APPENDIX.

The Meteorology of Glen Nevis from October 1901 to February 1902.

By R. C. MOSSMAN.

While meteorological observations taken in deep narrow valleys are open to grave objection for many meteorological purposes, including the drawing of isobaric and isothermal charts, yet the study of the climatic features in such a locality presents several points of special interest. This is more notably the case in the present instance owing to the close proximity of the Ben Nevis Observatory and the low-level Observatory at Fort-William. As the latter was only about $4\frac{1}{2}$ miles distant from the valley station, the peculiarities of the climatology of Glen Nevis could be studied with a confidence which would have been unattainable without this adjoining sea-level station.

The series of observations under discussion were commenced on 3rd October 1901, and continued till the end of February 1902. The choice of a site was limited by the ability to obtain accommodation, but, as will be seen from a discussion of the results obtained, it would hardly have been possible to have had a station more admirably placed for the study of valley conditions than was the hamlet of Achariach. Through the courtesy of Mr SINTON, the then tenant of Glen Nevis House, a site for the instruments was obtained in close proximity to the cottage.

Preliminary papers on the observations were communicated to the Scottish Meteorological Society on 20th March 1902, and to the Royal Society of Edinburgh on 19th May 1902.

Position of Station and Natural Features.

Achariach is situated in lat. $56^{\circ} 46' N.$, long. $5^{\circ} 3' W.$ The nearest town is Fort-William, which is distant $4\frac{1}{4}$ miles to the north-west as the crow flies, while by road the distance is 7 miles: about $2\frac{1}{4}$ miles north-east is the high-level observatory on Ben Nevis. Bartholomew's Reduced Ordnance Map of Scotland, sheet 15, from which the annexed sketch-map is taken, gives an excellent picture of the depth and narrowness of the valley. The height of the barometer at the valley station was 150 feet above mean sea-level, or 108 feet higher than that of the Fort-William Observatory. While the more local surroundings were somewhat open, the station was surrounded and shut in by high mountains ranging from 3000 to 4400 feet in height. The position of Ben Nevis with regard to the station has been already noticed. The principal peaks in the immediate vicinity were the Cairn Dearg of Ben Nevis, with a height of 3348 feet, $1\frac{1}{4}$ miles to the N.N.E.; 2 miles to the S.E. is Sgor-a-Mhaim (3601 feet);

2 miles S.S.E. is Stob Ban (3274 feet), and the same distance S.W. Mulloch nan Coirean (3077 feet). On the east the valley is closed by the precipitous face of the Meall Cumhann (2306 feet), while still farther to the east is the wide and bleak elevated plateau of the Moor of Rannoch. The river Nevis lay some hundred yards north-east of, and some 20 feet lower than, the station, and a few yards to the east was a mountain torrent. From this description it will be clear that the station was practically in the bottom of a cup-shaped basin, and that any wind that blew had to come over a high mountainous range before reaching the station. To the west, in the

FIG. 1.—The Ben Nevis District, from *Symon's Meteorological Magazine*. A, Achariach; B, Ben Nevis Summit; C, Fort-William Low-level Station.

This map includes 7 miles by $5\frac{1}{2}$. Contours at every 500 feet; above 1000 shaded, and above 3000 darker shading.

direction of Fort-William, the valley some short distance below Achariach widened considerably, but winds from this quarter were probably in the majority of cases south-west winds deflected.

Instrumental Equipment.

The two Stevenson screens were placed on a slightly raised piece of moorland with a fairly dry subsoil. The larger screen contained a Richard thermograph and hygograph, while in another screen of the ordinary size were exposed the maximum and minimum self-registering thermometers and the dry and wet bulb thermometers, with the bulbs 4 feet above the ground and 154 feet above mean sea-level.

A black-bulb solar radiation thermometer *in vacuo* was fixed in a brass frame screwed to the roof of the larger thermometer screen, and a terrestrial minimum thermometer with a bright bulb was placed on the ground. There was a copper rain-gauge 5 inches in diameter, and after 2nd December readings of an anemometer kindly presented by the inventor, Mr W. H. DINES, F.R.S., are available. The barometer (hung in the living-room of the cottage, with its cistern 150 feet above

mean sea-level) was of the Fortin pattern, and had a Kew certificate, a further check being obtained by comparisons made of its readings with those of the standard of the Fort-William Observatory both before and after these observations. For use in excursions there were two aneroids (one of the Watkin pattern) and a sling thermometer. There was a pocket spectroscope for rain-band observations. The time of the station was provided by a ship's chronometer, which was frequently compared with the standard time at the Fort-William Post Office.

On 26th October a new rain-gauge was set up near the head of Glen Nevis, about 30 yards S.E. of Allt Coire Eoghainn, a burn which reaches the valley just at the end of the Glen Nevis carriage drive. This gauge was at a height of 357 feet above the sea, about $1\frac{1}{4}$ miles east of Achariach. The gauge was as a rule read once a week, and always on the 1st of each month, so that the results would be directly comparable with those of the other gauges at Achariach, Ben Nevis, and Fort-William.

Hours of Observation.

The regular hours of observation were 9 A.M., 10 A.M., noon, 2 P.M., 4 P.M., and 9 P.M.; but, owing to frequent absence from the station on excursions, only the early morning and late evening observations are complete for the whole period. The following table shows the number of days in each month on which observations were made at the different hours:—

	October.	November.	December.	January.	February.	Total.
9 A.M. . . .	29	30	31	31	28	149
10 „	29	30	31	31	26	147
Noon	19	12	16	11	10	68
2 P.M. . . .	24	27	24	20	19	114
4 „	17	21	16	12	5	71
6 „	4	12	16	26	23	81
9 „	29	30	31	31	28	149
Other hours .	16	14	19	27	41	117
Total . . .	167	176	184	189	180	896

In the tables appended, the values are those for 9 A.M., 10 A.M., 2 P.M., and 9 P.M. (see p. 668), and in additional tables (see p. 680) the data referring to other hours are given in a different form. Particulars as to methods of reduction, hours at which rainfall was read, and other information are given on p. 663. In the tables the hours are reckoned from 1 to 24, the latter being midnight.

Discussion of the Observations.

In the discussion of the observations the main point kept in view has been to utilise the Ben Nevis and Fort-William data so as to throw light on the abnormal

features of the meteorology of the Glen. The discussion is treated in three sections :—

I. General climatology of the Glen as compared with the Ben Nevis and Fort-William Observatories, including diurnal ranges of pressure, temperature, and humidity.

II. Observations taken during true "Föhn," and in a special type of rainy weather in which a Föhn effect prevails in the Glen. This includes a discussion of the diurnal period at the three stations as well as of observations taken on the adjacent hills during excursions.

III. Comparison of the meteorology of the three stations during periods of high barometric pressure and low temperature, including observations taken on excursions during the prevalence of "up-bank thaw."

As far as possible, overlapping and repetition have been avoided in dealing with the various sections, though this has been a matter presenting considerable difficulty. It is for this reason that a detailed comparison of the monthly and other differences between Glen Nevis and Fort-William in the matters of temperature, pressure, rainfall, etc., has not been made, as the salient features are discussed in the sections dealing with Föhn and up-bank thaw.

The Characteristics of the Period October 1901 to February 1902 at the Ben Nevis and Fort-William Observatories, as compared with the Normals.

Table I. gives the mean values of the principal climatic elements for the months October 1901 to February 1902 at the Ben Nevis and Fort-William Observatories, and also at Achariach ; and in Table II. the data from the two former stations are compared with their respective normals for the thirteen years 1891–1903. As regards cloud and wind direction on Ben Nevis, the means are those of the twenty years 1884–1903.

Looking at Table II., it will be seen that the characteristic features of *October* 1901 were a slight excess of pressure, rather low temperature, deficient sunshine, and slightly increased cloud amount and wind force on Ben Nevis, accompanied by a rainfall 32 per cent. above the normal. Associated with this there was a marked excess of southerly and defect of northerly winds. At Fort-William, pressure, temperature, and sunshine were in close accordance with the average, but rainfall was a fifth greater than the normal.

The outstanding features of *November* on Ben Nevis were a high barometric pressure, low temperature and wind force, and a slight excess of sunshine. In spite of the high pressure, precipitation was but little below the normal, and this relatively large rainfall was accompanied by a great excess of northerly and deficiency in southerly winds. At Fort-William the observed departures were in close accordance with those noted on the summit, but rainfall was distinctly below the normal.

In *December*, on the summit of Ben Nevis, there was a low barometric pressure, temperature, and wind force, accompanied by a normal amount of sunshine. Rainfall

was 20 per cent. above the average, and as in November northerly winds were in excess and southerly in defect. The most pronounced difference at Fort-William, as compared with the summit station, was in the rainfall, which shows a slight deficiency.

In *January* 1902, on Ben Nevis, pressure, temperature, sunshine, and rainfall were all slightly above their respective normals; wind force was markedly under the average, and winds from north and west were in excess, and those from south and east in defect. At Fort-William the observed values were in accordance with those on the summit, except temperature, which was practically the average. The relatively higher temperature on the summit was thus due to the inversions accompanying the marked anti-cyclonic conditions which were so conspicuous a feature of the meteorology of this month.

In *February* 1902, pressure, temperature, and rainfall were below the average both on the summit of Ben Nevis and at Fort-William, the small rainfall—only one-fifth of the average—being a noticeable feature at both places. Sunshine was markedly in excess at both stations. Wind force was just the average at the summit station, where there was an unusual prevalence of winds from the north-east and south-east, while winds from north-west, west, and south-west were in defect.

For the whole period of five months the most marked characteristic was the low temperature at both places, and the reduced wind force on Ben Nevis summit. Taken as a whole, the period under review was a dry one, the deficiency of rainfall as well as the excess of sunshine being more prominently exhibited at Fort-William than at the Ben Nevis Observatory. Barometric pressure at both stations was in close accordance with the normal. As regards wind direction on the summit, the data present few features of interest, if we except the prominent excess of northerly winds in November, December, and January, and the unusual frequency of south-east winds in February.

A comparison of the records at Fort-William and at Achariach for the five months shows clearly: (1) lower minimum temperatures and consequent greater monthly range of temperature in the Glen, associated with a slightly smaller mean daily range; (2) an increase in the solar and terrestrial radiation, associated with a lower relative humidity, and this despite a higher rainfall, number of rainy days, and amount of cloud; (3) a mean wind force more than double that of Fort-William, due to the frequency and strength of local squalls in the Glen; (4) a marked difference in the observed wind directions, there being a tendency for south-west and west winds to be deflected into west and north-west. Calms are also more frequent, and this, in conjunction with the higher mean wind force recorded, emphasises the statement as to the strength of the gusts at Achariach. There is in the Glen what may be termed a natural tendency to a condition of Föhn, and this, as we shall see later when the special features are under discussion, is as marked a characteristic in overcast, rainy weather as in clear weather. Another phenomenon frequently observed was up-bank thaw, in which a

very low temperature and high humidity as compared with Fort-William prevails in the Glen, in striking contrast to the warmth and dryness typical of Föhn. A further point of note is the very irregular distribution of temperature that was found to prevail in the valley, even on days in which no very special abnormalities were shown by an inspection of the data from Fort-William and Achariach. The air in the Glen would often appear to be made up of sheets of very different temperatures, and local Föhn of restricted extent is common. Doubtless from an orographical standpoint Glen Nevis is but an insignificant hollow, but the importance and interest of the results obtained cannot be judged from the point of view of mere local climatology, since the phenomena observed equally apply to regions of the earth where the natural features and physical processes are on a much grander scale than in this secluded Highland glen.

TABLE I.—*Mean Monthly Values at Ben Nevis, Fort-William, and Achariach from Hourly Observations, October 1901 to February 1902.*

BEN NEVIS.															
	Pressure.	Tem- perature.	Sunshine.		Cloud.	Wind Force.	Rain.	Wind Direction.							
								N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W. Calm.
1901.	Inches.		Hours.	%	%	0-12.	Inches.	%	%	%	%	%	%	%	%
October .	5·250	30·9	15·3	5	89	2·57	19·55	15	6	2	20	16	19	14	6
November	5·470	28·4	44·4	18	80	1·97	15·09	40	13	3	8	9	7	8	11
December	4·910	23·2	15·8	8	89	2·15	25·43	41	7	5	9	6	9	9	10
1902.															
January .	5·316	24·0	31·4	14	85	1·99	24·75	32	6	2	9	6	13	16	13
February .	5·199	22·1	63·7	24	76	2·71	3·36	19	15	6	27	16	9	4	1

FORT-WILLIAM.						ACHARIACH.				
	Pressure.	Tem- perature.	Sunshine.		Rain.		Pressure.	Tem- perature.	Sunshine.	Rain.
1901.	Inches.		Hours.	%	Inches.	1901.	Inches.		Hours.	Inches.
October .	9·791	46·5	58·7	23	9·55	October .	9·792	47·6	18·8	9·62
November	0·087	42·8	40·1	23	4·64	November	0·088	43·1	3·3	5·42
December	9·486	37·9	11·5	9	10·69	December	9·488	37·7	0·0	11·80
1902.						1902.				
January .	9·959	38·6	27·7	18	10·03	January .	9·959	38·2	0·0	11·02
February .	9·841	36·0	62·2	31	1·07	February .	9·842	35·0	11·3	1·76

TABLE II.—*Showing the Departure from the Average of Mean Values at the Ben Nevis and Fort-William Observatories for the Thirteen Years 1891–1903.*

BEN NEVIS.															
	Pressure.	Tem- perature.	Sun- shine.	Cloud.*	Wind Force.*	Rain.		Wind Direction.*							
								N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W. Calm.
1901.	Inches.		%	%		Inches.	%	%	%	%	%	%	%	%	%
October .	+ '019	- 0'5	- 10	+ 0'4	+ 0'11	+ 4'74 +32	- 11	- 1	- 4	+ 7	+ 5	+ 6	+ 2	- 1	- 3
November .	+ '184	- 1'1	+ 6	- 0'5	- 0'71	- 0'86 - 5	+ 20	+ 7	- 4	- 7	- 4	- 7	- 4	+ 2	- 3
December .	- '200	- 2'5	0	+ 0'2	- 0'58	+ 4'20 +20	+ 20	+ 1	- 1	- 7	- 7	- 5	- 3	+ 1	+ 1
1902.															
January .	+ '092	+ 0'6	+ 6	- 0'3	- 0'90	+ 5'73 +13	+ 12	- 3	- 4	- 3	- 6	- 2	+ 3	+ 3	0
February .	- '029	- 2'0	+ 8	- 0'7	+ 0'03	- 11'72 - 78	- 3	+ 6	- 1	+ 13	+ 4	- 4	- 6	- 8	- 1

FORT-WILLIAM.					
	Pressure.	Temperature.	Sunshine.	Rain.	
				Inches.	%
1901.	Inches.		%	Inches.	%
October .	+ '016	- 0'1	- 1	+ 1'63	+ 21
November .	+ '220	- 1'2	+ 11	- 2'86	- 38
December .	- '216	- 2'2	+ 3	- 0'63	- 6
1902.					
January .	+ '099	- 0'1	+ 8	+ 1'35	+ 13
February .	- '014	- 2'8	+ 12	- 5'80	- 84

* The averages with which cloud amount and wind direction and force have been compared are for the twenty years 1884–1903. See *Trans. R.S.E.*, vol. xliii, pp. 497–501.

