....	.....	.....	.....	.....	21 21	11·1
LXXV.	Feb.	7 21	2·8	3 21	(0·3)	2 21	6·4	1 21	5·6	10 21	9·1
		8 21	3·0	4 21	3·5	6 21	7·7	5 21	8·9	12 21	14·1
		9 21	4·7	15 21	10·8	17 21	9·7	.....	.....	13 21	11·4
		11 21	3·1	.....	.....	21 21	12·9	.....	.....	16 21	13·0
		14 21	(13·3)	.....	.....	23 21	5·4	.....	.....	22 21	7·3
		18 21	3·0								
		19 21	0·6								
		20 21	3·9								
		24 21	0·8								
		25 21	(8·5)								
		26 21	3·9								
		27 21	3·0								
		28 21	7·8								

Table (Continued).

Number of the Tables.	1843. Month.	General state of the sky during the night previous to reading the instruments.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.	Day and hour of reading.	Excess of the reading of the thermometer in air above that placed in the focus of the reflector.
		d h	°	d h	°	d h	°	d h	°	d h	°
LXXVI.	March	10 21	11·4	30 21	10·5	21 21	7·1	12 21	7·5	1 21	12·0
		11 21	4·3	.....	.....	22 21	7·9	16 21	8·7	2 21	17·6
		13 21	3·8	.....	.....	26 21	6·8	20 21	8·0	3 21	12·1
		14 21	2·0	.....	.....	.....	.....	23 21	8·7	4 21	11·2
		15 21	2·5	.....	.....	.....	.....	24 21	8·9	5 21	10·5
		27 21	5·7	.....	.....	.....	.....	.....	.....	6 21	14·2
		31 21	7·1	.....	.....	.....	.....	.....	.....	7 21	11·5
										8 21	10·5
										9 21	12·7
										17 21	11·2
										18 21	10·0
										19 21	6·0
										25 21	9·2
										28 21	12·3
										29 21	12·6
LXXVII.	April	1 21	3·1	2 21	2·8	3 21	6·4	8 21	5·2	4 21	8·3
		6 21	1·8	.....	.....	5 21	3·1	10 21	6·8	9 21	9·4
		14 21	3·8	.....	.....	7 21	4·2	16 21	6·6	11 21	9·4
		15 21	2·4	.....	.....	12 21	6·9	19 21	9·5	13 21	9·2
						20 21	5·3	21 21	9·0	17 21	10·3
						25 21	4·5	29 21	7·3	18 21	9·0
						26 21	5·8	.....	.....	22 21	13·0
						28 21	6·6	.....	.....	23 21	12·0
										24 21	12·4
										27 21	9·4
										30 21	9·1

Table LXXVIII.

General state of the sky during the night previous to reading the instruments.	1843. April. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air at the height of 4 feet, and protected from the effects of radiation above that placed					
			On long grass exposed to $\frac{3}{4}$ths of sky.	On short grass.	On garden mould.	One inch high.	Three inches high.	In focus of metallic reflector.
	d h	°	°	°	°	°	°	°
Cloudless.	22 21	37·0	.....	11·2	4·0	.....	.....	13·0
	23 21	36·0	.....	6·8	4·3	.....	.....	12·0
	30 21	48·6	8·1	7·6	8·6	8·6	7·9	9·1
Principally cloudless.	19 21	42·3	.....	9·3	0·3	.....	.....	9·3
	24 21	34·2	.....	12·7	4·4	.....	.....	12·4
Half-cloudy.	20 21	42·3	.....	3·3	0·3	.....	.....	3·3
	21 21	48·0	.....	9·0	5·2	.....	.....	9·0
	26 21	38·2	4·7	6·2	4·4	4·7	4·2	6·7
Principally cloudy.	27 21	37·4	11·7	9·7	1·1	8·4	5·1	9·4
Cloudy.	28 21	41·8	4·0	5·6	2·3	4·8	3·0	6·6
	29 21	46·0	7·3	8·1	6·2	6·0	7·3	7·3

Table LXXIX.

General state of the sky during the night previous to reading the instruments.	1843. May. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed					
			On long grass exposed to ¾ths of sky.	On short grass.	On garden mould.	One inch high.	Three inches high.	In focus of metallic reflector.
	d h							
Cloudless.	1 21	46°·3	5°·0	8°·4	3°·0	9°·1	5°·2	10°·5
	10 21	39·9	6·9	11·9	4·9	13·7	10·1	10·4
Principally clear.	2 21	40·7	2·9	7·0	1·7	6·8	4·1	7·7
	6 21	35·4	1·4	1·2	1·4	4·8	3·6	6·4
	7 21	37·3	4·0	1·4	3·7	9·9	8·0	9·3
	11 21	40·3	4·4	10·4	4·4	10·8	9·1	8·8
	14 21	54·5	7·0	7·8	5·9	7·5	7·8	6·9
	25 21	47·3	3·3	3·2	3·0	6·8	6·8	5·8
	28 21	45·2	8·7	4·0	3·0	6·5	7·7	9·0
Half-cloudy.	4 21	47·1	7·3	10·9	3·5	10·1	8·7	4·8
	21 21	44·4	1·9	1·4	2·4	5·4	6·6	5·1
	22 21	48·1	2·7	5·1	3·0	6·4	6·2	5·2
	24 21	48·5	4·5	9·0	8·0	7·3	8·8	5·3
Principally cloudy.	9 21	42·8	3·8	4·3	2·2	8·8	6·9	7·3
	19 21	47·5	7·0	4·3	7·3	.....	7·3	7·7
	26 21	47·3	3·3	4·3	2·3	4·3	3·3	5·8
	27 21	44·8	3·3	4·6	2·2	4·6	5·0	3·0
	29 21	38·5	3·5	3·0	3·3	9·5	9·0	9·2
	31 21	55·3	2·1	1·1	1·5	1·9	2·1	1·5
Cloudy.	3 21	37·3	−2·7	1·3	−4·2	1·3	0·2	−0·2
	5 21	50·2	2·4	0·9	1·4	2·7	2·7	2·0
	8 21	38·0	1·0	−1·0	0·0	1·5	1·2	−4·0
	12 21	51·3	7·5	5·5	6·0	3·3	7·6	2·1
	13 21	45·0	3·0	4·5	−0·5	4·5	3·5	3·8
	15 21	49·4	5·4	2·1	2·4	3·4	3·2	3·7
	16 21	49·3	9·3	6·3	7·3	.....	10·3	5·0
	17 21	44·0	2·0	0·0	1·8	4·0	4·0	4·5
	18 21	44·8	1·7	−0·9	0·7	1·5	2·9	3·8
	20 21	50·3	7·0	7·0	4·1	6·7	9·3	8·6
	23 21	52·6	4·6	6·1	5·8	8·9	9·0	2·8
	30 21	50·3	3·3	1·9	2·2	3·0	3·1	2·8

Table LXXX.

General state of the sky during the night previous to reading the instruments.	1843. June. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed					
			On long grass exposed to $\frac{3}{4}$ths of sky.	On short grass.	On garden mould.	One inch high.	Three inches high.	In focus of metallic reflector.
	d h							
Cloudless.	3 21	47·1	4·3	8·1	3·8	8·6	8·9	8·5
	16 21	48·4	4·9	8·5	3·4	11·3	10·5	10·4
	21 21	53·0	9·0	11·0	8·0	8·0	12·0	13·0
	22 21	44·8	4·8	11·1	4·6	10·8	11·0	10·2
	23 21	50·4	7·2	6·6	5·9	12·9	12·7	12·4
	25 21	45·3	4·6	11·1	4·2	11·6	11·3	8·0
	28 21	43·5	10·2	11·7	7·5	10·5	12·5	9·3
Principally clear.	2 21	51·3	2·3	2·3	1·9	3·0	2·5	3·3
	4 21	42·9	1·5	4·1	1·7	5·4	5·4	5·6
	5 21	43·4	3·6	8·1	3·1	9·9	8·7	7·4
	15 21	51·6	4·4	5·1	3·0	9·6	10·4	11·2
	18 21	50·5	2·5	5·5	1·4	7·5	7·4	5·4
	20 21	44·1	4·1	8·5	3·6	10·8	9·8	10·9
	29 21	52·1	6·3	7·9	5·5	12·0	11·3	9·5
Half-cloudy.	26 21	47·0	3·8	7·3	4·0	10·8	10·6	8·0
Principally cloudy.	1 21	53·5	6·9	11·5	6·3	6·5	10·5	4·4
	6 21	45·2	2·6	3·6	2·2	6·2	5·5	6·0
	8 21	51·2	1·7	2·2	3·0	3·2	2·3	2·7
	9 21	49·1	2·8	3·5	2·9	3·6	3·1	4·3
	10 21	47·8	8·3	5·8	7·8	5·8	6·0	6·3
	11 21	48·8	4·2	5·3	3·6	5·0	6·5	6·7
	24 21	49·8	2·7	1·2	0·3	1·1	2·0	2·3
	27 21	50·2	3·4	1·9	4·2	6·0	6·9	7·2
	30 21	52·3	8·3	8·3	9·5	9·5	11·3	10·1
Cloudy.	7 21	49·9	2·1	1·1	1·2	3·9	1·8	1·4
	12 21	48·8	.....	.....	.....	0·8	.....	2·2
	13 21	51·8	1·3	−1·7	1·8	0·3	1·6	0·8
	14 21	57·0	4·5	5·9	3·6	6·8	7·1	6·4
	17 21	50·6	0·6	1·6	−1·9	3·0	2·1	2·0
	19 21	50·3	3·2	0·6	1·4	.....	3·2	3·3

Table LXXXI.

General state of the sky during the night previous to reading the instruments.	1843. July. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed					
			On long grass exposed to $\frac{3}{4}$ths of sky.	On short grass.	On garden mould.	One inch high.	Three inches high.	In focus of metallic reflector.
	d h	°	°	°	°	°	°	°
Cloudless.	4 21	57·1	10·6	13·6	10·6	11·3	10·1	8·9
	9 21	51·3	4·1	11·8	.....	12·8	9·8	11·3
Principally clear.	2 21	58·6	7·1	8·6	7·6	8·6	8·6	10·1
	7 21	53·4	6·6	5·4	.....	6·2	5·2	6·2
	8 21	47·3	7·3	7·3	.....	7·3	7·3	7·1
	16 21	58·4	4·3	4·3	.....	5·4	4·8	6·3
	17 21	58·1	4·1	4·1	.....	.....	4·4	6·1
	19 21	46·1	6·1	6·1	.....	6·1	6·1	7·1
	23 21	44·6	5·2	5·2	.....	7·4	7·6	9·4
	24 21	46·1	9·6	9·6	.....	9·9	9·9	10·1
	25 21	51·1	4·5	4·5	.....	8·6	8·3	7·5
	29 21	53·5	4·0	4·0	.....	4·0	4·0	5·9
Half-cloudy.	1 21	53·1	2·8	7·1	7·8	4·9	9·5	9·1
	3 21	59·1	2·3	3·1	1·1	3·3	2·6	4·6
	6 21	52·2	3·7	5·2	.....	5·9	5·5	6·8
	14 21	55·4	3·9	10·4	.....	5·4	8·6	5·4
	15 21	57·2	3·3	7·2	.....	6·4	5·0	6·2
	30 21	51·9	5·4	5·4	.....	7·0	6·6	7·9
	31 21	50·1	5·1	5·1	.....	8·1	7·3	6·1
Principally cloudy.	5 21	55·8	3·0	1·8	.....	.....	3·0	3·6
	10 21	54·8	1·2	0·8	.....	5·4	0·8	1·6
	21 21	55·1	4·7	4·7	.....	6·8	6·4	8·1
	22 21	51·7	1·7	1·7	.....	3·7	4·7	1·1
	26 21	57·3	4·8	4·8	.....	5·1	4·8	6·8
	27 21	56·6	4·6	4·6	.....	4·6	4·4	6·4
Cloudy.	11 21	52·8	5·8	1·2	.....	.....	1·8	3·8
	12 21	55·3	1·3	1·1	.....	1·1	0·9	1·8
	18 21	52·3	3·8	3·8	.....	9·6	5·1	7·3
	20 21	54·1	4·0	4·0	.....	4·0	4·1	5·1
	28 21	53·1	0·2	0·2	.....	−0·1	−0·2	1·1

Table LXXXII.

General state of the sky during the night previous to reading the instruments.	1843. August. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of the thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed				
			On long grass exposed to $\frac{3}{4}$ths of sky.	On short grass.	One inch high.	Three inches high.	In focus of metallic reflector.
	d h	°	°	°	°	°	°
Cloudless.	6 21	48·7	4·7	6·9	7·2	7·4	7·3
	10 21	47·2	6·4	12·2	13·0	13·0	9·4
	11 21	51·0	6·2	9·0	9·1	9·5	9·0
	12 21	49·7	6·7	13·7	12·9	13·3	9·9
	17 21	59·6	6·0	11·0	11·6	11·0	9·0
	18 21	59·0	5·0	11·0	11·0	11·4	10·0
Principally cloudless.	1 21	49·4	2·8	4·5	4·6	4·6	6·5
	5 21	53·6	3·6	4·6	4·6	4·4	6·4
	7 21	60·0	7·0	8·8	9·0	8·0	11·8
	9 21	57·5	6·2	6·8	6·7	6·9	5·0
	13 21	58·6	5·8	8·8	8·4	8·9	10·4
	16 21	56·8	4·8	7·5	7·3	7·4	7·6
	20 21	50·2	4·0	6·6	6·2	6·8	8·2
	21 21	51·0	3·0	6·8	6·8	7·6	9·2
	22 21	49·5	2·8	4·5	4·5	4·7	6·0
	24 21	50·0	5·6	9·7	9·4	10·0	9·8
	26 21	49·2	4·9	8·0	8·1	8·8	7·5
	31 21	56·2	5·4	8·0	8·4	8·5	8·2
Half-cloudy.	3 21	56·0	3·2	9·0	4·0	8·0	5·8
	4 21	52·6	4·5	4·5	5·0	5·0	6·6
	14 21	61·8	6·4	4·0	6·8	4·0	5·8
	15 21	61·8	4·0	7·0	6·8	7·0	7·9
	19 21	62·0	3·9	7·3	7·0	7·5	8·1
	25 21	58·4	1·8	6·0	5·6	6·3	5·9
	27 21	62·0	4·0	3·7	3·7	3·7	5·0
Principally cloudy.	8 21	59·3	3·2	5·6	5·5	5·8	6·1
	30 21	59·5	7·0	8·4	8·2	8·8	8·0
Cloudy.	23 21	53·9	0·7	1·3	1·4	1·2	3·9
	29 21	61·0	2·3	1·2	1·7	2·2	3·8

Table LXXXIII.

General state of the sky during the night previous to reading the instruments.	1843. September. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed					
			On long grass exposed to $\frac{3}{4}$ths of sky.	On long grass.	On short grass.	One inch high.	Three inches high.	In focus of metallic reflector.
	d h	°	°	°	°	°	°	°
Cloudless.	2 21	56·8	10·3	.....	8·5	8·5	8·5	7·3
	5 21	48·1	6·1	.....	5·1	7·1	9·1	7·5
	6 21	52·9	5·8	.....	8·9	8·9	8·9	10·5
	9 21	58·0	6·7	.....	11·8	12·3	12·0	11·0
	13 21	50·0	.....	13·8	12·0	8·5	7·0	13·0
	19 21	53·3	.....	12·3	13·3	9·3	5·8	10·8
	20 21	50·6	.....	8·8	7·8	6·6	3·6	6·1
	22 21	50·8	.....	10·8	11·5	8·8	5·2	10·3
	23 21	52·6	.....	11·4	9·5	9·1	5·5	7·8
	24 21	47·4	.....	9·9	10·6	8·1	4·5	8·1
	27 21	38·8	.....	13·0	10·9	9·8	6·3	8·4
Principally cloudless.	4 21	44·3	.....	.....	9·0	9·1	9·8	9·0
	7 21	56·6	7·4	.....	12·4	12·8	12·5	11·6
	12 21	51·8	.....	.....	10·8	10·8	10·9	9·5
	18 21	60·2	.....	8·8	8·0	5·7	3·2	6·7
	26 21	39·5	.....	8·7	8·5	7·3	3·3	7·5
	28 21	36·0	.....	.....	.....	.....	.....	8·4
Half-cloudy.	1 21	58·6	5·3	.....	8·3	8·3	8·8	8·9
	10 21	57·7	4·1	.....	5·7	5·3	6·1	8·6
	15 21	58·0	.....	10·8	9·3	6·0	4·0	7·0
	16 21	54·9	.....	7·2	6·1	3·9	2·8	3·7
	17 21	57·8	.....	8·8	7·3	5·8	3·6	3·8
	21 21	52·0	.....	9·8	10·3	8·8	3·8	9·0
	29 21	47·8	.....	10·4	9·7	7·3	4·8	9·7
Principally cloudy.	11 21	58·7	5·4	.....	5·8	5·2	6·5	10·0
	14 21	61·0	.....	.....	4·2	2·0	4·0	2·5
	28 21	43·4	.....	6·2	5·1	4·7	3·4	7·4
Cloudy.	3 21	57·2	5·7	.....	3·7	4·2	4·6	7·2
	8 21	61·6	4·8	.....	5·4	5·3	5·6	8·6
	30 21	55·8	.....	−0·5	−0·4	−0·2	−0·9	−0·4

Table LXXXIV.

General state of the sky during the night previous to reading the instruments.	1843. October. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed									
			On long grass.	On short grass.	One inch high.	Three inches high.	Six inches high.	In focus of metallic reflector.	On white cotton wool.	On white raw wool.	On coarse flax.	On fine flax.
	d h	°	°	°	°	°	°	°	°	°	°	°
Cloudless.	16 21	32·3	7·8	7·2	5·8	.....	5·2	8·6				
	18 21	28·5	10·0	9·0	8·5	.....	.....	11·0	12·3	14·0	13·0	17·3
	19 21	28·9	8·2	6·9	5·2	.....	.....	5·0	9·1	11·9	11·6	11·1
	21 21	37·5	7·3	5·6	4·5	.....	.....	5·3	7·0	10·0	8·0	9·5
	23 21	47·9	5·1	3·7	2·7	.....	.....	4·7	9·9	13·7	5·7	7·1
	25 21	29·3	7·5	6·3	5·7	.....	.....	6·1	9·3	10·3	10·3	10·8
	26 21	32·3	6·8	4·2	4·2	.....	.....	4·6	6·8	8·5	8·1	7·8
	29 21	40·1	11·2	8·1	6·3	.....	.....	7·6	11·3	13·6	13·4	13·4
Principally cloudless.	3 21	56·3	8·0	6·3	5·3	.....	3·5	4·1				
	5 21	51·3	5·7	5·9	3·3	.....	1·3	4·3				
	9 21	39·1	8·5	8·2	7·1	.....	3·1	5·9				
	12 21	34·9	6·7	5·4	3·7	.....	2·4	6·4				
	14 21	31·0	9·7	9·3	7·5	.....	3·8	10·3				
	15 21	29·7	9·9	9·2	9·3	.....	4·6	10·3				
	22 21	46·3	10·1	8·3	7·6	.....	.....	9·5	9·5	10·1	9·3	10·1
	28 21	34·5	5·7	4·2	3·2	.....	.....	5·7	7·7	7·5	8·5	8·5
Half-cloudy.	1 21	55·8	5·5	5·3	3·8	3·3	.....	5·3				
	2 21	50·0	8·2	8·1	5·9	.....	3·8	8·0				
	4 21	54·3	9·7	8·9	7·8	.....	4·4	7·3				
	6 21	56·9	6·2	5·7	5·9	.....	4·3	4·7				
	17 21	36·5	5·5	3·5	3·0	.....	.....	4·6	6·2	8·0	7·0	6·5
	24 21	46·5	2·9	2·0	2·3	.....	.....	2·3	1·7	2·7	2·6	2·7
Principally cloudy.	7 21	58·0	4·8	3·0	3·0	.....	3·0	2·8				
	13 21	36·6	8·1	6·4	4·9	.....	3·6	6·0				
	27 21	38·5	7·0	2·5	2·5	.....	.....	5·0	6·5	2·5	2·5	2·5
Cloudy.	8 21	48·5	.....	.....	.....	.....	.....	0·9				
	10 21	46·9	0·7	0·9	0·9	.....	1·7	0·7				
	11 21	42·3	7·3	5·0	3·8	.....	2·3	6·4				
	20 21	38·3	3·3	0·6	−0·5	.....	.....	3·8	2·8	6·3	5·9	5·8
	30 21	51·1	6·9	1·8	1·6	.....	.....	1·6				
	31 21	42·5	0·3	0·2	0·0	.....	.....	1·0				

Table LXXXV.

General state of the sky during the night previous to reading the instruments.	1843. Nov. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed							
			On long grass.	On short grass.	One inch high.	In focus of metallic reflector.	On white raw wool.	On white cotton wool.	On fine flax.	On coarse flax.
	d h	°	°	°	°	°	°	°	°	°
Cloudless.	8 21	29·8	10·7	8·4	6·3	10·1	14·8	13·8	13·0	12·8
	11 21	32·6	10·6	8·4	.....	9·6	15·3	11·6	13·8	15·4
	12 21	27·4	11·5	8·4	.....	8·2	13·9	11·2	12·9	14·2
	13 21	32·3	10·3	8·1	.....	9·1	16·1	10·8	9·9	10·3
	16 21	31·0	8·9	7·8	.....	6·2	.....	.....	9·2	8·9
	29 21	32·9	7·1	6·9	.....	7·6	11·4	.....	10·2	
Principally cloudless.	1 21	35·9	7·3	4·9	3·9	3·9	8·9	8·1	11·7	9·3
	4 21	43·0	7·8	5·2	4·8	6·0	11·0	7·4	9·2	10·8
	6 21	47·4	12·9	3·6	3·2	3·9	6·4	3·4	5·6	5·8
	7 21	41·5	8·5	8·3	5·5	6·3	11·5	9·5	10·5	10·0
	9 21	31·6	8·8	.....	.....	10·1	12·1	11·6	11·6	11·7
	18 21	34·6	5·8	5·4	.....	5·8	5·8	.....	6·2	
	28 21	44·4	10·9	9·6	.....	9·4	11·2	.....	9·2	
Half-cloudy.	3 21	47·8	5·8	4·8	3·8	5·3	9·3	6·8	8·6	8·6
	14 21	30·8	10·8	10·2	.....	9·8				
	19 21	37·9	0·6	.....	.....	4·9	2·9			
	20 21	41·8	4·7	5·5	.....	5·6	6·3	.....	6·1	
	24 21	35·5	5·3	4·8	.....	7·6	8·0	.....	8·0	
	25 21	45·9	5·5	5·3	.....	5·5	9·3	.....	9·3	
	26 21	51·6	3·0	3·2	.....	2·9	3·2	2·9		
Principally cloudy.	26 21	51·6	3·0	3·2	.....	2·9	3·2	.....	3·4	
	27 21	46·7	4·7	4·7	.....	0·1	5·9	.....	5·2	
Cloudy.	2 21	41·2	−1·3	−0·3	0·3	−0·1	0·6	−0·1	0·2	−0·1
	5 21	40·7	6·3	4·0	3·5	3·7	7·7	4·7	6·5	8·5
	15 21	31·6	1·6	0·3	.....	1·8	3·4	1·3	−0·4	0·2
	17 21	37·7	2·5	2·7	.....	2·7	3·5	2·5	3·7	3·1
	21 21	52·6	4·1	4·3	.....	3·6	4·6			
	22 21	44·6	2·4	2·1	.....	2·8	3·5			
	25 21	45·9	−0·3	−4·1	.....	0·1	−0·1	.....	−0·1	
	30 21	45·7	1·6	...	.....	1·2				
Cloudy: cirro-cumulus	10 21	32·6	9·7	7·6	.....	9·5	12·6	12·2	12·3	13·4

Table LXXXVI.

General state of the sky during the night previous to reading the instruments.	1843. Dec. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed						
			On long grass.	On short grass.	On coarse flax.	On white raw wool.	On blackened tin.	On white tin.	In focus of metallic reflector.
Cloudless.	d h None.	°	°	°	°	°	°	°	° .....
Principally cloudless.	2 21	36·5	5·7	4·3	6·5	6·7	4·2	1·7	6·4
	6 21	40·2	5·9	6·2	7·2	7·2	5·4	4·2	7·2
	8 21	33·7	4·9	.....	4·2	7·2	5·5	4·7	5·5
	10 21	39·0	10·2	9·0	10·2	10·0	9·2	8·0	7·2
	17 21	38·5	8·7	9·5	6·7	7·0	5·3	5·7	4·1
Half-cloudy.	5 21	40·1	7·1	6·1	7·3	6·9	5·9	5·9	7·9
Principally cloudy.	1 21	37·6	8·6	8·6	8·3	7·4	8·6	6·8	10·4
	7 21	45·7	6·2	4·7	5·7	6·9	4·2	3·4	3·8
	14 21	39·3	2·5	4·3	3·3	3·5	3·7	2·3	4·3
	15 21	43·1	6·3	4·9	6·3	5·1	4·9	.....	5·1
	24 21	48·4	7·7	6·2	6·0	6·2	4·4	3·2	5·4
	25 21	42·7	8·9	8·3	10·6	10·7	7·8	6·0	7·5
	27 21	42·5	2·9	2·9	2·7	2·5	2·5	2·5	3·5
Cloudy.	3 21	45·3	2·3	3·3	2·0	2·1	.....	.....	3·3
	4 21	45·5	1·9	2·2	1·5	1·7	2·1	2·2	2·8
	9 21	35·1	2·5	−1·9	1·1	0·6	0·8	1·1	2·6
	11 21	30·4	1·1	1·4	2·2	0·3	0·4	0·2	2·9
	12 21	25·6	3·8	3·4	5·3	2·8	4·6	4·3	2·8
	13 21	39·3	6·6	7·8	7·1	8·3	6·5	5·3	2·3
	16 21	44·7	7·5	5·9	5·9	5·6	.....	3·2	5·7
	18 21	42·5	2·5	3·2	3·1	2·4	2·5	2·7	3·7
	19 21	42·3	0·6	0·0	2·0	1·1	1·3	2·3	3·6
	20 21	41·4	3·9	2·4	2·2	1·9	1·9	1·9	3·2
	21 21	41·9	2·9	2·7	2·3	2·2	1·8	2·1	3·9
	22 21	42·5	0·5	1·2	0·9	−0·3	0·3	0·9	2·3
	23 21	49·8	5·6	4·8	5·0	4·2	4·0	3·8	4·5
	26 21	42·5	1·5	2·5	1·5	0·9	1·5	1·9	2·7
	28 21	42·5	1·8	2·0	1·6	1·9	1·2	1·4	2·3
	29 21	38·5	3·2	3·2	3·5	3·3	2·5	2·6	5·2
	30 21	39·3	2·1	2·5	2·8	2·1	2·1	2·5	3·7

Table LXXXVII.