*Daily Temperature Differences between Achariach and Fort-William,
and Achariach and Ben Nevis.*

Table III. gives the mean daily temperature at Achariach for each day in the five months, deduced from the tabulation of the hourly thermograph values controlled by eye-readings taken several times daily. On comparing these values with Fort-William, we get the following results:—

Number of Days on which Achariach was from

8'1 to 10'0 colder than Fort-William	1
6'1 „ 8'0 „ „ „	1
4'1 „ 6'0 „ „ „	2
2'1 „ 4'0 „ „ „	17
0'1 „ 2'0 „ „ „	38
The same as „	0
0'1 to 2'0 warmer „ „	77
2'1 „ 4'0 „ „ „	10
4'1 „ 6'0 „ „ „	3

Hence, on 90 days the Glen enjoyed a higher temperature than Fort-William, which was warmer than the Glen on 59 days. On 1st February 1902 the Glen was $9^{\circ}\cdot 1$ colder than Fort-William, and on 31st October 1901, $5^{\circ}\cdot 3$ warmer, these being the extremes. The greatest excess at any hour occurred on 31st October at 7 A.M., when Achariach was $11^{\circ}\cdot 0$ warmer than Fort-William; while at 10 P.M. on 1st February Achariach was $14^{\circ}\cdot 5$ colder than Fort-William.

Comparing the mean daily temperatures recorded on Ben Nevis with those at Achariach, we find the following:—

Number of Days on which the Summit of Ben Nevis was from

18 $^{\circ}$ 1 to 20 $^{\circ}$ 0 colder than Achariach	.	.	.	.	19
16 $^{\circ}$ 1 „ 18 $^{\circ}$ 0 „ „ „	.	.	.	.	62
14 $^{\circ}$ 1 „ 16 $^{\circ}$ 0 „ „ „	.	.	.	.	29
12 $^{\circ}$ 1 „ 14 $^{\circ}$ 0 „ „ „	.	.	.	.	18
10 $^{\circ}$ 1 „ 12 $^{\circ}$ 0 „ „ „	.	.	.	.	9
8 $^{\circ}$ 1 „ 10 $^{\circ}$ 0 „ „ „	.	.	.	.	4
6 $^{\circ}$ 1 „ 8 $^{\circ}$ 0 „ „ „	.	.	.	.	2
4 $^{\circ}$ 1 „ 6 $^{\circ}$ 0 „ „ „	.	.	.	.	3
2 $^{\circ}$ 1 „ 4 $^{\circ}$ 0 „ „ „	.	.	.	.	1
0 $^{\circ}$ 1 „ 2 $^{\circ}$ 0 „ „ „	.	.	.	.	0
0 $^{\circ}$ 1 „ 2 $^{\circ}$ 0 warmer „ „	.	.	.	.	1
2 $^{\circ}$ 1 „ 4 $^{\circ}$ 0 „ „ „	.	.	.	.	0
4 $^{\circ}$ 1 „ 6 $^{\circ}$ 0 „ „ „	.	.	.	.	1
6 $^{\circ}$ 1 „ 8 $^{\circ}$ 0 „ „ „	.	.	.	.	1
8 $^{\circ}$ 1 „ 10 $^{\circ}$ 0 „ „ „	.	.	.	.	0
10 $^{\circ}$ 1 „ 12 $^{\circ}$ 0 „ „ „	.	.	.	.	0
12 $^{\circ}$ 1 „ 14 $^{\circ}$ 0 „ „ „	.	.	.	.	0
14 $^{\circ}$ 1 „ 16 $^{\circ}$ 0 „ „ „	.	.	.	.	1

The greatest difference of temperature on any day, between the summit and the Glen, was $20^{\circ}\cdot 0$ on 12th November, and the greatest temperature inversion on 1st February 1902, when the Glen was $14^{\circ}\cdot 7$ colder than the summit, the maximum difference occurring at 10 A.M., when the temperature on the summit was $35^{\circ}\cdot 5$, and at Achariach $15^{\circ}\cdot 1$, or $20^{\circ}\cdot 4$ colder. On the other hand, at 9 P.M. on 12th November 1901 the summit was $22^{\circ}\cdot 1$ colder than Achariach.

[TABLE III.]

TABLE III.—*Mean Daily Temperature at Achariach from Hourly Observations.*

	October.	November.	December.	January.	February.
1	(55·4)	48·0	50·5	42·6	16·9
2	(55·8)	47·8	46·6	44·3	38·7
3	52·5	46·4	42·9	48·7	39·8
4	51·1	39·8	48·4	44·3	31·4
5	50·3	46·4	45·9	44·4	30·1
6	44·5	51·1	49·0	49·3	35·7
7	43·5	48·2	45·2	49·2	25·5
8	47·6	49·8	39·6	46·7	24·5
9	46·3	52·2	33·0	46·4	30·4
10	50·0	49·5	34·1	39·9	25·2
11	47·3	45·4	34·7	32·5	25·3
12	49·0	40·7	27·0	33·3	27·9
13	47·6	36·8	36·5	28·3	15·8
14	48·3	34·2	35·8	24·9	32·2
15	42·8	26·1	33·7	46·2	38·5
16	41·4	30·6	26·1	48·5	44·4
17	49·4	46·5	36·4	44·3	40·6
18	46·8	49·5	33·0	43·4	39·5
19	46·9	50·2	34·3	46·5	39·8
20	47·4	40·0	37·8	44·4	38·7
21	42·2	37·4	35·3	44·5	38·7
22	45·1	28·2	21·3	45·5	43·2
23	44·4	26·2	31·8	47·8	46·3
24	43·6	45·6	33·7	37·5	48·9
25	45·0	45·3	36·3	32·1	45·6
26	43·9	47·5	36·9	26·6	39·7
27	56·4	47·3	36·5	25·5	38·3
28	57·2	41·5	37·4	28·9	39·2
29	44·8	45·9	38·3	25·6	...
30	43·0	49·4	45·8	10·9	...
31	46·7	...	45·6	13·6	...
Means	47·6	43·1	37·7	38·2	35·0

Rapid Temperature Changes.

A number of rapid temperature changes were recorded by the thermograph, the following being some of the more prominent :—

Date.	Hour.	Temperature.	Hour.	Temperature.	Interval of Time.	Change of Temperature.
November 2 . .	7 0	46·6	7 40	35·2	40 mins.	- 11·4
„ 23 . .	21 55	30·7	22 15	40·3	20 „	+ 9·6
December 12 . .	19 50	22·9	20 35	35·3	45 „	+ 12·4
„ 19 . .	10 10	23·4	10 15	34·2	5 „	+ 10·8
February 2 . .	4 5	26·9	4 40	42·6	35 „	+ 15·7
„ 14 . .	0 15	8·3	2 0	13·6	45 „	+ 5·3
„ 14 . .	2 0	13·6	2 40	32·7	40 „	+ 19·1

A point of interest in connection with these temperature changes is that there is, as a rule, no corresponding change at Fort-William, but that, before a rise of temperature at Achariach, the temperature there was several degrees colder than at Fort-William, and after the change several degrees warmer, showing that Föhn conditions had set in in the Glen. The following, taking the values for the two places at the hours for which data from Fort-William are available, shows this very clearly :—

Date.	Hour.	Temperature.			Hour.	Temperature.		
		Glen.	F. W.	Difference.		Glen.	F. W.	Difference.
November 23 . . .	21	29°8	31°4	— 1°6	22	39°1	31°6	+ 7°5
December 12 . . .	20	23·1	31·5	— 8·4	21	36·0	31·0	+ 5·0
„ 19 . . .	10	23·5	27·8	— 4·3	11	36·1	28·5	+ 7·6
February 2 . . .	4	27·0	37·5	— 10·5	5	42·6	37·0	+ 5·6
„ 14 . . .	2	13·6	17·0	— 3·4	3	32·4	27·3	+ 5·1

At Achariach the average relative humidity at the hour before these temperature changes was 87, and at the next hour 66, showing a fall of 21 per cent. accompanying the temperature rise; but at Fort-William no such change in humidity took place, the corresponding values being 77 and 75 respectively.

Wind Direction, Force, and Velocity.

There was no anemometer giving a continuous record of wind direction and force, so we are restricted to a discussion of the observed directions as noted at the four principal hours of observation, viz. 9 and 10 A.M., 2 P.M. and 9 P.M.

An analysis of the observations taken at these hours, for the 122 days in which the record is complete at all hours, gave the following results, the force being as estimated on the scale of 0 to 12, in which 1 represents a mean velocity of 7 miles per hour :—

Hour.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	Var.	Mean Force.
9	4	6	13	12	8	15	24	7	33	0	0·82
10	6	4	12	16	5	9	18	15	36	1	0·79
14	7	3	8	15	4	7	20	16	41	1	0·78
21	0	1	7	20	11	7	17	22	37	0	0·84
	17	14	40	63	28	38	79	60	147	2	0·81

Hence the prevailing winds in the Glen were west and south-east, while the least frequent were north-east and north. Calms were very frequent, accounting for nearly one-third of the whole. As regards the diurnal variation of wind direction and force, the hours of observation are not sufficiently numerous or well distributed to give results

from which definite conclusions can be deduced. It will be seen that there is a gradual diminution in the frequency of east winds, and an increase in south-east and north-west winds, as the day advances. South-east, south, and north-west winds show a decided maximum, and north, north-east, and east winds a decided minimum, at 9 P.M. (21^h).

Strength of the Wind.

The strength of the wind varies little, being lowest at 2 P.M. and greatest at 9 P.M., but the variation is very small, less than one-tenth of a mile per hour. From 4th December to 28th February the maximum pressure, as registered by the Dines anemometer, gave the following as the mean maximum strength of the wind during the day period, 9 A.M. to 9 P.M., and the night period, 9 P.M. to 9 A.M., 27th February being excluded owing to the exceptional features of the gale of that day :—

	Miles per Hour.		
	Day.	Night.	Whole Period.
December . . .	27	27	32
January . . .	21	21	28
February . . .	15	16	23

Hence there is no difference between the strength of the strongest gusts during the day and night. The following table gives the maximum velocity in miles per hour and the average velocity of the wind on the stormiest day in each month :—

	Maximum Velocity.	Date.	Highest Mean Velocity.	Date.
December . . .	64 miles per hour.	13	15 miles per hour.	9
January . . .	67 " "	9	7 " "	6
February . . .	117 " "	27	18 " "	27

The feature of the wind is its gustiness, and these gusts are separated by long intervals of calm, or very light airs. The highest velocity recorded was 117 miles per hour on the morning of the 27th February, at which time a full gale reaching force 10 at some hours was blowing from the south-east on Ben Nevis. The gale was severely felt in the Glen, and considerable damage was done at Glen Nevis House, where some buildings that had stood for twenty years were demolished about 8 A.M. The strength of the wind was found to vary greatly in different parts of the Glen, being greatest at such places as the Garochar and at the highest point of the carriage drive near Allt Eoghain, where a steady wind of force 8 to 9 was experienced. The highest mean velocity shown by the Dines anemometer for this day was 37 miles per hour from 10 A.M. to noon. After 1 P.M. the wind at the station fell considerably, but a heavy gale was found to prevail in those parts of the Glen exposed to the east.

Mean Amount of Cloud.

The mean amount of cloud at the hours of 9, 10, 14, and 21 has been computed for the 120 days during which the observations are complete at each of the four hours. The results are as follows, on the scale 0-10 :—

9	10	14	21	Mean.
8·5	8·4	8·5	7·5	8·2

It will be seen that the cloud amount continues high in the morning and afternoon hours, but in the evening there is a distinct clearing of the sky, this coinciding with the setting in of what may be termed the diurnal Föhn period.

During the same days at Fort-William the mean amount of cloud was as follows :—

9	10	14	21	Mean.
8·1	8·1	8·0	6·9	7·8

Hence the values at Fort-William show that the sky there was somewhat clearer than in the Glen, but one cannot dogmatise in this connection, as there may be a slight personal equation affecting the direct comparability of the results at the two places.

Mist on Hills.

The presence of mist or fog was noted on the Cairn Dearg of Ben Nevis (3348 feet), Sgor-a-Mhaim (3601 feet), the Corrie Derrack or Mullach nan Coirean (3077 feet), and the Meall-Cumhann (2306 feet). The following table shows the percentage frequency of cases in which mist was observed on these hills at the hours of 9 A.M., 10 A.M., 2 P.M., and 9 P.M. on 90 days, between 25th October 1901 and 28th February 1902, when observations were available at each of the hours specified. The values for Ben Nevis Observatory for the same 90 days have also been given for comparison.

Station.	Height.	Percentage Frequency of Mist.				Mean.
		9 ^h	10 ^h	14 ^h	21 ^h	
Ben Nevis	4406	73	70	66	64	67
Cairn Dearg	3348	52	54	50	38	49
Sgor-a-Mhaim	3601	54	55	51	42	51
Mullach nan Coirean	3077	46	48	46	36	43
Meall Cumhann	2306	26	27	16	11	20
Mean	3346	50	51	46	38	46

It will be seen that at 9 A.M. and 10 A.M. the hills were in cloud for half the time. At 2 P.M. (14^h) a slight reduction in the frequency of mist has taken place, which is most marked below 3000 feet, and the clearest hour is 9 P.M. (21^h). It will also be noted that at the summit of Ben Nevis during 67 per cent. of these observations mist prevailed. On the Cairn Dearg and Sgor-a-Mhaim the mean percentage is 50; the Mullach nan Coirean, a little over 3000 feet in height, shows a mean frequency of 43 per cent.; while on the Meall Cumhann (2306 feet) in only 20 per cent. of the cases was the hill in mist. Taking only the 9 A.M. and 10 A.M. observations for the whole period of 149 days from 3rd October to 28th February, and weighting the values for the Mullach nan Coirean for the period 3rd to 24th October, for which no data are available, we get the following mean percentage values:—

Ben Nevis (4406 feet)	76
Cairn Dearg (3348 feet)	61
Sgor-a-Mhaim (3601 feet)	57
Mullach nan Coirean (3077 feet)	53
Meall Cumhann (2306 feet)	26

The Cairn Dearg, it may be recalled, is on the north side of Glen Nevis, being a prominent spur of the mountain, while Sgor-a-Mhaim and the Mullach nan Coirean are on the south side of the valley, and the Meall Cumhann closes the valley to the east.

No systematic series of observations dealing with the actual height of the base of the lower clouds was made. In January and February observations on 21 days at 9 A.M. give a mean height of 2100 feet as the lower limit of the cloud layer, and 16 days' observations at 10 A.M. give a mean of 2200 feet. Forty-eight observations taken up to and including noon give a mean height of 2200 feet, and 32 observations between 2 and 9 P.M. show a mean of 2300 feet; but the results given in the tables above indicate that in general the base of the clouds probably lies about 3000 feet. The lower values shown above may, however, be taken as a close approximation of the height of the base of the clouds on rainy days, to which practically all the observations refer.

Terrestrial Radiation.

The absolute maxima and minima recorded by a black bulb *in vacuo* and a freely exposed terrestrial minimum thermometer are indicated by heavy type in the daily values in the general tables (p. 668 *et seq.*). On 13 days, between the dates of 26th January and 13th February, the actual temperature on the ground was read at frequent intervals, as occasion offered, during the day. A comparison of these values with the corresponding shade temperatures shows that in calm, clear, cold weather radiation in such a place as Glen Nevis goes on actively during the whole day. The following table gives particulars for the three days, 30th January to 1st February, when there was an anti-cyclone of great intensity, and the last column shows the mean depression of the ground temperature below the shade for the whole period of 13 days. From 17^h to 21^h the observations are practically complete, but those at 9^h, 10^h, and 14^h are

derived from a smaller number of observations, which have been "weighted" so as to approximately correspond with those deduced from the complete series.

Ground Temperature below that in Screen 4 Feet above Ground.

Hour.	30th Jan.	31st Jan.	1st Feb.	Mean, 13 Days.
9	2·6	5·1	6·7	5·3
10	4·9	4·3	7·3	5·6
13	...	5·2	...	...
14	4·9	5·8	...	4·7
15	...	6·3	...	...
16	...	5·9	8·1	...
17	5·6	6·7	7·9	7·3
18	6·1	7·5	9·6	7·8
19	6·0	7·6	8·2	8·0
20	6·5	6·3	7·8	7·3
21	4·7	5·1	6·9	6·3

Hence it will be seen that terrestrial radiation is at a maximum at 7 P.M., the mean ground temperature being 8°·0 below that at 4 feet above it, while by 9 P.M. the difference had decreased to 6°·3. This probably means that after 7 P.M. the temperature of the air 4 feet above the ground was cooling faster than on the surface. The greatest difference observed at any hour of observations occurred at 7 P.M. on 13th February, when the shade temperature was 17°·5, and the ground temperature 4°·9, a difference of 12°·6. At this hour the relative humidity was 67, and the dew-point 8°·1.

It must be remembered that during the time the sun was above the horizon the Glen was in shade, owing to the surrounding hills. It would doubtless be of interest, if occasion again offers, to have a complete record of ground temperature, either by direct "eye" observations or from a continuous trace derived from a thermograph, but in the present instance the observations under discussion were accidental and incomplete, owing to the observer's frequent absence from the station.

Temperature of River Nevis and Burn.

The temperature of the river Nevis, and of a small burn having its source in Corrie Bheinnean, between Sgor-a-Mhaim and Stob Ban, was taken daily at 2 P.M. The following table gives the results:—

Month.	RIVER NEVIS.						BURN.					
	Temp.	Highest.	Date.	Lowest.	Date.	Range.	Temp.	Highest.	Date.	Lowest.	Date.	Range.
October	43°·0	51°·1	28	37°·8	30	13°·3	43°·5	51°·2	28	38°·2	30	13°·0
November	39°·8	46°·1	19	32°·1	16 and 23	14°·0	40°·0	47°·0	6	32°·1	16 and 23	14°·9
December	35°·3	45°·0	1	32°·1	16, 21, 23	12°·9	35°·5	44°·5	1	32°·1	11, 19, 22, 23	12°·4
January	36°·5	42°·3	23	32°·0	...	10°·3	37°·1	43°·0	9 and 23	32°·0	30, 31	11°·0
February	33°·4	37°·7	25	32°·0	...	5°·5	33°·8	39°·5	24	32°·0	Various.	7°·5
	37°·6	51°·1	...	32°·0	...	19°·1	38°·0	51°·2	...	32°·0	...	19°·2

Thus, on the mean of the five months, the Nevis was $0^{\circ}\cdot4$ colder than the burn, as was to be expected, owing to its receiving colder water from its more extensive and higher drainage area. During the whole period the river was warmer than the burn on 31 days, the greatest excess being $1^{\circ}\cdot2$ on 15th January, during a condition of up-bank thaw. The greatest negative difference was noted on 3rd January, during a high flood, when the Nevis was $2^{\circ}\cdot8$ colder than the burn.

The Diurnal Period at Ben Nevis, Fort William, and Achariach.

Table IV. shows the departure from the mean of the day for the five months of observations of the barometric pressure, temperature, and humidity for the three stations, adjusted for "midnight differences." As regards relative humidity, the values for Ben Nevis are not given, as the curve is quite featureless, except for a slight fall in humidity at 7 and 8 A.M., and an equally small departure in the opposite direction from 11 P.M. to 2 A.M.

A small table appended to Table IV. shows the actual difference between Achariach and Fort-William, and at the foot is given the total sunshine recorded at Ben Nevis and at Fort-William.

Barometric Pressure.—The early morning minimum is well marked on the Ben and at Fort-William, but at Achariach only a slight fall in pressure occurs. The morning maximum takes place on Ben Nevis and Fort-William at 11 A.M.; but in the Glen, where it is less than half that observed at the other two stations, it occurs an hour earlier. The afternoon minimum occurs at the three stations at 3 P.M., pressure falling below the daily mean only $0\cdot001$ inch on Ben Nevis, while at Fort-William it is $0\cdot006$ inch, and at Achariach as much as $0\cdot011$ inch. The evening maximum, which is of much the same height at all the stations, occurs on Ben Nevis at 7 P.M., at Fort-William at 8 P.M., and at Achariach not till 1 A.M., by which time pressure on the Ben has fallen $0\cdot011$ inch below the maximum, and at Fort-William $0\cdot009$ inch below. An important point in explaining the striking difference between the phases of the curve at Fort-William and Achariach, is the direct effect of the higher temperature and lower humidity which prevail in the Glen. If the ordinary laws governing the fall of temperature for height held good, the temperature at Achariach should have been $0^{\circ}\cdot4$ lower than at Fort-William at all hours—a difference which only obtained from 3 P.M. until 6 P.M., when Fort-William was in sunshine, while in the Glen the solar effect during the greater part of the five months was practically nil. At all other hours of the day the temperature difference was less than the normal, and at many of the hours the Glen was slightly warmer than Fort-William. In other words, the higher barometric pressure, as compared with Fort-William, that prevailed in the Glen from 9 P.M. to 9 A.M., which is well shown in each of the five months discussed, was not an effect of the accumulation of cold, dense air flowing from adjacent heights and filling the Glen with a lake of humid and chilled air, but was due to air warmed dynamically by

compression—in other words, to Föhn, which is a normal condition in the Glen, and which, as we shall see, is more pronounced during the night than during the day, being least apparent at those hours when the cumulative effect of solar radiation is at its maximum, that is, in the afternoon. It is obvious that in seeking for an explanation of the high pressure which has been found to obtain during the night in closed valleys we must keep in view the possibility of the region being one in which Föhn, and not radiation effects, is the dominating factor in this connection.

Temperature.—On comparing the actual difference of temperature between Fort-William and Achariach, it would appear that the higher temperature in the Glen was largely occasioned by the exceptional nature of the months of October and November, in which the excess from hourly observations was $1^{\circ}\cdot1$ and $0^{\circ}\cdot3$ respectively, whereas in December and January the Glen was $0^{\circ}\cdot4$ colder than Fort-William, and in February as much as $1^{\circ}\cdot0$ colder. But, as we shall see later, those months in which the Föhn effect was apparently absent were each characterised by a number of exceptional days, in which the Glen was very much colder than Fort-William, which affect the means and eliminate the Föhn influence, which in a normal or mild winter would have been much more conspicuous.

The diurnal range of temperature is of a simple character. On the summit of the Ben the coldest hours are from midnight to 2 A.M., when the values are only $0^{\circ}\cdot3$ below the mean of the day. From 3 to 9 A.M. the values are practically the same, and must be looked upon as relatively high. This nocturnal rise of temperature is a characteristic feature of the meteorology of Ben Nevis in winter, and it is also well marked in Polar regions, especially at stations in the highest latitudes in both Arctic and Antarctic. Mohn has ascribed it to changes in the direction of the wind.

On Ben Nevis the maximum temperature of the day is reached at 1 P.M., at Fort-William about 2.30 P.M., and at Achariach at 2 P.M. In the Glen temperature falls $0^{\circ}\cdot9$ from 2 to 4 P.M., but at Fort-William only $0^{\circ}\cdot5$, and it is this prolongation of the solar effect at Fort-William during the afternoon hours, combined with the weakening of Föhn conditions in the Glen through the increased strength of ascending currents, that causes the difference in temperature between the two places to be greater than at any other period of the day,

The contraction of the atmosphere, which begins at 10 P.M. on Ben Nevis, as shown by the fall of the barometer on the hill-top, is accompanied by a rise of pressure and increased warmth in the Glen as compared with Fort-William, the conditions then being eminently favourable for Föhn, owing to the system of descending currents brought about by the shrinkage of the atmosphere between the valley floor and the hill-tops adjacent.

The amplitude of the variations or difference between the warmest and coldest hour is $0^{\circ}\cdot9$ on Ben Nevis, $3^{\circ}\cdot1$ at Fort-William, and $3^{\circ}\cdot0$ at Achariach.

Humidity.—At Fort-William the air is most humid from 5 to 8 A.M., and at Achariach this also obtains, except that it is slightly prolonged. Relative humidity

is lowest from 1 to 3 P.M. at both places. At all hours the air in the Glen has a lower relative humidity than at Fort-William, amounting on the mean of the day to 3 per cent. The hour of greatest difference is noon, and the hour of least difference 9 A.M., with values of 4.4 per cent. and 1.8 per cent. respectively lower than at Fort-William. This, as we shall see later, is wholly a Föhn effect, and but for the comparative frequency of unusually cold periods, in which the air in the Glen was much damper than at Fort-William, would have been even more pronounced.

Föhn.

The name Föhn is applied to a class of weather the characteristic feature of which is the high temperature of the air. It has been most frequently observed in the valleys stretching in a northerly direction from the main summit-line of the chain of the Alps, and takes the form of an abnormally warm wind blowing from the mountains towards the plain. Continental meteorologists, especially Dr HANN, have made it the subject of exhaustive investigation. HANN has shown that its high temperature is due to its compression in descending from a great elevation, the air which is drawn away from the base of the mountain towards the centre of a cyclone being replaced by air from higher altitudes. The air is thus compressed and heated approximately at the rate of 1° F. for every 200 feet of descent. Analogous phenomena are the Chinook of Canada, the Nor'-westers of New Zealand, the east winds of Port-Nolloth, and the Berg winds which blow along the south coast of Cape Colony at the base of the mountain ranges between Swellendam and Storms River. DRYGALSKI has shown that Föhn winds are an important climatic factor in Greenland, and the phenomenon has been recorded at all Antarctic stations where high mountains are in close proximity. On the sub-antarctic island of South Georgia Föhn is often recorded. Until 1893, when Mr J. Y. BUCHANAN, F.R.S., observed the true Föhn at Fort-William,* its occurrence in this country had not been noticed. Hitherto it had been supposed that a great absolute height of mountain chain was required for its production, but Mr BUCHANAN showed that a relative height of 3000 to 4000 feet is quite sufficient. His observations were made on 8th July 1893, the temperature being taken with a sling thermometer. The Föhn on this occasion came in the form of hot blasts or puffs, "the sensation produced being the same as when on the deck of a steamer the air passing the funnel strikes the face." These hot blasts occurred at intervals of one or two minutes, and lasted only for a second or two. They were observed during the heat of the day, and Mr BUCHANAN was unable to measure their temperature owing to the thermal inertia of the thermometer. The phenomena about to be described were first brought under my notice on 31st October 1901. Leaving Achariach at 11 A.M. for Fort-William, 7½ miles away by road, a strong east wind was experienced for about three miles below Achariach, but there it diminished greatly in force and soon after fell calm. The air in the Glen was warm and dry, the temperature at Achariach at 11 A.M. being 49°·8,

* *Proc. Roy. Soc.* (1894), vol. lvi. p. 108.

and the relative humidity 62. Near the entrance to the Glen a great fall in temperature was felt; the Curling Pond was found covered with a thin coating of ice, and thick hoar-frost lay unmelted on the ground. At Fort-William in the early morning the temperature on the ground had fallen to $24^{\circ}\cdot6$, while at Achariach the lowest observed was $36^{\circ}\cdot6$, or 12° higher. The air at Fort-William was cold, calm, and humid, while in the upper part of the Glen there was a strong, warm, dry wind blowing—in other words, a Föhn. This remarkable condition continued for the four days 30th October to 2nd November, during which time pressure was high over Norway, Denmark, and North Germany, and low to the south-west and south (see fig. 3, p. 686). On 1st November I made a series of observations from Achariach to Fort-William (see Table VIII.), and found the phenomenon just as marked as on the day previous, and showing the same horizontal extent. On 2nd November observations were made to determine the vertical height of the Föhn by means of an ascent of Ben Nevis (see Table VIII.) from the head of the Glen, and on this occasion I found the Föhn well marked up to a height of 1800 feet, the humidity on the mountain being somewhat lower than at Achariach up to that elevation; but higher up the hillsides it increased rapidly, with a marked fall of temperature, showing that the upper limit of the Föhn had been reached. At 3 P.M., at a height of 3817 feet, the temperature was found to be very variable, ranging from $37^{\circ}\cdot3$ to $34^{\circ}\cdot9$ as puffs of air came from the south-east. It is not unlikely that this was a modified Föhn effect. Wet-bulb readings were obtained by means of wrapping moistened Swedish filtering paper round the bulb of the thermometer and whirling rapidly for a few minutes. Had the observations been made in the early morning, when, as we shall see, the Föhn influence is at a maximum, instead of during the afternoon, when its influence is counteracted by the strong ascending currents due to cumulative solar radiation, the results would have been much more striking. Thus, two observations made on the southern slopes of Ben Nevis on the afternoon of 30th October show that the Föhn was very feebly marked at that time. The following were the data obtained:—

	Mountain.			Achariach (150 ft.).	
	Height.	Temperature.	Humidity.	Temperature.	Humidity.
3 P.M.	Feet. 1008	$43^{\circ}\cdot0$	% 68	$45^{\circ}\cdot6$	% 69
4 P.M.	1456	$39^{\circ}\cdot6$	72	$45^{\circ}\cdot0$	66

At Fort-William at 3 P.M. the temperature was $0^{\circ}\cdot7$ higher than at Achariach, and at 4 P.M. $0^{\circ}\cdot9$ higher.