General state of the sky during the night previous to reading the instruments.	1844. January. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed						
			On long grass.	On short grass.	On flax.	On white raw wool.	On blackened tin.	On white tin.	In focus of metallic reflector.
	d h	°	°	°	°	°	°	°	°
Cloudless.	2 21	18·6	8·8	.....	.....	.....	.....	.....	8·3
	15 21	25·4	10·2	9·9	10·6	13·4	9·6	8·9	7·7
Principally cloudless.	7 21	32·2	8·0	7·0	7·2	7·7	7·0	6·2	3·2
	20 21	33·2	9·0	7·2	9·0	12·2	8·0	6·2	6·2
	21 21	39·2	7·4	7·2	9·2	11·2	7·4	6·2	3·6
	22 21	31·4	10·2	8·7	9·5	3·7	9·4	10·1	5·4
	24 21	30·5	8·5	7·5	9·0	11·5	8·5	8·0	6·0
	26 21	35·2	7·0	6·0	7·2	9·3	7·0	6·2	2·2
	28 21	37·3	9·5	8·5	9·4	10·1	8·4	8·1	5·6
Half-cloudy.	6 21	37·8	6·4	5·8	4·8	7·4	6·5	5·1	1·6
	14 21	28·3	7·9	5·7	6·0	10·3	7·3	5·3	7·3
	16 21	27·6	7·0	5·4	6·4	11·9	6·6	5·4	4·6
	18 21	39·2	7·0	6·1	4·2	6·9	7·0	5·4	2·7
	19 21	37·4	8·6	6·6	5·8	9·2	6·7	5·7	3·9
Principally cloudy.	5 21	45·8	5·6	4·5	3·6	3·5	4·8	2·8	1·8
	10 21	36·4	7·7	6·4	5·4	7·4	8·4	8·1	1·9
	11 21	37·7	8·5	8·7	7·9	11·7	9·5	9·3	3·3
	25 21	35·3	4·7	3·5	2·7	3·0	3·5	3·5	1·6
	27 21	40·6	7·3	5·6	6·5	6·2	5·8	5·1	2·1
	29 21	39·7	8·3	8·0	7·1	8·5	7·5	7·4	3·9
	31 21	27·7	5·9	6·4	5·7	8·9	7·2	7·7	3·9
Cloudy.	3 21	22·4	2·9	.....	3·4	3·4	.....	.....	3·4
	8 21	34·2	7·6	6·4	5·6	7·5	7·2	7·2	1·8
	9 21	30·7	1·7	0·9	0·2	1·7	0·9	0·5	0·2
	12 21	39·2	1·8	1·7	1·2	2·4	2·4	1·9	−0·8
	13 21	32·7	1·6	0·9	0·7	1·5	1·7	1·2	−1·8
	17 21	36·5	4·5	4·2	3·3	3·9	4·5	1·7	0·5
	23 21	36·2	4·6	4·2	4·6	5·9	4·9	3·9	2·4
	30 21	32·3	3·3	2·3	1·2	2·7	2·9	2·3	−0·3

Table LXXXVIII.

General state of the sky during the night previous to reading the instruments.	1844. February. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed						
			On long grass.	On short grass.	On flax.	On white raw wool.	On blackened tin.	On white tin.	In focus of metallic reflector.
	d h	°	°	°	°	°	°	°	°
Cloudless.	1 21	27·2	8·6	5·7	6·6	9·0	7·6	8·0	6·4
	15 21	33·0	11·6	8·8	12·0	9·8	9·2	10·9	7·8
	16 21	34·0	7·7	6·5	6·9	6·7	6·0	5·0	6·2
	22 21	22·2	10·4	7·5	10·8	9·8	7·7	7·0	7·7
Principally cloudless.	4 21	29·0	7·5	6·0	6·0	10·2	10·0	10·0	6·0
	6 21	25·4	8·2	6·6	11·6	6·8	8·4	6·6	7·1
	7 21	32·2	5·5	5·0	9·7	6·0	5·2	4·7	3·4
	8 21	32·7	7·1	5·5	5·3	8·7	6·4	6·5	3·6
	19 21	29·7	8·4	6·2	7·8	6·7	5·8	7·0	6·7
	20 21	27·3	8·5	5·3	6·7	9·0	6·3	6·1	6·3
Half-cloudy.	17 21	36·7	7·5	5·3	5·2	3·7	4·7	4·7	4·5
	18 21	40·6	5·4	6·2	4·0	2·8	5·1	1·5	3·8
	24 21	33·4	8·2	5·8	7·2	8·6	6·9	6·4	6·4
	25 21	39·5	6·6	5·2	4·9	3·7	5·5	5·9	3·0
	27 21	29·2	3·8	1·0	4·4	2·7	3·1	2·9	1·2
	28 21	32·2	5·9	3·9	4·2	3·7	5·1	5·6	3·2
Principally cloudy.	6 21	32·0	7·2	5·7	9·0	8·0	6·2	5·7	3·2
	9 21	32·2	2·8	2·8	4·5	3·6	4·4	4·0	1·4
	10 21	31·7	6·5	4·5	4·7	4·7	5·2	4·7	3·9
	12 21	24·5	6·2	3·5	9·6	7·0	4·5	3·7	4·3
	13 21	20·0	6·0	2·0	11·0	12·2	4·0	5·2	3·4
	26 21	27·0	4·9	1·8	5·7	5·4	4·8	4·5	2·6
Cloudy.	2 21	28·0	3·0	2·0	4·0	3·0	6·5	7·0	3·0
	3 21	28·0	2·7	4·3	4·0	3·0	10·0	6·0	2·2
	11 21	30·2	6·0	6·0	4·1	7·2	5·2	4·7	4·7
	14 21	36·8	8·5	7·6	13·8	14·8	7·3	6·8	7·5
	21 21	32·0	0·2	0·3	0·5	−0·2	1·4	0·4	−1·5
	23 21	31·2	4·2	3·2	4·8	3·7	4·4	4·0	5·2
	29 21	38·8	3·0	1·6	4·3	1·5	3·4	3·1	1·8

Table LXXXIX.

General state of the sky during the night previous to reading the instruments.	1844. March. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed					
			On long grass.	On short grass.	On flax.	On white raw wool.	On lead.	In focus of metallic reflector.
	d h							
Cloudless.	5 21	24°·1	8°·9	7°·9	14°·5	14°·9	8°·5	12°·1
	6 21	30·6	6·8	4·1	4·8	4·6	5·9	5·1
	12 21	31·1	7·1	4·1	5·6	6·8	5·0	4·1
	20 21	27·9	11·4	8·4	18·1	18·9	6·4	8·9
	21 21	32·0	7·2	6·3	12·8	12·4	4·7	5·3
	23 21	33·3	8·3	5·8	9·3	8·3	5·1	4·1
	28 21	34·9	8·7	7·1	13·4	12·6	5·7	5·9
Principally cloudless.	25 21	44·0	6·8	5·6	6·0	7·0	5·8	4·4
	30 21	39·8	6·3	5·5	9·0	8·7	4·5	5·4
Half-cloudy.	1 21	37·1	5·4	4·6	4·0	2·1	5·8	3·1
	3 21	38·6	5·6	3·4	4·6	4·9	4·2	2·1
	7 21	29·6	10·8	6·8	12·0	14·2	8·6	9·4
	10 21	31·7	5·4	3·7	7·7	7·4	4·2	2·7
	11 21	32·8	2·8	2·8	.....	.....	.....	0·0
	13 21	33·7	7·5	5·9	7·6	8·7	5·9	5·5
	17 21	30·3	5·7	4·0	5·5	6·1	4·8	5·1
	24 21	39·5	7·6	5·8	5·8	3·5	6·5	2·0
	29 21	37·9	7·9	5·1	7·9	6·6	2·7	9·3
Principally cloudy.	9 21	40·3	4·3	3·8	7·3	7·3	4·3	1·8
	15 21	36·0	6·6	5·8	6·8	7·9	6·5	5·6
	18 21	36·1	8·1	5·5	8·1	9·1	5·4	5·4
	19 21	39·5	7·3	6·0	6·5	7·2	6·5	4·5
	27 21	42·5	6·5	4·6	8·0	8·5	3·7	3·6
Cloudy.	2 21	35·3	4·3	4·3	4·3	4·3	5·3	2·3
	4 21	32·4	5·9	4·2	5·2	5·6	5·3	5·9
	8 21	36·2	4·6	3·0	3·1	3·8	3·0	3·5
	14 21	38·1	0·5	1·1	2·8	0·9	1·7	−0·2
	16 21	37·5	0·1	0·5	1·1	0·5	0·7	−1·0
	22 21	39·8	1·3	1·1	2·5	1·5	1·1	−1·2
	26 21	46·1	8·1	7·7	9·1	9·1	6·3	4·1
	31 21	37·3	0·6	0·2	2·0	2·4	−0·2	0·7

Table XC.

General state of the sky during the night previous to reading the instruments.	1844. April. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed					
			On long grass.	On short grass.	On flax.	On white raw wool.	On lead.	In focus of metallic reflector.
	d h							
Cloudless.	1 21	36°·4	7°·9	8°·4	13°·2	11°·2	6°·7	6°·8
	2 21	41·6	12·9	13·4	19·4	17·6	12·9	9·4
	3 21	43·4	13·4	11·4	19·9	18·9	16·4	8·4
	4 21	44·4	11·4	11·1	14·4	14·4	6·9	5·4
	5 21	40·4	11·4	9·2	14·6	13·4	4·6	7·3
	6 21	34·4	10·9	8·9	13·6	12·4	6·4	5·1
	7 21	33·4	11·3	11·8	15·4	16·9	7·9	10·7
	8 21	39·4	10·2	9·9	16·2	15·8	8·4	6·1
	9 21	41·2	11·7	10·7	13·4	13·2	8·7	6·5
	10 21	38·3	13·1	11·6	18·0	16·8	9·5	8·7
	16 21	41·9	10·7	9·7	15·3	15·0	7·8	5·5
	17 21	44·6	11·1	10·6	16·6	15·3	8·6	5·3
	18 21	37·0	12·6	10·1	15·3	14·4	10·0	9·7
	24 21	39·4	14·9	13·6	19·9	20·4	12·4	12·4
	25 21	41·4	13·4	12·6	19·2	17·8	10·4	10·2
	28 21	35·7	11·7	11·4	18·1	15·4	9·5	10·7
	29 21	39·4	10·4	8·7	14·2	12·6	9·0	9·4
	30 21	40·7	12·5	10·5	14·4	14·2	10·2	6·3
Principally cloudless.	19 21	48·2	11·0	10·1	15·1	12·6	12·2	7·0
	22 21	45·1	12·1	10·9	19·1	16·5	13·6	8·3
	23 21	41·4	8·4	6·4	10·4	11·5	6·2	6·2
	27 21	37·1	9·8	9·2	13·4	12·0	8·5	8·1
Half-cloudy.	14 21	43·9	5·7	5·4	8·7	8·6	4·8	3·1
	15 21	48·6	6·6	6·1	8·4	8·5	4·0	4·2
	21 21	43·6	6·4	6·6	9·4	7·6	5·6	2·8
Principally cloudy.	11 21	42·0	10·0	8·8	14·0	14·0	6·8	7·8
	20 21	51·1	8·9	9·0	12·3	10·5	11·1	6·8
Cloudy.	12 21	46·4	2·4	2·5	5·1	6·0	2·1	2·1
	13 21	48·7	4·9	5·1	8·4	7·7	5·3	3·1
	26 21	46·1	0·6	0·1	1·3	2·0	0·4	1·1

Table XCI.

General state of the sky during the night previous to reading the instruments.	1844. May. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed					
			On long grass.	On short grass.	On flax.	On white raw wool.	On lead.	In focus of metallic reflector.
	h h	°	°	°	°	°	°	°
Cloudless.	1 21	40·9	12·3	12·3	16·1	12·8	10·9	7·3
	2 21	40·9	14·7	10·9	17·6	14·6	10·2	9·3
	3 21	48·0	11·8	9·7	12·0	13·0	7·8	7·8
	6 21	44·6	11·6	10·6	14·1	13·1	.....	9·1
	8 21	49·6	9·8	12·4	13·6	12·4	.....	8·6
	10 21	45·2	13·5	12·2	13·4	12·9	.....	7·7
	15 21	44·6	15·6	13·6	16·4	9·4	9·3	12·8
	23 21	44·2	7·5	6·1	10·8	10·3	.....	4·5
	25 21	40·6	9·4	9·1	11·1	11·4	.....	7·1
	27 21	42·1	6·8	9·4	6·9	9·1	.....	6·3
Principally cloudless.	5 21	44·6	9·6	11·6	11·9	11·4	9·3	4·2
	13 21	46·8	12·8	11·8	14·0	16·8	.....	7·8
	17 21	33·9	7·4	6·1	5·7	13·9	.....	6·9
	19 21	43·2	13·2	12·2	.....	.....	.....	6·4
	20 21	43·8	6·0	5·8	5·9	3·3	1·0	4·9
Half-cloudy.	7 21	46·7	11·7	10·7	.....	.....	.....	8·2
	12 21	44·4	8·4	7·4	.....	.....	.....	5·6
	16 21	44·4	12·4	10·4	14·5	14·5	7·4	8·4
	18 21	39·7	7·1	7·7	11·5	11·7	5·7	7·5
	21 21	37·4	2·4	1·3	2·3	2·4	0·5	−2·0
	26 21	42·0	8·7	8·5	.....	.....	.....	7·8
Principally cloudy.	24 21	46·2	5·2	4·7	8·7	8·7	.....	−1·3
Cloudy.	4 21	48·4	2·4	1·4	.....	.....	.....	−1·6
	9 21	51·7	10·7	9·9	9·4	9·3	.....	11·4
	11 21	51·4	3·4	2·4	.....	.....	.....	2·2
	14 21	42·4	9·4	8·4	.....	.....	.....	5·4
	22 21	47·4	0·2	0·0	.....	.....	.....	0·4
	28 21	46·8	3·3	4·3	4·1	4·8	.....	3·5
	29 21	45·2	5·2	5·7	.....	.....	.....	2·4
	30 21	45·9	3·4	3·8	4·6	4·9	.....	3·4
	31 21	44·5	11·9	12·5	15·5	15·7	.....	9·8

Table XCII.

General state of the sky during the night previous to reading the instruments.	1844. June. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed				
			On long grass.	On short grass.	On flax.	On white raw wool.	In focus of metallic reflector.
	d h	°	°	°	°	°	°
Cloudless.	10 21	48·1	10·8	10·1	9·5	9·6	5·1
	13 21	53·0	8·6	8·8	7·0	9·0	7·0
	16 21	47·1	10·9	9·4	5·7	5·6	2·5
	22 21	54·0	11·2	10·1	.....	.....	10·0
	23 21	63·1	12·2	7·1	9·1	9·1	6·6
	30 21	52·5	11·4	10·4	.....	.....	9·2
Principally cloudless.	1 21	44·1	8·1	8·1	10·1	9·3	7·9
	4 21	48·6	9·6	11·6	12·9	13·6	9·1
	8 21	52·8	10·5	11·2	12·3	.....	8·3
	14 21	49·2	7·9	7·0	7·2	7·9	6·0
	21 21	57·3	8·1	7·2	9·5	10·4	7·4
Half-cloudy.	3 21	48·8	10·8	10·8	.....	.....	7·9
	7 21	52·4	8·4	7·6	8·9	.....	4·6
	9 21	51·3	6·5	6·1	6·5	.....	4·8
	11 21	49·5	6·0	5·5	.....	.....	3·5
	17 21	53·9	10·7	11·5	6·9	8·8	4·1
	20 21	52·9	3·7	4·6	4·2	6·9	3·4
	29 21	58·9	7·9	7·1	.....	.....	6·9
Principally cloudy.	2 21	44·5	12·5	12·0	.....	.....	9·3
	5 21	54·2	6·6	6·2	8·4	6·4	5·0
	6 21	54·6	4·6	5·4	5·7	6·6	3·0
	12 21	52·7	7·4	6·3	7·2	8·9	0·2
	15 21	46·9	12·3	11·5	.....	.....	9·5
	18 21	52·5	9·7	8·2	10·3	11·2	7·3
	19 21	47·9	5·9	5·9	7·9	7·9	5·1
	24 21	58·9	6·8	6·0	7·9	7·9	1·9
	27 21	51·7	12·7	8·9	12·5	12·7	10·6
	28 21	49·9	8·1	8·2	12·1	11·6	8·1
Cloudy.	25 21	47·7	1·4	1·6	2·4	1·7	3·5
	26 21	52·9	1·9	1·6	2·6	1·9	3·9

Table XCIII.

General state of the sky during the night previous to reading the instruments.	1844. July. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed				
			On long grass.	On short grass.	On flax.	On white raw wool.	In focus of metallic reflector.
	d h	°	°	°	°	°	°
Cloudless.	13 21	59·0	8·0	6·0	.....	.....	6·5
	14 21	51·2	8·2	6·2	.....	.....	6·7
	15 21	54·5	14·2	12·8	16·8	11·5	12·9
	16 21	47·1	7·8	6·8	9·1	9·6	4·9
	18 21	47·3	11·8	10·3	16·1	13·3	7·3
	19 21	48·0	9·7	10·1	13·8	14·2	7·4
	20 21	49·5	10·0	8·5	12·0	12·0	7·5
	22 21	57·3	12·1	10·3	14·1	14·1	11·3
	23 21	60·2	10·2	8·6	11·4	11·9	7·7
	24 21	57·0	14·7	10·2	12·9	13·1	8·5
	27 21	53·3	10·3	8·2	11·3	11·3	7·3
	29 21	49·3	13·3	11·3	.....	.....	10·0
Principally cloudless.	21 21	53·8	8·8	10·0	13·1	12·9	7·1
Half-cloudy.	5 21	51·1	8·6	6·1	9·9	10·0	7·0
	7 21	55·0	8·0	7·2	.....	.....	3·7
	8 21	57·1	5·3	5·2	3·5	6·3	4·8
	9 21	51·7	9·2	8·7	11·5	7·9	7·9
	26 21	57·9	17·3	.....	.....	.....	7·9
Principally cloudy.	1 21	55·0	8·0	7·0	8·0	8·0	3·4
	3 21	54·6	7·6	7·0	8·1	8·1	5·0
	4 21	55·5	6·5	6·0	.....	.....	3·5
	11 21	56·2	5·2	4·9	5·2	5·2	4·4
	12 21	54·2	7·2	6·2	7·2	7·2	3·2
	17 21	54·5	4·5	3·5	5·3	4·5	6·5
	25 21	62·0	15·3	15·4	12·5	19·0	5·5
	28 21	58·1	8·1	7·1	.....	.....	3·8
	31 21	48·7	5·2	7·7	7·7	7·7	7·7
Cloudy.	2 21	52·5	3·9	2·4	3·5	2·9	2·9
	6 21	55·0	2·8	2·0	3·8	3·8	3·2
	10 21	60·5	3·5	2·0	.....	.....	1·5
	30 21	56·8	2·7	2·3	3·5	3·3	5·0

Table XCIV.

General state of the sky during the night previous to reading the instruments.	1844. August. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed				
			On long grass.	On short grass.	On flax.	On white raw wool.	In focus of metallic reflector.
	d h	°	°	°	°	°	°
Cloudless.	1 21	45·6	7·9	5·5	7·1	6·8	6·6
	2 21	52·8	11·3	9·8	11·3	12·6	8·2
	7 21	50·9	4·3	5·6	6·7	6·5	7·3
	8 21	49·2	6·2	6·7	8·6	8·7	7·4
	13 21	52·8	11·6	5·3	6·6	6·3	4·1
	14 21	49·0	8·0	5·5	8·5	8·0	4·9
	18 21	45·4	8·6	6·9	8·4	11·1	6·7
	27 21	42·8	11·0	10·0	12·0	.....	8·0
	28 21	44·6	9·3	8·8	12·5	.....	7·8
	29 21	46·8	10·0	10·1	13·9	.....	9·5
	30 21	46·2	10·5	9·3	11·9	.....	7·5
	31 21	46·3	8·5	7·8	10·6	.....	6·7
Principally cloudless.	4 21	49·7	9·5	5·3	7·7	8·4	9·4
	6 21	52·3	6·3	5·3	5·3	6·3	6·5
	15 21	50·3	7·7	4·8	7·4	6·8	7·8
	17 21	47·3	7·1	6·1	9·6	7·1	6·9
	22 21	48·2	8·3	6·4	9·4	8·5	6·7
	23 21	47·5	9·7	8·3	10·5	11·7	7·8
Half-cloudy.	3 21	54·2	4·6	4·5	16·6	14·0	7·2
	9 21	47·8	7·8	6·3	7·8	7·8	8·6
	10 21	45·3	11·1	8·1	12·3	11·3	8·8
	16 21	57·2	.....	.....	.....	.....	5·4
	26 21	51·2	10·0	6·7	10·9	.....	7·7
Principally cloudy.	20 21	51·6	6·4	5·3	5·9	5·8	7·9
Cloudy.	5 21	57·8	10·8	11·6	11·6	13·6	3·3
	11 21	56·2	4·2	4·2	.....	.....	3·7
	12 21	54·5	3·2	3·0	4·8	5·8	5·4
	19 21	57·7	0·9	0·7	0·9	1·0	1·1
	21 21	52·8	3·0	2·6	6·0	3·5	3·8
	24 21	52·3	7·6	5·8	7·3	8·5	6·5
	25 21	52·4	4·4	3·2	5·3	.....	9·1

Table XCV.

General state of the sky during the night previous to reading the instruments.	1844. September. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed			
			On long grass.	On short grass.	On flax.	In focus of metallic reflector.
	d h					
Cloudless.	1 21	48°·7	11°·9	11°·2	14°·4	12°·2
	4 21	59·4	6·3	5·9	8·1	7·9
	10 21	44·8	10·8	10·0	12·8	11·3
	18 21	41·3	11·3	8·3	11·3	7·8
	19 21	47·3	11·5	9·6	13·6	13·7
	20 21	45·9	11·1	10·9	14·6	10·1
	24 21	41·8	11·5	9·6	11·8	9·6
	25 21	40·8	10·5	8·4	12·6	9·6
	26 21	41·1	11·1	8·5	14·9	9·5
	27 21	40·3	9·9	6·1	.....	8·1
	28 21	45·1	9·8	8·1	.....	8·5
	29 21	34·8	9·8	7·3	12·2	7·6
Principally cloudless.	2 21	51·0	10·5	9·5	13·7	8·4
	5 21	57·0	10·0	9·7	12·4	8·3
	11 21	49·8	9·6	8·3	10·6	10·0
	21 21	47·1	10·6	10·1	13·1	11·1
	22 21	49·1	13·1	12·1	.....	5·1
Half-cloudy.	6 21	62·6	.....	.....	.....	16·2
	7 21	56·8	6·3	5·6	8·7	7·8
Principally cloudy.	12 21	52·9	7·5	5·7	8·6	8·2
	13 21	53·8	6·8	6·4	7·5	8·1
	16 21	60·8	5·4	4·6	6·5	5·0
	17 21	53·9	5·3	5·2	7·8	2·3
	23 21	49·3	7·0	3·9	7·4	8·1
Cloudy.	3 21	59·6	3·8	3·1	4·2	3·4
	8 21	55·5	3·2	1·5	3·2	6·0
	9 21	55·8	0·8	1·1	0·8	5·8
	14 21	57·3	4·8	4·4	4·9	6·0
	15 21	61·4	4·1	4·6	4·8	5·9
	30 21	42·2	1·6	2·6	2·9	

Table XCVI.

General state of the sky during the night previous to reading the instruments.	1844. October. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed			
			On long grass.	On short grass.	On flax.	In focus of metallic reflector.
	d h					
Cloudless.	3 21	53°·3	18°·8	17°·8	21°·8	13°·7
	7 21	33·2	10·2	8·7	19·5	4·2
	10 21	47·2	7·7	7·2	8·6	3·2
	18 21	36·5	6·7	5·3	7·5	4·2
	22 21	30·8	6·5	4·6	7·3	5·3
	26 21	43·2	12·5	9·0	13·7	7·4
	27 21	36·2	12·0	9·7	9·9	5·5
	30 21	40·8	11·0	7·6	10·6	5·6
Principally cloudless.	4 21	53·8	13·0	12·0	14·8	8·5
	5 21	44·0	10·2	9·0	13·0	3·5
	11 21	46·8	7·8	7·3	9·5	4·6
	14 21	47·5	6·4	5·5	8·0	7·0
	28 21	39·8	11·4	9·4	10·1	10·2
	31 21	44·2	8·2	5·5	7·0	6·7
Half-cloudy.	2 21	51·0	9·0	8·4	12·0	6·0
	6 21	44·1	8·7	8·1	8·1	4·0
	8 21	45·7	8·5	7·7	8·2	5·7
	13 21	49·2	7·9	6·2	12·2	7·2
	16 21	42·2	6·2	5·5	7·7	4·7
	17 21	39·8	5·4	4·5	7·8	8·3
Principally cloudy.	19 21	45·3	5·6	5·8	8·8	6·3
Cloudy.	1 21	57·6	5·1	4·6	5·6	3·2
	9 21	53·6	4·8	4·1	6·6	3·3
	12 21	55·8	5·7	6·0	9·8	3·6
	15 21	46·7	2·0	1·7	2·2	2·9
	20 21	44·5	10·0	6·4	11·5	7·9
	21 21	43·2	3·2	1·3	1·2	3·2
	23 21	35·5	7·7	9·7	13·3	5·0
	24 21	47·2	1·1	0·5	1·9	2·7
	25 21	43·1	9·1	5·5	16·1	7·9
	29 21	42·7	3·7	2·4	2·7	7·7

Table XCVII.

General state of the sky during the night previous to reading the instruments.	1844. November. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed			
			On long grass.	On short grass.	On flax.	In focus of metallic reflector.
	d h	°	°	°	°	°
Cloudless.	15 21	48·3	9·9	5·0	7·6	6·1
	20 21	34·8	10·3	5·8	11·8	5·8
Principally cloudless.	4 21	34·6	9·0	7·6	6·6	9·6
	13 21	43·4	10·8	8·9	9·4	6·4
	21 21	34·3	10·8	7·3	10·9	8·8
	23 21	33·5	11·0	8·8	11·5	9·5
	26 21	27·4	8·1	5·6	9·4	7·2
	27 21	29·5	7·5	4·8	9·5	5·0
	30 21	31·9	10·2	8·4	13·4	10·5
Half-cloudy.	6 21	38·3	9·3	7·6	8·3	7·3
	8 21	47·3	8·3	7·4	8·3	7·6
	9 21	38·3	4·9	4·6	7·0	6·3
	10 21	41·0	7·5	6·4	7·5	7·7
	24 21	36·6	9·4	6·0	10·7	8·6
	25 21	32·1	8·7	6·4	11·4	7·8
Principally cloudy.	3 21	36·8	7·0	4·0	6·1	8·0
	11 21	40·3	6·0	3·0	6·8	4·8
	16 21	49·0	5·0	4·4	6·4	4·2
Cloudy.	1 21	41·0	0·4	0·2	0·3	2·0
	2 21	37·0	1·0	0·1	0·5	2·5
	5 21	39·1	5·1	2·6	4·1	2·2
	7 21	43·9	3·4	2·6	3·1	4·6
	12 21	48·8	0·8	0·9	−0·1	1·8
	14 21	47·6	5·2	5·2	1·8	2·8
	17 21	48·7	0·8	0·6	0·6	2·7
	18 21	49·5	2·0	1·3	1·4	2·5
	19 21	46·4	2·9	1·9	1·1	4·5
	22 21	36·4	10·0	8·7	11·1	2·2
	28 21	35·5	3·8	3·0	3·5	4·6
	29 21	37·6	3·5	3·4	2·6	

Table XCVIII.