During the four days on which the Föhn blew in the Glen the mean temperature from hourly observations (see Table V.) was $4^{\circ}\cdot2$ higher at Achariach than at Fort-William, the difference ranging from $8^{\circ}\cdot8$ at 7 A.M. to $-0^{\circ}\cdot3$ at 4 P.M. The

relative humidity was 12 per cent. lower, ranging from 24 per cent. at 7 A.M. to 2 per cent. at 4 P.M. Accompanying this warmth and dryness was an increased barometric pressure in the Glen, the mean excess, after reducing the two sets of observations to sea-level, being 0·007 inch. The maximum excess was 0·017 inch at 3 A.M., while at noon the barometer in the Glen was 0·005 inch lower than at Fort-William. The greatest temperature difference between the two places was from 6 to 9 A.M. of 31st October, being over 10° at each hour, and reaching $11^{\circ}\cdot 0$ at 7 A.M. On this day the temperature at 1 P.M. was $21^{\circ}\cdot 2$ lower on the summit of Ben Nevis than at Achariach, being one of the largest differences observed on any day during the five months.

The diurnal range of pressure, temperature, and humidity at the three stations for these four days is shown in Table V. It will be seen that the early morning minimum of pressure is well marked on Ben Nevis, slightly marked at Fort-William, while at Achariach, although the minimum is there, yet pressure remains above the mean of the day. The morning maximum occurs at all three places at 9 A.M., and is much greater below than above. The afternoon minimum is about half that of the morning minimum on Ben Nevis, but at Fort-William and Achariach it is very pronounced. On the summit, pressure gets above the mean of the day at 7 P.M., but at Fort-William not till 9 P.M., and at Achariach at 11 P.M., the maximum phase occurring at 10 P.M., midnight, and 1 A.M. respectively. As compared with the normal, the distinguishing features of the Föhn curve are (1) the slight depth of the early morning minimum; (2) the height of the morning maximum; (3) the depth and long duration of the afternoon minimum; and (4) the all but complete absence (except on the Ben) of the early night maximum. This is essentially a fine-day curve.*

The diurnal range of temperature on Ben Nevis is very small. There is a curious nocturnal increase of temperature about 5 A.M., associated with a rise in wind velocity. After this hour the temperature rises to a maximum at noon, after which a fall occurs, which is accompanied by an increase of cloud and of humidity, both absolute and relative, showing that the strong ascending currents are bringing air from below which becomes condensed in cloud on the summit. Temperature on the summit shows a distinct rise from 9 P.M. to midnight during the evening pressure maximum, and this coincides with a fall in humidity. The diurnal range of temperature at Fort-William is simply an exaggeration of the normal, the greater amplitude being due to the solar and terrestrial radiation accompanying the cloudless weather. Temperature falls to a minimum at 7 A.M., being then $5^{\circ}\cdot 1$ below the mean of the day, rising to $6^{\circ}\cdot 5$ above the mean of the day at 3 P.M. At Achariach the minimum is reached at 11 P.M., being only $1^{\circ}\cdot 9$ below the daily mean, while the maximum at 1 P.M. is $3^{\circ}\cdot 4$ above the mean, an amplitude of only $5^{\circ}\cdot 3$, against $11^{\circ}\cdot 6$ at Fort-William. The fall of temperature at Achariach at 7 A.M. and 8 A.M. is explained by a break-down of the Föhn at these hours on 2nd November.

* See *Trans. Roy. Soc. Edin.*, vol. xlii. p. 451.

The outstanding feature of the curve of relative humidity on the Ben is the large excess during the afternoon hours. At Fort-William there is a slight fall in relative humidity at 4 A.M., and a rise to a maximum at 7 and 8 A.M., which are the coldest hours. The humidity then rapidly diminishes during the heat of the day, the greatest dryness occurring at 3 P.M., the warmest hour. At Achariach the diurnal range is very small, showing a maximum at 5 A.M. and a minimum at 3 P.M., the amplitude being only 8 per cent., against 19 per cent. at Fort-William.

During the Föhn the wind on Ben Nevis blew almost wholly from the south-east, the following being the percentage values from hourly observations:—

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
0	0	5	81	11	3	0	0	0

Föhn in Rainy Weather.

Another curious instance of a Föhn effect takes place at Achariach in a type of rainy weather in which the rainfall diminishes from Fort-William to the head of the Glen, instead of increasing, which, as we have seen, is the normal condition (see fig. 2, p. 686). When a strong south-west or south-south-west wind is blowing, the rain-bearing clouds are deprived of much of their moisture by the hills lying to windward of Glen Nevis. At Achariach, under these conditions, the rainfall is considerably less than at Fort-William; the temperature and pressure are higher, and the humidity lower, as is the case in the true Föhn. Owing to the rainfall at the head of the Glen being measured only once a week, it is not possible to institute a direct comparison between the daily falls there and at the other stations, but the following totals for the three days 26th to 28th October show very clearly the rainfall distribution in the Glen and on Ben Nevis:—

Rainfall, 26th to 28th October 1901.

Ben Nevis.	Fort-William.	Achariach.	Head of Glen.
4·82 inches.	3·16 inches.	2·22 inches.	1·53 inches.

These values, being deduced from the amounts measured at 9 A.M. and set down to the previous day, are strictly comparable. The small rainfall at the head of the Glen—less than half that recorded at Fort-William—is doubtless due to the rain-bearing clouds at this place having to pass over Sgor-a-Mhaim (3601 feet). The gauge at the head of the Glen is right under Ben Nevis summit, where, it will be seen,

the rainfall was more than three times greater. Five cases of this phenomenon have been investigated, the days being 27th and 28th October, 30th December, and 8th and 19th January 1902. The rainfall on these days was as follows at the three stations :—

		Ben Nevis.	Fort-William.	Achhariach.
		Inches.	Inches.	Inches.
1901.				
October	28	1·53	0·63	0·47
„	29	2·29	1·70	1·15
December	30	3·51	2·62	1·74
1902.				
January	8	2·05	0·87	0·47
„	19	3·56	2·57	1·99
Total		12·94	8·39	5·82

In this type of weather the ratio of the rainfall at the three stations, as compared with the normal ratio, is as follows :—

	Ben Nevis.	Fort-William.	Achhariach.
Rainy Föhn	100	65	45
Normal	100	42	46

Hence at Achhariach the relation between the summit and the base is normal, while at Fort-William the amount is relatively large. This comes out very clearly if we take the Fort-William rainfall as the unit :—

	Fort-William.	Achhariach.	Ben Nevis.
Rainy Föhn	100	69	154
Normal	100	111	236

During the type of weather we are dealing with, the percentage frequency of wind on Ben Nevis was as follows :—

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
3	1	0	7	6	43	32	8	0

Hence the winds on Ben Nevis were almost wholly from the south-west and west, which, as shown from the daily weather maps, also prevailed over the district generally.

Table VI. shows the mean values at the three places, the hourly departures from

the mean of the day, and the hourly difference of pressure, temperature, and humidity between Achariach and Fort-William. During the five days under discussion it will be seen that at Achariach the temperature was $2^{\circ}\cdot4$ higher than at Fort-William, being greatest ($3^{\circ}\cdot5$) at 5 A.M., and least ($1^{\circ}\cdot3$) at 9 A.M. The reduced barometer was also higher than the corresponding sea-level pressure at Fort-William by 0.012 inch, the greatest difference being 0.023 inch at 5 A.M., and the least 0.001 inch at 10 A.M. The mean relative humidity was 11 per cent. less, the maximum difference being 15 per cent. at 2 P.M., and the least 7 per cent. at 9 A.M. and 10 P.M. The hours of greatest temperature excess were also those showing a large increase of pressure and decrease of humidity, as compared with Fort-William, while the hours of least temperature difference showed a relatively small pressure and humidity departure from those at the sea-level station.

With regard to the diurnal variation in the elements, the barometric results cannot be compared, because, as two of the five days under review contained a minimum of pressure, the adjustment for "midnight difference" fails to eliminate this irregularity.

The diurnal variation in the case of temperature and humidity is very small at all three places, being much less than in the true Föhn, because the sky was completely overcast and covered with dense rain-bearing clouds. The temperature shows a variation from the mean of the day ranging from $+0^{\circ}\cdot8$ to $-1^{\circ}\cdot1$ on Ben Nevis; at Fort-William the values range from $+0^{\circ}\cdot9$ to $-1^{\circ}\cdot1$, and at Achariach from $+1^{\circ}\cdot1$ to $-1^{\circ}\cdot1$. The curves of the temperature are thus closely accordant, the most interesting feature being a slight rise of temperature at Achariach from 3 to 7 A.M., during the hours when the barometer there showed the maximum excess over Fort-William. The humidity curves for Fort-William and Achariach are in general the reverse of each other, a fall of humidity at the one place synchronising with a rise at the other, and *vice versa*. On the summit of Ben Nevis the air was saturated throughout.

The greatest temperature excess during the five days under review occurred at 7 A.M. on 28th October, when the difference between Fort-William and Achariach was $5^{\circ}\cdot6$, and on this day the difference exceeded 5° at four hours, the mean for the twelve hours ending noon being $4^{\circ}\cdot6$. If the ordinary laws governing the distribution of temperature held good, the Glen should have been $0^{\circ}\cdot4$ colder than Fort-William, which indicates an anomaly of 5° for the first half of 28th October. These results are of considerable interest, showing as they do how, even in very wet weather, dynamic heating goes on in closed valleys, protected on the windward side from the rain-bearing winds by a range of hills which trap the most of the rainfall. There are, doubtless, many regions where this process goes on on a large scale, notably on the borderland dividing the Argentine province of Santa Cruz from the neighbouring Chilian Territorio de Magallaneo. In this region the contrast between the precipitation on the windward and leeward sides of the Andean Cordillera is very great. Thus, at Point Gallera, in lat. 40° S., long. $73^{\circ} 44'$ W., the annual rainfall is 105 inches; and at Junin, on the same parallel of latitude, some 120 miles to the east, on the lee side of the Andes, only 31

inches; while at Limay, 120 miles farther to the east, the annual precipitation falls to less than 6 inches. Owing to the absence of data, it is not possible to institute a direct comparison between the precipitation on the windward and leeward sides of the Andes, so as to show the enormous difference in the rainfall which explorers have observed within a radius of a few miles. The influence of Föhn in such a region is most noticeable. Dr SKOTTSBERG, the well-known Swedish botanist and explorer, has informed me that, near the Pacific coast, in the south of the province of Santa Cruz, he has come across fertile valleys in which the snow rarely lies, and where, owing to continuous Föhn, agricultural and pastoral pursuits can be prosecuted with comfort and profit; while in close proximity to these favoured spots, other areas, not sheltered from the prevailing winds by the protecting mountains, were water-logged in summer and snow-covered in winter. In these latter places, the north-west winds from the Pacific sweep through the passes where the Andean chain is interrupted, and carry with them the heavy rainfall and low temperature which render the climate of the west coast of South America, between the parallels of 40° and 52° S., one of the wettest and most inclement in the southern hemisphere.

TABLE IV.—*Hourly Departures from Mean of Day, October 1901 to February 1902. 5 Months.*

The heavy type indicates an excess, and the italic type a defect.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	Ampli- tude.
<i>Pressure, 1000-in.</i>																									Ins.	Ins.
Ben Nevis .	3	5	8	11	13	12	9	4	0	4	9	6	3	3	1	0	2	5	8	7	7	5	3	0	25·229	·022
Fort-William .	0	2	7	10	13	10	9	3	2	8	10	7	0	4	6	4	3	4	6	9	7	6	3	3	29·833	·023
Achariach .	8	7	2	2	5	5	3	1	2	4	3	2	8	10	11	10	6	1	2	6	7	6	6	7	29·834	·019
<i>Temperature.</i>																										
Ben Nevis .	0·3	0·3	0·1	0·1	0·1	0·2	0·1	0·1	0·1	0·2	0·4	0·5	0·6	0·5	0·4	0·2	0·0	0·3	0·2	0·1	0·1	0·1	0·1	0·3	25·7	0·9
Fort-William .	0·8	1·0	0·9	0·9	1·0	1·1	1·0	1·0	0·8	0·3	0·3	1·1	1·7	2·0	2·0	1·5	1·0	0·5	0·3	0·0	0·2	0·5	0·6	0·7	40·4	3·1
Achariach .	0·7	0·8	0·7	0·8	0·7	0·9	1·0	1·0	0·6	0·0	0·8	1·4	1·7	2·0	1·7	1·1	0·7	0·2	0·1	0·1	0·2	0·3	0·3	0·6	40·3	3·0
<i>Humidity.</i>																										
Fort-William	0·6	0·6	0·8	0·9	1·7	1·9	1·7	1·9	1·1	0·6	0·2	1·2	2·4	3·2	2·8	1·9	1·5	0·7	0·5	0·3	0·1	0·4	0·6	0·8	83·2	5·1
Achariach .	1·1	1·3	1·6	1·7	1·8	2·1	2·2	2·4	2·4	1·4	0·3	2·5	2·8	3·5	3·9	2·7	2·2	1·2	1·1	0·6	0·0	0·2	0·9	1·4	80·1	6·3

Difference between Fort-William and Achariach.

Heavy type indicates that Achariach was higher than Fort-William, italic type that it was lower.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	
<i>Pressure, 1000-in.</i>	9	10	10	9	9	6	7	3	1	3	6	8	7	5	4	5	2	4	3	2	1	1	4	5	1	
<i>Temperature.</i>	0·0	0·1	0·1	0·0	0·2	0·1	0·1	0·1	0·1	0·2	0·3	0·2	0·1	0·1	0·4	0·5	0·4	0·4	0·3	0·2	0·1	0·1	0·2	0·0	0·1	
<i>Humidity, %</i>	2·6	2·4	2·3	2·3	3·0	2·9	2·6	2·6	1·8	2·3	3·6	4·4	3·5	3·4	4·2	3·9	3·8	3·6	3·7	4·0	3·0	3·3	2·8	2·5	3·1	

Sunshine.	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Amount.
Ben Nevis .	...	...	...	2·3	10·7	17·4	22·0	26·3	26·3	23·6	22·1	16·9	3·0	...	170·6
Fort-William	...	...	...	...	2·1	14·2	28·5	37·2	37·9	34·6	28·5	15·7	1·5	0·1	200·3

TABLE V.—*Hourly Departures from Mean of Day during Föhn, October 30 to November 2. 4 Days.*

The heavy type indicates an excess, and the italic type a defect.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	Ampli- tude.
<i>Pressure, 1000-in.</i>																									Ins.	Ins.
Ben Nevis .	2	3	8	10	12	8	2	7	10	9	3	0	3	3	4	7	6	3	2	5	8	10	10	7	25·804	·022
Fort-William .	5	1	1	2	1	6	15	22	26	22	14	2	8	17	23	25	23	17	11	4	1	3	6	6	30·448	·051
Achariach .	8	8	6	5	4	9	17	23	24	17	6	6	16	20	21	18	18	12	13	11	8	0	4	7	30·455	·045
<i>Temperature.</i>																										
Ben Nevis .	0·2	0·5	0·3	0·2	0·1	0·5	0·9	0·9	0·4	0·4	1·0	1·1	0·9	0·8	0·2	0·2	1·0	1·0	0·9	0·3	0·2	0·4	0·4	0·1	30·4	2·1
Fort-William .	2·4	3·1	3·5	3·6	4·0	4·5	5·1	5·0	4·2	2·4	0·3	3·0	5·1	6·4	6·5	5·9	5·1	4·1	2·9	1·3	0·2	0·3	0·8	1·5	42·2	11·6
Achariach .	1·4	1·6	1·6	1·2	0·8	0·7	1·7	1·6	1·0	0·7	2·0	3·8	3·4	3·2	2·5	1·7	1·0	0·4	0·0	0·2	0·9	1·6	1·9	1·6	46·4	5·3
<i>Humidity.</i>																										
Ben Nevis .	4	4	2	2	2	3	3	2	2	1	1	1	4	5	8	7	7	4	2	1	2	3	3	4	81	12
Fort-William	4	5	4	3	5	7	8	8	7	6	3	2	6	9	11	10	10	9	6	3	0	0	1	3	77	19
Achariach .	2	3	2	2	4	2	2	0	2	2	1	1	2	3	4	2	1	1	1	1	0	0	1	0	65	8
<i>Ben Nevis.</i>																										
Vapour Pressure .	9	10	8	7	7	9	11	10	2	2	6	11	15	15	17	12	9	2	1	2	2	2	2	6	134	·028
Wind Force .	1	0	4	5	5	3	2	1	2	1	2	1	3	6	5	4	1	0	0	0	1	1	2	4	3·7	1·1

Difference of Achariach from Fort-William.

The heavy type indicates that the value at Achariach was higher than at Fort-William, and the italic type that it was lower.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	
<i>Pressure, 1000-in.</i>	11	16	17	12	13	5	12	10	3	2	0	5	2	2	8	17	18	14	4	2	0	1	10	4	7	
<i>Temperature.</i>	5·6	5·7	5·8	6·8	7·0	8·4	8·8	5·7	8·3	8·3	5·6	4·0	2·2	1·1	0·2	0·3	0·5	0·0	0·9	3·2	3·9	2·2	2·6	4·3	4·2	
<i>Humidity, %</i>	17	16	14	14	12	19	24	20	18	21	17	10	7	5	5	2	3	3	12	12	12	13	13	12	12	

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TABLE VI.—Hourly Departures from Mean of Day during Rainy Föhn, October 27 and 28, December 30, January 8 and 19. 5 Days.

The heavy type indicates an excess, and the italic type a defect.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	Ampli- tude.
<i>Pressure, 10⁰⁰0-in.</i>																									Ins.	Ins.
Ben Nevis .	18	14	10	3	<i>4</i>	<i>16</i>	<i>20</i>	<i>20</i>	<i>11</i>	<i>3</i>	<i>3</i>	<i>2</i>	<i>3</i>	<i>6</i>	<i>9</i>	<i>11</i>	<i>7</i>	<i>1</i>	<i>2</i>	<i>5</i>	<i>8</i>	<i>13</i>	<i>19</i>	<i>19</i>	25·216	·039
Fort-William .	28	23	18	10	5	<i>4</i>	<i>10</i>	<i>12</i>	<i>7</i>	<i>4</i>	<i>2</i>	<i>4</i>	<i>7</i>	<i>13</i>	<i>18</i>	<i>20</i>	<i>18</i>	<i>14</i>	<i>9</i>	<i>4</i>	<i>3</i>	<i>12</i>	<i>21</i>	<i>26</i>	29·740	·048
Achariach .	27	28	24	19	11	<i>4</i>	<i>3</i>	<i>9</i>	<i>11</i>	<i>11</i>	<i>10</i>	<i>10</i>	<i>11</i>	<i>15</i>	<i>18</i>	<i>19</i>	<i>18</i>	<i>12</i>	<i>8</i>	<i>4</i>	<i>3</i>	<i>12</i>	<i>23</i>	<i>26</i>	29·752	·047
<i>Temperature.</i>																										
Ben Nevis .	<i>1·1</i>	<i>1·1</i>	<i>0·9</i>	<i>0·6</i>	<i>0·5</i>	<i>0·3</i>	<i>0·3</i>	<i>0·3</i>	<i>0·1</i>	<i>0·2</i>	<i>0·5</i>	<i>0·6</i>	<i>0·7</i>	<i>0·8</i>	<i>0·8</i>	<i>0·7</i>	<i>0·6</i>	<i>0·6</i>	<i>0·5</i>	<i>0·6</i>	<i>0·4</i>	<i>0·0</i>	<i>0·6</i>	<i>1·0</i>	23·9	1·9
Fort-William .	<i>1·0</i>	<i>0·9</i>	<i>1·1</i>	<i>1·1</i>	<i>0·8</i>	<i>0·5</i>	<i>0·2</i>	<i>0·1</i>	<i>0·1</i>	<i>0·2</i>	<i>0·1</i>	<i>0·4</i>	<i>0·6</i>	<i>0·9</i>	<i>0·9</i>	<i>0·8</i>	<i>0·8</i>	<i>0·7</i>	<i>0·6</i>	<i>0·6</i>	<i>0·1</i>	<i>0·3</i>	<i>0·9</i>	<i>0·9</i>	48·1	2·0
Achariach .	<i>1·1</i>	<i>0·7</i>	<i>0·5</i>	<i>0·2</i>	<i>0·1</i>	<i>0·1</i>	<i>0·3</i>	<i>0·5</i>	<i>0·6</i>	<i>0·4</i>	<i>0·0</i>	<i>0·6</i>	<i>0·9</i>	<i>1·1</i>	<i>0·9</i>	<i>0·7</i>	<i>0·6</i>	<i>0·5</i>	<i>0·7</i>	<i>0·7</i>	<i>0·3</i>	<i>0·2</i>	<i>0·8</i>	<i>1·0</i>	50·5	2·2
<i>Humidity.</i>																										
Fort-William .	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Achariach .	1	0	1	2	1	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	93	3
<i>Wind Force.</i>																										
Ben Nevis .	3	1	1	2	0	1	4	5	4	0	2	3	1	1	2	0	1	0	0	0	1	2	4	3	3·1	0·9

Difference of Achariach from Fort-William.

The heavy type indicates that the value at Achariach was higher than at Fort-William, and the italic type that it was lower.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	
<i>Pressure, 10⁰⁰0-in.</i>	10	10	25	13	23	18	21	17	8	1	6	5	5	12	13	10	18	10	14	12	9	15	13	14	12	
<i>Temperature, °.</i>	2·0	2·8	3·0	3·4	3·5	2·5	2·8	1·9	1·3	1·7	2·2	3·0	2·7	2·3	2·8	2·1	1·9	2·6	2·3	2·8	2·4	2·4	2·7	2·3	2·4	
<i>Humidity, %</i>	10	11	14	14	14	9	8	10	7	9	13	12	14	15	14	10	12	13	12	13	10	7	10	8	11	

TABLE VII.—Hourly Departures from Mean of Day during Cold Period, January 26 to February 1, February 7, 8, 10 to 13. 13 Days.

The heavy type indicates an excess, and the italic type a defect.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	Ampli- tude.
<i>Pressure, 10⁰⁰0-in.</i>																									Ins.	Ins.
Ben Nevis .	13	14	15	18	19	17	12	6	1	9	11	16	14	11	8	9	13	15	14	10	4	3	8	12	25·226	·035
Fort-William .	17	17	17	17	16	15	9	3	5	14	20	20	17	13	10	9	9	10	11	8	3	5	12	16	29·966	·037
Achariach .	7	5	4	5	5	5	2	2	8	12	14	10	7	1	2	3	0	3	5	4	1	3	9	9	29·962	·023
<i>Temperature.</i>																										
Ben Nevis .	<i>0·1</i>	<i>0·0</i>	<i>0·0</i>	<i>0·3</i>	<i>0·5</i>	<i>0·6</i>	<i>0·5</i>	<i>0·3</i>	<i>0·2</i>	<i>0·4</i>	<i>0·6</i>	<i>0·5</i>	<i>0·7</i>	<i>0·8</i>	<i>0·7</i>	<i>0·3</i>	<i>0·0</i>	<i>0·3</i>	<i>0·3</i>	<i>0·2</i>	<i>0·2</i>	<i>0·2</i>	<i>0·2</i>	<i>0·3</i>	15·2	1·4
Fort-William .	<i>0·5</i>	<i>0·5</i>	<i>0·6</i>	<i>0·8</i>	<i>1·0</i>	<i>1·2</i>	<i>1·5</i>	<i>1·7</i>	<i>1·7</i>	<i>1·2</i>	<i>0·1</i>	<i>1·1</i>	<i>2·2</i>	<i>3·1</i>	<i>3·6</i>	<i>3·4</i>	<i>2·3</i>	<i>1·2</i>	<i>0·4</i>	<i>0·1</i>	<i>0·4</i>	<i>0·6</i>	<i>0·8</i>	<i>0·6</i>	25·8	5·3
Achariach .	<i>0·3</i>	<i>0·3</i>	<i>0·5</i>	<i>0·7</i>	<i>0·9</i>	<i>1·4</i>	<i>2·0</i>	<i>2·3</i>	<i>2·1</i>	<i>1·4</i>	<i>0·5</i>	<i>1·0</i>	<i>2·7</i>	<i>3·1</i>	<i>2·9</i>	<i>2·1</i>	<i>1·5</i>	<i>0·9</i>	<i>0·1</i>	<i>0·3</i>	<i>0·5</i>	<i>0·5</i>	<i>0·4</i>	<i>0·3</i>	22·3	5·4
<i>Humidity.</i>																										
Ben Nevis .	6	8	7	3	0	2	3	4	4	5	6	2	0	2	1	0	1	1	0	1	0	3	3	5	80	14
Fort-William .	2	3	4	3	3	4	6	7	5	1	4	4	5	6	6	4	3	3	3	1	1	3	3	2	70	13
Achariach .	5	5	4	4	4	4	3	3	3	1	2	4	7	9	9	8	7	5	3	1	1	2	3	4	83	14

Difference of Achariach from Fort-William.

The heavy type indicates that the value at Achariach was higher than at Fort-William, and the italic type that it was lower.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean.	
<i>Pressure, 10⁰⁰0-in.</i>	7	9	9	9	6	6	6	3	0	6	12	13	7	12	20	16	12	12	10	7	6	5	2	4	4	
<i>Temperature, °.</i>	3·3	3·7	3·1	3·3	3·9	3·2	4·0	4·6	3·3	3·6	4·1	3·9	2·9	2·2	5·2	5·0	4·0	4·0	3·3	4·1	3·8	3·0	3·2	3·1	3·5	
<i>Humidity, %</i>	17	16	12	13	16	12	11	8	8	17	15	13	11	9	10	9	7	12	13	16	12	10	14	15	13	

Up-bank Thaw.

Under normal conditions the temperature of the air falls as we ascend, but in anti-cyclonic conditions in winter inversions of temperature are common. To this phenomenon the name of up-bank thaw is given, because the temperature high up on the hill-sides is often above the freezing-point, while hard frost prevails in the valleys, which are filled with cold, dense, damp air produced by the effects of radiation on the sides of the hills, whose summits are in the warm, dry current descending out of the centre of the anti-cyclone. Up-bank thaw is, however, observed in cyclonic weather, or rather it may occur with a low pressure associated with slight gradients and light winds; but under these conditions the temperature falls rapidly with height above the neutral zone.

Before giving the results of several excursions made to determine the vertical distribution of temperature under conditions of up-bank thaw, it is of interest to summarise the specific features of the diurnal range of the climatic elements at the three places. Table VII. gives the mean values for thirteen days, the hourly departures from the mean of the day, and the differences between Fort-William and Achariach. The diurnal range of pressure is much the same at all the stations, but the morning minimum occurs earlier at Achariach and Fort-William than on Ben Nevis; the morning maximum is retarded, taking place on Ben Nevis and at Fort-William at noon, and at Achariach an hour earlier. The afternoon minimum occurs on Ben Nevis at 3 P.M., and at Fort-William and Achariach at 4 P.M., being much more prominent in the Glen than at the other two places. The diurnal range of temperature is of a simple character; the minimum occurs on Ben Nevis at 6 A.M., but at Fort-William and Achariach at 8 A.M. The maximum occurs at 2 P.M. at Ben Nevis and Achariach, but at Fort-William an hour later. The humidity curves offer considerable differences. On Ben Nevis there is a primary maximum at 2 A.M. and a slight secondary maximum at 2 P.M., while the most pronounced minimum occurs at 11 A.M., and a secondary minimum at 8 P.M. At Fort-William and Achariach the curves are much the same, the hours of lowest humidity being from 1 to 4 P.M., while in the early morning the humidity is high.

The table of the actual difference between Achariach and Fort-William shows that during the thirteen days under review the mean pressure in the Glen was 0·004 inch lower than at Fort-William, the temperature 3°·5 lower, and the relative humidity 13 per cent. greater. As regards pressure, the values in the Glen were above Fort-William from midnight to 7 A.M., the mean excess for these hours being 0·007 inch, reaching a maximum of 0·009 inch from 2 to 4 A.M. During the hours from 8 A.M. to 11 P.M. pressure was lower in the Glen, the maximum being 0·020 inch at 3 P.M., which was also the warmest hour at Fort-William. Relative humidity was greater in the Glen than at Fort-William at every hour of the day, the excess ranging from 17 per cent. at 1 A.M. to 7 per cent. at 5 P.M.