General state of the sky during the night previous to reading the instruments.	1844. December. Day and hour of reading.	Reading of thermometer in air at the height of 4 feet.	Excess of the reading of a thermometer in air, at the height of 4 feet and protected from the effects of radiation, above that placed			
			On long grass.	On short grass.	On flax.	In focus of metallic reflector.
	d h					
Cloudless.	4 21	26°·1	12°·4	8°·5	14°·9	7°·3
	5 21	21·4	13·5	7·4	17·4	13·7
	6 21	21·1	12·2	8·7	14·1	10·6
	7 21	24·5	9·6	5·9	10·0	10·1
	11 21	22·9	10·0	6·5	10·4	6·5
	19 21	31·3	8·0	6·0	6·8	7·8
Principally cloudless.	20 21	30·1	7·2	5·7	7·1	8·2
Half-cloudy.	None.	.....	.....	.....	.....	.....
Cloudy.	1 21	34·1	1·9	0·8	2·1	3·9
	2 21	32·3	3·0	0·4	2·3	5·1
	3 21	34·1	2·2	1·1	1·6	3·6
	8 21	25·1	2·3	0·8	−0·4	3·9
	9 21	27·8	1·7	0·3	8·5	3·3
	10 21	27·7	1·2	−0·2	2·7	3·0
	12 21	23·2	0·7	−0·8	0·4	2·9
	13 21	24·4	−0·3	−0·9	2·9	2·2
	14 21	28·1	2·8	1·4	2·3	2·7
	15 21	35·4	5·1	3·6	4·6	4·8
	16 21	37·1	1·1	0·4	0·3	2·9
	17 21	38·1	2·0	1·1	1·1	3·1
	18 21	40·3	0·8	0·3	0·3	2·3
	22 21	29·1	4·9	2·9	4·1	5·9
	23 21	29·5	2·4	0·7	1·5	4·0
	24 21	31·3	2·3	1·8	2·3	2·3
	25 21	31·1	1·8	0·8	1·3	3·4
	26 21	27·6	8·8	3·4	8·3	0·4
	27 21	29·8	3·6	0·9	3·8	2·6
	28 21	40·5	1·7	1·0	1·3	3·2
	29 21	37·5	0·5	−1·1	−0·5	2·2
	30 21	34·1	5·8	3·4	2·5	5·9
	31 21	35·1	4·9	2·7	2·9	3·9

From Tables LI. to XCVIII. we learn the following particulars. As the series of observations of the thermometer whose bulb was placed in the focus of the parabolic reflector extends over a much longer period of time than any of the others, it is desirable to discuss the results derived from it before consulting those deduced from the observations of the other instruments. Confining ourselves therefore to the numbers found from the observations of the thermometer in the reflector; first, to those in that division of every table under cloudy nights, it will be seen that during such nights its reading has frequently been higher than that in air, but it has generally been from 0° to 3° lower; frequently 4°; less frequently from 5° to 8°, and occasionally 9° less than that in air. In Tables LXXII., LXXIV. and LXXV., quantities equal to 9° are exhibited; and in the last-mentioned table there is one case of 13°·3; in Table XCI. there is one case of 11°·4; during the nights that these large differences have occurred the clouds have been noted as being fleecy, thin and high. In Table LXXXV. large differences are exhibited; the sky was noted at the time as being covered with cirrocumuli.

As the results on those nights during which more or less cloud prevailed are generally between those on cloudy and on cloudless nights, and nearly proportional to the amount of cloud; the next division of these tables, which deserves particular attention, is that containing the results derived from cloudless nights. By examining the numbers in this division, it will be found that quantities less than 5° have taken place, even on cloudless nights. The atmosphere, however, on such nights has been noticed as being thick, and the air as being saturated with moisture. The following is a list of these cases:—

The result deduced from the observation taken in the year	
	1841, on March 10, at 21^h.
	1841, on March 29, at 21.
	1841, on June 20, at 21.
	1841, on July 9, at 21.
	1841, on September 6, at 21.
	1841, on November 19, at 21.
	1842, on April 8, at 21.
	1842, on August 3, at 21.
	1842, on August 16, at 21.
	1842, on August 17, at 21.
	1842, on August 28, at 21.
	1842, on December 5, at 21.
	1843, on October 26, at 21.
	1843, on December 17, at 21.
	1844, on March 12, at 21.
	1844, on March 23, at 21.
	1844, on May 20, at 21.
	1844, on June 16, at 21.

The result deduced from the observation taken in the year	1844, on July 16, at 21^h.
	1844, on August 13, at 21.
	1844, on August 14, at 21.
	1844, on October 7, 21.
	1844, on October 10, at 21.
	1844, on October 18, at 21.

In all twenty-five instances out of 331 cloudless nights; on one of these nights, viz. that preceding 1842, August 28, 21^h the result was a reading of 0°·6 higher than that of the thermometer in air, but it is very probable that the reading was in error.

The general amount on cloudless nights is from 7° to 10°; and frequently above 10°. During the four years' observations there were thirty-three cases in which the reading of the thermometer in air exceeded that of the thermometer in the reflector by quantities between 10° and 11°; there were nineteen cases between 11° and 12°; sixteen between 12° and 13°; eight between 13° and 14°; and there were four instances in which the excess amounted to 14° and was less than 15°; these cases occurred during the nights preceding 1842, June 16, 21^h and October 29, 21^h; 1843, February 12, 21^h and March 6, 21^h. (The differences in 1843 March were unusually large.) There were two cases exceeding 15°, both in 1842 on June 6 and 7; and there is one above 17° which occurred during the night preceding 1843 March 2, 21^h. This is the largest difference shown during the four years' observations, between the thermometer in the air and that in the reflector. I now proceed to speak of the results derived from the observations of the other instruments.

Those from cloudy nights with all the other thermometers were nearly the same as those with the thermometer with its bulb placed in the focus of the reflector, excepting that their readings were much less frequently higher than those of the thermometer in air than were those of that instrument.

On partially cloudy, and on cloudless nights, the reading of the thermometers on grass, those placed one inch above it, those on raw wool and flax, were always much lower than that in the reflector; and frequently, even on grass, the reading was as much below that in the reflector as the latter was below that in the air; on wool and flax it was nearly always so.

The greatest difference between the readings of that in air and that on short grass was 17°·8; and on long grass was 18°·8; and they took place during the night preceding 1844, October 3^d 21^h (see Table XCVI.). The reading of the thermometers which were placed on wool and flax were frequently from 15° to 18°, and occasionally from 19° to 21° less than that in air. The greatest difference with raw wool was 20°·4; and with flax was 21°·8, as observed 1844, April 24^d at 21^h, and on October 3^d at 21^h respectively.

The readings of the thermometer placed on garden mould were always (excepting when the sky was quite cloudy) nearer to that in the air than any of the other

readings mentioned in this section; and this reading was nearer and nearer to that in the air in proportion to the looseness of the mould; the heat from beneath passing the more rapidly to the surface in proportion to its looseness. It was also observed that the temperature about the roots of plants was lower in exact amount to the excess of heat conducted to the surface.

It must be borne in mind that the differences exhibited between the minimum readings of self-registering thermometers placed upon substances and fully exposed to the sky, and those of a similar thermometer placed in the air, and protected as much as possible from the sky, are not the maximum differences, unless the two minima occur at the same time; this generally is not the case; that of a thermometer placed on any substance and exposed to the sky usually occurs in the evening, or before midnight; whilst that in the air occurs at about the time of the rising of the sun. The difference between these two minima should be increased by the difference between the readings of the thermometer in the air at those times; this may amount to 10°; and it is highly probable that during a portion of the evening or night, which precedes the reading of the instruments, at times when 20° are exhibited between the minima, a difference of 30° has existed.

From the preceding remarks it is evident that the differences between the readings of the thermometer in air and the others, have varied with every variation of the amount of cloud; and by comparing the numbers in one table with those in another, it will be found that this difference is about the same in amount, with the same quantity of cloud at all times of the year.

This will be more clearly seen in the next table containing the monthly means of all the numbers contained in Tables LI. to XCVIII. of the results of the observations of the thermometer in the reflector.

Table XCIX.—Mean Monthly excess of the readings of the thermometer in Air above that in the Reflector.

General state of the sky during the night previous to reading the instruments.	Month.	The mean monthly excess, according to the state of the sky with respect to the quantity of cloud, of the readings of a self-registering thermometer placed in air at the height of 4 feet and protected from radiation, above those of a similar thermometer placed in the focus of a metallic parabolic reflector.										
		1841.		1842.		1843.		1844.		1841 Feb. 10, to 1844 Dec. 31.		
		Mean excess.	No. of nights.	Mean excess.	No. of nights.	Mean excess.	No. of nights.	Mean excess.	No. of nights.	No. of nights.	Sum of excess.	Mean excess.
		°		°		°		°			°	°
Cloudless.	January.	.....	.....	9·4	6	9·5	8	8·0	2	16	148·7	9·3
	February.	5·8	1	8·1	4	11·0	5	7·0	4	14	121·4	8·7
	March.	7·1	12	6·5	8	10·2	15	6·5	7	42	336·2	8·0
	April.	9·4	7	7·1	9	10·1	11	8·0	18	45	384·9	8·1
	May.	7·2	7	8·5	8	10·5	2	8·1	10	27	219·7	8·1
	June.	8·8	4	10·2	12	10·3	7	6·8	6	29	267·5	9·2
	July.	7·4	4	8·7	6	10·1	2	8·2	12	24	199·9	8·3
	August.	9·9	4	6·2	11	9·1	6	7·1	12	33	247·6	7·5
	September.	8·1	6	4·5	3	9·2	11	9·7	12	32	279·0	8·7
	October.	8·7	5	9·1	9	6·6	8	6·8	8	30	227·7	7·6
	November.	8·1	9	10·6	3	8·5	6	6·0	2	20	167·7	8·4
	December.	8·7	7	6·6	6	.....	0	9·3	6	19	156·0	8·2
Principally cloudless.	January.	.....	.....	6·2	7	7·3	3	4·6	7	17	97·2	5·7
	February.	.....	0	5·8	5	7·2	2	5·5	6	13	76·5	5·9
	March.	6·1	5	6·6	3	8·4	5	4·9	2	15	101·6	6·8
	April.	5·8	6	5·1	7	7·4	6	7·4	4	23	144·4	6·3
	May.	7·0	4	6·7	10	7·8	4	6·0	5	26	179·7	6·9
	June.	7·4	6	6·4	8	7·6	6	7·7	5	26	187·6	7·2
	July.	4·7	3	6·5	13	8·4	10	7·1	1	26	180·9	6·9
	August.	5·6	6	5·7	4	8·1	12	7·5	6	28	198·2	7·1
	September.	5·5	4	5·7	9	9·2	11	8·6	5	24	169·1	7·0
	October.	7·0	1	6·7	8	6·6	8	6·8	6	23	157·7	6·9
	November.	7·2	2	7·5	11	7·1	7	8·1	7	28	210·7	7·5
	December.	7·1	5	6·2	6	6·1	5	8·2	1	18	111·3	6·2
Half-cloudy.	January.	.....	.....	5·8	7	6·0	6	4·4	5	18	96·8	5·4
	February.	3·2	1	3·6	7	8·4	5	3·7	6	19	106·7	5·6
	March.	5·1	5	4·2	11	7·3	3	4·4	9	28	132·9	4·7
	April.	5·6	6	4·8	8	5·3	8	3·4	3	25	125·4	5·0
	May.	5·1	6	6·1	5	5·1	4	5·9	6	21	117·3	5·6
	June.	5·3	6	5·8	7	5·5	9	5·0	7	21	115·4	5·5
	July.	4·7	6	4·9	6	6·6	7	6·3	5	24	134·9	5·6
	August.	5·8	6	5·2	11	6·5	7	7·5	5	29	174·6	6·0
	September.	4·7	16	4·2	9	7·2	7	12·0	2	34	197·6	5·8
	October.	4·1	11	6·1	4	5·4	6	6·0	6	26	137·9	5·3
	November.	6·1	6	6·0	5	4·6	1	7·6	6	24	153·0	6·4
	December.	5·8	9	5·1	3	7·9	1	.....	0	13	75·3	5·8
Principally cloudy.	January.	.....	.....	3·8	2	4·6	6	2·6	7	15	53·6	3·6
	February.	3·9	2	3·1	6	4·9	3	3·1	6	17	59·7	3·5
	March.	3·2	5	1·6	1	10·5	1	4·2	5	12	48·8	4·1
	April.	2·2	6	3·9	1	2·8	1	7·3	2	10	34·6	3·5
	May.	2·1	8	5·0	5	5·8	6	6·0	5	20	74·7	3·7
	June.	3·0	5	5·8	1	5·5	9	−1·3	1	25	130·8	5·2
	July.	2·9	11	3·8	3	4·6	6	4·8	9	29	113·5	3·9
	August.	3·6	7	3·6	1	7·0	2	7·9	1	11	50·5	4·6
	September.	4·2	2	2·6	4	6·6	3	6·3	5	14	70·7	5·1
	October.	2·8	9	4·6	3	4·6	3	6·3	1	16	59·5	3·7
	November.	2·5	9	4·4	2	1·5	2	5·7	3	15	51·6	3·4
	December.	3·7	6	8·0	1	5·7	7	.....	0	14	70·3	5·0
Cloudy.	January.	.....	.....	2·3	10	3·4	5	0·7	8	20	45·8	2·0
	February.	2·1	19	1·8	5	3·3	11	3·3	7	42	109·0	2·6
	March.	0·6	3	1·9	8	5·3	7	1·8	8	26	68·1	2·6
	April.	1·9	4	1·4	5	2·8	4	2·1	3	16	32·3	2·0
	May.	0·4	6	1·9	3	2·6	12	4·1	9	30	80·0	2·7
	June.	0·3	6	1·2	2	3·2	6	3·7	2	16	27·8	1·7
	July.	0·8	7	3·7	3	3·8	5	3·1	4	19	48·4	2·6
	August.	0·6	8	2·9	3	3·9	2	4·4	7	20	54·0	2·7
	September.	2·6	2	2·0	5	5·1	3	5·4	5	15	57·7	3·8
	October.	1·5	5	2·7	7	2·4	6	4·7	10	28	88·4	3·2
	November.	2·4	3	4·0	6	2·0	8	2·9	11	28	79·1	2·8
	December.	4·3	3	2·8	15	3·3	17	3·4	23	56	188·8	3·3

The numbers contained in this table show very clearly that, under the same state of the sky, the excess of the reading of the thermometer in air above that in the reflector is the same at all times of the year, and they as clearly show that the amount of the excess varies with every variation of the quantity of cloud. These results are exhibited in each year; and they are very decidedly shown in the last column of each division of the table, which contains the mean results for every month derived from the four years' observations, excepting in January, which was deduced from three years only.

Table C. is formed from the numbers in Table XCIX. by taking their yearly values for each state of the sky. The last column of this table contains the mean result from all the observations which were spread over 1419 nights; in the year 1841 there was one observation lost; in 1842 there were fifteen; in 1843 there were nine, and in 1844 there were six. These observations were lost chiefly from the instrument being out of repair, or the having omitted to set the index the previous day. The result in the last column is therefore deduced from 1389 nights, and include those from all states of the sky and weather.

TABLE C.—Showing the mean results in each year, with the different states of the sky, and for the whole time derived from all the self-registering observations of the thermometer whose bulb was placed in the focus of a metallic parabolic reflector.

State of the sky.	The mean yearly excess, according to the state of the sky with respect to the quantity of cloud, of the readings of a self-registering thermometer placed in air at the height of 4 feet and protected from radiation, above those of a similar thermometer placed in the focus of a metallic parabolic reflector fully exposed to the sky.																	
	1841.			1842.			1843.			1844.			1840 February 10, to 1844 December 31.					
	Whole sum of excesses.	Whole number of nights.	Mean excess.	Whole sum of excesses.	Whole number of nights.	Mean excess.	Whole sum of excesses.	Whole number of nights.	Mean excess.	Whole sum of excesses.	Whole number of nights.	Mean excess.	Whole number of nights.	Sum of excesses.	Mean excess.	Whole number of nights.	Sum of excesses.	Mean excess per night.
Cloudy	97°3	66	1°47	177°8	72	2°47	281°4	86	3°27	322°9	97	3°33	321	879·4	2°74		°	°
Principally cloudy...	203·9	70	2·91	118·8	30	3·96	258·2	49	5·27	237·4	49	4·85	198	818·3	4·13			
Half-cloudy..	396·0	78	5·08	430·5	82	5·25	394·9	62	6·37	336·4	60	5·60	282	1557·8	5·52	1389	7826·4	5·65
Principally clear ...	270·8	43	6·30	578·4	81	7·14	591·1	78	7·58	374·4	55	6·81	257	1814·7	7·06			
Cloudless ...	535·9	66	8·12	682·1	85	8·03	768·1	81	9·48	770·1	99	7·78	331	2756·2	8·33			

By considering that the cloudy nights in this table are represented by 10; the principally cloudy by 8; the half-cloudy by 5; the principally clear by 2; and the cloudless by 0, the following particulars may be deduced from this table.

The sum of the products of the above numbers into the number of nights of each class in each year, divided by the number of nights in the year, gives the mean state of cloudiness during the nights of that year; and the yearly sum of the excess of the reading of the thermometer in air above that placed in the reflector, divided by the number of nights in the year, gives the excess, corresponding to the mean state of cloudiness; and thus we find

In the year 1841	The mean state of cloudiness during the nights was	° 5·8,	and the mean excess of the reading of the thermometer in the air above that in the reflector was	° 4·7
In the year 1842	„	4·4,	„	5·7
In the year 1843	„	4·9,	„	6·4
In the year 1844	„	5·0,	„	5·7

And the mean state of cloudiness during the nights of the four years was 5 (or the sky upon the average had been one-half covered by cloud), and the corresponding mean excess of the reading of the thermometer in air above that in the reflector was 5°·65.

In the year 1841 the number of clear and cloudy nights were equal; and they were nearly the same in number in the year 1844; in the year 1842 the number of clear nights exceeded the number of cloudy nights by thirteen; and in 1843 the cloudy exceeded the clear nights by five: from this it appears that during these four years there were one clear and one cloudy night out of every four nights.

In Table XLV. the relative less reading of a thermometer placed on raw wool and one in the focus of a parabolic reflector, than that in the air was found to be as 1221 : 888 from 889 simultaneous observations.

In Table CVI. this ratio is found to be as 1280 : 962 from 992 observations, deduced from self-registering minimum thermometers. As these results are so nearly identical, and as they have been deduced by entirely different instruments, there can be but little doubt of the correctness of their mean, viz. 1251 : 910, or in other words, the results as derived from the observations of the thermometer in the reflector, would be converted into results as deduced from placing a thermometer on raw wool by multiplying the former by 1·375, and in this way we should derive 7°·76 (*i. e.* 5°·65 × 1·375) as the mean deduced from the four years' observations; and we should find 11°·5 (*i. e.*8°·33 × 1·375) as that deduced from cloudless nights. I have preferred exhibiting these results in terms of that derived from raw wool in consequence of it being free from the effects of heat conducted from the earth, and therefore free from one of the many sources from which the reading of a thermometer placed on the ground is affected, some of which are as follows:—

From the heat of the earth upon which it is placed.

From the heat radiated to it from lateral objects.

From the heat communicated to the substance from the air in contact with it.

From the heat evolved during the change of the watery vapour in the atmosphere into dew.

From the heat received from the radiation from clouds.

From the heat received from the upper regions of the atmosphere, and

From the heat received from space.

By placing a thermometer on wool the effect of the first of these causes is evaded, as appears in a previous section; in a wide and open plain the second would be evaded, as there would be but few objects to emit heat; I fear, however, that all my

readings are affected from this cause, and to an unknown amount; the heat of the air is known, and therefore it can be accounted for; the amount of heat evolved during the change of vapour into water appears to be about 4° from all the experiments I have made; the heat radiated from dense clouds, near the earth, must be very nearly the same in amount as that radiated from the earth, as the clouds when at a low elevation must possess very nearly the same heat as that of the lower atmosphere; but when such clouds are high their temperature must be less than when at a low elevation, and they will radiate less heat to the earth than they will receive from it (see the following experiments upon the different results deduced from high and low clouds, of the same modification and covering the same extent of sky); and the amount of heat from the other sources is unknown. The whole effect of all these checks upon the production of a great cold at night, by the radiation of heat from bodies on the surface of the earth, cannot be estimated, yet, notwithstanding their operation, the reading of a thermometer placed on the ground has been frequently very low. The reading of a thermometer thus placed represents the amount of heat received from all the above sources, diminished by the amount radiated from itself.

The place in which the observations were taken is not favourably situated for the production of a great cold, from radiation of heat at night, it being surrounded, at no great distance, by large trees, and consequently the humidity of the atmosphere is great.

From the circumstance of low readings always having taken place when the sky has been cloudless and bright, we may readily infer that the temperature of space must be very low indeed.

The reading of a thermometer placed on grass is much affected by the heat conducted to it from the earth beneath; yet, notwithstanding, its readings were always less than those of the thermometer in the reflector, in the ratio of 1000 : 858 (see Table XLV.), therefore it is necessary to multiply the results derived from the latter by 1·17 to reduce them to results that would have been derived from the former.

By examining the numbers in the columns under the lowest thermometrical readings in Table CVII., it appears that long grass, and therefore vegetation is liable to be affected at night from the influence of radiation by a temperature below the freezing-point of water every month in the year, for even in July 1844, the only exception in that year, the thermometer read 35°·5, whilst that in the reflector read 39°·3; in the year 1843, in July, the reading in the reflector was as low as 35°·2, and it seems very probable that long grass temperature at this time was at or below 32°; and as all the readings would have been lower if the experiments had been made in the open country, it seems certain that vegetation is always liable to the temperature of 32° in this country.

The next table is formed by taking the means of all the numbers contained in each division of the Tables LXXVIII. to XCVIII.

TABLE CI.—Showing the mean monthly excess of the reading of a self-registering minimum thermometer in Air at the height of 4 feet, above the

General state of the sky during the night previous to reading the instruments.	Year.	Month.	The mean excess in each month, according to the state of the sky with respect to the quantity of cloud, of the readings of a self-registering minimum thermometer placed in air at the height of 4 feet and protected											
			On long grass exposed to ¾ths of the sky.		On long grass.		On short grass.		On garden mould.		In air one inch high.		In air three inches high.	
			Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.
Cloudless.	1843.	April.	8·1	1	...	...	8·5	1	5·6	3	8·6	1	7·9	1
		May.	6·0	2	...	...	10·2	2	4·0	2	11·4	2	7·7	2
		June.	6·5	7	...	...	9·7	7	5·5	7	10·5	7	11·3	7
		July.	7·4	2	...	...	12·7	2	10·0	1	12·0	2	10·0	2
		August.	5·8	6	...	...	10·6	6	...	...	10·8	6	10·9	6
		September.	7·1	4	11·4	7	10·0	11	...	...	8·8	11	6·9	11
		October.	...	...	8·0	8	6·4	8	...	...	5·3	8	...	...
		November.	...	...	9·9	6	8·0	6	...	...	6·3	1	...	...
		December.	...	...	...	0	...	0	...	...	...	0	...	...
	1844.	January.	...	...	9·5	2	9·9	1	...	...	...	...	...	...
		February.	...	...	9·6	4	7·1	4	...	...	...	...	...	...
		March.	...	...	8·3	7	6·2	7	...	...	...	...	...	...
		April.	...	...	11·8	18	10·7	18	...	...	...	...	...	...
		May.	...	...	11·3	10	10·6	10	...	...	...	...	...	...
		June.	...	...	9·3	7	8·0	7	...	...	...	...	...	...
		July.	...	...	10·9	12	9·1	12	...	...	...	...	...	...
		August.	...	...	8·9	12	7·6	12	...	...	...	...	...	...
		September.	...	...	10·5	12	8·7	12	...	...	...	...	...	...
		October.	...	...	10·7	8	8·7	8	...	...	...	...	...	...
		November.	...	...	10·1	2	5·4	2	...	...	...	...	...	...
		December.	...	...	11·0	6	7·2	6	...	...	...	...	...	...
Principally clear.	1843.	April.	...	...	...	...	11·0	2	2·3	2	...	...	...	...
		May.	4·5	7	...	...	5·0	7	3·3	7	7·6	7	6·7	7
		June.	3·5	7	...	...	6·0	7	2·9	7	8·3	7	7·9	7
		July.	5·9	10	...	...	5·9	10	7·0	1	7·1	9	7·3	10
		August.	4·7	12	...	...	7·1	12	...	...	6·9	12	7·2	12
		September.	7·4	1	8·8	2	9·7	5	...	...	9·1	5	9·5	5
		October.	...	...	8·0	8	7·1	8	...	...	5·9	8	...	...
		November.	...	...	8·9	7	6·2	6	...	...	4·4	4	...	...
		December.	...	...	7·1	5	6·5	4	...	...	...	...	...	...
	1844.	January.	...	...	8·5	7	7·4	7	...	...	...	...	...	...
		February.	...	...	7·5	6	5·8	6	...	...	...	...	...	...
		March.	...	...	6·6	2	5·6	2	...	...	...	...	...	...
		April.	...	...	10·3	4	9·1	4	...	...	...	...	...	...
		May.	...	...	9·8	5	9·5	5	...	...	...	...	...	...
		June.	...	...	8·8	5	9·0	5	...	...	...	...	...	...
		July.	...	...	8·8	1	10·0	1	...	...	...	...	...	...
		August.	...	...	8·1	6	6·0	6	...	...	...	...	...	...
		September.	...	...	10·8	4	9·9	4	...	...	...	...	...	...
		October.	...	...	9·5	6	8·1	6	...	...	...	...	...	...
		November.	...	...	9·6	7	7·2	7	...	...	...	...	...	...
		December.	...	...	7·2	1	5·7	1	...	...	...	...	...	...
Half-cloudy.	1843.	April.	4·7	1	...	...	6·2	3	3·3	3	4·7	1	4·2	1
		May.	4·1	4	...	...	6·6	4	4·2	4	7·1	4	7·6	4
		June.	3·8	1	...	...	7·3	1	4·0	1	10·8	1	10·6	1
		July.	3·8	7	...	...	6·2	7	4·5	1	5·9	7	6·4	7
		August.	4·5	7	...	...	6·0	7	...	...	5·6	7	6·0	7
		September.	4·7	2	9·4	5	8·1	7	...	...	6·5	7	4·8	7
		October.	...	...	6·3	6	5·6	6	...	...	4·8	6	3·3	1
		November.	...	...	4·5	7	5·6	6	...	...	3·8	1	...	...
		December.	...	...	7·1	1	6·1	1	...	...	...	...	...	...
	1844.	January.	...	...	7·4	5	5·9	5	...	...	...	...	...	...
		February.	...	...	6·2	6	4·6	6	...	...	...	...	...	...
		March.	...	...	6·5	9	4·7	9	...	...	...	...	...	...
		April.	...	...	6·2	3	6·0	3	...	...	...	...	...	...
		May.	...	...	5·5	9	5·4	9	...	...	...	...	...	...
		June.	...	...	7·7	7	7·6	7	...	...	...	...	...	...
		July.	...	...	9·7	5	6·8	4	...	...	...	...	...	...
		August.	...	...	8·4	4	6·4	4	...	...	...	...	...	...
		September.	...	...	10·5	12	8·7	12	...	...	...	...	...	...
		October.	...	...	7·6	6	6·7	6	...	...	...	...	...	...
		November.	...	...	8·0	6	6·4	6	...	...	...	...	...	...
		December.	...	...	...	0	...	0	...	...	...	...	...	...

readings of a similar thermometer placed on different substances, in each state of the sky.

from the effects of radiation, above that of a similar thermometer fully exposed to the sky, placed

In air six inches high.		On white raw wool.		On fine flax.		On coarse flax.		On white unwrought cotton wool.		On lead.		On blackened tin.		On white tin.		In focus of metallic parabolic reflector.	
Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.
°		°		°		°		°		°		°		°		°	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·1	11
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10 5	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·3	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10·1	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·1	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·2	11
...	...	11·7	7	11·0	7	10·0	7	9·4	7	...	...	...	...	...	...	6·6	8
...	...	12·3	5	11·5	6	12·3	5	11·9	4	...	...	...	...	...	...	8·5	6
...	...	...	0	...	0	...	...	...	...	...	...	...	0	...	0	...	0
...	...	13·4	1	10·6	1	...	...	...	...	...	...	9·6	1	8·9	1	8·0	2
...	...	8·8	4	9·1	4	...	...	...	...	...	...	7·6	4	7·7	4	7·0	4
...	...	11·2	7	9·8	7	...	...	...	...	5·9	7	...	...	...	...	6·5	7
...	...	15·3	18	16·2	18	...	...	...	...	9·2	18	...	...	...	...	8·0	18
...	...	11·9	10	13·2	10	...	...	...	...	9·6	4	...	...	...	...	8·1	10
...	...	8·3	4	7·8	4	...	...	...	...	...	...	...	...	...	...	6·8	6
...	...	12·3	9	13·1	9	...	...	...	...	...	...	...	...	...	...	8·2	12
...	...	8·6	12	9·8	12	...	...	...	...	...	...	...	...	...	...	7·1	12
...	...	...	...	12·6	12	...	...	...	...	...	...	...	...	...	...	9·7	12
...	...	...	...	12·4	8	...	...	...	...	...	...	...	...	...	...	6·8	8
...	...	...	...	9·7	2	...	...	...	...	...	...	...	...	...	...	6·0	2
...	...	...	...	12·3	6	...	...	...	...	...	...	...	...	...	...	9·3	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·4	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·8	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·6	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·4	10
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8·1	12
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9·2	11
3·1	8·0	8·8	2	9·3	2	8·9	2	8·6	2	...	...	...	...	...	...	6·6	8
...	...	9·5	7	9·1	7	9·5	5	8·0	5	...	...	...	...	...	...	7·1	7
...	...	7·6	5	7·0	5	...	...	...	...	...	...	5·9	5	4·9	5	6·1	5
...	...	10·8	7	8·6	7	...	...	...	...	...	...	8·0	7	7·3	7	4·6	7
...	...	7·9	6	7·9	6	...	...	...	...	...	...	7·0	6	6·8	6	5·5	6
...	...	7·5	2	7·8	2	...	...	...	...	5·2	2	...	...	...	...	4·9	2
...	...	13·1	4	14·5	4	...	...	...	...	10·1	4	...	...	...	...	7·4	4
...	...	11·4	4	9·1	4	...	...	...	...	...	...	...	...	...	...	6·0	5
...	...	10·3	4	10·4	5	...	...	...	...	...	...	...	...	...	...	7·7	5
...	...	12·9	1	13·1	1	...	...	...	...	...	...	...	...	...	...	7·1	1
...	...	8·1	6	8·3	6	...	...	...	...	...	...	...	...	...	...	7·5	6
...	...	...	...	12·5	4	...	...	...	...	...	...	...	...	...	...	8·6	5
...	...	...	...	10·4	6	...	...	...	...	...	...	...	...	...	...	8·8	6
...	...	...	...	10·1	7	...	...	...	...	...	...	...	...	...	...	8·1	7
...	...	...	...	7·1	1	...	...	...	...	...	...	...	...	...	...	8·2	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·3	8
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·1	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·5	9
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·6	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·5	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·2	7
4·2	3·0	5·4	2	4·6	2	4·8	2	4·0	2	5·0	...	...	...	...	...	5·4	6
...	...	6·5	6	8·0	4	8·6	1	4·8	2	...	...	...	...	...	...	4·6	1
...	...	6·9	1	...	...	7·3	1	...	...	...	...	5·9	1	5·9	1	7·9	1
...	...	9·1	5	5·4	5	...	...	...	...	...	...	6·8	5	5·4	5	4·4	5
...	...	4·2	6	5·0	6	...	...	...	...	...	...	5·1	6	4·5	6	3·7	6
...	...	6·7	8	6·9	8	...	...	...	...	5·3	8	...	...	...	...	4·4	9
...	...	8·2	3	8·8	3	...	...	...	...	4·6	3	...	...	...	...	3·4	3
...	...	8·7	4	8·4	4	...	...	...	...	...	...	...	...	...	...	5·9	6
...	...	7·9	2	6·6	4	...	...	...	...	...	...	...	...	...	...	5·0	7
...	...	8·1	3	8·3	3	...	...	...	...	...	...	...	...	...	...	6·3	5
...	...	11·0	4	11·9	4	...	...	...	...	...	...	...	...	...	...	7·5	5
...	...	...	...	12·6	10	...	...	...	...	...	...	...	...	...	...	12·0	2
...	...	...	...	9·3	6	...	...	...	...	...	...	...	...	...	...	6·0	6
...	...	...	...	8·9	6	...	...	...	...	...	...	...	...	...	...	7·6	6
...	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...	...	0

TABLE (Continued).