These results are of interest as they show that pressure is not raised in deep valleys during cold spells to the extent that was hitherto supposed. Only for a few hours in

the early morning, as we have seen, did the sea-level pressure exceed that at Fort-William, and this excess would have been slightly reduced if we had corrected the Achariach barometer to sea-level by taking the mean temperature of Fort-William and Achariach instead of using the actual temperature in the Glen. The percentage frequency of the wind on Ben Nevis during the thirteen days under review was as follows, from hourly observations :—

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
43	23	6	15	4	3	1	1	4

Hence for two-thirds of the time the wind was from the north or north-east.

Several ascents were made to determine the height of the lake of cold air which filled the Glen during spells of intense frost.

On 22nd December a partial ascent of Sgor-a-Mhaim was effected (see Table VIII.). Leaving Achariach at noon with a temperature of $18^{\circ}\cdot8$, the temperature rapidly rose with height. At 12.30, 100 feet above Achariach, the thermometer stood at $21^{\circ}\cdot1$; at 1 P.M., at 735 feet above, it was $26^{\circ}\cdot9$; and at 1.10 P.M., at a height of 913 feet above Achariach, or 1063 feet above the sea, $28^{\circ}\cdot8$. At this hour the temperature at Achariach was $18^{\circ}\cdot7$, and on Ben Nevis $26^{\circ}\cdot1$, the reading on the summit being $2^{\circ}\cdot7$ lower than at a height of 1063 feet, showing that the temperature fell above a certain height, which, however, was not determined. Descending the mountain, the temperature 791 feet above Achariach was $27^{\circ}\cdot7$; at 631 feet, $27^{\circ}\cdot5$; at 426 feet, $25^{\circ}\cdot0$; at 249 feet, $22^{\circ}\cdot9$; at 107 feet, $21^{\circ}\cdot9$; and at the base station, $20^{\circ}\cdot0$.

On 14th January an ascent of Sgor-a-Mhaim was made, but the temperature inversions were not so well marked as on the previous occasion. At 12.45 P.M. the temperature at Achariach was $23^{\circ}\cdot7$; on Sgor-a-Mhaim (3601 feet), $22^{\circ}\cdot5$; and on the summit of Ben Nevis (4406 feet), $19^{\circ}\cdot2$. Temperature rose with height until a point was reached 1346 feet above sea-level; during the next 850 feet temperature remained steady, and then fell slightly, the rapidity of the fall apparently increasing above the summit of Sgor-a-Mhaim, to judge by the Ben Nevis observations (see Table XII.).

On 30th January an anti-cyclone of great intensity spread over Scotland, and marked inversions of temperature were again observed. On this day an ascent of Ben Nevis was attempted (see Table VIII.), but fresh snow was lying to a great depth, so that the highest point reached was about 1260 feet. Here at noon the temperature was found to be very variable, the sling thermometer giving readings varying from $25^{\circ}\cdot8$ to $31^{\circ}\cdot5$, the atmosphere seeming to be made up of sheets of air of very different temperatures. At this hour the temperature at Achariach was $10^{\circ}\cdot7$, showing an inversion of $20^{\circ}\cdot8$ in 1113 feet. On Ben Nevis the temperature was $22^{\circ}\cdot3$, and at Fort-William $18^{\circ}\cdot4$.

On 11th February an ascent of Ben Nevis was made (see Table VIII.), and inversions

were well marked up to a height of 1209 feet, but from this point to the summit the temperature fell rapidly.

On 1st February an excursion was made to the farmhouse of Steall, about a mile and a half to the east of the head of Glen Nevis (see Table VIII.). Achariach was left at 10.47 A.M., temperature $18^{\circ}9$; at the end of the carriage drive, at 11.37, it was $21^{\circ}0$, and at the cairn on the Meall Cumhann, 930 feet above the sea, the thermometer at 12^h 15^m read $26^{\circ}9$. Descending some 200 feet to the strath, the reading was $22^{\circ}0$ at 12^h 27^m. Immediately after this reading had been logged a light puff of air came from the south-east, which to the senses was appreciably very much warmer; an observation was at once made, and the temperature found to be $33^{\circ}7$, or nearly 12° higher than that recorded four minutes previously. Between this point and Steall, a distance of about a mile and a quarter, the temperature was very variable, nine observations showing a variation from $26^{\circ}0$ to $31^{\circ}8$. Eight observations were made on the return journey, the highest temperature being $28^{\circ}0$ at the cairn on the Meall Cumhann. During the time covered by this excursion the maximum temperature at Achariach was $20^{\circ}9$.

All these observations go to show that even in cold, calm radiation weather, of which up-bank thaw is the most striking characteristic, Föhn effects are constantly taking place, especially at the upper limit of the lake of cold air. Any wind that blows under these conditions is a warm wind, even though it is the lightest breeze which the senses can appreciate. The most stable conditions in such weather are found at the bottom of this cold-air zone; thus close to the river the temperature was found to be 2° or 3° lower than at places situated only 40 feet above the river-bed.

Typical distributions of pressure over Western Europe during anti-cyclonic and cyclonic up-bank thaws are shown in figs. 4 and 5, p. 686.

Observations on Excursions (Table VIII.).

In the following tables are given a selection of the observations taken on special excursions to determine the vertical extent of Föhn, up-bank thaw, and other phenomena. The equipment consisted of two aneroids and a sling thermometer. The aneroids were compared with the standard barometer at Achariach before and after the ascents, and when the correction to be applied changed from the time of departure to that of return, a progressive alteration in the correction was assumed. On some ascents it was possible to check the indications of the aneroid against known heights, and it was seldom that the height was out to a greater extent than 30 feet. The temperature at the hour of observation at Fort-William, Achariach, and Ben Nevis is given. In some cases interpolated values between the hours are given, these being put in brackets. The temperature at Achariach at any time could be obtained from the thermograph. Wet-bulb readings were made on one or two ascents by wrapping moistened Swedish filtering paper round the bulb of the thermometer and whirling rapidly.

TABLE VIII.

Observations between Achariach and Fort-William during Föhn of 1st November 1901.

Hour.	Place.	Height.	Temperature.	Wind.	Force.	Clouds.
		Feet.				
10.40	Allt a Choire Riabhaich . . .	125	51·1	SE	2	0
10.53	Highest point of road . . .	180	51·8	SSE	2-3	„
11.07	Above Glen Nevis House . . .	...	51·7	W	0-1	„
11.13	Roaring Mill . . .	60	48·2	Calm	0	„
11.18	Curling Pond . . .	...	44·2	Calm	0	„
11.22	Woodbine Cottage . . .	50	43·6	Var.	0-1	„
11.27	Nevis Bridge . . .	...	42·8	W	0-1	„
11.34	Observatory . . .	42	48·1	Calm	0	„

Observations taken on 2nd November 1901, during an Ascent of Ben Nevis under Föhn Conditions.

Hour.	Height.	Dry.	Wet.	Humidity.	Vapour Pressure.	Wind.	Force.	Clouds.	Temperature.		
									Ben Nevis.	Fort-William.	Achariach.
	Feet.			%	In.						
10.30	150	49·5	43·7	64	·225	E	0-1	0	...	...	...
11.8	280	47·5	42·1	65	·212	E	0-1	0	33·0	41·0	47·3
11.30	710	48·9	43·3	64	·224	E	0-1	0	...	...	...
12	1333	48·5	41·7	59	·198	E	1-2	0	33·0	43·7	51·0
13	1848	44·7	40·1	68	·201	SE	1-2	2	34·7	46·9	51·0
14	2929	38·9	35·5	74	·174	SE	0-1	1	34·2	48·2	50·5
15	3817	35·8	33·5	80	·168	S	0-1	0	33·0	48·2	50·0
15.28	4406	32·1	30·6	81	·148	SSE	2	1	(32·6)	(47·6)	(50·0)
16	4406	32·1	31·5	92	·169	SSE	3	10	32·1	47·1	50·0
16.53	2920	36·9	36·5	97	·211	S	0-1	10	31·5	46·9	49·8
17	2038	41·9	...	...	...	E	0-1	10	31·5	46·9	49·8
18.10	150	50·0	45·0	68	·245	SSE	1-2	10	32·0	47·9	50·0

Observations taken on 22nd December 1901, on Sgor-a-Mhaim, during Up-bank Thaw.

Hour.	Height.	Temperature.	Temperature.		
			Ben Nevis.	Fort-William.	Achariach.
	Feet.				
12.10	150	19·5	25·1	22·3	19·5
12.30	250	21·1	...	...	...
13	885	26·9	26·1	23·9	18·7
13.10	1063	28·8	...	...	...
13.21	941	27·7	...	...	...
13.27	781	27·5	...	...	...
13.34	576	25·0	...	...	...
13.40	399	22·9	...	...	...
13.52	257	21·9	...	...	...
14	150	20·0	25·0	25·7	20·0

TABLE VIII.—*continued.**Observations taken on Ben Nevis on 30th January, during Up-bank Thaw.*

Hour.	Place.	Height.	Temperature.	Wind.	Force.	Cloud.	Temperature.		
							Ben Nevis.	Fort-William.	Achariach.
10	Achariach . . .	Feet. 150	10°6	Calm	0	2	19°9	15°0	10°6
10.50	On road . . .	410	21·8	ENE	1-2	1	...	...	9·7
11	Near Allt Eoghainn .	405	21·5	E	0	1	20·5	16·7	9·5
11.15	On Ben Nevis . . .	591	19·0	ENE	0-1	0	...	...	9·0
12	" " . . .	1263	25·8-31·5	Calm	0	0	22·3	18·4	10·7
12.10	" " . . .	1127	26·7	NW	0	0	...	...	10·5
12.18	" " . . .	1032	24·9	Calm	0	0	...	...	10·5
12.32	" " . . .	720	23·3	E	0-1	1	...	...	9·9
12.48	Near Allt Eoghainn .	405	18·4	Calm	0	0	...	...	9·8
13	On road . . .	410	17·1	Calm	0	0	21·5	19·9	9·6
13.7	" . . .	296	15·0	Calm	0	1	...	...	9·7
14	Achariach . . .	150	12·3	Calm	0	1	22·7	20·8	12·3

Observations between Achariach and Steall on 1st February 1902.

Hour.	Place.	Height.	Temperature.	Wind.	Force.	Cloud.
		Feet.				
10.47	Achariach . . .	150	18°9	Calm	0	0
11.20	Water Works . . .	...	19·9	Calm	0	"
11.37	Allt Eoghainn . . .	357	21·0	Calm	0	"
12.15	Cairn on Meall Cumhann .	930	26·9	NE and SSE	0	"
12.27	On Strath . . .	730	22·0	Calm	0	"
12.31	" . . .	735	33·7	SE	0	"
12.35	" . . .	...	26·0	Calm	0	"
12.40	" . . .	...	29·9	E	0-1	"
12.42	" . . .	...	31·8	E	1-2	"
12.43	" . . .	...	31·7	E	1-2	"
12.45	" . . .	...	29·2	E	1-2	"
12.48	" . . .	...	29·5	ENE	0-1	"
12.50	" . . .	...	29·9	Calm	0	"
12.52	" . . .	...	31·0	ENE	0-1	"
12.59	At Steall . . .	772	30·7	NE	0-1	"
13.48	" . . .	...	23·9	Calm	0	"
13.58	On Strath . . .	...	21·9	Calm	0	"
14.4	" . . .	...	23·2	Calm	0	"
14.13	" . . .	730	20·9	Calm	0	"
14.27	Cairn on Meall Cumhann .	930	28·0	Calm	0	"
14.58	Allt Eoghainn . . .	357	25·8	Calm	0	"
15.19	$\frac{3}{4}$ mile from Achariach .	...	23·9	Calm	0	"
16	Achariach . . .	150	20·9	Calm	0	"

TABLE VIII.—*continued.**Observations taken on 11th February 1902, during an Ascent of Ben Nevis.*

Hour.	Locality.	Height.	Temperature.	Wind.	Force.	Cloud.	Temperature.		
							Ben Nevis.	Fort-William.	Achariach.
		Feet.							
11	South side of Ben Nevis	328	25°5	Calm	0	2	8°1	25°0	22°5
11.30	"	879	27°0	N	0	1	...	...	21°3
12	Near Second Bridge .	806	29°0	Calm	0	2	9°1	27°0	19°0
12.30	Big Bridge . . .	1209	26°9	Calm	0	7	...	...	23°0
13	The Lake . . .	1852	21°9	NE	0-1	7	9°9	28°2	27°8
13.30	Half-way Hut . . .	2190	21°0	NE	0-1	3	...	...	28°0
14	End of Long Stretch .	2719	19°9	N	0-2	3	9°8	28°8	29°2
14.30	Near Chrystal Well .	3414	15°8	NNE	1-2	3	...	...	26°3
15	Under Plateau . . .	3838	12°5	NNE	2	4	10°2	31°0	24°3
15.30	Summit . . .	4406	10°2	NE	1-3	4	...	...	24°2
16	" . . .	4406	10°3	NE	1-3	10	10°3	31°4	24°2
17	Above Long Stretch .	3183	17°3	NNE	1	10	11°1	30°5	22°1
17.30	Half-way Hut . . .	2190	19°9	NE	0-1	3	11°3	...	22°1
17.43	The Lake . . .	1825	20°4	Calm	0	2	(11°4)	...	22°1
18	Big Bridge . . .	1202	24°0	Calm	0	2	11°5	27°0	22°0

EXPLANATION OF TABLES.

Hourly Values (Table IX.).

Barograph.—The barograph readings were measured off the curves at each hour, the values being controlled by eye observations of the standard mercurial barometer. As the tabulated values were entered only to the $\frac{1}{100}$ ths of an inch, the means at some hours differ slightly from those of the control observations, which were measured to the $\frac{1}{1000}$ ths of an inch.

Thermograph.—The hourly thermograph values were controlled by the eye observations taken several times daily. These eye observations were all entered on the sheets, and the thermograph reading corrected so as to agree with the eye observations. When there was a change in the difference of the two instruments between the last eye reading at night (9 P.M.) and the first eye reading in the morning (9 A.M.), a progressive change has been assumed, and the thermograph readings corrected accordingly.

Hygrograph.—The hourly relative humidity values shown by the Richard hygrograph have been controlled by the humidity deduced from the dry and wet bulb thermometers. The mean correction was found to be less than +2 per cent., the hygrograph showing the lower value, and this correction was fairly constant; indeed, the mean monthly corrections vary between +2·3 per cent. and +1·6 per cent. Owing to the very rapid changes in relative humidity shown from an inspection of the automatic records, careful timing was necessary, and the clock error of the hygrograph was noted

twice a day, at 10 A.M. and 9 P.M. The barograph and thermograph were also timed at the same hours.

Eye Observations (Table X.).

Barometric Pressure.—The pressure observations are given reduced to 32° and sea-level, the following condensed table showing the corrections applied for each 5° of air temperature and half-inch of pressure :—

TABLE for reducing Readings of Achariach Barometer, 150 Feet above Mean Sea-level, to Sea-level.

	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°
30·5	·181	·179	·177	·175	·174	·172	·171	·169	·168	·167
30·0	·178	·176	·174	·172	·171	·169	·168	·166	·165	·163
29·5	·175	·173	·171	·169	·168	·166	·165	·163	·162	·161
29·0	·172	·170	·168	·166	·165	·163	·162	·161	·160	·158
28·5	·169	·167	·165	·163	·162	·161	·160	·158	·157	·155

Interpolated readings deduced differentially from the Richard barograph are entered in brackets, and although it was not possible to ensure the same accuracy for these values as would have been the case otherwise, yet they should not possess a large probable error.

Temperature and Humidity.—The air temperature, except on a few days at 2 P.M., is from the eye readings in the Stevenson screen. Interpolated values are deduced from the corrected thermograph values. The interpolated wet-bulb temperatures have been calculated from the relative humidity and air temperature. The maximum and minimum thermometers, along with the maximum in sun and the minimum on grass, were read and set at 9 P.M. The highest and lowest values in each month are indicated by bold type.

The relative humidity and vapour pressure have been taken from *Glaisher's Tables*, 7th edition (London, 1885), or from the *Hygrometrical Tables*, based on Glaisher's work, printed by authority of the Meteorological Committee, 1876, and reprinted in 1882.

In a few exceptional cases of unusually dry atmosphere the relative humidity and vapour pressure were computed by means of the factors given in Part IV. of *Glaisher's Tables*, 7th edition.

Wind Direction and Force.—The wind direction is true, and the force is estimated on the Ben Nevis scale of 0–12. After 2nd December a Dines pressure tube anemometer was in use, the results of which are summarised in the general tables, and the indications of this instrument have also enabled me to interpolate missing observations when, as was often the case, it showed that a complete calm had prevailed between the preceding and succeeding observations.

Temperature of River and Burn.—The temperature of the Nevis and a burn near the house was taken daily at 2 P.M.

Rainfall.—Amount was measured at 9 A.M., and the quantity set down to the previous day. The greatest amount for each month is indicated by bold type.

Rainband.—The thickness of the rainband in the spectrum of sunlight was measured at 2 P.M., and entered on a scale of 0–7. The standard of comparison was the lines D, b, and F, to which values corresponding to 2, 4, and 7 were given.

Cloud.—The amount and species of cloud were noted at each observation hour, but only the former is given. The presence of mist was noted on the Cairn Dearg of Ben Nevis (3348 feet), Sgor-a-Mhaim (3601 feet), the Meall Cumhann (2306 feet), and after 25th October on the Corrie Derrack or Mullach nan Coirean (3077 feet). When all the hills were clear the symbol 0 is entered; when all covered, a +. Hills actually in mist are otherwise distinguished by numbers, in which 1 refers to the Cairn Dearg of Ben Nevis, 2 to Sgor-a-Mhaim, 3 to the Meall Cumhann, and 4 to the Corrie Derrack. It was sometimes impossible in the evening to see the hills, such cases being entered with a mark of interrogation; but generally speaking, when there was moonlight there was no difficulty in making this class of observation. The height of the base of the lower clouds was also noted when possible, and is given in the notes, p. 678.

Sunshine.—There was no sunshine recorder, but the estimated monthly totals are given in Table I., p. 638. Owing to the steepness of the surrounding hills, the sun did not shine on the station from 6th November 1901 to 31st January 1902. The total possible was about four hours at the beginning of October, and barely three hours at the end of February. At the middle of October (17th) the sun set behind the hills at 2.40 P.M., and by 3rd November the possible sunshine was reduced to one hour, from 9.45 to 10.45 A.M., when the sun set.

Weather and Remarks.—A general summary is given in the notes of the weather (p. 678). “River in flood” means that the waters rose so as to cover the large boulder in the River Nevis just above the falls near Achariach.

Total Monthly Rainfall recorded by the gauge near the head of Glen Nevis (see p. 635):—

November 1901	5.92 inches.
December „	11.57 „
January 1902	10.13 „
February „	1.72 „

[TABLE IX.]

TABLE IX.—*Mean Hourly Values of Pressure, Temperature, and**Mean Barometric Pressure*

	Mdt.	1	2	3	4	5	6	7	8	9	10	11	Noon.
1901.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
October	9.799	9.796	9.792	9.789	9.783	9.782	9.780	9.785	9.788	9.792	9.792	9.788	9.786
November	0.103	0.104	0.104	0.097	0.097	0.094	0.094	0.100	0.104	0.101	0.101	0.096	0.085
December	9.499	9.502	9.503	9.498	9.493	9.490	9.488	9.487	9.487	9.488	9.492	9.489	9.484
1902.													
January	9.934	9.935	9.935	9.938	9.934	9.932	9.933	9.937	9.940	9.952	9.962	9.966	9.965
February	9.884	9.884	9.880	9.870	9.863	9.855	9.854	9.852	9.853	9.850	9.848	9.845	9.840
Mean	9.844	9.844	9.843	9.838	9.834	9.831	9.830	9.832	9.834	9.837	9.839	9.837	9.832

Temperature 150

	Mdt.	1	2	3	4	5	6	7	8	9	10	11	Noon.
1901.													
October	46°3	46°3	46°3	46°1	46°0	46°2	45°8	45°5	46°1	46°8	48°2	49°2	50°1
November	42°4	42°2	42°0	41°9	42°1	42°0	42°0	42°3	41°7	42°6	43°4	43°6	44°7
December	38°2	37°8	37°8	37°9	37°4	37°4	37°2	37°0	36°9	37°0	37°2	38°0	38°5
1902.													
January	38°3	38°6	38°0	38°2	38°4	38°1	37°8	37°9	37°7	37°8	38°1	38°3	39°0
February	33°4	33°3	33°5	34°0	33°8	34°2	34°1	34°0	34°0	34°2	34°7	35°9	36°2
Mean	39°7	39°6	39°5	39°6	39°5	39°6	39°4	39°3	39°3	39°7	40°3	41°0	41°7

Relative Humidity from Richard

	Mdt.	1	2	3	4	5	6	7	8	9	10	11	Noon.
1901.	%	%	%	%	%	%	%	%	%	%	%	%	%
October	81.1	79.7	78.6	79.5	79.4	78.6	79.6	81.2	81.0	81.4	80.7	78.1	74.1
November	80.4	81.0	80.8	81.1	81.2	82.3	81.9	80.8	82.3	82.2	81.1	80.6	77.3
December	84.3	83.7	84.1	84.1	84.1	83.7	83.9	84.2	85.0	85.0	84.2	82.3	81.4
1902.													
January	81.2	81.2	82.3	82.4	82.7	83.6	84.8	85.2	84.1	84.5	83.6	81.8	80.3
February	79.9	80.2	81.3	81.5	81.6	81.3	80.7	80.1	79.9	79.6	77.7	76.2	75.0
Mean	81.4	81.2	81.4	81.7	81.8	81.9	82.2	82.3	82.5	82.5	81.5	79.8	77.6

Humidity at Achariach, Glen Nevis, October 1901 to February 1902.

at 32° and Sea-level.

13	14	15	16	17	18	19	20	21	22	23	Mdt.	Mean.
Ins. 9·783	Ins. 9·782	Ins. 9·780	Ins. 9·781	Ins. 9·788	Ins. 9·795	Ins. 9·798	Ins. 9·803	Ins. 9·809	Ins. 9·813	Ins. 9·813	Ins. 9·814	Ins. 9·792
0·075	0·067	0·066	0·070	0·072	0·076	0·078	0·080	0·083	0·084	0·087	0·088	0·088
9·480	9·481	9·480	9·482	9·482	9·488	9·492	9·490	9·489	9·485	9·483	9·483	9·488
9·962	9·963	9·962	9·964	9·970	9·975	9·979	9·984	9·985	9·983	9·981	9·983	9·959
9·832	9·827	9·821	9·820	9·821	9·827	9·829	9·831	9·828	9·825	9·827	9·825	9·842
9·826	9·824	9·822	9·823	9·827	9·832	9·835	9·838	9·839	9·838	9·838	9·839	9·834

Feet above Sea.

13	14	15	16	17	18	19	20	21	22	23	Mdt.	Mean.
50·2	50·4	50·2	49·6	48·9	48·1	47·9	48·0	47·5	46·8	46·6	46·2	47·6
44·9	45·2	44·9	44·2	43·8	43·6	43·4	43·1	43·0	42·7	43·0	42·7	43·1
38·3	38·4	38·3	37·6	37·7	37·6	37·5	37·7	37·9	38·0	38·3	38·0	37·7
38·9	39·4	39·4	38·8	38·7	38·1	38·0	37·8	37·5	37·7	37·5	37·4	38·2
37·8	38·0	37·3	36·9	36·1	35·1	35·1	34·5	34·7	34·7	34·5	34·4	35·0
42·0	42·3	42·0	41·4	41·0	40·5	40·4	40·2	40·1	40·0	40·0	39·7	40·3

Hygograph (Saturation = 100).

13	14	15	16	17	18	19	20	21	22	23	Mdt.	Mean.
% 72·8	% 73·0	% 72·8	% 74·3	% 76·2	% 78·2	% 77·5	% 78·1	% 79·2	% 78·8	% 81·1	% 81·2	% 78·1
77·2	77·3	77·0	78·8	79·9	80·4	80·8	80·5	80·7	82·2	80·7	81·0	80·4
82·2	82·9	82·6	83·9	82·9	83·0	82·8	82·6	82·8	82·5	83·0	84·4	83·4
80·0	78·0	76·9	77·8	77·8	78·2	78·4	79·2	79·8	79·1	80·4	81·3	81·0
74·5	71·8	71·8	72·1	72·7	74·7	75·5	77·2	78·0	78·9	79·9	79·5	77·6
77·3	76·6	76·2	77·4	77·9	78·9	79·0	79·5	80·1	80·3	81·0	81·5	80·1

TABLE X.—Observations made

	Barometer at 32° and M.S.L.				Temperature in Shade.							
	9	10	14	21	9		10		14		21	
					Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
	Inches	Inches	Inches	Inches								
1*	9.921	9.902	9.828	9.789	53.3	52.1	55.0	53.7	61.8	56.2	57.0	56.5
2*	9.840	9.850	9.875	9.924	56.6	56.3	57.3	56.4	58.3	55.9	51.0	49.0
3	9.747	9.746	9.727	9.798	53.7	50.5	54.1	51.0	55.9	54.9	51.7	51.3
4	9.933	9.956	(9.970)	9.943	51.0	50.4	52.2	48.3	(54.8)	(53.8)	51.2	47.5
5	9.451	9.469	9.496	9.495	53.4	47.0	50.8	46.1	49.9	44.3	48.1	43.0
6	9.168	9.160	9.222	9.465	44.8	42.3	45.7	42.7	46.4	42.5	44.7	40.0
7	9.563	9.579	9.650	9.639	45.7	39.5	47.3	41.1	43.1	40.0	41.1	39.0
8	9.474	9.463	9.353	9.129	46.1	42.5	47.7	42.8	49.1	46.0	52.3	46.6
9	9.694	9.751	9.900	0.047	46.3	42.9	47.8	43.0	50.1	43.9	37.5	36.0
10	9.880	9.879	9.913	0.016	53.4	50.0	54.3	51.2	49.5	47.1	49.9	45.0
11	0.166	0.161	(0.121)	0.052	44.1	42.3	48.9	45.4	(51.8)	(45.3)	50.4	43.6
12	9.913	9.913	9.971	0.005	51.8	46.1	53.7	47.1	50.8	49.1	47.6	43.2
13	0.106	0.095	0.037	9.948	47.6	44.2	48.2	45.7	51.0	43.9	48.0	41.8
14	9.781	9.792	9.768	9.815	51.9	45.0	51.7	45.6	50.6	48.1	44.9	44.0
15	9.849	9.855	9.816	9.763	40.3	40.0	43.1	42.4	47.3	44.4	42.0	40.2
16	9.607	9.588	9.462	9.281	32.3	31.0	38.5	37.5	48.6	42.7	48.8	45.0
17	9.053	9.047	9.065	9.082	46.0	43.0	45.9	43.1	52.0	44.0	50.4	45.9
18	9.094	9.081	9.047	9.123	47.3	44.7	46.2	45.0	46.6	45.0	41.6	40.5
19	9.348	9.378	(9.430)	9.660	46.6	43.1	48.9	44.7	(46.9)	(44.1)	46.1	44.3
20	9.706	9.709	9.714	9.731	46.1	44.1	47.1	43.9	49.2	44.4	46.0	43.6
21	9.803	9.805	9.805	9.804	36.0	35.3	38.7	37.9	46.4	42.5	44.9	42.1
22	9.870	9.862	9.825	9.860	41.9	41.0	44.8	42.5	49.8	44.3	46.5	43.5
23	9.956	9.957	9.968	0.027	43.2	42.3	44.0	42.7	50.4	45.0	40.5	39.3
24	9.844	9.807	9.728	9.786	44.8	41.1	45.5	42.1	46.5	43.3	47.0	44.7
25	9.864	9.864	9.835	9.941	42.3	41.0	45.7	42.8	46.7	43.7	45.6	42.7
26	0.159	0.152	0.114	0.036	34.3	34.0	38.8	38.1	50.9	45.3	50.8	47.3
27	9.882	9.867	9.873	9.822	56.1	52.3	56.0	52.4	56.8	53.9	57.6	54.3
28	9.662	9.660	9.598	9.615	59.2	56.0	59.6	56.2	58.7	56.1	54.9	53.4
29	0.120	0.161	(0.271)	0.434	46.7	41.5	45.5	40.9	(45.5)	(40.0)	44.7	37.6
30	0.536	0.524	0.508	0.551	41.2	37.2	44.7	38.9	46.1	40.8	44.7	39.9
31	0.564	0.564	(0.534)	0.511	47.6	42.0	43.2	42.5	(51.0)	(44.7)	44.8	40.0
Mean	9.792	9.793	9.785	9.810	46.8	43.9	48.2	45.0	50.4	46.3	47.5	44.2

* Observations for 1st and 2nd interpolated from Fort-William Observatory.