General state of the sky during the night previous to reading the instruments.	Year.	Month.	The mean excess in each month, according to the state of the sky with respect to the quantity of clouds, of the readings of a self-registering minimum thermometer placed in air at the height of 4 feet and protected											
			On long grass exposed to $\frac{3}{4}$ths of the sky.		On long grass.		On short grass.		On garden mould.		In air one inch high.		In air three inches high.	
			Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.
			°		°		°		°		°		°	
Principally cloudy.	1843.	April.	...	...	...	...	...	...	...	...	...	...	...	...
		May.	3·8	6	...	...	3·6	6	3·1	6	5·8	6	5·6	6
		June.	4·5	9	...	...	4·8	9	4·4	9	5·2	9	6·0	9
		July.	3·3	6	...	...	3·1	6	...	...	4·3	5	4·0	6
		August.	5·1	2	...	...	7·0	2	...	...	6·8	2	7·3	2
		September.	5·4	1	6·2	1	5·0	3	...	...	4·0	3	3·6	3
		October.	...	...	6·6	3	4·0	3	...	...	3·4	3	3·3	2
		November.	...	...	3·8	2	4·0	2	...	...	...	...	...	...
		December.	...	...	6·1	7	5·7	7	...	...	...	...	...	...
	1844.	January.	...	...	6·9	7	6·2	7	...	...	...	...	...	...
		February.	...	...	5·6	6	3·4	6	...	...	...	...	...	...
		March.	...	...	6·6	5	5·1	5	...	...	...	...	...	...
		April.	...	...	9·5	2	8·9	2	...	...	...	...	...	...
		May.	...	...	5·2	1	4·7	1	...	...	...	...	...	...
		June.	...	...	8·7	10	7·9	10	...	...	...	...	...	...
		July.	...	...	7·5	9	7·2	9	...	...	...	...	...	...
		August.	...	...	4·9	7	4·4	7	...	...	...	...	...	...
		September.	...	...	6·6	5	5·2	5	...	...	...	...	...	...
		October.	...	...	5·6	1	5·8	1	...	...	...	...	...	...
		November.	...	...	6·0	3	3·8	3	...	...	...	...	...	...
		December.	...	...	...	0	...	0	...	...	...	...	...	...
Cloudy.	1843.	April.	5·7	2	...	...	6·8	2	4·2	2	5·4	2	5·2	2
		May.	3·7	12	...	...	2·8	12	2·1	12	3·7	12	4·8	12
		June.	2·3	5	...	...	1·5	5	1·2	5	2·9	5	3·1	5
		July.	3·0	5	...	...	2·1	5	...	...	2·9	4	2·3	5
		August.	1·5	2	...	...	1·2	2	...	...	1·5	2	1·7	2
		September.	3·0	3	...	...	2·9	3	...	...	3·1	3	3·1	3
		October.	3·7	5	3·7	5	4·2	5	...	...	1·1	5	...	...
		November.	...	...	2·1	8	1·7	7	...	...	1·9	2	...	...
		December.	...	...	3·0	17	2·8	17	...	...	...	...	...	...
	1844.	January.	...	...	3·5	8	2·9	7	...	...	...	...	...	...
		February.	...	...	3·9	7	3·6	7	...	...	...	...	...	...
		March.	...	...	3·2	8	2·8	8	...	...	...	...	...	...
		April.	...	...	2·6	3	2·6	3	...	...	...	...	...	...
		May.	...	...	5·5	9	5·4	9	...	...	...	...	...	...
		June.	...	...	1·7	2	1·6	2	...	...	...	...	...	...
		July.	...	...	3·2	4	2·2	4	...	...	...	...	...	...
		August.	...	...	4·9	7	4·4	7	...	...	...	...	...	...
		September.	...	...	3·1	6	2·9	6	...	...	...	...	...	...
		October.	...	...	5·3	10	4·2	10	...	...	...	...	...	...
		November.	...	...	3·2	12	2·5	12	...	...	...	...	...	...
		December.	...	...	2·7	23	1·1	23	...	...	...	...	...	...

TABLE (Continued).

from the effects of radiation, above that of a similar thermometer fully exposed to the sky, placed																	
In air six inches high.		On white raw wool.		On fine flax.		On coarse flax.		On white unwrought cotton wool.		On lead.		On blackened tin.		On white tin.		In focus of metallic parabolic reflector.	
Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.	Mean excess.	Number of nights.
°		°		°		°		°		°		°		°		°	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·8	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·8	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·5	9
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4·6	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7·0	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6·6	3
...	...	2·5	1	2·5	1	2·5	1	...	...	...	...	...	...	...	...	4·6	3
...	...	4·5	2	4·3	2	...	...	...	...	...	...	...	...	...	...	1·5	2
...	...	6·0	7	...	...	6·1	7	...	...	...	...	5·1	7	4·0	6	5·7	7
...	...	7·0	7	5·6	7	...	...	...	...	...	...	6·7	7	6·3	7	2·6	7
...	...	7·4	6	6·8	6	...	...	...	...	...	...	4·9	6	4·6	6	3·1	6
...	...	8·0	5	7·3	5	...	...	...	...	5·3	1	...	...	...	...	4·2	5
...	...	12·3	2	13·2	2	...	...	...	...	9·0	2	...	...	...	...	7·3	2
...	...	8·7	1	8·7	1	...	...	...	...	...	...	...	...	...	...	6·0	5
...	...	9·1	8	9·0	8	...	...	...	...	...	...	...	...	...	...	−1·3	1
...	...	8·5	7	7·7	7	...	...	...	...	...	...	...	...	...	...	4·8	9
...	...	6·5	5	6·0	6	...	...	...	...	...	...	...	...	...	...	7·9	1
...	...	...	...	7·6	5	...	...	...	...	...	...	...	...	...	...	6·3	5
...	...	...	...	8·8	1	...	...	...	...	...	...	...	...	...	...	6·3	1
...	...	...	...	6·6	3	...	...	...	...	...	...	...	...	...	...	5·7	3
...	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...	...	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·8	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·6	12
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·2	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·8	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3·9	2
2·0	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5·1	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2·4	6
...	...	3·3	7	2·0	5	2·9	4	2·1	4	...	...	2·2	15	2·4	16	2·0	8
...	...	2·4	17	...	...	3·0	17	...	...	...	...	3·5	7	3·7	7	3·3	17
...	...	3·6	8	2·5	8	...	...	...	...	...	...	5·5	6	4·6	6	0·7	8
...	...	4·7	6	5·1	6	...	...	...	...	...	...	...	...	...	...	3·3	7
...	...	3·5	8	3·8	8	...	...	...	...	2·9	8	...	...	...	...	1·8	8
...	...	5·2	3	4·9	3	...	...	...	...	2·6	3	...	...	...	...	2·1	3
...	...	8·7	4	8·4	4	...	...	...	...	...	...	...	...	...	...	4·1	9
...	...	1·8	2	2·5	2	...	...	...	...	...	...	...	...	...	...	3·7	2
...	...	3·3	3	3·6	3	...	...	...	...	...	...	...	...	...	...	3·1	4
...	...	6·5	5	6·0	6	...	...	...	...	...	...	...	...	...	...	4·4	7
...	...	...	...	3·5	6	...	...	...	...	...	...	...	...	...	...	5·4	5
...	...	...	...	7·1	10	...	...	...	...	...	...	...	...	...	...	4·7	10
...	...	...	...	2·5	12	...	...	...	...	...	...	...	...	...	...	2·9	11
...	...	...	...	2·4	23	...	...	...	...	...	...	...	...	...	...	3·4	23

The following Table contains the mean of the values in each year, and for the whole time according to the number of observations.

TABLE CII.—Showing the excess of reading of the thermometer in Air, above those placed as stated in the 2nd column, in each of the years 1843 and 1844, and for both years together.

General state of the sky during the night previous to reading the instruments.	Situation of the thermometer.	The mean yearly excess, according to the state of the sky, of the reading of a self-registering minimum thermometer placed in air at the height of 4 feet, and protected from radiation, above that of a similar thermometer placed on different substances.								
		1843.			1844.			1843 and 1844.		
		Number of nights.	Sum of excesses.	Mean excess.	Number of nights.	Sum of excesses.	Mean excess.	Whole number of nights.	Whole sum of excesses.	Mean excess.
Cloudy.	On long grass exposed to $\frac{3}{4}$ths of the sky	29	95°6	3°3	...	.....	...	29	95°6	3°3
	On long grass fully exposed to the sky	30	85·9	2·9	99	360·2	3·7	129	446·1	3·4
	On short grass fully exposed to the sky	58	159·5	2·8	98	281·6	2·9	156	441·1	2·8
	On garden mould	29	40·2	1·4	...	.....	...	29	40·2	1·4
	One inch above grass	34	103·0	3·0	...	.....	...	34	103·0	3·0
	Three inches above grass	31	111·5	3·6	...	.....	...	31	111·5	3·6
	Six inches above grass	...	.....	...	...	.....	...	...	.....	...
	On white raw wool	25	70·6	2·8	40	186·5	4·7	65	257·1	3·9
	On fine flax	6	15·7	2·6	92	363·8	4·0	98	379·5	3·9
	On coarse flax	22	67·6	3·1	...	.....	...	22	67·6	3·1
	On white unwrought cotton wool	5	11·2	2·2	...	.....	...	5	11·2	2·2
	On lead	...	.....	...	11	31·0	2·8	11	31·0	2·8
	On blackened tin	15	33·5	2·2	14	62·7	4·5	29	96·2	3·3
	On white tin	16	38·4	2·4	14	50·7	3·6	40	89·1	2·2
	In focus of metallic reflector	86	281·4	3·3	97	322·9	3·3	183	604·3	3·3
Principally cloudy.	On long grass exposed to $\frac{3}{4}$ths of the sky	25	101·2	4·1	...	.....	...	25	101·2	4·0
	On long grass fully exposed to the sky	13	76·9	5·9	50	354·7	7·1	63	431·6	6·8
	On short grass fully exposed	39	181·8	4·6	50	303·3	6·1	89	485·1	5·5
	On garden mould fully exposed	16	59·7	3·7	...	.....	...	16	59·7	3·7
	One inch above grass	28	146·0	5·2	...	.....	...	28	146·0	5·2
	Three inches above grass	29	149·0	5·1	...	.....	...	29	149·0	5·2
	Six inches above grass	...	.....	...	...	.....	...	...	.....	...
	On white raw wool	10	53·9	5·4	37	302·0	8·2	47	355·9	7·5
	On fine flax	3	11·1	3·7	46	352·9	7·7	49	364·0	7·4
	On coarse flax	8	45·4	5·7	...	.....	...	8	45·4	5·7
	On white unwrought cotton wool	1	6·5	6·5	...	.....	...	1	6·5	6·5
	On lead	...	.....	...	7	44·3	6·3	7	44·3	6·3
	On blackened tin	7	36·1	5·1	13	75·8	5·8	20	111·9	5·6
	On white tin	6	24·2	4·0	13	71·7	5·3	19	95·9	5·0
	In focus of metallic reflector	49	258·2	5·3	49	237·4	4·9	98	495·6	5·1
Half-cloudy.	On long grass exposed to $\frac{3}{4}$ths of the sky	22	88·6	4·0	...	.....	...	22	88·6	4·0
	On long grass fully exposed	19	120·7	6·4	58	438·4	7·6	77	559·1	7·3
	On short grass	42	267·3	6·4	57	353·6	6·2	99	620·9	6·3
	On garden mould	10	39·7	4·0	...	.....	...	10	39·7	3·9
	One inch above grass	34	202·5	5·9	...	.....	...	34	202·5	5·9
	Three inches above grass	28	168·9	6·0	...	.....	...	28	168·9	6·0
	Six inches above grass	3	12·5	4·2	...	.....	...	3	12·5	4·2
	On white raw wool	9	56·6	6·3	33	250·7	7·6	42	307·3	7·3
	On fine flax	11	41·2	3·7	49	383·9	7·8	60	425·1	7·1
	On coarse flax	4	25·5	6·4	...	.....	...	4	25·5	6·4
	On white unwrought cotton wool	4	17·6	4·4	...	.....	...	4	17·6	4·4
	On lead	...	.....	...	14	70·7	5·1	14	70·7	5·1
	On blackened tin	1	5·9	5·9	11	64·5	5·9	12	70·4	5·9
	On white tin	1	5·9	5·9	11	53·9	4·9	12	59·8	5·0
	In focus of metallic reflector	62	394·9	6·4	60	336·4	5·6	122	731·3	6·0

TABLE (Continued).

General state of the sky during the night previous to reading the instruments.	Situation of the thermometer.	The mean yearly excess, according to the state of the sky, of the reading of a self-registering minimum thermometer placed in air at the height of 4 feet, and protected from radiation, above that of a similar thermometer placed on different substances.								
		1843.			1844.			1843 and 1844.		
		Number of nights.	Sum of excesses.	Mean excess.	Number of nights.	Sum of excesses.	Mean excess.	Whole number of nights.	Whole sum of excesses.	Mean excess.
			°	°		°	°		°	°
Principally clear.	On long grass exposed to ¾ths of the sky	37	178·5	4·8	...	.....	...	37	178·5	4·8
	On long grass fully exposed to the sky	22	179·2	8·1	55	195·2	9·0	77	374·4	4·9
	On short grass	61	410·7	6·7	55	427·7	7·8	116	838·4	7·2
	On garden mould	17	55·6	3·3	...	.....	...	17	55·6	3·3
	One inch above grass	52	368·3	7·1	...	.....	...	52	368·3	7·1
	Three inches above grass	41	295·1	7·1	...	.....	...	41	295·1	7·2
	Six inches above grass	6	18·7	3·2	...	.....	...	6	18·7	3·1
	On white raw wool	14	122·6	8·8	35	299·7	8·6	49	422·3	3·6
	On fine flax	9	82·6	9·2	54	482·2	8·9	63	564·8	9·0
	On coarse flax	12	100·2	8·3	...	.....	...	12	100·2	8·4
	On white unwrought cotton wool	7	57·2	8·2	...	.....	...	7	57·2	8·2
	On lead	...	.....	...	11	61·1	5·5	11	61·1	5·6
	On blackened tin	5	29·6	5·9	13	97·8	7·5	18	127·4	7·1
	On white tin	5	24·3	4·9	13	91·9	7·1	18	116·2	6·4
	In focus of metallic reflector	78	591·1	7·6	55	374·4	6·8	133	965·5	7·3
Cloudless.	On long grass exposed to ¾ths of the sky	22	143·6	6·5	...	.....	...	22	143·6	6·5
	On long grass fully exposed to the sky	21	203·0	9·7	100	920·2	9·2	121	1123·2	9·3
	On short grass	47	322·1	6·9	98	866·1	8·9	145	1188·2	8·2
	On garden mould	13	73·8	5·7	...	.....	...	13	73·8	5·7
	One inch above grass	38	341·2	5·7	...	.....	...	38	341·2	9·0
	Three inches above grass	29	214·0	7·4	...	.....	...	29	214·0	7·4
	Six inches above grass	1	5·2	5·2	...	.....	...	1	5·2	5·2
	On white raw wool	13	153·5	11·8	60	726·2	12·1	73	879·7	12·1
	On fine flax	17	146·6	8·6	91	1123·6	12·3	108	1270·2	11·8
	On coarse flax	12	131·7	11·0	...	.....	...	12	131·7	10·9
	On white unwrought cotton wool	11	113·1	10·3	...	.....	...	11	113·1	10·3
	On lead	...	.....	...	29	245·8	8·5	29	245·8	8·5
	On blackened tin	...	.....	...	5	40·1	8·0	5	40·1	8·0
	On white tin	...	.....	...	5	39·8	8·0	5	39·8	7·9
	In focus of metallic reflector	81	768·1	9·5	99	770·1	7·8	180	1538·2	8·5

An examination of this Table shows, that on cloudy nights the results derived from every substance, with the single exception of garden mould, are nearly the same; and on partially cloudy nights they are different; the greatest differences occurring on cloudless nights. The reading of the thermometer on garden mould was always the nearest to the reading of the thermometer in the air; those on raw wool and on flax departed the most from it; and those placed, at the distance of one inch to two inches above the top of grass, on a sheet of lead or tin, were all higher than that on garden mould and less than that on wool; and they were all nearly identical with that of the thermometer in the reflector, notwithstanding much heat during the course of a whole night must have passed from the earth to the surface of the lead and tin, which were placed on it.

In this respect the results are somewhat different from those obtained from simultaneous observations of mercurial thermometers; but it would certainly seem that a thermometer placed on a sheet of metal on the ground will read as low as that in the reflector, although that of the latter would attain its lowest reading in less time than that of the former.

From the numbers in this table the numbers in the first ten columns of Table CVI. are formed.

As in a previous part of this paper it has been stated that on cloudy nights a thermometer read differently according as the cloud was high or low, the following Table has been formed by collecting all those cases in which the night has been cloudy throughout.

TABLE CIII.—Showing the results on totally cloudy nights, but the clouds *not* cirrostratus.

The sky covered with cloud during the night, the cloud other than cirrostratus.											
Year.	Month, day and hour of reading the instruments.	The excess of the reading of a self-registering minimum therm. placed in air at the height of 4 feet and protected from radiation, above that of a similar thermometer fully exposed to the sky, placed									
		On long grass.	On short grass.	On white raw wool.	On fine flax.	On coarse flax.	On white unwrought cotton wool.	On blackened tin.	On white tin.	In focus of metallic parabolic reflector.	
	d h	°	°	°	°	°	°	°	°	°	°
1842.	Nov. 7 21	.....	.....	.....	.....	.....	.....	.....	.....	9·3	.....
	9 21	.....	.....	.....	.....	.....	.....	.....	.....	9·0	.....
	17 21	.....	.....	.....	.....	.....	.....	.....	.....	9·4	.....
	20 21	.....	.....	.....	.....	.....	.....	.....	.....	8·7	.....
1843.	Feb. 14 21	.....	.....	.....	.....	.....	.....	.....	.....	13·3	.....
	25 21	.....	.....	.....	.....	.....	.....	.....	.....	8·5	.....
	Nov. 10 21	9·7	7·6	12·6	12·3	13·4	12·2	.....	.....	9·5	32·6
1844.	Feb. 14 21	8·5	7·6	14·8	13·8	.....	.....	7·3	6·8	7·5	36·8
	May 9 21	10·7	9·9	9·3	9·4	.....	.....	.....	.....	11·4	51·7
	Oct. 10 21	10·0	6·4	.....	11·5	.....	.....	.....	.....	7·9	44·5

Table CIV. has been formed by collecting all those cases in which the night has been cloudy throughout, and the clouds have been noted as being high; and Table CV. has been formed in a similar way from all those marked low. Those cloudy nights during which the height of the cloud was not noted have not been used. The means of the results in Tables CIII., CIV. and CV. are contained in Table CVI.

TABLE CIV.—Showing the results, at times with a totally cloudy sky, the clouds being cirrostratus from 3000 to 4000 feet high.

Year.	Month, day and hour of reading the instruments.	The sky covered with a high cirrostratus cloud during the night previous to reading the instruments. The excess of the reading of a self-registering minimum thermometer, placed in air at the height of 4 feet and protected from radiation, above that of a similar thermometer fully exposed to the sky, placed														Minimum reading of a therm. at the height of 4 feet protected from radiation.
		On long grass exposed to ⅔ths of the sky.	On long grass.	On short grass.	On garden mould.	In air one inch high.	In air three inches high.	In air six inches high.	On white raw wool.	On fine flax.	On coarse flax.	On white unwrought cotton wool.	On lead.	On blackened tin.	On white tin.	In focus of metallic parabolic reflector.	
	d h	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
1843.	April 28. 21	4·0	.....	5·6	2·3	4·8	3·0	.....	.....	.....	.....	.....	.....	.....	.....	6·6	41·8
	29. 21	7·3	.....	8·1	6·2	6·0	7·3	.....	.....	.....	.....	.....	.....	.....	.....	7·3	46·0
	May 12. 21	7·5	.....	5·5	6·0	3·3	7·6	.....	.....	.....	.....	.....	.....	.....	.....	2·1	51·3
	13. 21	3·0	.....	4·5	−0·5	4·5	3·5	.....	.....	.....	.....	.....	.....	.....	.....	3·8	45·0
	15. 21	5·4	.....	2·1	2·4	3·4	3·2	.....	.....	.....	.....	.....	.....	.....	.....	3·7	49·4
	16. 21	9·3	.....	6·3	.....	7·3	10·3	.....	.....	.....	.....	.....	.....	.....	.....	5·0	49·3
	23. 21	4·6	.....	6·1	5·8	8·9	9·0	.....	.....	.....	.....	.....	.....	.....	.....	2·8	52·6
	June 14. 21	4·5	.....	5·9	3·6	6·8	7·1	.....	.....	.....	.....	.....	.....	.....	.....	6·4	57·0
	July 18. 21	3·8	.....	9·8	.....	9·6	5·1	.....	.....	.....	.....	.....	.....	.....	.....	7·3	52·3
	20. 21	4·0	.....	4·0	.....	4·0	4·1	.....	.....	.....	.....	.....	.....	.....	.....	5·1	54·1
	September 3. 21	5·7	.....	3·7	.....	4·2	4·6	.....	.....	.....	.....	.....	.....	.....	.....	7·2	57·2
	8. 21	4·8	.....	5·4	.....	5·3	5·6	.....	.....	.....	.....	.....	.....	.....	.....	8·6	61·6
	October 11. 21	.....	7·3	5·0	.....	3·8	.....	2·3	.....	.....	.....	.....	.....	.....	.....	6·4	42·3
	November 5. 21	.....	6·3	4·0	.....	3·5	.....	.....	7·7	6·5	8·5	4·7	.....	.....	.....	3·7	40·7
	Decemb. 13. 21	.....	6·8	7·8	.....	.....	.....	.....	8·3	.....	7·1	.....	.....	6·5	5·3	2·3	39·3
	16. 21	.....	7·5	5·9	.....	.....	.....	.....	5·6	.....	5·9	.....	.....	.....	3·2	5·7	44·7
	20. 21	.....	3·9	2·4	.....	.....	.....	.....	1·9	.....	2·2	.....	.....	1·9	1·9	3·2	41·4
	23. 21	.....	5·6	4·8	.....	.....	.....	.....	4·2	.....	5·0	.....	.....	4·0	3·8	4·5	49·8
	29. 21	.....	3·2	3·2	.....	.....	.....	.....	3·3	.....	3·5	.....	.....	2·5	2·6	5·2	38·5
	30. 21	.....	2·1	2·5	.....	.....	.....	.....	2·1	.....	2·8	.....	.....	2·1	2·5	3·7	39·3
1844.	January 8. 21																
	17. 21	.....	4·5	4·2	.....	.....	.....	.....	3·9	3·3	.....	.....	.....	4·5	1·7	0·5	36·5
	23. 21	.....	4·6	4·2	.....	.....	.....	.....	5·9	4·6	.....	.....	.....	4·9	3·9	2·4	36·2
	February 11. 21	.....	6·0	4·1	.....	.....	.....	.....	7·2	4·1	.....	.....	.....	5·2	4·7	4·7	30·2
	March 4. 21	.....	5·9	4·2	.....	.....	.....	.....	5·6	5·2	.....	.....	5·3	.....	.....	5·9	32·4
	8. 21	.....	4·6	3·0	.....	.....	.....	.....	3·8	3·1	.....	.....	3·0	.....	.....	3·5	36·2
	16. 21	.....	8·1	7·7	.....	.....	.....	.....	9·1	9·1	.....	.....	6·3	.....	.....	4·1	46·1
	April 13. 21	.....	4·9	5·1	.....	.....	.....	.....	7·7	8·4	.....	.....	5·3	.....	.....	3·1	48·7
	August 24. 21	.....	7·6	5·8	.....	.....	.....	.....	8·5	7·3	.....	.....	.....	.....	.....	6·5	52·3
	25. 21	.....	4·4	3·2	.....	.....	.....	.....	.....	5·3	.....	.....	.....	.....	.....	9·1	52·4
	Septemb. 14. 21	.....	4·8	4·4	.....	.....	.....	.....	.....	4·9	.....	.....	.....	.....	.....	6·0	57·3
	15. 21	.....	4·1	4·6	.....	.....	.....	.....	.....	4·8	.....	.....	.....	.....	.....	5·9	61·4
	October 1. 21	.....	5·1	4·6	.....	.....	.....	.....	.....	5·6	.....	.....	.....	.....	.....	3·2	57·6
	12. 21	.....	5·7	6·0	.....	.....	.....	.....	.....	9·8	.....	.....	.....	.....	.....	3·6	55·8
	20. 21	.....	10·0	6·4	.....	.....	.....	.....	.....	11·5	.....	.....	.....	.....	.....	7·9	44·5
	23. 21	.....	7·7	9·7	.....	.....	.....	.....	.....	13·3	.....	.....	.....	.....	.....	5·0	35·5
	25. 21	.....	9·1	5·5	.....	.....	.....	.....	.....	16·1	.....	.....	.....	.....	.....	7·9	43·1
	November 5. 21	.....	5·1	2·6	.....	.....	.....	.....	.....	4·1	.....	.....	.....	.....	.....	2·2	39·1
	14. 21	.....	5·2	5·2	.....	.....	.....	.....	.....	1·8	.....	.....	.....	.....	.....	2·8	47·6
	Decemb. 15. 21	.....	5·1	3·6	.....	.....	.....	.....	.....	4·6	.....	.....	.....	.....	.....	4·8	35·4
	22. 21	.....	4·9	2·9	.....	.....	.....	.....	.....	4·1	.....	.....	.....	.....	.....	5·9	29·1
	30. 21	.....	5·8	3·4	.....	.....	.....	.....	.....	2·5	.....	.....	.....	.....	.....	5·9	34·1
	31. 21	.....	4·9	2·7	.....	.....	.....	.....	.....	2·9	.....	.....	.....	.....	.....	3·9	35·1

TABLE CV.—Showing the results with a totally cloudy sky, the clouds being cirrostratus and less than 2000 feet high.

The sky covered with a low cirrostratus cloud during the night previous to reading the instruments.																		
Year.	Month, day and hour of reading the instruments.		The excess of the reading of a self-registering minimum thermometer, placed in air at the height of 4 feet and protected from radiation, above that of a similar thermometer fully exposed to the sky, placed															Minimum reading of a thermometer at 4 feet high protected from radiation.
			On long grass exposed to $\frac{3}{4}$ths of the sky.	On long grass.	On short grass.	On garden mould.	In air one inch high.	In air three inches high.	In air six inches high.	On white raw wool.	On fine flax.	On coarse flax.	On white unwrought cotton wool.	On lead.	On blackened tin.	On white tin.	In focus of metallic parabolic reflector.	
		d h	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
1843.	May	5 21	2·4	.....	0·9	1·4	2·7	2·7	.....	.....	.....	.....	.....	.....	.....	.....	2·0	50·2
		17 21	2·0	.....	0·0	1·8	4·0	4·0	.....	.....	.....	.....	.....	.....	.....	.....	4·5	44·0
		18 21	1·7	.....	−0·9	0·7	1·5	2·9	.....	.....	.....	.....	.....	.....	.....	.....	3·8	44·8
		30 21	3·3	.....	1·9	2·2	3·0	3·1	.....	.....	.....	.....	.....	.....	.....	.....	2·8	50·3
	June	7 21	2·1	.....	1·1	1·2	3·9	1·8	.....	.....	.....	.....	.....	.....	.....	.....	1·4	49·9
		12 21	...	.....	.....	.....	0·8	.....	.....	.....	.....	.....	.....	.....	.....	.....	2·2	48·8
		17 21	0·6	.....	1·6	−1·9	3·0	2·1	.....	.....	.....	.....	.....	.....	.....	.....	2·0	50·6
	July	12 21	1·3	.....	1·1	.....	1·1	0·9	.....	.....	.....	.....	.....	.....	.....	.....	1·8	55·3
		28 21	0·2	.....	0·2	.....	−0·1	−0·2	.....	.....	.....	.....	.....	.....	.....	.....	1·1	53·1
	Aug.	23 21	0·7	.....	1·3	.....	1·4	1·2	.....	.....	.....	.....	.....	.....	.....	.....	3·9	53·9
		29 21	2·3	.....	1·2	.....	1·7	2·2	.....	.....	.....	.....	.....	.....	.....	.....	3·8	61·0
	Oct.	8 21	.....	0·7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·9	48·5
		10 21	.....	3·3	0·9	.....	0·9	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·7	46·9
		20 21	.....	6·9	0·6	.....	−0·5	.....	1·7	6·3	5·8	5·9	2·8	.....	.....	.....	3·8	38·3
		30 21	.....	0·3	1·8	.....	1·6	.....	.....	.....	.....	.....	.....	.....	.....	.....	1·6	51·1
		31 21	.....	.....	0·2	.....	0·0	.....	.....	.....	.....	.....	.....	.....	.....	.....	1·0	42·5
	Nov.	2 21	.....	−1·3	−0·3	.....	0·3	.....	.....	0·6	0·2	−0·1	−0·1	.....	.....	.....	−0·1	41·2
		15 21	.....	1·6	0·3	.....	.....	.....	.....	3·4	−0·4	0·2	1·3	.....	.....	.....	1·8	31·6
		17 21	.....	2·5	2·7	.....	.....	.....	.....	3·5	3·7	3·1	2·5	.....	.....	.....	2·7	37·7
		21 21	.....	4·1	4·3	.....	.....	.....	.....	4·6	.....	.....	.....	.....	.....	.....	3·6	52·6
		22 21	.....	2·4	2·1	.....	.....	.....	.....	3·5	.....	.....	.....	.....	.....	.....	2·8	44·6
		25 21	.....	−0·3	−4·1	.....	.....	.....	.....	−0·1	−0·1	.....	.....	.....	.....	.....	0·1	45·9
		30 21	.....	1·6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1·2	45·7
	Dec.	3 21	.....	2·3	2·3	.....	.....	.....	.....	2·1	.....	2·0	.....	.....	.....	.....	3·3	45·3
		4 21	.....	1·9	2·2	.....	.....	.....	.....	1·7	.....	1·5	.....	.....	2·1	2·2	2·8	45·5
		9 21	.....	2·5	−1·9	.....	.....	.....	.....	0·6	.....	1·1	.....	.....	0·8	1·1	2·6	35·1
		11 21	.....	1·1	1·4	.....	.....	.....	.....	0·3	.....	2·2	.....	.....	0·4	0·2	2·9	30·4
		12 21	.....	3·8	3·4	.....	.....	.....	.....	2·8	.....	5·3	.....	.....	1·6	4·3	2·8	25·6
		18 21	.....	2·5	3·2	.....	.....	.....	.....	2·4	.....	3·1	.....	.....	2·5	2·7	3·7	42·5
		19 21	.....	0·6	0·0	.....	.....	.....	.....	1·1	.....	2·0	.....	.....	1·3	2·3	2·6	42·3
		21 21	.....	2·9	2·7	.....	.....	.....	.....	2·2	.....	2·3	.....	.....	1·8	2·1	3·9	41·9
		22 21	.....	0·5	1·2	.....	.....	.....	.....	−0·3	.....	0·9	.....	.....	0·3	0·9	2·3	42·5
		26 21	.....	1·5	2·5	.....	.....	.....	.....	0·9	.....	1·5	.....	.....	1·5	1·9	2·7	42·5
		28 21	.....	1·8	2·0	.....	.....	.....	.....	1·9	.....	1·6	.....	.....	1·2	1·4	2·3	42·5

Table (Continued).

The sky covered with a low cirrostratus cloud during the night previous to reading the instruments.

Year.	Month, day and hour of reading the instruments.	The excess of the reading of a self-registering minimum thermometer, placed in air at the height of 4 feet and protected from the effects of radiation, above that of a similar thermometer fully exposed to the sky, placed															Minimum reading of a thermometer at 4 feet high protected from radiation.
		On long grass exposed to $\frac{3}{4}$ths of the sky.	On long grass.	On short grass.	On garden mould.	In air one inch high.	In air three inches high.	In air six inches high.	On white raw wool.	On fine flax.	On coarse flax.	On white unwrought cotton wool.	On lead.	On blackened tin.	On white tin.	In focus of metallic parabolic reflector.	
	d h	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
1844.	Jan. 9 21	.....	1·7	0·9	.....	.....	.....	.....	1·7	0·2	.....	.....	.....	0·9	0·5	0·2	30·7
	12 21	.....	1·8	1·7	.....	.....	.....	.....	2·4	1·2	.....	.....	.....	2·4	1·9	−0·8	39·2
	13 21	.....	1·6	0·9	.....	.....	.....	.....	1·5	0·7	.....	.....	.....	1·7	1·2	−1·8	32·7
	Feb. 21 21	.....	0·3	0·5	.....	.....	.....	.....	1·4	−0·2	.....	.....	0·4	.....	.....	−1·5	32·0
	Mar. 14 21	.....	0·5	1·1	.....	.....	.....	.....	0·7	2·8	.....	.....	1·7	.....	.....	−0·2	38·1
	22 21	.....	1·3	1·1	.....	.....	.....	.....	1·5	2·5	.....	.....	1·1	.....	.....	−1·2	39·8
	31 21	.....	0·6	0·2	.....	.....	.....	.....	2·0	0·2	.....	.....	−0·2	.....	.....	0·7	37·3
	April 26 21	.....	0·6	0·1	.....	.....	.....	.....	2·0	1·3	.....	.....	0·4	.....	.....	1·1	46·1
	May 22 21	.....	0·2	0·0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·4	47·4
	Sept. 9 21	.....	0·8	1·1	.....	.....	.....	.....	.....	0·8	.....	.....	.....	.....	.....	5·8	55·8
	Oct. 15 21	.....	2·0	1·7	.....	.....	.....	.....	.....	2·2	.....	.....	.....	.....	.....	2·9	46·7
	24 21	.....	1·1	0·5	.....	.....	.....	.....	.....	1·9	.....	.....	.....	.....	.....	2·7	47·2
	29 21	.....	3·7	2·4	.....	.....	.....	.....	.....	2·7	.....	.....	.....	.....	.....	7·7	42·7
	Nov. 12 21	.....	0·8	0·9	.....	.....	.....	.....	.....	−0·1	.....	.....	.....	.....	.....	1·8	48·8
	17 21	.....	0·8	0·6	.....	.....	.....	.....	.....	0·6	.....	.....	.....	.....	.....	2·7	48·7
	Dec. 1 21	.....	1·9	0·8	.....	.....	.....	.....	.....	2·1	.....	.....	.....	.....	.....	3·9	34·1
	2 21	.....	3·0	0·4	.....	.....	.....	.....	.....	2·3	.....	.....	.....	.....	.....	5·1	32·3
	3 21	.....	2·2	1·1	.....	.....	.....	.....	.....	1·6	.....	.....	.....	.....	.....	3·6	34·1
	8 21	.....	2·3	2·8	.....	.....	.....	.....	.....	−0·4	.....	.....	.....	.....	.....	3·9	25·1
	9 21	.....	1·7	0·3	.....	.....	.....	.....	.....	8·5	.....	.....	.....	.....	.....	3·3	27·8
	10 21	.....	1·2	−0·2	.....	.....	.....	.....	.....	2·7	.....	.....	.....	.....	.....	3·0	27·7
	12 21	.....	0·7	−0·8	.....	.....	.....	.....	.....	0·4	.....	.....	.....	.....	.....	2·9	23·2
	13 21	.....	0·3	−0·9	.....	.....	.....	.....	.....	2·9	.....	.....	.....	.....	.....	2·2	24·4
	14 21	.....	2·8	1·4	.....	.....	.....	.....	.....	2·3	.....	.....	.....	.....	.....	2·7	28·1
	16 21	.....	1·1	0·4	.....	.....	.....	.....	.....	0·3	.....	.....	.....	.....	.....	2·9	37·1
	17 21	.....	2·0	1·1	.....	.....	.....	.....	.....	1·1	.....	.....	.....	.....	.....	3·1	38·1
	18 21	.....	0·8	0·3	.....	.....	.....	.....	.....	0·3	.....	.....	.....	.....	.....	2·3	40·3
	23 21	.....	2·4	0·7	.....	.....	.....	.....	.....	1·5	.....	.....	.....	.....	.....	4·0	29·5
	24 21	.....	2·3	1·8	.....	.....	.....	.....	.....	2·3	.....	.....	.....	.....	.....	2·3	31·3
	25 21	.....	1·8	0·8	.....	.....	.....	.....	.....	1·3	.....	.....	.....	.....	.....	3·4	31·1
	27 21	.....	3·6	0·9	.....	.....	.....	.....	.....	3·8	.....	.....	.....	.....	.....	2·6	29·8
	28 21	.....	1·7	1·0	.....	.....	.....	.....	.....	1·3	.....	.....	.....	.....	.....	3·2	40·5
	29 21	.....	0·5	−1·1	.....	.....	.....	.....	.....	−0·5	.....	.....	.....	.....	.....	2·2	37·5

TABLE CVI.—The sum of the excesses, and the mean excess of a self-registering minimum thermometer placed in Air at the height of four feet above the soil and protected from the effects of radiation, above those of similar thermometers placed on different substances, or in different situations, fully exposed to the sky.

Situation of the thermometer.	The sum of the excess of the readings of the thermometer in air above the readings of other thermometers placed as stated.										The mean excess.				Sum and mean excess, at times when									
	General state of the sky.										Mean state of the sky.				The sky was covered with cirrostratus cloud during the night whose								Sky was covered with cloud all night, but not of the cirro-stratus character.	
	Cloudy.		Principally cloudy.		Half-cloudy.		Principally clear.		Cloudless.						Height was from 3000 to 4000 feet.			Whose height was from 1000 to 2000 feet.			Difference corresponding to a difference of height of about 2000 feet.		
	Number of nights.	Sum of excesses.	Number of nights.	Sum of excesses.	Number of nights.	Sum of excesses.	Number of nights.	Sum of excesses.	Number of nights.	Sum of excesses.	Whole number of nights.	Whole sum of excesses.	Mean excess.	Relative excess, that of long grass being =1000.	Number of nights.	Sum of excesses.	Mean excess.	Number of nights.	Sum of excesses.	Mean excess.		Number of nights.	Mean excess.
		°		°		°		°		°		°	°			°	°		°	°	°		°
On long grass exposed to $\frac{3}{4}$ths of the sky...	29	95·6	25	101·2	22	88·6	37	178·5	22	143·6	135	607·5	4·50	715	12	63·9	5·3	10	16·6	1·7	3·6		
On long grass fully exposed	129	446·1	63	431·6	77	559·1	77	374·4	121	1123·2	467	2934·4	6·29	1000	30	170·8	5·7	55	92·7	1·6	4·1	4	9·7
On short grass	156	441·1	89	485·1	99	620·9	116	838·4	145	1188·2	605	3573·7	5·91	939	42	205·7	4·9	64	64·5	1·0	3·9	4	7·9
On garden mould	29	40·2	16	59·7	10	39·7	17	55·6	13	73·8	85	269·0	3·17	500	7	25·8	3·7	6	5·4	0·9	2·8		
One inch above grass	34	103·0	28	146·0	34	202·5	52	368·3	38	341·2	186	1161·0	6·24	992	14	75·4	5·5	16	25·3	1·6	3·9		
Three inches above grass	31	111·5	29	149·0	28	168·9	41	295·1	29	214·0	158	938·5	5·94	944	12	70·4	5·9	10	20·7	2·1	3·8		
Six inches above grass	...	.....	...	.....	3	12·5	6	18·7	1	5·2	10	36·4	3·64	579	1	2·3	2·3	1	1·7	1·7	0·6		
On white raw wool	65	257·1	47	355·9	42	307·3	49	422·3	73	879·7	276	2222·3	8·05	1280	15	84·8	5·7	26	51·3	2·0	3·7	3	12·2
On fine flax	98	379·5	49	364·0	60	425·1	63	564·8	108	1270·2	378	3003·6	7·95	1264	23	152·9	7·1	37	59·8	1·6	5·5	4	11·8
On coarse flax	22	67·6	8	45·4	4	25·5	12	100·2	12	131·7	58	370·4	6·39	1016	7	35·0	5·0	15	32·6	2·2	2·8	1	13·4
On white unwrought cotton wool	5	11·2	1	6·5	4	17·6	7	57·2	11	113·1	28	205·6	7·34	1167	1	4·7	4·7	4	6·5	1·6	3·1	1	12·2
On lead	11	31·0	7	44·3	14	70·7	11	61·1	29	245·8	72	452·9	6·29	1000	4	19·9	5·0	5	3·4	0·7	4·3		
On blackened tin	29	96·2	20	111·9	12	70·4	18	127·4	5	40·1	84	446·0	5·31	844	8	31·6	4·0	13	18·5	1·4	2·6	1	7·3
On white tin	40	89·1	19	95·9	12	59·8	18	116·2	5	39·8	94	400·8	4·26	677	9	29·6	3·3	13	22·7	1·7	1·6	1	6·8
In focus of reflector	183	604·3	98	495·6	122	731·3	133	965·5	180	1538·2	716	4334·9	6·05	962	42	205·4	4·9	67	158·3	2·4	2·5	10	9·4

The numbers in the column of mean excess exhibit the mean difference between the reading of a self-registering minimum thermometer placed in air, at the height of four feet, and protected as much as possible from the effects of radiation, and the readings of similar thermometers placed as stated in the first column. The first results are those relating to grass; that deduced from grass exposed to three-fourths of the sky, is about three-fourths of that deduced from grass exposed to the whole of the sky; and that from long grass is larger than that from short grass. Of all the substances upon which experiments have been made with spirit thermometers, those on which the lowest readings have occurred were the filamentous, viz. wool and flax, and they were nearly alike.

The next class of bodies consisted of metals; of these lead exhibited the lowest readings in the mean; but this must have arisen from the circumstance of its having been generally used on the clearest nights only, during which there was found to be a very small difference between its readings and that of the thermometer in the reflector; in fact in all simultaneous observations it was found that the readings of the latter thermometer had no advantage over the readings of one placed on lead.

The thermometers which were placed within a few inches of the top of grass exhibited higher readings than those of the last class, and those which were from one to three inches from the top of grass, generally read the same as that in the reflector.

The reading which most nearly agreed with that in air was on garden mould, which was about a mean between that on long grass and that in the air; these observations were made on ground undisturbed; the readings would have been still nearer those in the air, had the ground been frequently disturbed so as to have been loose, as it was found in this state to admit the heat to pass more readily from beneath to the surface.

The numbers in the next column represent the relative radiating power of the several substances deduced by considering the mean result from long grass to be represented by 1000.

The following columns of the table represent the mean results for each substance on nights wholly cloudy, but the clouds of different heights. This result is very important, as it shows that the amount of radiation may be large on a wholly cloudy night, providing that the clouds be high. The differences between the results on a cloudy night when the clouds are high and when they are low, are very great; the numbers in the Table exhibit the mean difference between the results deduced when the clouds have been high, and when moderately low.

The last column shows that on a cloudy night, providing the kind of cloud be other than cirrostratus, the amount of radiation may nearly equal that on a cloudless night.

At a very early stage in the investigation it was found that the variation in the height of the clouds had a very considerable effect on the reading of a thermometer placed on any substance fully exposed to the sky, during those nights that the sky was wholly covered with an apparent uniform cirrostratus cloud.

At the Royal Observatory at Greenwich, the reflexion of the lights of London on the clouds is well seen; at times this appears as a narrow well-defined band of light, at the elevation of several degrees, and at other times as a broad diffused band; the lower limit of which is sometimes below the horizon. It was soon found that the difference between the reading of the thermometer in air and that on grass was greater, the greater the height of this band of light. On very many nights, and several times in the course of the same night, the height of the upper and lower edges of this band of reflected light was measured above the horizon, and from these observations that of the centre was determined; at the same times the readings of the thermometers in air and on grass were taken. By these means it was found that when the centre of the reflected light was above the horizon of Greenwich by—

4°, the excess of reading of the thermometer in air above that on grass was 1°·6
6°, the excess of reading of the thermometer in air above that on grass was 2°·5
8°, the excess of reading of the thermometer in air above that on grass was 3°·9

And whenever the centre of the band was in height less than 4°, the lower limit was generally below the horizon, and the height of the centre could not be determined; but at these times the differences between the readings of the two thermometers was seldom so much as a degree, and it was generally less, and frequently there was no difference.

The Cathedral of St. Paul is very nearly the centre of London, and it may be considered to be immediately under the centre of the reflected light; its distance from the Magnetic House is more than 25,700 feet; at this distance one degree subtends about 450 feet; the height of the ground where the observations were taken is about 100 feet higher than the ground at London.

From the above data, it appears that when the reflexion of the London lights was 4°, 6°, and 8° high, the distances of the clouds from the earth was 1900, 2800, and 3700 feet respectively.

A similar investigation was made by measuring the distance of the band from the cross on the cathedral, whose height above the ground is about 400 feet, and results were obtained differing from the preceding by about fifty feet; a much smaller number of observations, however, were used in deducing the latter results than were used in deducing the former.

As a difference of 0°·7 took place in the reading of a thermometer on grass for every variation of a degree in the height of the reflected lights, it follows that a difference of 1° in the readings of the thermometer on the grass indicated a difference of 630 feet in the height of the cloud.

Fig. 4.

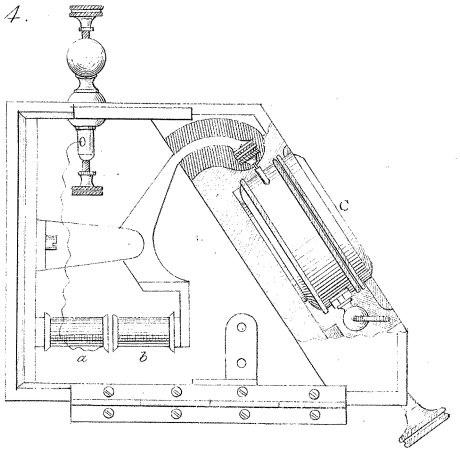

Fig. 3.

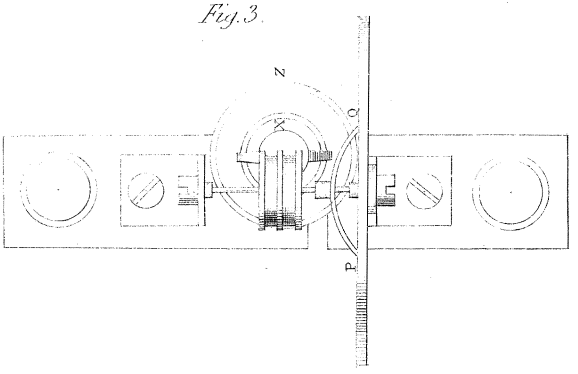

Fig. 1.

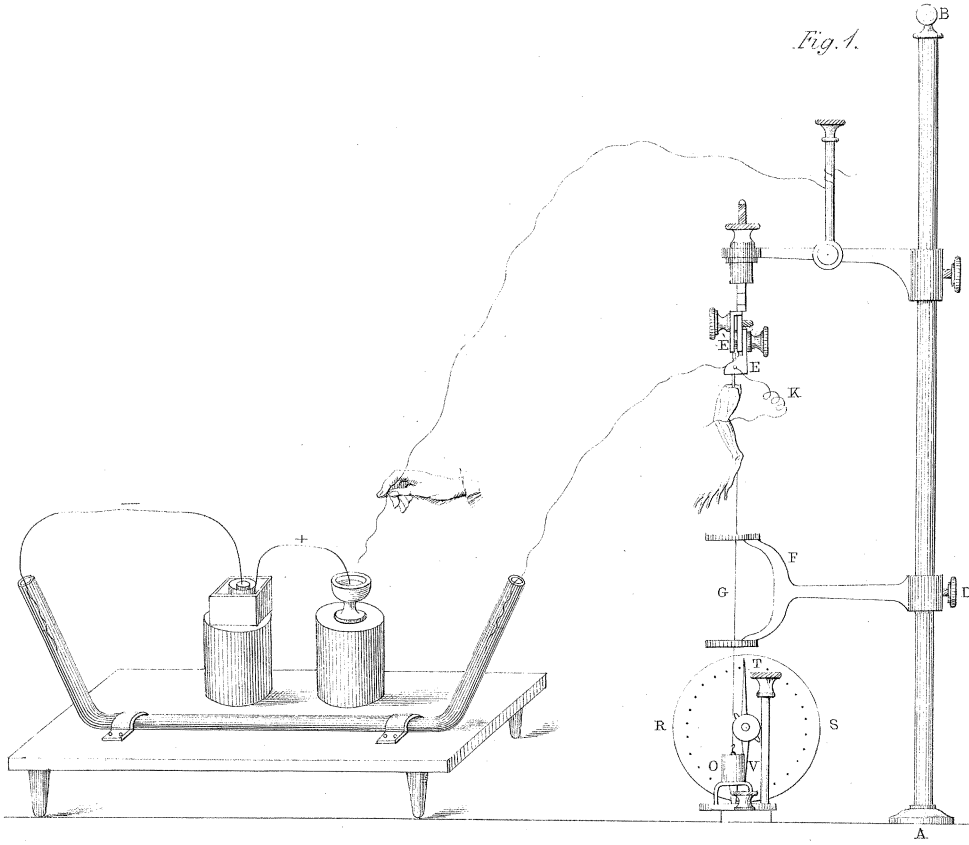

Fig. 2.

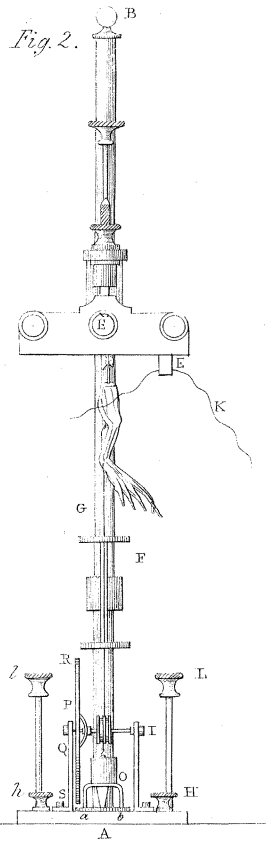

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TABLE CVII.—Showing the monthly mean temperature, and state of cloudiness of the nights, also the greatest differences and the lowest thermometrical readings each month.

Year.	Month.	Mean temperature of the month by a thermometer in air at 4 feet high, protected from radiation.	Mean reading of all the minimum readings, in the month, of the thermometer in air.	Excess of the mean reading of the minimum thermometer in air at 4 feet high, above that of a similar thermometer placed in the focus of a reflector.	Mean state of the sky with respect to the quantity of cloud during the night, 10 being quite cloudy, and 0 being quite clear.	Mean yearly excess of the reading of thermometer in air, above that in reflector.	The greatest excess, in each month, of the minimum reading of a self-registering thermometer, placed in air 4 feet above the ground and protected from radiation, above the minimum reading of a similar thermometer fully exposed to the sky, placed							The lowest reading in each month of the self-registering thermometer placed						
							In focus of metallic parabolic reflector.	On long grass	On short grass.	On white raw wool.	On flax.	On lead.	On tin.	In air at 4 feet high.	In focus of metallic parabolic reflector.	On long grass.	On short grass.	On white raw wool.	On flax.	On lead.	On tin
		°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
1841.	February	35·3	31·6	0·7	9·0	...	5·8	...	...	...	...	...	...	18·8	14·0						
	March	46·2	38·7	5·3	4·7	...	13·4	...	...	...	...	...	...	29·5	26·3						
	April	47·0	39·9	5·0	6·3	...	11·8	...	...	...	...	...	...	31·8	24·4						
	May	56·8	48·4	3·8	4·9	...	8·5	...	...	...	...	...	...	41·2	33·4						
	June	56·4	48·2	4·5	5·5	...	11·2	...	...	...	...	...	...	40·3	32·0						
	July	57·8	51·5	3·5	6·8	4·0	10·9	...	...	...	...	...	...	44·3	39·0						
	August	60·5	54·3	2·9	6·5	...	14·0	...	...	...	...	...	...	45·5	39·0						
	September	58·1	51·2	4·2	5·2	...	11·7	...	...	...	...	...	...	36·6	31·0						
	October	48·8	43·9	3·6	6·8	...	12·9	...	...	...	...	...	...	32·2	29·0						
	November	42·7	38·0	5·0	7·2	...	10·0	...	...	...	...	...	...	22·6	12·6						
	December	40·5	35·4	5·6	6·8	...	11·8	...	...	...	...	...	...	24·3	12·5						
1842.	January	32·9	29·3	5·3	7·8	...	12·0	...	...	...	...	...	...	23·2	12·5						
	February	40·8	36·0	4·9	7·5	...	9·3	...	...	...	...	...	...	26·4	21·4						
	March	44·9	39·2	4·5	6·9	...	8·2	...	...	...	...	...	...	29·9	23·2						
	April	45·2	37·3	5·1	4·6	...	9·3	...	...	...	...	...	...	28·0	20·5						
	May	53·2	45·0	5·0	5·2	...	9·5	...	...	...	...	...	...	36·4	30·5						
	June	62·9	52·2	7·1	4·6	...	16·0	...	...	...	...	...	...	44·7	35·0						
	July	60·2	52·1	5·8	6·3	5·3	10·4	...	...	...	...	...	...	45·5	37·5						
	August	65·4	56·3	5·1	6·5	...	8·3	...	...	...	...	...	...	47·5	41·7						
	September	56·4	49·8	3·3	6·0	...	8·0	...	...	...	...	...	...	41·1	36·5						
	October	45·4	39·3	6·2	5·8	...	14·2	...	...	...	...	...	...	28·3	17·2						
	November	42·8	39·0	6·8	7·4	...	11·9	...	...	...	...	...	...	31·1	20·6						
	December	45·0	40·2	4·6	7·3	...	9·4	...	...	...	...	...	...	30·8	24·7						
1843.	January	39·9	35·4	7·1	7·0	...	11·7	...	...	...	...	...	...	24·0	12·3						
	February	36·0	31·9	6·5	7·9	...	14·1	...	...	...	...	...	...	20·3	7·0						
	March	42·9	37·5	8·2	5·8	...	17·6	...	...	...	...	...	...	29·0	11·4						
	April	47·1	40·7	6·9	5·9	...	13·0	...	11·2	...	...	...	...	27·2	17·8						
	May	52·2	45·5	5·1	6·9	...	10·5	...	11·9	...	...	...	...	35·4	28·0	...	28·0				
	June	56·3	49·0	6·8	6·9	...	13·0	...	11·7	...	...	...	...	42·9	33·2	...	31·8				
	July	60·9	53·5	6·2	7·1	6·5	11·3	...	13·6	...	...	...	...	44·6	35·2	...	36·0				
	August	62·1	55·2	7·6	5·4	...	11·8	...	13·7	...	...	...	...	47·2	37·8	...	35·0				
	September	59·5	52·3	7·9	4·5	...	13·0	13·8	13·3	...	...	...	...	36·0	27·6	25·8	27·9				
	October	48·0	42·0	5·5	6·0	...	11·0	11·2	9·0	14·0	17·3	...	...	28·5	17·5	18·5	19·5	14·5	11·2		
	November	43·8	38·7	5·7	5·8	...	10·1	11·5	8·4	16·1	15·4	...	...	27·4	19·2	15·9	19·0	13·5	13·2		
	December	43·9	40·3	4·5	8·8	...	7·2	10·2	9·5	10·0	10·2	...	9·2	25·6	22·8	21·8	22·2	22·8	20·3	...	21·0
1844.	January	39·1	34·6	3·2	6·0	...	8·3	10·2	9·9	13·7	10·6	...	9·6	18·6	9·8	...	...	...	9·2		
	February	35·2	31·3	4·3	5·0	...	7·8	11·6	8·8	10·2	12·0	...	10·9	20·0	15·5	12·8	15·7	7·8	9·0	...	15·5
	March	41·5	35·7	4·2	5·5	...	12·1	11·4	8·4	18·9	18·1	8·6	...	24·1	12·0	15·2	16·2	9·2	9·6	15·6	
	April	51·7	41·8	6·8	2·3	...	12·4	14·9	13·6	20·4	19·9	16·4	...	33·4	22·7	22·1	21·6	16·5	18·0	25·5	
	May	52·9	44·4	5·9	4·4	5·4	8·4	13·2	12·2	16·8	14·5	9·3	...	33·9	27·0	26·5	27·8	20·0	22·2		
	June	58·4	50·5	6·0	3·5	...	10·0	12·2	11·6	13·6	12·9	10·0	...	44·5	35·2	32·0	32·5	...			
	July	61·2	54·3	6·2	4·5	...	12·9	17·3	12·8	14·2	16·8	...	...	47·1	39·3	35·5	37·0	33·8	31·2		
	August	57·7	50·3	6·4	3·7	...	9·5	11·6	10·1	12·6	13·9	...	...	42·8	34·8	31·8	32·8	...	30·8		
	September	57·9	50·2	8·0	4·6	...	13·7	13·1	12·1	...	14·6	...	...	34·8	27·2	25·0	27·5	...	22·6		
	October	49·2	43·5	5·8	4·9	...	13·7	18·8	17·8	...	21·8	...	...	30·8	25·5	24·2	26·2	...	23·5		
	November	44·0	39·6	5·2	6·5	...	9·6	11·0	8·9	...	13·4	...	...	27·4	20·2	19·3	21·8	...	18·0		
	December	33·0	30·4	2·7	7·7	...	13·7	13·5	8·7	...	17·4	...	...	21·1	7·7	7·9	12·4	...	4·0		

The power of radiation, as exhibited in this Table, has evidently no tendency to increase with the heat, and in this respect does not serve even as an approximation to the law of radiation established by the experiments of MM. Dulong and Petit, viz. that the velocity of cooling *in vacuo* (or force of radiation) increases in the terms of a geometrical progression for excess of temperature in arithmetical progression; it is most probable that the effect is masked by too many disturbing causes to enable us from mere inspection to discover the law of its progression.

Table CVIII.—Monthly mean of the minimum temperature of the Air.

Year.	Month.	The monthly mean reading of the minimum self-registering thermometer placed in air at the height of 4 feet, according to the state of the sky.									
		State of the sky.									
		Cloudy.		Broken clouds.		Half-cloudy.		Principally clear.		Cloudless.	
		Number of nights.	Mean of the minimum temperatures.	Number of nights.	Mean of the minimum temperatures.	Number of nights.	Mean of the minimum temperatures.	Number of nights.	Mean of the minimum temperatures.	Number of nights.	Mean of the minimum temperatures.
1843.	April.	2	43°·9	1	37°·4	3	42°·8	2	38°·3	3	40°·5
	May.	12	46·9	6	46·0	4	47·0	7	43·0	2	43·1
	June.	6	51·4	9	49·8	1	47·0	7	48·0	7	47·2
	July.	5	53·3	6	55·2	7	54·1	10	49·7	2	54·2
	August.	2	57·5	2	59·4	7	59·2	12	53·5	6	52·5
	September.	3	58·2	3	54·3	7	55·2	6	48·1	11	50·8
	October.	6	44·9	3	44·4	6	50·0	8	40·4	8	34·6
	November.	9	42·5	2	49·2	7	41·6	7	39·8	6	31·0
	December.	17	40·5	7	42·8	1	40·1	5	37·6	...	.....
1844.	January.	8	33·0	7	37·6	5	34·1	7	34·1	2	22·0
	February.	7	32·3	6	27·9	6	35·3	6	29·4	4	29·4
	March.	8	37·8	5	38·9	9	33·5	2	41·9	7	30·5
	April.	3	47·1	2	46·6	3	45·4	4	43·0	18	39·6
	May.	9	47·1	1	46·2	6	42·4	5	42·5	10	44·1
	June.	2	50·3	10	51·4	7	52·5	5	50·4	6	53·0
	July.	4	56·2	9	55·4	5	54·6	1	53·8	12	52·8
	August.	7	54·8	1	51·6	5	51·1	6	49·3	12	47·7
	September.	6	55·3	5	54·1	2	59·7	5	50·8	12	44·3
	October.	10	47·0	1	45·3	6	45·3	6	46·0	8	40·1
	November.	12	42·6	3	42·0	6	38·9	7	33·5	2	41·6
	December.	23	31·9	...	.....	...	.....	1	30·1	6	24·6

By taking the mean of these numbers according to the number of nights from which each result is deduced, we find that the mean of the lowest readings of the temperature of the air during

161 cloudy nights was	46°·2
89 broken cloudy nights was	46·9
103 half-cloudy nights was	46·0
119 principally clear nights was	43·9
144 cloudless nights was	42·4

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Excess of the reading of the thermometer in air above that placed

Number of the Tables.	1844. Day, hour and minute. (h m)	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	On long grass.	On short grass.	On raw wool.	On flax on grass.	In focus of reflector.	Nine inches above wool.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.
XXIX.	Feb. 21. 11 0	34·1	0·8	0·8	...	...	...	...	...	−1·8	−1·4
XXX.	Apr. 25. 5 45	60·7	2·9	6·2	5·2	2·5	0·2	0·7	−0·3	...	0·7
XXXI.	Feb. 16. 3 0	45·3	3·8	0·2	3·3	−0·7	3·8	−2·4	4·5	2·1	4·8
	Mar. 6. 19 0	32·7	3·1	2·2	2·2	2·7	3·9	1·1	...	...	−0·6
XXXII.	Jan. 6. 7 30	42·5	4·3	3·7	3·7	3·5	5·8	1·5	0·3	3·5	...
	Feb. 1. 3 30	35·2	4·3	3·4	2·7	4·3	6·2	1·2	−0·8	0·7	0·2
	Mar. 1. 11 0	41·8	4·3	3·5	2·0	2·9	3·8	0·3	...	...	0·7
XXXIII.	Feb. 7. 19 0	32·3	5·1	4·9	6·1	5·2	7·3	2·1	8·1	0·2	1·7
	22. 18 45	24·5	5·8	4·4	5·9	6·0	9·5	3·1	−7·3	−6·2	−6·5
	28. 12 0	38·2	5·0	3·7	3·2	3·2	3·2	1·7	0·4	...	...
	Mar. 20. 20 10	31·3	5·9	3·5	2·8	5·3	...	...	...	...	...
	Apr. 11. 13 0	46·8	5·8	5·3	7·8	7·6	2·8	1·8	...	...	−0·9
	15. 9 0	48·2	5·2	6·2	8·2	8·2	5·0	1·0	...	...	...
	23. 8 55	53·3	5·7	7·1	10·3	7·8	6·5	1·6	1·1	3·3	1·3
XXXIV.	Jan. 18. 19 0	39·5	6·7	5·7	7·3	4·5	6·8	1·9	1·7	4·3	3·1
	Feb. 1. 9 0	28·2	6·7	4·7	7·2	5·7	9·2	3·2	−6·0	−4·2	−5·0
	20. 9 10	30·1	6·9	5·1	3·5	4·9	5·8	...	...	−5·6	−1·9
	22. 14 30	24·4	6·4	5·4	7·3	7·3	10·4	4·8	−8·1	−5·6	−6·8
	22. 16 0	24·3	6·2	5·1	7·3	7·1	10·3	4·4	−8·2	−5·7	−6·7
	22. 17 30	23·6	6·1	4·8	6·9	6·7	9·6	3·0	−8·6	−6·7	−7·4
	28. 18 30	33·0	6·0	5·0	5·0	5·2	4·0	2·0	...	...	2·5
	Apr. 1. 15 30	39·1	6·3	5·1	9·1	9·1	3·6	1·9	−4·4	0·1	−3·5
	1. 17 0	37·5	6·6	6·5	9·5	9·0	4·5	3·0	−5·5	1·5	1·5
	17. 17 0	44·2	6·2	5·7	11·2	12·0	3·7	1·7	−0·8	4·2	0·7
	25. 6 15	59·4	6·9	7·4	8·4	6·9	4·4	...	−0·6	3·4	−0·6
XXXV.	Jan. 6. 5 0	44·5	7·2	6·5	6·9	5·5	4·5	2·5	0·3	3·2	...
	10. 7 0	39·0	7·0	5·8	7·0	3·4	3·5	1·6	0·5	4·0	...
	22. 7 30	37·0	7·5	6·8	11·2	8·0	9·5	3·1	0·2	1·5	2·0
	Feb. 22. 6 45	30·6	7·8	6·9	8·8	8·6	11·6	3·6	−3·4	−2·4	−3·7
	22. 12 30	25·3	7·0	5·0	7·2	7·5	10·7	3·8	−7·4	−5·5	−6·9
	23. 13 0	25·1	7·1	5·8	8·0	7·8	11·3	3·9	−7·4	−4·8	−7·1
	28. 17 0	33·7	7·7	5·5	8·7	6·7	5·2	...	...	...	−3·3
	Mar. 12. 9 0	38·0	7·9	4·6	7·0	6·0	8·2	2·7	...	...	1·0
	Apr. 1. 14 30	40·2	7·5	5·0	9·9	10·0	4·2	1·7	−4·8	0·2	−2·2
	5. 17 30	41·0	7·2	6·2	7·4	7·8	9·0	2·0	−1·3	...	−1·0
	17. 16 0	44·7	7·2	6·7	14·2	14·7	3·7	1·7	−1·3	3·7	0·7
	29. 9 0	42·2	7·0	6·2	12·2	11·6	7·2	2·7	−2·8	1·7	2·7
XXXVI.	Jan. 17. 5 0	41·2	8·7	7·2	6·4	6·2	9·4	2·4	2·2	4·4	4·7
	30. 4 30	46·2	8·2	7·0	7·7	6·4	7·6	1·2	5·0	4·7	3·7
	30. 5 30	43·6	8·6	6·3	9·6	5·6	6·5	1·3	3·5	5·6	2·1
	Feb. 1. 7 0	30·0	8·8	6·0	10·8	8·8	10·0	4·0	−5·0	−2·2	−3·0
	16. 8 0	37·5	8·0	7·0	7·0	7·5	7·5	2·5	−1·0	1·7	1·0
	Mar. 6. 11 0	33·6	8·6	5·1	8·6	7·4	8·8	2·9	...	...	−1·2
	20. 9 0	32·5	8·5	6·0	8·5	8·5	7·0	3·6	...	1·5	−3·5
	20. 10 0	31·2	8·2	5·2	8·2	7·2	7·2	3·5	...	1·2	−4·0
	20. 11 0	31·0	8·2	5·5	9·0	9·0	7·0	3·8	...	0·5	−5·0
	20. 11 30	30·9	8·4	5·4	10·4	11·4	7·4	3·9	...	−0·1	−4·6
	20. 18 20	38·5	8·8	6·3	13·5	13·3	9·2	4·5	...	−0·3	−5·3
	Apr. 1. 18 30	40·0	8·6	7·0	8·5	8·5	5·0	3·5	−3·0	1·0	1·0
	2. 9 0	48·5	8·7	8·7	12·0	12·0	8·5	3·7	−1·5	5·5	1·5
	8. 13 30	42·1	8·6	9·3	14·3	12·8	6·5	2·4	0·0	2·5	−1·2
	8. 15 30	41·2	8·7	9·5	15·5	13·8	6·5	2·2	−0·9	2·1	1·2
	8. 17 30	39·4	8·6	9·6	15·7	15·8	8·4	2·4	−2·1	2·4	1·6
	17. 15 0	45·5	8·5	8·5	16·5	16·5	4·5	2·5	−1·5	3·5	0·5
	17. 18 30	47·5	8·0	6·3	10·5	8·0	6·5	...	...	...	...
	23. 7 25	56·0	8·8	7·0	12·0	10·7	6·3	1·7	1·5	4·7	2·2
	27. 7 3	48·5	8·5	8·5	13·5	12·3	5·5	2·7	−7·8	−1·5	−3·7

Number of the Tables.	1844. Day, hour and minute.	On long grass covered by: White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Lead.	Lead six inches high.	Glass.	Glass one inch high.	Hare skin.	Rabbit skin.
XXIX.	Feb. 21. 11 0	...	...	...	...	...	...	...	...	...	...	...
XXX.	Apr. 25. 5 45	...	...	...	...	...	...	...	...	...	...	...
XXXI.	Feb. 16. 3 0	3·3	3·8	3·3	3·3	3·3	3·3	1·6	−2·5	3·2	...	...
	Mar. 6. 19 0	...	...	...	...	...	...	...	...	0·7	...	...
XXXII.	Jan. 6. 7 30	...	...	...	...	...	...	...	...	2·2	...	...
	Feb. 1. 3 30	...	1·7	3·0	3·7	3·7	...	...	3·0	−0·1	...	...
	Mar. 1. 11 0	...	...	...	...	...	...	...	1·8	1·2	...	...
XXXIII.	Feb. 7. 19 0	...	...	...	2·2	...	...	...	...	...	...	...
	22. 18 45	...	...	...	...	...	...	...	4·5	1·5	...	...
	28. 12 0	...	...	...	...	...	...	...	...	...	...	...
	Mar. 20. 20 10	...	...	...	...	...	...	...	2·1	1·3	...	...
	Apr. 11. 13 0	1·3	3·5	...	...	...	...	...	...	...	...	...
	15. 9 0	...	...	...	...	...	...	...	...	1·9	...	3·4
	23. 8 55	...	...	...	...	...	...	...	...	...	...	...
XXXIV.	Jan. 18. 19 0	...	...	...	...	...	...	...	4·7	3·1	...	...
	Feb. 1. 9 0	−4·2	−3·3	−2·3	−1·8	3·2	...	3·7	4·4	1·2	...	...
	20. 9 10	...	...	...	...	...	...	...	...	...	...	...
	22. 14 30	...	...	...	...	...	...	...	4·8	2·8	...	...
	22. 16 0	...	...	...	...	...	...	...	4·3	2·1	...	...
	22. 17 30	...	...	...	...	...	...	...	3·8	1·6	...	...
	28. 18 30	...	...	...	...	...	...	...	2·0	0·8	...	...
	Apr. 1. 15 30	−6·4	−5·9	...	...	...	...	...	4·1	3·9	−4·9	−2·9
	1. 17 0	−7·0	−7·5	...	...	...	...	...	3·3	3·0	−5·5	−5·5
	17. 17 0	−3·3	−2·8	...	...	...	...	...	4·7	4·2	−0·8	−0·8
	25. 6 15	...	...	...	...	...	...	...	...	...	...	...
XXXV.	Jan. 6. 5 0	...	...	...	...	...	...	...	...	2·9	...	...
	10. 7 0	...	...	...	...	...	...	...	...	2·8	...	...
	22. 7 30	...	...	...	...	...	...	...	4·9	5·8	...	...
	Feb. 22. 6 45	...	...	...	...	...	...	...	5·6	3·3	...	...
	22. 12 30	...	...	...	...	...	...	...	3·8	2·2	...	...
	23. 13 0	...	...	...	...	...	...	...	4·8	2·8	...	...
	28. 17 0	...	...	...	...	...	...	...	0·7	0·5	...	...
	Mar. 12. 9 0	...	...	...	...	...	...	...	...	3·4	...	...
	Apr. 1. 14 30	−5·8	−5·3	...	...	...	−4·8	4·8	4·4	3·2	...	...
	5. 17 30	...	...	...	−3·3	...	−0·3	−0·3	3·0	...	...	...
	17. 16 0	−3·3	...	...	...	...	...	...	6·7	5·7	...	...
	29. 9 0	...	...	...	...	...	...	...	...	...	...	...
XXXVI.	Jan. 17. 5 0	...	4·2	4·9	...	5·7	...	...	5·7	4·0	...	...
	30. 4 30	...	...	...	...	...	...	...	5·4	4·3	...	...
	30. 5 30	...	...	...	...	...	...	...	5·8	3·6	...	...
	Feb. 1. 7 0	2·2	−1·5	2·8	...	4·5	...	3·0	3·5	3·8	...	...
	16. 8 0	0·3	1·0	2·3	...	2·0	4·0	3·5	6·3	3·7	...	...
	Mar. 6. 11 0	...	...	...	...	...	...	...	...	2·4	...	...
	20. 9 0	...	...	...	...	...	...	...	3·5	1·5	...	...
	20. 10 0	−6·8	−5·8	...	...	...	...	...	6·7	4·2	...	...
	20. 11 0	−5·5	−5·0	...	...	...	...	...	5·0	3·2	...	...
	20. 11 30	−6·5	−6·1	...	...	...	...	...	6·4	2·9	...	...
	20. 18 20	1·3	1·8	...	...	...	...	...	3·5	2·9	...	...
	Apr. 1. 18 30	−3·0	−3·0	...	...	...	...	...	4·5	3·0	−3·0	−3·0
	2. 9 0	...	...	...	...	...	...	...	...	...	...	...
	8. 13 30	...	...	...	...	...	...	...	8·7	6·8	...	...
	8. 15 30	...	...	...	...	...	...	...	7·8	6·8	...	...
	8. 17 30	...	...	...	...	...	...	...	6·4	6·0	...	...
	17. 15 0	−4·5	−4·5	...	...	...	...	...	8·0	7·0	−0·5	−0·5
	17. 18 30	...	...	...	...	...	...	...	5·5	3·0	...	...
	23. 7 25	...	...	...	...	...	...	...	4·0	6·0	...	...
	27. 7 3	...	...	...	...	...	...	...	...	...	...	...

Number of the Tables.	1844. Day, hour and minute.	Above grass in feet: 1.	2.	4.	6.	8.	10.	12.	On lead: On grass.	Six inches high.	One foot high.	Three feet high.
XXIX.	Feb. 21. 11 0	...	0·1	0·2	0·3	0·0	0·3	0·2	...	...	...	...
XXX.	Apr. 25. 5 45	−1·4	0·7	0·7	...	0·9	...	1·0	3·2	...	...	...
XXXI.	Feb. 16. 3 0	1·7	−1·4	...	...	...	...	...	0·3	−1·2	...	...
	Mar. 6. 19 0	−0·8	0·0	...	...	0·3	...	0·5	2·9	...	...	...
XXXII.	Jan. 6. 7 30	...	0·3	...	...	...	...	...	...	...	...	...
	Feb. 1. 3 30	...	−0·8	...	...	...	...	...	1·4	...	...	...
	Mar. 1. 11 0	...	...	...	...	...	...	...	3·8	...	...	...
XXXIII.	Feb. 7. 19 0	0·3	0·2	...	...	...	...	...	5·3	...	...	...
	22. 18 45	...	0·3	−0·2	0·2	−0·1	0·0	0·0	2·9	...	...	...
	28. 12 0	...	0·5	0·4	0·2	0·3	...	0·2	...	...	...	...
	Mar. 20. 20 10	...	...	...	...	...	...	...	0·8	...	...	...
	Apr. 11. 13 0	...	−0·2	...	...	−0·2	...	−0·2	3·3	...	...	...
	15. 9 0	...	0·2	−0·4	...	−1·0	...	−1·0	4·2	...	...	...
	23. 8 55	...	0·1	...	...	0·0	...	−0·2	5·8	...	...	...
XXXIV.	Jan. 18. 19 0	1·0	0·7	...	...	...	...	...	...	...	...	...
	Feb. 1. 9 0	0·7	0·2	...	...	...	...	...	3·7	4·7	...	...
	20. 9 10	1·1	1·0	...	...	...	...	...	6·4	...	...	...
	22. 14 30	...	1·4	0·6	0·9	0·9	0·8	1·0	3·6	...	...	...
	22. 16 0	...	1·3	0·3	0·8	0·6	0·8	0·7	3·1	...	...	...
	22. 17 30	...	0·8	0·1	0·6	0·2	−0·1	0·1	2·4	...	...	...
	28. 18 30	...	0·7	0·6	0·8	0·5	...	0·3	...	...	...	...
	Apr. 1. 15 30	...	0·7	0·1	...	−1·8	...	−3·4	5·1	...	2·1	...
	1. 17 0	...	...	...	...	...	...	...	6·5	...	4·5	...
	17. 17 0	...	0·7	0·3	...	−0·8	...	−0·8	5·7	...	2·2	...
	25. 6 15	...	1·2	1·1	...	0·2	...	0·4	7·2	...	4·4	...
XXXV.	Jan. 6. 5 0	0·5	0·1	...	...	...	...	...	...	...	...	...
	10. 7 0	0·0	0·2	...	...	...	...	...	...	...	...	...
	22. 7 30	2·2	1·8	...	...	...	...	...	...	...	...	...
	Feb. 22. 6 45	...	1·6	1·4	1·4	1·4	1·3	1·3	...	...	...	...
	22. 12 30	...	2·5	0·3	1·1	0·8	0·8	0·8	3·2	...	...	...
	23. 13 0	...	2·1	1·1	1·7	1·3	1·3	1·6	3·6	...	...	...
	28. 17 0	...	1·5	0·9	0·9	0·8	...	0·7	6·2	...	3·7	...
	Mar. 12. 9 0	...	1·8	−0·2	...	...	...	...	5·5	...	...	...
	Apr. 1. 14 30	...	1·6	0·4	...	−0·3	...	−2·0	5·7	...	4·7	...
	5. 17 30	...	0·0	−0·3	...	−0·2	...	−0·4	4·2	...	...	...
	17. 16 0	...	0·7	0·3	...	−1·3	...	−1·8	6·4	...	2·7	...
	29. 9 0	...	1·0	1·0	...	1·0	...	1·0	7·1	...	3·2	...
XXXVI.	Jan. 17. 5 0	...	1·0	...	...	...	...	...	...	...	...	...
	30. 4 30	...	1·2	...	...	...	...	...	...	...	...	...
	30. 5 30	...	0·6	...	...	...	...	...	...	...	...	...
	Feb. 1. 7 0	...	0·8	...	...	...	...	...	3·8	4·0	...	...
	16. 8 0	...	0·0	...	...	...	...	...	5·5	2·5	...	...
	Mar. 6. 11 0	...	1·6	...	...	...	...	...	8·8	...	...	...
	20. 9 0	...	1·0	1·0	0·6	0·5	...	0·5	6·0	...	4·7	...
	20. 10 0	...	1·2	0·8	0·9	0·2	...	0·2	6·2	...	5·2	...
	20. 11 0	...	1·2	0·8	0·8	0·5	...	0·2	7·0	...	4·0	...
	20. 11 30	...	1·0	0·7	0·7	−0·4	...	0·6	5·9	...	5·7	...
	20. 18 20	...	1·7	1·1	1·5	0·5	...	0·5	5·9	...	4·5	...
	Apr. 1. 18 30	...	2·0	1·5	...	0·0	...	1·3	5·5	...	4·5	...
	2. 9 0	...	−0·7	−0·7	...	−1·0	...	−0·7	...	...	...	...
	8. 13 30	...	−1·3	−1·3	...	−1·3	...	...	7·8	...	...	...
	8. 15 30	...	−0·4	−0·5	...	−0·7	...	...	7·4	...	...	...
	8. 17 30	...	0·0	−0·1	...	−0·3	...	...	8·1	...	...	...
	17. 15 0	...	0·0	0·0	...	−1·3	...	−1·3	7·5	...	3·3	...
	17. 18 30	...	−2·0	...	...	−0·5	...	−0·5	...	...	...	...
	23. 7 25	...	0·2	−0·1	...	0·0	...	−0·3	3·8	...	...	...
	27. 7 3	...	1·1	1·0	...	0·9	...	1·0	3·5	...	...	...

Number of the Tables.	1844. Day, hour and minute.	On zinc: On grass.	Six inches high.	One foot high.	Three feet high.	Four feet high.	On copper on grass.	On iron on grass.	On tin: White on grass.	White one inch high.	Blackened on grass.	On glass on grass.	On glass one inch high.	On pantile.	On slate.	On hare-skin.	On rabbit-skin.
XXIX.	Feb. 21. 11 0	0·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
XXX.	Apr. 25. 5 45	0·7	−1·3	...	...	...	...	0·7	...	...	...	...	...	...	...	3·2	...
XXXI.	Feb. 16. 3 0	−3·7	...	...	...	...	−0·2	−5·2	0·8	0·3	1·3	2·6	2·1	−1·7	...	...	...
	Mar. 6. 19 0	...	...	...	...	...	1·5	...	...	...	...	2·5	2·9	...	...	...	...
XXXII.	Jan. 6. 7 30	3·3	...	...	...	...	...	2·7	4·0	...	4·5	4·3	3·5	2·9	...	...	...
	Feb. 1. 3 30	1·0	...	...	...	...	2·7	3·3	4·0	2·7	2·4	3·2	0·2	2·7	...	...	...
	Mar. 1. 11 0	...	...	...	...	...	2·8	...	...	...	...	3·3	1·5	...	...	...	...
XXXIII.	Feb. 7. 19 0	6·3	...	...	...	...	4·5	4·1	...	...	...	5·1	4·1	...	...	...	...
	22. 18 45	4·5	...	...	...	...	3·3	3·6	4·7	4·2	4·9	5·3	4·2	...	...	...	...
	28. 12 0	...	...	...	...	...	...	...	5·4	...	4·7	...	...	...	...	...	...
	Mar. 20. 20 10	−0·5	...	...	...	...	1·1	−0·5	...	...	...	3·5	3·5	...	...	1·3	1·0
	Apr. 11. 13 0	...	...	...	...	...	3·8	...	...	...	...	3·8	3·8				
	15. 9 0	...	...	...	...	...	4·2	6·2	...	...	...	4·2	3·2				
	23. 8 55	...	...	...	...	...	...	...	...	...	...	5·7	7·3	...	...	...	...
XXXIV.	Jan. 18. 19 0	5·1	...	...	...	...	...	...	5·5	...	5·3	5·7	4·3	...	...	...	...
	Feb. 1. 9 0	4·2	...	...	...	...	4·7	4·2	6·2	4·7	5·2	5·4	3·7	4·0	1·2	...	...
	20. 9 10	7·3	...	...	...	...	...	...	5·0	4·4	5·4	7·5	6·0	...	...	...	...
	22. 14 30	6·3	...	...	...	...	5·8	4·9	5·8	5·1	6·0	...	...	...	...	...	...
	22. 16 0	5·3	...	...	...	...	4·7	4·0	3·9	3·8	4·6	6·8	5·3	...	...	...	...
	22. 17 30	4·3	...	...	...	...	3·1	3·2	...	...	...	5·3	4·3	...	...	...	...
	28. 18 30	...	...	...	...	...	4·8	4·0	6·0	...	5·8	2·5	0·5	...	...	...	...
	Apr. 1. 15 30	1·1	...	...	...	...	4·6	2·1	2·3	4·3	5·8	5·1	3·9	...	...	6·9	6·9
	1. 17 0	1·5	...	...	...	...	6·5	3·5	5·6	6·5	8·0	5·2	5·3	...	...	7·3	6·5
	17. 17 0	6·4	...	3·2	...	...	6·7	5·7	...	...	...	6·2	5·0	...	...	7·0	6·2
	25. 6 15	6·4	...	2·4	...	...	...	0·2	...	...	...	...	...	...	...	...	...
XXXV.	Jan. 6. 5 0	4·5	...	...	...	...	...	3·3	5·5	5·5	...	5·8	4·5	3·1	...	...	...
	10. 7 0	5·0	...	...	...	...	...	3·3	4·7	5·0	...	5·0	4·4	3·7	...	...	...
	22. 7 30	5·5	...	...	...	...	...	...	7·2	...	7·0	9·5	6·8	...	...	...	...
	Feb. 22. 6 45	6·4	...	...	...	...	6·6	5·5	6·5	5·1	7·1	7·9	6·6	...	...	...	...
	22. 12 30	5·3	...	...	...	...	4·5	5·2	5·5	4·7	5·8	6·3	4·7	...	...	...	...
	23. 13 0	6·3	...	...	...	...	5·8	4·9	5·8	5·1	6·0	7·5	6·0	...	...	...	...
	28. 17 0	...	...	...	...	...	5·7	4·0	...	...	...	4·2	2·7	...	...	...	...
	Mar. 12. 9 0	...	...	...	...	...	5·8	...	...	...	...	6·0	5·5	...	...	...	...
	Apr. 1. 14 30	3·1	...	...	...	...	5·7	2·4	3·4	6·2	7·2	5·7	4·7	...	...	7·7	7·2
	5. 17 30	...	...	...	...	...	2·8	...	...	...	...	...	3·5	...	...	6·9	6·7
	17. 16 0	7·2	3·7	...	...	...	6·7	5·7	...	...	...	6·7	5·7	...	...	11·1	...
	29. 9 0	8·4	8·0	...	...	...	7·3	7·0	...	...	...	5·2	5·0	...	...	...	...
XXXVI.	Jan. 17. 5 0	5·3	...	...	...	...	6·7	4·6	6·4	3·2	7·0	6·8	5·6	4·0	3·9	...	...
	30. 4 30	5·0	...	...	...	...	6·4	5·2	5·4	5·2	5·7	7·9	5·1	...	...	...	...
	30. 5 30	4·9	...	...	...	...	5·6	3·5	5·6	5·1	6·3	9·4	3·6	...	...	...	...
	Feb. 1. 7 0	5·2	...	...	...	...	6·5	4·8	8·2	5·2	7·5	5·5	5·0	3·5	...	...	...
	16. 8 0	5·7	...	...	...	...	5·8	4·4	4·5	4·5	6·0	7·0	5·0	3·8	...	...	...
	Mar. 6. 11 0	...	...	...	...	...	4·4	...	...	...	...	5·8	5·4	...	...	...	...
	20. 9 0	4·5	...	...	...	...	6·5	4·5	7·3	...	7·5	7·7	7·7	...	...	12·2	11·5
	20. 10 0	4·2	...	...	...	...	6·4	4·2	7·2	...	6·7	7·2	6·2	...	...	11·2	12·7
	20. 11 0	3·8	...	...	...	...	6·2	4·0	6·5	...	6·0	7·0	5·5	...	...	11·0	13·0
	20. 11 30	3·4	...	...	...	...	6·8	4·1	6·7	...	7·0	7·7	6·4	...	...	10·9	11·4
	20. 18 20	5·5	...	...	...	...	6·2	4·7	4·5	...	5·0	8·5	5·9	...	...	7·5	6·1
	Apr. 1. 18 30	2·0	...	...	...	...	7·8	2·3	...	...	...	7·0	7·0	...	...	6·5	6·5
	2. 9 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	8. 13 30	3·1	...	...	...	...	7·3	5·1	...	...	...	9·9	6·4	...	...	7·1	10·8
	8. 15 30	3·7	...	...	...	...	7·3	4·9	...	...	...	10·1	7·7	...	...	8·9	9·5
	8. 17 30	3·3	...	...	...	...	7·3	4·6	...	...	...	10·0	8·1	...	...	10·4	10·8
	17. 15 0	8·0	3·0	...	...	...	7·5	6·3	...	...	...	7·7	6·5	...	...	7·5	7·0
	17. 18 30	...	...	...	...	...	3·3	...	...	...	...	5·5	...	...	...	...	...
	23. 7 25	...	...	...	...	...	...	...	...	...	...	5·0	7·0	...	...	...	...
	27. 7 3	...	...	...	...	...	...	...	...	...	...	9·5	9·5	...	...	...	...

Number of the Tables.	1844. Day, hour and minute.	On stone: Firestone.	Purbeck.	Portland.	On Lamb's wool on grass: Yellow.	White.	Jet black.	Crimson.	Orange.	Light blue.	Dark blue.	Green.	Scarlet.	Clouds: Modification.	Amount 0–10.	High or low.	Wind: Direction.	Strength 0–6.	Haze, fog, mist, or vapour.
XXIX.	Feb. 21. 11 0	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	10	L.	s.	L.	
XXX.	Apr. 25. 5 45	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
XXXI.	Feb. 16. 3 0	−0·2	−0·2	−0·2	...	...	...	...	...	...	...	...	...	Cumuli......	5				
	Mar. 6. 19 0	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	7				
XXXII.	Jan. 6. 7 30	2·7	2·4	2·7	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	½	
	Feb. 1. 3 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	1	
	Mar. 1. 11 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	s.	1	
XXXIII.	Feb. 7. 19 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	22. 18 45	...	...	...	...	...	...	...	...	...	...	...	...	Clear	9	H.	s.	½	
	28. 12 0	...	...	...	...	...	...	...	...	...	...	...	...	Cirrostratus	1	...	c.	...	Haze
	Mar. 20. 20 10	...	...	...	...	...	...	...	...	...	...	...	...	Thin cirrost.	10	H.			
	Apr. 11. 13 0																		
	15. 9 0																		
	23. 8 55	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
XXXIV.	Jan. 18. 19 0	3·9	4·1	...	...	...	...	...	...	...	...	...	...	Fleecy cl....	5	H.	N.	L.	Haze
	Feb. 1. 9 0	2·7	2·0	2·7	...	...	...	...	...	...	...	...	...	Fleecy cl....	3	H.	N.	L.	
	20. 9 10	...	...	...	...	...	...	...	...	...	...	...	...	....	...	...	...	...	Fog.
	22. 14 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	22. 16 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	22. 17 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	28. 18 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	Apr. 1. 15 30	...	...	...	5·1	4·1	4·6	3·9	6·0	4·1	5·1	5·3	3·9	Clear	...	...	c.		
	1. 17 0	...	...	...	6·3	6·0	5·3	6·0	7·0	6·3	7·0	5·5	5·3	Clear	...	...	c.		
	17. 17 0	...	...	...	3·7	3·2	3·2	4·4	4·4	3·2	3·7	4·2	3·7	Clear	...	...	c.		
	25. 6 15	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
XXXV.	Jan. 6. 5 0	...	2·7	...	...	...	...	...	...	...	...	...	...	Scud.........	3				
	10. 7 0	...	4·0	...	...	...	...	...	...	...	...	...	...	Nearly cl....	3				
	22. 7 30	3·5	...	...	...	...	...	...	...	...	...	...	...	Nearly cl....	2	...	c.		
	Feb. 22. 6 45	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	L.	
	22. 12 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	L.	
	23. 13 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	28. 17 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	L.	
	Mar. 12. 9 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	2	Vap.
	Apr. 1. 14 30	...	...	...	7·4	5·7	5·2	6·0	6·7	6·0	6·7	5·1	6·1	Clear	...	...	c.		
	5. 17 30	...	...	...	4·2	4·2	4·2	4·7	4·2	4·7	4·4	4·5	4·3	Clear	...	...	c.		
	17. 16 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	29. 9 0	...	...	...	...	...	...	...	...	...	...	...	...	A few light c.	½	...	E.	L.	
XXXVI.	Jan. 17. 5 0	4·3	3·4	3·5	...	...	...	...	...	...	...	...	...	Light clouds	5	H.	N.	L.	Haze
	30. 4 30	5·3	4·0	4·6	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	½	
	30. 5 30	3·5	2·6	3·1	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	½	
	Feb. 1. 7 0	0·5	2·0	4·2	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	L.	
	16. 8 0	3·5	4·0	3·3	...	...	...	...	...	...	...	...	...	Clear	...	...	w.	L.	
	Mar. 6. 11 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	1	
	20. 9 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	½	
	20. 10 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	½	
	20. 11 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	½	
	20. 11 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	N.	½	
	20. 18 20	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	Apr. 1. 18 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	2. 9 0	...	...	...	...	...	...	...	...	...	...	...	...	....	...	...	s.	1	
	8. 13 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	8. 15 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	8. 17 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	17. 15 0	...	...	...	5·0	4·7	4·7	4·5	4·8	6·5	5·3	5·0	5·2	Clear	...	...	c.		
	17. 18 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	23. 7 25	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	27. 7 3	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		

Feb. 21, 11h 0m; a thin rain was falling. Feb. 16, 3h 0m; the sun is shining brightly. Feb. 22, 18h 45m; the sun is high and shining. Feb. 20, 9h 10m; the larger stars are visible only.

Table (Continued).

Excess of the reading of the thermometer in air, above that placed

Number of the Tables.	1844. Day, hour and minute. (h m)	Reading of Therm. at the height of 4 feet above the soil, protected from radiation. (°)	On long grass.	On short grass.	On white raw wool.	On flax on grass.	In focus of reflector.	Nine inches above wool.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On long grass covered by: White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Lead.	Lead six inches high.	Glass.	Glass one inch high.	Hare skin.	Rabbit skin.	Above grass in feet: 1.	2.	4.	6.	8.	10.	12.
XXXVII.	Jan. 22. 10 30	34·8	9·2	8·6	13·5	8·6	7·6	2·8	0·2	3·0	1·0	...	...	...	...	...	...	...	6·2	4·3	...	...	0·4	0·8	...	...	...	...	...
	26. 7 30	42·5	9·2	6·9	6·9	5·5	7·3	2·9	4·3	7·3	5·4	...	...	...	...	6·0	...	...	7·0	4·5	...	...	0·9	0·7	...	...	...	...	...
	Feb. 1. 5 0	33·5	9·0	8·0	10·3	7·3	10·0	6·0	−2·0	0·0	−0·5	3·0	1·0	3·5	3·0	7·0	...	4·5	2·0	4·5	...	...	2·5	2·0	...	...	...	...	...
	15. 19 15	34·0	9·8	8·0	7·0	8·5	8·5	4·0	−1·2	1·0	−1·0	2·0	4·0	3·5	6·0	2·0	3·5	2·0	5·0	4·5	...	...	2·0	2·0	...	...	...	...	...
	16. 7 0	39·2	9·0	7·2	6·7	7·7	8·5	2·7	1·7	3·0	2·7	0·7	1·7	2·2	2·2	5·4	3·7	3·7	7·2	4·2	...	...	0·7	0·7	...	...	...	...	...
	16. 9 0	30·8	9·3	6·8	5·8	7·8	7·6	2·8	0·7	1·3	0·8	1·2	1·1	2·3	1·3	4·3	4·0	3·6	5·6	3·6	...	...	0·8	0·6	...	...	...	...	...
	20. 5 0	36·7	9·3	7·2	10·5	9·1	8·7	3·4	0·1	2·3	1·5	0·7	−0·1	−0·4	0·0	...	...	...	...	...	...	...	2·3	1·7	...	...	−0·1	...	...
	Apr. 1. 12 30	42·7	9·5	8·2	14·5	12·7	6·7	2·7	−2·8	3·7	−2·3	−2·3	−2·3	...	...	...	...	...	6·7	5·7	−1·3	−0·8	...	0·9	0·5	...	−0·3	...	−0·8
	1. 13 30	41·3	9·4	9·3	13·3	13·3	6·3	3·1	−3·7	1·3	−2·8	−4·2	−4·2	...	...	...	...	...	6·3	4·3	−3·7	−3·7	...	2·5	0·8	...	1·9	...	−2·0
	1. 18 0	39·7	9·2	8·9	11·2	9·9	6·7	5·2	−3·3	2·7	1·3	−4·3	−4·3	...	...	...	...	...	5·7	3·7	−3·8	−3·8	...	3·0	2·5	...	...	...	1·7
	2. 7 0	51·9	9·9	6·1	9·9	9·9	8·9	2·9	−0·6	1·9	−0·1	...	−1·6	...	...	...	...	...	6·9	4·9	...	...	...	−1·6	−2·1	...	−4·1	...	−1·9
	3. 17 30	45·6	9·0	7·9	12·6	15·9	7·0	3·0	1·0	5·1	2·2	...	...	...	...	...	...	...	6·4	5·5	...	...	...	−0·8	−0·9	...	−0·9	...	...
	17. 12 0	48·5	9·3	9·6	14·5	15·3	5·5	2·5	0·5	7·0	3·5	−2·5	−1·5	...	...	...	...	...	7·5	7·5	0·5	0·5	...	0·5	0·0	...	−1·3	...	−1·3
	29. 11 0	39·4	9·6	8·3	12·1	12·8	7·5	4·9	−6·9	−0·4	2·3	...	...	...	...	...	...	...	...	...	...	...	...	1·6	1·2	...	1·2	...	...
	30. 7 40	48·6	9·0	7·3	8·4	7·8	6·6	2·4	−5·8	−0·3	−2·6	...	...	...	...	...	...	...	...	...	...	...	...	1·4	0·8	...	1·2	...	1·1
	Feb. 13. 20 0																						...						
XXXVIII.	Jan. 26. 5 10	42·8	10·3	7·8	9·8	6·8	8·0	3·3	2·8	6·3	5·1	...	...	...	...	5·7	...	...	6·7	4·8	...	...	1·0	0·7	...	...	...	...	...
	Feb. 15. 15 0	36·8	10·6	8·3	10·8	10·3	9·4	4·4	−0·2	3·3	0·3	2·3	2·8	6·3	5·3	6·3	4·8	5·3	6·3	3·8	...	...	2·3	2·1	...	...	...	...	...
	15. 17 30	34·0	10·8	7·8	7·0	10·5	10·0	4·5	−2·0	1·0	−1·0	2·0	2·0	6·0	6·5	4·2	4·7	2·0	6·5	3·5	...	...	2·0	2·0	...	...	...	...	...
	16. 4 30	42·7	10·2	8·9	7·5	9·2	9·5	3·2	3·2	4·9	4·5	4·2	3·9	3·7	3·7	4·7	5·7	4·7	5·7	5·7	...	...	1·7	1·2	...	...	...	...	...
	22. 9 0	28·1	10·1	7·3	11·6	10·1	11·9	−1·6	−5·9	−3·3	−4·9	...	...	...	...	...	...	...	...	...	...	...	...	2·1	1·1	1·1	0·8	0·8	0·1
	Mar. 21. 8 40	35·7	10·2	10·2	15·5	15·5	7·7	2·7	...	...	0·2	...	...	...	...	...	...	...	5·0	7·1	...	...	...	−0·9	−0·8	1·1	−0·5	...	...
	Apr. 2. 8 0	49·2	10·0	9·0	11·9	10·2	6·7	4·2	−0·8	3·2	1·9	0·8	−0·8	...	...	...	...	...	4·2	2·0	1·2	1·2	...	−1·3	−1·3	...	−1·3	...	−1·3
	2. 11 0	47·0	10·0	9·2	12·3	10·0	...	6·0	−0·6	1·0	2·0	7·0	4·0	...	...	...	...	...	5·5	3·7	6·0	5·7	...	−1·4	−1·4	...	−1·0	...	−2·6
	8. 11 0	44·4	10·4	10·0	14·2	14·2	6·9	1·8	1·0	4·3	1·4	...	...	...	...	...	...	...	...	...	...	...	...	−0·7	−0·7	...	−0·6	...	...
	9. 8 50	51·6	10·2	8·6	12·4	11·6	5·4	2·3	2·3	6·6	3·0	...	...	...	...	...	...	...	9·5	4·6	...	...	...	−0·6	−0·6	...	−0·9	...	...
	17. 13 0	48·8	10·8	10·8	14·8	15·8	6·8	2·8	0·8	6·3	3·3	−1·2	−1·2	...	...	...	...	...	8·3	8·3	0·8	0·8	...	0·6	0·6	...	−0·2	...	−0·2
	17. 14 0	47·2	10·2	9·2	14·7	15·2	6·2	3·7	0·2	4·7	2·2	−3·3	−3·3	...	...	...	...	...	7·4	6·2	0·2	0·2	...	1·0	0·7	...	−0·8	...	−0·8
	17. 18 0	44·2	10·2	9·7	14·7	15·7	5·2	2·2	−1·3	5·0	−0·8	−0·8	−0·8	...	...	...	...	...	5·2	5·2	2·2	2·2	...	0·0	0·0	...	0·0	...	0·0
	18. 17 30	36·3	10·1	9·1	12·5	13·5	11·0	4·7	...	...	−3·0	...	...	...	...	...	...	...	...	...	...	...	...	1·6	1·3	...	1·5	...	1·7
	25. 6 40	57·7	10·5	8·9	9·2	8·7	6·7	2·7	0·2	2·2	1·2	...	...	...	...	...	...	...	...	...	...	...	...	2·6	2·4	...	2·3	...	2·5
	25. 17 20	41·6	10·8	9·3	12·1	11·1	5·3	3·6	−3·4	4·6	1·9	...	...	...	...	...	...	...	...	...	...	...	...	−0·2	−0·2	...	0·0	...	−0·1
	27. 9 30	45·6	10·6	9·6	13·0	14·3	11·6	4·0	−6·4	−0·2	−1·2	...	...	...	...	...	...	...	...	...	...	...	...	2·6	2·0	...	1·6	...	1·6
	May 1. 9 5	49·7	10·7	10·7	12·5	13·9	10·8	3·2	−1·6	5·4	0·9	...	...	...	...	...	...	...	...	...	...	...	...	2·3	2·0	...	1·0	...	1·2
	1. 11 0	46·7	10·7	7·9	10·7	10·2	7·2	3·2	−1·3	4·8	0·5	1·7	1·7	...	...	...	...	...	6·2	6·2	2·7	...	...	1·7	1·3	...	1·2	...	1·2
XXXIX.	Jan. 22. 8 15	36·1	11·7	10·3	16·3	10·7	10·6	3·3	0·2	1·2	3·2	...	...	...	...	...	...	...	6·0	6·0	...	...	1·5	1·3	...	...	...	...	...
	22. 9 0	35·7	11·7	9·9	16·1	10·8	10·7	3·1	0·3	1·1	3·9	...	...	...	...	...	...	...	5·4	5·5	...	...	1·2	1·0	...	...	...	...	...
	Feb. 15. 18 30	33·5	11·5	9·0	10·0	10·5	7·5	3·5	2·0	0·7	1·7	1·5	2·5	3·0	3·5	4·5	4·5	2·0	2·0	3·4	...	...	1·8	1·5	...	...	...	...	...
	22. 11 30	26·7	11·5	10·2	13·3	13·7	16·1	5·7	−4·8	−3·2	−3·4	...	...	...	...	...	...	...	6·8	4·4	...	...	...	2·7	2·4	2·5	2·4	2·1	2·4
	Mar. 21. 6 30	39·4	11·4	11·2	13·4	13·2	9·4	3·1	...	5·4	3·1	7·4	3·2	...	...	...	...	...	6·4	5·2	...	...	...	0·2	0·1	...	...	...	...
	23. 8 40	38·5	11·3	9·0	10·7	12·0	8·7	2·9	...	1·4	0·0	−0·3	0·5	...	...	...	...	...	7·2	6·3	...	...	...	0·3	0·0	...	−0·8	...	...
	Apr. 1. 9 0	48·5	11·3	9·9	11·3	12·5	8·3	2·3	...	...	1·2	...	...	...	...	...	...	...	6·5	6·5	...	...	...	0·1	0·5	...	...	...	...
	3. 9 0	47·5	11·7	10·3	17·5	11·7	9·5	2·3	−0·8	...	0·5	...	...	...	...	...	...	...	6·5	4·8	...	...	...	0·2	0·5	...	−0·7	...	−0·8
	3. 11 30	45·9	11·4	8·4	12·4	13·2	9·4	2·1	−1·2	4·7	3·7	...	...	...	...	...	...	...	6·4	5·7	...	...	...	−0·3	−0·4	...	−0·4	...	...
	3. 12 45	45·9	11·9	9·7	13·9	15·4	10·3	2·3	−0·3	4·9	2·9	...	...	...	...	...	...	...	6·4	5·9	...	...	...	−0·3	−0·3	...	−0·3	...	...
	3. 15 30	45·8	11·3	9·0	14·5	17·0	9·8	2·8	0·3	5·0	2·7	...	...	...	...	...	...	...	6·3	5·5	...	...	...	−0·4	−0·4	...	−0·4	...	...
	10. 7 0	55·7	11·9	10·7	13·7	12·7	6·3	2·2	...	...	...	...	...	...	...	...	...	...	5·5	4·9	...	...	...	0·0	0·9	...	...	...	...
	17. 9 30	52·5	11·2	9·9	15·4	16·5	8·8	3·5	...	...	...	...	...	...	...	...	...	...	8·3	6·1	...	...	...	1·6	1·6	...	0·7	...	...
	May 1. 7 30	53·1	11·1	10·5	12·1	10·1	10·6	3·1	−0·2	4·1	0·1	...	...	...	...	...	...	...	...	...	...	...	...	2·3	2·1	...	1·5	...	1·7
	1. 15 0	44·8	11·3	8·8	11·8	12·3	7·3	2·6	−2·7	2·3	−0·7	−0·2	−3·2	...	...	...	...	...	6·3	5·3	...	...	...	2·0	1·6	...	1·1	...	1·1
XL.	Feb. 16. 5 30	42·0	12·0	10·0	11·5	12·0	10·0	4·5	3·0	4·5	4·8	4·5	4·5	5·0	8·0	5·0	8·5	6·5	9·2	6·5	...	...	2·0	1·5	...	...	...	...	...
	Apr. 1. 12 0	44·4	12·9	12·2	16·4	16·4	9·4	4·6	−1·6	−4·6	−1·8	−3·6	...	...	...	...	...	...	5·9	6·6	−1·3	−1·1	...	1·4	1·2	...	0·4	...	0·6
	10. 8 0	53·5	12·5	...	11·5	10·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	10. 9 0	50·8	12·6	11·5	11·6	15·2	7·1	0·0	...	...	...	...	...	...	...	...	...	...	9·6	6·3	...	...	...	...	...	...	...	...	...
	18. 9 0	47·5	12·0	9·5	14·5	14·5	8·0	2·3	1·5	6·5	2·3	1·5	...	...	...	...	...	...	9·7	7·7	...	...	...	1·3	1·3	...	−0·5	...	−0·5
	25. 11 30	47·9	12·4	9·7	13·4	12·9	8·9	3·9	−3·3	4·7	0·1	...	...	...	...	...	...	...	...	...	...	...	...	1·9	1·6	...	1·6	...	...
	25. 16 30	41·7	12·4	10·4	15·7	15·5	9·7	6·3	−3·5	6·6	1·8	...	...	...	...	...	...	...	...	...	...	...	...	2·1	0·9	...	1·6	...	1·1
	May 1. 15 0	41·2	12·2	10·2	15·2	15·2	6·7	5·7	−1·8	4·2	−1·2	−3·8	...	...	...	...	...	...	7·2	6·4	...	...	...	2·4	1·9	...	1·4	...	1·5
	1. 17 0	40·7	12·2	12·2	12·7	16·5	10·7	5·2	−2·3	3·7	−0·7	−2·8	...	...	...	...	...	...	...	...	...	...	...	2·5	2·0	...	1·5	...	1·4
	13. 19 0	54·0	12·7	11·0	15·7	14·0	8·0	4·0	−8·0	...	...	...	...	...	...	...	...	...	6·2	6·0	...	...	...	2·0	...	...	1·0	...	1·0

Number of the Tables.	1844. Day, hour and minute.	On lead: On grass.	Six inches high.	One foot high.	Three feet high.	On zinc: On grass.	Six inches high.	One foot high.	Three feet high.	Four feet high.	On copper on grass.	On iron on grass.	On tin: White on grass.	White one inch high.	Blackened on grass.	On glass on grass.	On glass one inch high.	On pantile.	On slate.	On hare-skin.	On rabbit-skin.	On stone: Firestone.	Purbeck.	Portland.	On Lamb's wool on grass: Yellow.	White.	Jet black.	Crimson.	Orange.	Light blue.	Dark blue.	Green.	Scarlet.
XXXVII.	Jan. 22. 10 30	...	...	...	...	...	...	...	...	...	8·3	6·4	8·6	...	9·0	8·5	5·6	...	...	...	...	3·5	2·8	...	...	...	...	...	...	...	...	...	...
	26. 7 30	...	...	...	...	5·3	...	...	...	...	7·5	5·0	5·3	3·9	6·5	7·7	5·7	...	...	...	...	4·7	4·5	4·1	...	...	...	...	...	...	...	...	...
	Feb. 1. 5 0	8·3	4·5	...	...	6·3	...	...	...	...	9·5	7·0	7·0	7·0	7·0	7·5	7·0	3·0	...	...	...	4·5	4·0	6·0	...	...	...	...	...	...	...	...	...
	15. 19 15	6·5	5·0	...	...	8·0	...	...	...	...	7·2	5·0	4·5	4·5	6·0	7·0	5·0	3·8	...	...	...	3·5	4·0	3·3	...	...	...	...	...	...	...	...	...
	16. 7 0	5·7	3·2	...	...	6·0	...	...	...	...	6·3	5·6	6·5	6·1	6·2	7·7	6·2	6·2	...	...	...	4·4	5·4	4·7	...	...	...	...	...	...	...	...	...
	16. 9 0	6·3	2·8	...	...	5·6	...	...	...	...	...	6·0	5·8	4·8	5·8	7·6	4·8	4·7	...	...	...	4·6	5·1	4·0	...	...	...	...	...	...	...	...	...
	20. 5 0	6·9	...	...	...	6·9	...	...	...	...	9·2	4·5	6·9	6·5	7·4	8·7	8·0	4·7	...	...	...	4·5	4·7	4·9	...	...	...	...	...	...	...	...	...
	Apr. 1. 12 30	9·2	...	5·7	...	2·1	...	...	...	...	6·3	3·3	4·9	7·9	7·9	8·7	7·9	...	...	9·2	9·2	...	...	...	7·5	7·9	5·5	7·2	8·2	8·2	6·7	7·7	6·6
	1. 13 30	8·3	...	5·3	...	1·5	...	...	...	...	6·7	4·2	6·3	8·3	9·3	7·1	6·3	...	...	7·8	8·1	...	...	...	8·3	4·3	4·3	4·3	5·3	5·8	7·8	6·8	7·1
	1. 18 0	7·7	...	4·5	...	2·7	...	...	...	...	4·9	2·9	6·7	8·7	9·2	5·6	6·5	...	...	8·7	9·2	...	...	...	5·9	5·9	2·5	5·2	6·7	5·9	5·7	4·2	4·5
	2. 7 0	6·4	...	2·7	...	2·4	...	...	...	...	6·6	3·1	5·4	4·7	4·9	6·9	4·1	...	...	6·9	6·9	...	...	...	...	...	...	...	...	...	...	...	...
	3. 17 30	9·0	...	...	...	...	...	...	...	...	9·3	5·5	...	...	...	7·8	6·1	...	...	10·6	10·4	...	...	...	...	...	...	...	...	...	...	...	...
	17. 12 0	8·7	...	5·5	...	4·0	...	...	...	...	9·2	8·3	...	...	...	8·5	7·5	...	...	10·3	9·5	...	...	...	6·5	7·5	5·3	6·0	6·0	6·5	7·3	6·0	5·3
	29. 11 0	8·4	...	4·7	...	8·5	5·2	...	...	...	6·2	5·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	30. 7 40	5·5	...	3·7	...	6·4	4·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Feb. 13. 20 0																																
XXXVIII.	Jan. 26. 5 10	...	...	...	...	5·7	...	...	...	...	9·0	6·8	6·5	5·3	7·1	9·2	7·0	...	...	...	...	5·3	5·0	4·8	...	...	...	...	...	...	...	...	...
	Feb. 15. 15 0	6·3	5·0	...	...	6·3	...	...	...	...	6·0	6·8	9·0	6·8	8·8	7·3	4·8	4·8	...	...	...	4·3	4·6	4·3	...	...	...	...	...	...	...	...	...
	15. 17 30	7·5	4·9	...	...	6·7	...	...	...	...	9·0	6·5	10·0	7·8	8·5	9·0	6·5	3·5	...	...	...	2·8	5·0	2·8	...	...	...	...	...	...	...	...	...
	16. 4 30	7·7	4·5	...	...	8·5	...	...	...	...	8·9	6·7	7·7	9·9	7·7	10·5	7·7	6·5	...	...	...	4·5	5·7	4·7	...	...	...	...	...	...	...	...	...
	22. 9 0	8·0	...	...	...	7·4	...	...	...	...	7·3	6·6	8·1	...	8·1	9·5	7·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Mar. 21. 8 40	6·4	...	...	...	...	...	...	...	...	6·5	...	...	...	...	8·7	5·9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Apr. 2. 8 0	7·2	...	1·0	...	2·2	...	...	...	...	6·2	3·0	4·4	3·2	4·4	6·2	3·2	...	5·7	8·2	...	...	...	...	...	...	...	...	...	...	...	...	...
	2. 11 0	...	...	...	...	...	...	...	...	...	6·0	...	...	...	...	5·2	4·5	...	7·5	8·8	...	...	...	...	...	...	...	...	...	...	...	...	...
	8. 11 0	7·9	...	...	...	2·7	...	...	...	...	7·9	5·4	...	...	...	10·3	7·5	...	7·4	8·8	...	...	...	...	...	...	...	...	...	...	...	...	...
	9. 8 50	6·8	...	...	...	...	...	...	...	...	6·5	3·6	...	...	...	10·4	7·4	...	7·4	7·2	...	...	...	...	...	...	...	...	...	...	...	...	...
	17. 13 0	8·8	...	5·8	...	7·8	5·0	...	...	...	8·8	6·3	...	...	...	8·8	8·8	...	10·8	9·8	...	...	...	...	6·3	7·8	5·8	8·0	7·6	8·8	7·7	7·8	7·6
	17. 14 0	8·7	...	5·2	...	10·2	6·2	...	...	...	7·7	9·7	...	...	...	8·2	7·2	...	10·7	10·0	...	...	...	...	6·2	6·0	6·0	6·7	6·0	7·0	6·0	6·0	5·2
	17. 18 0	8·0	...	4·7	...	8·0	4·2	...	...	...	7·2	6·4	...	...	...	6·2	5·2	...	7·2	6·7	...	...	...	...	3·7	5·7	5·7	4·4	5·0	5·4	4·0	5·0	4·7
	18. 17 30	10·3	...	...	...	8·7	...	...	...	...	6·7	...	...	...	...	8·5	8·3	...	13·3	10·1	...	...	...	...	...	...	...	...	...	...	...	...	...
	25. 6 40	8·2	...	5·2	...	9·6	4·4	...	...	...	7·2	...	...	...	...	...	...	...	10·9	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	25. 17 20	10·5	...	6·6	...	...	...	...	...	...	9·6	8·3	...	...	...	...	...	...	10·1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	27. 9 30	7·6	...	...	...	...	...	...	...	...	...	...	...	...	...	10·8	9·4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	May 1. 9 5	8·9	...	...	...	...	...	...	...	...	...	...	...	...	...	10·7	9·3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1. 11 0	8·2	...	4·2	...	7·2	4·5	...	3·5	2·9	8·7	6·2	...	...	...	8·9	7·7	...	9·5	9·2	...	...	...	...	...	...	...	...	...	...	...	...	...
XXXIX.	Jan. 22. 8 15	...	...	...	...	4·6	...	...	...	...	...	6·6	11·7	...	11·4	11·1	9·4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	22. 9 0	...	...	...	...	4·6	...	...	...	...	...	6·7	11·2	...	10·9	10·7	8·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Feb. 15. 18 30	7·3	6·3	...	...	5·5	...	...	...	...	9·5	5·3	10·0	10·5	6·5	9·5	6·0	3·0	...	...	...	2·5	4·5	1·5	...	...	...	...	...	...	...	...	...
	22. 11 30	5·7	...	...	...	7·7	...	...	...	...	7·4	6·4	10·0	7·3	10·5	11·2	9·4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Mar. 21. 6 30	7·4	...	...	...	...	...	...	...	...	9·3	...	...	...	...	10·3	8·4	...	...	11·4	8·9	...	...	...	...	...	...	...	...	...	...	...	...
	23. 8 40	7·5	...	...	...	...	...	...	...	...	8·4	5·7	6·0	...	...	10·1	8·3	...	...	10·5	10·0	...	...	...	...	...	...	...	...	...	...	...	...
	Apr. 1. 9 0	8·5	...	...	...	...	...	...	...	...	8·5	4·5	...	...	...	8·5	7·5	...	...	11·5	10·0	...	...	...	...	...	...	...	...	...	...	...	...
	3. 9 0	9·3	...	...	...	...	...	...	...	...	6·5	...	...	...	...	9·5	7·5	...	...	11·5	8·7	...	...	...	...	...	...	...	...	...	...	...	...
	3. 11 30	7·6	...	...	...	...	...	...	...	...	7·9	3·8	...	...	...	8·1	6·9	...	...	9·3	11·9	...	...	...	...	...	...	...	...	...	...	...	...
	3. 12 45	8·3	...	...	...	...	...	...	...	...	7·9	3·9	...	...	...	8·4	7·1	...	...	11·3	11·1	...	...	...	...	...	...	...	...	...	...	...	...
	3. 15 30	8·7	...	...	...	...	...	...	...	...	7·6	3·8	...	...	...	8·3	6·8	...	...	11·4	10·4	...	...	...	...	...	...	...	...	...	...	...	...
	10. 7 0	6·5	...	...	...	...	...	...	...	...	7·5	...	...	...	...	6·7	6·5	...	...	12·6	12·0	...	...	...	...	...	...	...	...	...	...	...	...
	17. 9 30	8·9	...	...	...	...	...	...	...	...	8·2	5·4	...	...	...	10·5	8·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	May 1. 7 30	8·9	...	...	...	...	...	...	...	...	...	...	...	...	...	10·8	9·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1. 15 0	7·3	...	4·3	...	7·2	5·6	...	4·5	4·1	8·6	8·6	...	...	...	7·6	5·8	...	...	13.3	11·8	...	...	...	10·0	8·3	8·1	8·6	10·0	8·3	9·6	8·1	10·0
XL.	Feb. 16. 5 30	10·0	7·0	...	...	9·0	...	...	...	...	9·5	7·2	9·8	6·8	9·0	10·8	8·5	7·0	...	...	...	5·0	5·8	5·0	...	...	...	...	...	...	...	...	...
	Apr. 1. 12 0	10·9	...	5·6	...	3·9	...	...	...	...	11·4	6·9	5·9	9·2	8·6	11·9	10·4	...	...	13·9	12·9	...	...	...	...	...	...	...	...	...	...	...	...
	10. 8 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	10. 9 0	8·6	...	...	...	...	...	...	...	...	8·5	...	...	...	...	12·8	7·6	...	...	8·3	10·8	...	...	...	...	...	...	...	...	...	...	...	...
	18. 9 0	7·5	...	5·5	...	12·3	6·5	...	...	...	10·3	8·5	...	...	...	10·3	10·3	...	...	10·5	9·5	...	...	...	9·3	9·3	10·3	8·3	8·0	10·0	8·7	8·3	9·0
	25. 11 30	11·7	...	8·5	...	11·5	6·6	...	...	...	11·5	...	...	...	...	...	...	...	...	12·0	...	...	...	...	...	...	...	...	...	...	...	...	...
	25. 16 30	12·0	...	7·3	...	10·8	5·9	...	...	...	11·9	9·2	...	...	...	...	...	...	...	12·3	...	...	...	...	...	...	...	...	...	...	...	...	...
	May 1. 15 0	9·2	...	6·7	...	10·4	7·2	...	5·3	4·0	10·4	10·0	...	...	...	9·0	9·0	...	...	12·7	11·2	...	...	...	9·7	9·4	9·2	9·2	9·7	10·7	11·7	7·2	11·7
	1. 17 0	10·2	...	4·2	...	8·5	4·7	...	2·7	2·2	10·2	8·8	...	...	...	10·5	9·7	...	...	13·2	12·7	...	...	...	11·2	10·2	8·7	10·7	9·7	11·5	9·2	9·5	9·2
	13. 19 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12·0	9·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Number of the Tables.	1844. Day, hour and minute.	Clouds: Modification.	Amount 0–10.	High or low.	Wind: Direction.	Strength 0–6.	Haze, fog, mist, or vapour.
XXXVII.	Jan. 22. 10 30	Clear	...	...	c.	...	
	26. 7 30	Clear	...	...	N.	½	Haze
	Feb. 1. 5 0	Clear	...	...	W.	L.	
	15. 19 15	Clear	...	...	W.	L.	
	16. 7 0	Clear	...	...	W.	½	Vap.
	16. 9 0	Clear	...	...	W.	½	
	20. 5 0	A thin cloud	10				
	Apr. 1. 12 30	Clear	...	...	c.		
	1. 13 30	Clear	...	...	c.		
	1. 18 0	Clear	...	...	c.		
	2. 7 0	Cirrostratus	1	...	S.	1	
	3. 17 30	Clear	...	...	c.		
	17. 12 0	Clear	...	...	S.	1	
	29. 11 0	Clear	...	...	N.	1	
	30. 7 40	Clear	...	...	N.	1	
	Feb. 13. 20 0						
XXXVIII.	Jan. 26. 5 10	Nearly cl....	1	...	N.	½	Haze
	Feb. 15. 15 0	....	2	...	N.	L.	Vap.
	15. 17 30	....	1	...	N.	L.	Vap.
	16. 4 30	Clear	...	...	c.		
	22. 9 0	Clear	...	...	c.		
	Mar. 21. 8 40	Clear	...	...	c.	...	Haze
	Apr. 2. 8 0	....	...	...	S.	½	
	2. 11 0	....	...	...	S.	L.	
	8. 11 0	Clear	...	...	c.		
	9. 8 50	Clear	...	...	c.		
	17. 13 0	Clear	...	...	c.		
	17. 14 0	Clear	...	...	c.		
	17. 18 0	Clear	...	...	c.		
	18. 17 30	Clear	...	...	c.		
	25. 6 40	Clear	...	...	c.		
	25. 17 20	Clear	...	...	c.		
	27. 9 30	Clear	...	...	c.		
	May 1. 9 5	Clear	...	...	c.		
	1. 11 0	Clear	...	...	c.		
XXXIX.	Jan. 22. 8 15	Clear	...	...	c.		
	22. 9 0	Clear	...	...	c.		
	Feb. 15. 18 30	Clear	...	...	c.		
	22. 11 30	Clear					
	Mar. 21. 6 30	Clear	...	...	c.		Haze
	23. 8 40	Clear	...	...	c.		
	Apr. 1. 9 0	Clear	...	...	c.		
	3. 9 0	Clear	...	...	c.		
	3. 11 30	Clear	...	...	S.	L.	
	3. 12 45	Clear	...	...	S.	L.	
	3. 15 30	Clear	...	...	S.	L.	
	10. 7 0	Clear	...	...	c.		
	17. 9 30	Clear	...	...	c.		
	May 1. 7 30	Clear	...	...	c.		
	1. 15 0	Clear	...	...	c.		
XL.	Feb. 16. 5 30	Clear	...	...	c.		
	Apr. 1. 12 0	Clear	...	...	c.		
	10. 8 0	Clear	...	...	c.		
	10. 9 0	Clear	...	...	c.		
	18. 9 0	A thin cloud	...	...	W.	L.	
	25. 11 30	Clear	...	...	c.		
	25. 16 30	Clear	...	...	c.		
	May 1. 15 0	Clear	...	...	c.		
	1. 17 0	Clear	...	...	c.		
	13. 19 0	Clear	...	...	c.		

Feb. 13, 20h. The minimum temperature of the air the preceding night was 19°, and the lowest reading on raw wool was 7°·8. (See section of self-registering thermometers.)

The appearance of trees and shrubs as covered with hoar-frost was very rich, and on examination it appeared that the edges of the leaves of laurel were fringed with spikes one-tenth of an inch in length, and inclined to the leaf, both upwards and downwards, at an angle of about 60°; none were in the plane of the leaf continued; on the surface of the leaf there were spikes one-sixteenth of an inch in length down each fibre; the intermediate spaces on the leaf itself were covered with small particles. Privet: every leaf was covered from the edge for one-fourth of an inch within the leaf, with spikes one-fourth of an inch in length; the other parts of the leaf were free from frost; the cruciform end of each branch was very rich with spikes. Broom: this shrub was richly encrusted with spikes all around each branch, by far the greater number, and much larger than the rest springing from the sides; from part of each branch towards the zenith there were comparatively but few spikes, and none of them vertical: this shrub, from its graceful form, had a peculiarly rich appearance. Grass: the lower part of the blade was free from frost; immediately above this the blade was just covered with white particles, which increased to spikes, becoming longer and longer as the distance from the root increased, terminating at the top in a rich cluster of spikes one-tenth of an inch in length, and inclined at all angles from 0° to 90° all round; the spikes on the blade below the top were nearly horizontal, and in the plane of the blade. Wooden palings: at all points and angles there were clusters of spikes half an inch in length. Glass one inch high was covered with spikes one-sixteenth of an inch in length, with horizontal spikes one-tenth of an inch in length from its edges. Glass on grass was free of hoar-frost, and so were copper, lead, zinc, tin, and iron. Tin one inch high was a little white at the edges. Wood on grass was free from hoar-frost; wood raised from the ground was covered with white particles, and many spikes in the direction of the fibres. Raw wool was richly encrusted in each fibre, and in some parts spikes were piled on spikes, forming a cluster three-fourths of an inch in length. On flax there were no spikes, it being covered with white round particles on each fibre. Stone was free from hoar-frost.

TABLE (Continued).

Excess of the reading of the thermometer in air, above that placed

Number of the Tables.	1844. Day, hour and minute.	Reading of Therm. at the height of 4 feet above the soil, protected from radiation.	On long grass.	On short grass.	On white raw wool.	On flax on grass.	In focus of reflector.	Nine inches above wool.	One inch below surface of ground under short grass.	On surface of ground under short grass.	On surface of ground under long grass.	On long grass covered by White raw wool.	Flax.	White tin.	White tin one inch high.	Blackened tin.	Lead.	Lead six inches high.	Glass.	Glass one inch high.	Hare skin.	Rabbit skin.
XLI.	Mar. 23. 7 45	40·9	13·6	11·1	14·9	15·7	10·1	3·8	...	3·2	2·1	1·9	3·5	...	...	...	...	...	6·4	7·8	...	...
	Apr. 3. 7 0	51·3	13·1	11·5	18·3	17·3	9·2	2·3	0·4	...	3·6	...	...	...	...	...	...	...	...	5·3	...	...
	6. 7 25	49·2	13·2	10·2	14·2	13·2	9·2	3·5	0·2	...	3·0	...	...	...	...	...	...	...	...	...	...	...
	9. 7 50	52·3	13·1	10·8	17·1	17·8	9·3	1·7	2·1	7·6	4·5	...	...	...	...	...	...	...	10·5	7·7	...	...
	17. 11 0	48·5	13·0	12·0	18·5	18·5	7·5	3·0	0·0	6·0	5·0	−2·5	−3·5	...	...	...	...	...	10·0	6·5	−1·1	−0·5
	18. 11 5	42·5	13·5	12·0	17·5	17·7	12·2	0·7	...	...	0·7	...	...	...	...	...	...	...	...	...	...	...
	24. 14 40	40·0	13·2	12·0	18·0	18·0	10·4	6·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...
XLII.	Apr. 24. 9 30	48·5	14·5	12·5	18·0	16·5	9·5	5·5	1·0	6·5	3·0	...	...	...	...	...	...	...	11·0	8·3	...	...
	24. 10 0	47·5	14·5	12·3	18·5	16·3	9·8	5·3	0·5	7·0	1·5	...	...	...	...	...	...	...	9·5	7·0	...	...
	24. 10 30	46·8	14·8	12·7	18·3	16·8	8·8	6·1	−0·2	6·3	1·6	...	...	...	...	...	...	...	11·6	6·3	...	...
	24. 12 40	44·1	14·5	12·7	17·9	16·9	8·1	6·6	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	24. 13 40	42·8	14·4	10·8	17·3	15·8	9·6	5·8	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	25. 15 40	42·3	14·3	12·1	17·2	17·8	12·1	6·2	−4·3	8·3	0·4	...	...	...	...	...	...	...	...	...	...	...
XLIII.	Apr. 1. 11 0	46·7	15·2	13·2	17·2	17·2	9·7	5·7	0·7	3·7	1·2	−1·3	−1·7	...	...	...	...	...	10·2	9·5	−0·3	−0·3
	8. 9 0	46·3	15·9	14·4	21·3	22·3	11·3	...	...	...	...	−2·0	...	...	...	...	...	...	...	...	...	...
	9. 7 30	53·8	15·8	14·3	14·8	16·0	13·8	1·2	2·6	8·6	4·0	−1·2	...	...	...	...	...	...	13·2	8·6	...	...
	24. 9 0	49·5	15·5	13·5	17·5	17·5	10·5	5·3	1·5	7·5	1·5	1·3	...	...	3·5	...	...	...	11·5	7·5	...	...
	24. 11 0	45·7	15·2	12·5	19·2	16·5	10·2	6·8	−1·3	8·0	0·7	1·4	...	...	−0·3	...	...	...	11·2	7·7	...	...
	24. 11 30	45·6	15·6	13·1	19·6	18·1	10·2	7·1	−1·4	8·6	0·6	1·6	...	...	−0·4	...	...	...	11·1	9·1	...	...
	24. 12 0	44·7	15·2	12·7	19·5	18·2	9·7	7·2	−2·3	7·2	−0·3	1·7	...	...	−0·8	...	...	...	10·2	8·2	...	...
XLIV.	Apr. 8. 7 20	52·7	19·2	17·5	21·7	22·7	12·7	...	2·7	...	8·7	...	2·2	...	...	...	...	...	16·2	...	...	...
	8. 8 0	48·0	19·6	18·0	25·0	23·0	12·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Number of the Tables.	1844. Day, hour and minute.	Above grass in feet. 1.	2.	4.	6.	8.	10.	12.	On lead. On grass.	Six inches high.	One foot high.	Three feet high.	On zinc. On grass.	Six inches high.	One foot high.	Three feet high.	Four feet high.	On copper on grass.	On iron on grass.	On tin. White on grass.	White one inch high.	Blackened on grass.	On glass on grass.	On glass one inch high.	On pantile.	On slate.	On hare-skin.	On rabbit-skin.
XLI.	Mar. 23. 7 45	...	−0·1	−0·1	...	−0·3	...	...	9·6	...	...	...	...	...	...	...	...	10·4	7·4	...	7·9	9·6	10·8	...	...	...	13·6	12·9
	Apr. 3. 7 0	...	−0·4	−0·5	...	0·0	...	−0·1	10·3	...	...	...	...	...	...	...	...	...	...	8·1	...	...	10·5	8·1	...	...	13·1	16·1
	6. 7 25	...	1·9	−1·2	...	−1·2	...	−1·2	5·1	...	...	...	...	...	...	...	...	10·9	...	9·6	...	...	9·8	9·6	...	...	...	...
	9. 7 50	...	−0·4	−0·5	...	−3·6	...	...	9·3	...	...	...	...	...	...	...	...	13·3	8·8	10·3	...	...	12·3	10·3	...	...	15·3	13·9
	17. 11 0	...	−0·6	−1·0	...	−1·5	...	−2·0	10·3	...	5·7	...	...	...	...	...	...	11·0	5·5	10·0	...	...	12·0	10·0	...	...	11·5	11·5
	18. 11 5	...	1·7	1·3	...	−0·3	...	−0·2	9·9	...	...	...	4·5	...	...	...	...	12·7	...	13·0	...	...	12·5	13·0	...	...	...	...
	24. 14 40	...	2·0	2·0	...	1·5	...	1·5	10·0	...	...	...	11·7	6·8	...	...	...	10·0	10·2	...	...	...	...	...	...	...	13·0	...
XLII.	Apr. 24. 9 30	...	1·7	1·2	...	0·7	...	0·5	10·5	...	7·3	...	13·0	8·0	5·3	5·0	...	14·0	12·5	...	...	...	13·3	11·5	...	...	15·5	15·5
	24. 10 0	...	2·0	1·8	...	1·3	...	1·2	11·5	...	8·0	...	13·7	9·0	5·5	4·5	...	13·3	12·5	...	...	...	13·0	11·5	...	...	15·0	15·0
	24. 10 30	...	0·9	0·6	...	0·6	...	0·5	12·8	...	8·3	...	12·1	7·9	4·8	3·3	...	12·8	12·6	...	...	...	12·0	11·6	...	...	15·0	15·0
	24. 12 40	...	1·9	1·5	...	0·9	...	0·6	12·1	...	7·5	...	12·9	7·9	...	...	...	13·1	12·8	...	...	...	...	...	...	...	16·1	...
	24. 13 40	...	1·2	1·1	...	1·0	...	0·6	12·8	...	6·0	...	13·0	6·6	...	...	...	12·9	12·1	...	...	...	...	...	...	...	16·3	...
	25. 15 40	...	2·5	0·9	...	0·8	...	...	13·2	...	8·1	...	10·5	6·0	...	...	...	12·0	...	...	...	...	...	...	...	...	14·3	...
XLIII.	Apr. 1. 11 0	...	2·7	2·5	...	0·7	...	0·7	11·5	...	7·5	...	5·2	...	...	...	...	13·2	8·2	7·7	10·7	...	13·9	11·9	...	...	13·3	13·2
	8. 9 0	...	−1·7	...	...	−3·7	...	−3·7	11·5	...	...	...	...	...	...	...	...	14·6	...	...	...	...	...	12·3	...	...	14·3	11·7
	9. 7 30	...	−0·9	...	...	−3·2	...	...	10·3	...	...	...	...	...	...	...	...	14·4	9·8	...	...	...	15·0	11·6	...	...	11·8	10·6
	24. 9 0	...	1·7	...	...	1·0	...	0·8	9·7	...	7·0	...	13·5	9·5	...	...	...	12·0	12·7	...	...	...	13·5	12·3	...	...	14·5	14·5
	24. 11 0	...	1·6	...	...	0·9	...	0·9	12·2	...	9·7	...	12·7	7·7	4·7	4·9	...	13·7	12·9	...	...	...	10·7	10·2	...	...	14·7	14·7
	24. 11 30	...	1·6	...	...	0·8	...	0·8	12·1	...	9·6	...	12·9	8·1	4·4	4·4	...	13·3	12·8	...	...	...	13·6	12·1	...	...	15·1	15·1
	24. 12 0	...	1·9	...	...	1·5	...	1·2	9·9	...	3·7	...	13·2	7·4	4·7	4·9	...	13·9	12·2	...	...	...	12·2	10·7	...	...	15·9	15·7
XLIV.	Apr. 8. 7 20	...	1·4	2·0	...	1·2	...	0·5	14·7	...	12·2	...	17·7	...	...	...	...	17·5	14·5	...	...	13·7	18·7	16·7	...	...	...	...
	8. 8 0	...	...	...	...	−3·5	...	−3·5	13·0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·4	...

Number of the Tables.	1844. Day, hour and minute.	On stone. Firestone.	Purbeck.	Portland.	On Lamb's wool on grass. Yellow.	White.	Jet black.	Crimson.	Orange.	Light blue.	Dark blue.	Green.	Scarlet.	Clouds. Modification.	Amount 0–10.	High or low.	Wind. Direction.	Strength 0–6.	Haze, fog, mist, or vapour.
XLI.	Mar. 23. 7 45	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.	...	Haze
	Apr. 3. 7 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	6. 7 25	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	9. 7 50	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	17. 11 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	18. 11 5	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 14 40	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
XLII.	Apr. 24. 9 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 10 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 10 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 12 40	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 13 40	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	25. 15 40	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
XLIII.	Apr. 1. 11 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	8. 9 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	9. 7 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 9 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 11 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 11 30	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	24. 12 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
XLIV.	Apr. 8. 7 20	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		
	8. 8 0	...	...	...	...	...	...	...	...	...	...	...	...	Clear	...	...	c.		