	Wind Force, 0-12.								Cloud Amount, 0-10.			
	9		10		14		21		9	10	14	21
	Direction.	Force.	Direction.	Force.	Direction.	Force.	Direction.	Force.				
1	..	..	..	..	..	..	..	..	10	9	9	10
2	Calm	0	..	..	..	..	Calm	0	9	9	9	10
3	SSE	1	SSE	1	WSW	1-2	SW	0-1	10	10	10	10
4	W	0-1	W	0-1	..	..	WNW	0-2	10	10	10	10
5	WNW	2-4	WNW	1-4	NW	1-4	WNW	2	10	10	10	10
6	NW	0-1	NW	1-2	W	1-2	NW	1-2	10	9	10	10
7	WNW	1-2	WNW	1-2	NW	1	Calm	0	10	9	9	2
8	Calm	0	Calm	0	Calm	0	W	0-1	10	9	10	10
9	WSW	1-2	W	0-1	WNW	1-2	Calm	0	6	6	5	0
10	SSE	2-3	SSE	1-2	W	1-2	W	1	10	10	10	10
11	Calm	0	Calm	0	..	..	SE	2-3	4	10	..	8
12	SW	0-1	SW	0-1	Calm	0	NW	2	9	10	10	0
13	SE	0-1	NNE	0-1	SE	0-1	SSE	1-3	9	10	7	0
14	SSE	1	SE	1-2	Calm	0	Calm	0	10	10	10	10
15	Calm	0	Calm	0	Calm	0	Calm	0	9	9	10	10
16	Calm	0	W	0-1	S	1-2	SSE	2-4	8	1	10	10
17	SSE	2-3	SE	2	SE	0-1	Calm	0	9	10	3	10
18	SSE	0-1	NNE	0-1	Calm	0	SE	0-1	10	10	10	9
19	SSE	1	SW	0-1	..	..	Calm	0	9	10	..	10
20	WSW	0-1	E	0-1	N	0-1	SW	0-1	10	9	6	10
21	Calm	0	SE	0-1	Calm	0	SSE	0-1	5	5	8	10
22	Calm	0	Calm	0	E	0-1	SSE	1-2	5	1	9	10
23	Calm	0	W	0-1	SW	0-1	SW	0-1	7	4	10	1
24	SE	1-3	SE	1-2	SE	1-2	WNW	0-1	10	10	10	10
25	Calm	0	Calm	0	Calm	0	SE	0-1	7	9	10	10
26	Calm	0	Calm	0	E	0-1	SW	0-1	10	10	10	10
27	S	2-3	S	1-2	SSW	1-2	S	1-2	10	10	10	10
28	W	1-2	W	2-3	W	1-3	W	2-3	10	10	10	10
29	E	1-2	Calm	0	..	..	SE	1-2	10	10	..	2
30	ESE	0-2	E	2	SE	1-2	E	1-2	1	1	5	2
31	ENE	1-2	E	2	..	..	SE	2-4	3	3	..	0
Mean	..	..	..	..	..	..	..	..	8.4	8.2	..	7.5

at Achariach, October 1901.

	Vapour Pressure.				Humidity (Sat. = 100).				In Shade.		Exposed Black Bulb in Sun.	Terrestrial Minimum.
	9	10	14	21	9	10	14	21	Max.	Min.		
	Inch.	Inch.	Inch.	Inch.	%	%	%	%				
1	.373	.395	.379	.450	92	91	69	97	62.0	41.0	74.3	40.0
2	.450	.442	.414	.323	98	94	84	86	62.1	49.3	108.6	42.4
3	.328	.333	.419	.373	79	79	94	95	56.4	45.5	63.8	38.2
4	.358	.292	(.402)	.286	96	75	(94)	76	55.5	47.0	105.4	41.5
5	.253	.259	.233	.223	62	70	65	66	53.5	44.8	81.0	41.8
6	.241	.241	.231	.199	81	79	74	67	48.3	41.9	58.7	40.0
7	.184	.197	.214	.214	60	61	77	83	48.3	40.6	90.2	37.0
8	.234	.223	.275	.256	75	68	78	65	54.6	40.0	69.0	38.0
9	.239	.230	.223	.195	76	71	63	87	52.4	36.6	102.5	29.4
10	.317	.336	.294	.246	78	79	84	68	55.7	36.8	57.8	29.9
11	.249	.265	(.239)	.216	85	77	(62)	59	52.2	37.1	89.8	29.7
12	.250	.253	.328	.232	66	61	88	70	53.9	44.0	62.0	35.4
13	.251	.276	.216	.203	76	83	58	61	52.7	42.7	92.9	36.0
14	.228	.241	.306	.276	59	63	83	93	51.8	44.0	57.0	41.0
15	.243	.263	.271	.229	98	94	84	86	47.3	38.7	65.2	34.0
16	.153	.213	.215	.257	84	92	63	74	49.8	29.0	96.2	24.4
17	.244	.248	.210	.259	79	81	54	71	52.8	43.7	94.9	41.3
18	.265	.285	.280	.240	82	92	89	92	51.6	40.0	57.7	33.1
19	.239	.250	(.257)	.271	76	72	(81)	87	48.9	41.0	61.3	39.7
20	.266	.250	.241	.247	86	77	68	78	49.6	44.0	65.1	39.1
21	.199	.220	.231	.236	94	94	74	80	47.2	34.1	88.4	30.0
22	.246	.246	.234	.249	93	83	66	80	50.0	40.0	84.2	37.0
23	.260	.259	.241	.226	92	90	66	91	50.1	40.5	74.2	32.4
24	.213	.231	.244	.268	74	76	78	84	47.8	34.5	58.3	29.9
25	.242	.243	.251	.242	90	80	80	8	48.2	41.0	67.9	37.0
26	.192	.221	.243	.285	97	94	65	77	51.7	31.0	64.0	26.9
27	.347	.350	.377	.379	76	77	81	80	57.7	49.3	63.4	45.6
28	.405	.406	.414	.388	81	79	84	91	59.8	54.3	65.7	51.4
29	.209	.208	(.194)	.178	66	68	(64)	65	55.5	42.0	55.0	36.1
30	.177	.182	.203	.198	68	61	65	66	45.9	38.0	82.3	32.2
31	.209	.214	(.231)	.199	64	64	(62)	67	51.4	43.8	88.0	36.6
Mean	.260	.267	.275	.259	80.1	78.2	74.1	78.1	52.4	41.2	75.6	36.4

	Rainfall.	Rainband, 0-7.	Water Temperature.		Mist on Hills.			
			Nevis.	Burn.	9	10	14	21
	Inch.							
1	0.92	..	..	..	..	..	..	..
2	0.02	..	..	..	..	..	..	..
3	0.38	4	53.7	..	+	1-2-3	+	+
4	0.63	4	48.9	49.0	1	..	..	0
5	0.37	4	48.1	48.0	0	1-2	1	0
6	0.15	4	43.5	44.5	+	1-2-3	0	+
7	0.05	1.5	41.2	42.2	0	0	0	1, 2
8	0.14	5	41.1	42.7	0	1-2	1, 2	0
9	0.04	2	43.9	44.2	0	0	0	0
10	0.62	7	43.4	45.6	1, 2	1-2-3	1, 2	?
11	0.01	..	42.7	43.7	1	0	0	0
12	0.55	7	43.7	44.4	0	0	1, 2	0
13	0.01	..	43.5	43.9	1	0	0	0
14	0.59	3.5	42.5	43.5	0	0	2	0
15	0.01	..	42.8	42.5	1, 2	1-3	0	0
16	0.70	4	39.5	39.8	0	0	0	?
17	0.62	4	43.3	43.2	2	2	0	?
18	0.46	3.5	44.0	44.2	1, 2	1-2	+	?
19	0.46	4	43.0	43.7	1, 2	1-2	1, 2	0
20	0.02	..	43.0	43.7	1, 2	1-2	0	0
21	0.03	3.5	40.9	41.0	0	0	0	0
22	0.09	3	42.0	42.2	0	0	0	1, 2
23	0.02	3.5	42.3	42.1	1, 2	0	0	0
24	0.35	5	40.5	41.2	1, 2	1-2	1, 2	1, 2
25	0.15	2	41.5	41.9	2	1-2	0	1, 2
26	0.60	4	39.5	40.0	0	0	2	1, 2
27	0.47	5	47.4	48.0	1, 2-4	1-2-4	1, 2-4	1, 2-4
28	1.15	7	51.1	51.2	1, 2-4	1-2-4	1, 2-4	1, 2-4
29	0.01	2	43.7	43.5	1, 2	1-2	1, 2	0
30	..	4	37.8	38.2	0	0	0	0
31	..	1	40.1	40.1	0	0	0	0
Mean	0.62	3.9	43.0	43.5				

TABLE X. (continued).—*Observations made*

	Barometer at 32° and M.S.L.				Temperature in Shade.							
					9		10		14		21	
	9	10	14	21	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
	Inches.	Inches.	Inches.	Inches.								
1	0.464	0.447	0.346	0.347	45.7	40.6	48.7	42.5	52.9	45.0	48.9	42.0
2	0.370	0.366	(0.334)	0.354	45.9	41.4	48.2	42.4	(50.0)	(44.5)	49.7	45.1
3	0.335	0.311	0.313	0.331	47.0	45.0	52.0	47.0	50.9	47.5	39.7	38.7
4	0.345	0.355	0.313	0.354	37.0	36.2	38.1	37.4	47.5	44.8	43.0	42.0
5	0.373	0.376	0.360	0.354	46.2	44.0	47.0	45.0	51.5	48.6	51.9	48.0
6	0.237	0.226	0.200	0.222	52.8	50.9	53.5	51.4	51.6	50.3	47.9	45.1
7	0.237	0.235	0.196	0.163	46.2	44.8	48.6	45.7	50.3	46.6	49.9	47.1
8	0.089	0.088	0.064	0.039	49.7	45.9	49.7	45.5	49.5	45.9	49.9	45.4
9	9.945	9.923	9.896	9.805	50.9	48.7	52.2	49.7	53.2	49.8	53.9	51.0
10	9.747	9.744	9.690	9.688	50.2	46.5	49.8	46.6	49.8	48.0	47.7	44.7
11	9.086	9.683	(9.644)	9.638	45.1	44.3	47.1	45.3	(48.3)	(45.0)	41.8	40.2
12	9.505	9.505	9.428	9.471	41.1	36.2	41.5	36.4	41.5	35.4	40.7	33.8
13	9.655	9.660	9.615	9.597	35.0	33.5	34.2	33.2	37.7	34.2	36.5	33.1
14	9.619	9.646	9.604	9.566	36.2	32.1	36.4	32.3	34.9	32.0	30.2	29.4
15	9.572	9.588	9.630	9.582	28.7	27.8	29.0	28.0	28.4	27.6	21.3	21.2
16	0.004	0.031	0.046	0.112	23.5	23.3	24.1	23.8	37.2	36.0	39.9	37.7
17	0.107	0.109	0.074	0.039	46.0	43.2	46.7	43.7	47.3	44.5	48.9	47.0
18	9.932	9.903	9.781	9.640	47.9	46.2	47.0	45.8	50.4	48.2	52.1	50.6
19	9.544	9.526	9.376	9.656	52.5	50.6	52.5	50.1	53.5	51.2	44.9	40.1
20	9.744	9.762	(9.745)	9.645	40.7	39.7	40.4	39.9	(40.9)	(39.6)	40.0	38.3
21	9.541	9.571	9.654	9.881	40.0	39.4	38.5	37.9	39.9	37.5	35.0	31.2
22	0.142	0.179	0.265 *	0.425	30.2	28.9	32.1	29.6	31.7	29.9	24.0	23.7
23	0.559	0.569	0.567	0.542	20.7	20.6	22.1	22.0	25.4	25.1	29.8	29.0
24	0.435	0.431	0.401	0.425	45.0	40.0	46.0	41.3	46.8	42.9	48.3	46.3
25	0.587	0.594	0.577	0.594	41.3	40.0	43.0	41.7	48.3	44.7	45.8	44.1
26	0.594	0.600	0.566	0.565	46.2	44.1	46.1	44.0	49.8	46.8	45.1	44.2
27	0.417	0.429	0.385	0.315	48.9	46.7	48.5	46.4	47.2	42.0	47.0	42.7
28	0.466	0.472	0.509	0.530	40.4	36.1	40.5	36.1	41.4	36.8	39.3	37.0
29	0.442	0.427	0.392	0.341	47.3	43.1	46.8	42.9	47.6	43.4	46.3	43.4
30	0.242	0.222	0.158	0.070	50.2	48.7	51.3	48.8	50.3	48.7	50.7	47.4
Mean	0.098	0.099	0.071	0.085	42.6	40.3	43.4	40.7	45.2	42.1	43.0	40.3

* Observation taken at 14^h 30^m.

	Wind Force, 0-12.								Cloud Amount, 0-10.			
	9		10		14		21		9	10	14	21
	Direction.	Force.	Direction.	Force.	Direction.	Force.	Direction.	Force.				
1	SE	1-2	SE	2	SE	2-3	ESE	2-4	0	0	0	0
2	SSE	0-1	SE	1-2	..	..	S	0-1	0	1	..	10
3	Calm	0	NE	0-1	Calm	0	Calm	0	10	10	6	0
4	W	0-1	Calm	0	Calm	0	Calm	0	8	9	9	8
5	Calm	0	Calm	0	Calm	0	WSW	0-1	10	10	10	10
6	SW	1	NW	0-1	NW	0-1	NW	0-1	10	10	10	6
7	Calm	0	WNW	1	W	1-2	NW	1	8	9	9	10
8	W	1-2	NNW	0-1	N	1-2	WNW	0-1	10	10	10	10
9	N	0-1	Var.	0-1	Var.	0-1	SSW	0-1	10	10	10	10
10	SW	0-1	WSW	0-1	N	0-1	NW	0-1	10	10	10	5
11	NW	0-1	N	0-1	..	..	NW	0-1	10	10	..	7
12	E	2-3	ESE	1-4	E	2-3	ESE	1-3	10	10	10	1
13	N	0-1	SSW	0-1	NNE	0-1	NW	0-2	10	10	10	7
14	W	0-1	WNW	1-2	Calm	0	Calm	0	5	5	1	1
15	Calm	0	Calm	0	NNE	0	Calm	0	9	7	0	0
16	Calm	0	Calm	0	WNW	1-2	WNW	0-1	9	9	10	8
17	WNW	0-1	W	0-1	W	1-2	NW	1-2	10	10	10	10
18	W	1-2	SW	2-3	W	1-2	W	0-2	10	10	10	10
19	W	0-2	SW	3-5	NW	1-3	NW	1-2	10	10	10	10
20	SW	0-1	Calm	0	..	..	SE	2-3	10	10	..	10
21	ESE	0-1	E	0-1	Calm	0	SE	0-1	10	10	10	1
22	NF	0-1	E	1	NE	0-1	Calm	0	1	7	2	0
23	Calm	0	Calm	0	Calm	0	S	0-1	0	0	1	7
24	SW	1	SW	1-2	SW	1	SSW	1	10	10	10	10
25	E	0-1	Calm	0	Calm	0	Calm	0	9	9	10	10
26	ENE	0-1	Calm	0	WSW	0-1	W	0-1	10	10	10	10
27	NE	0-1	WNW	1-2	NW	1	NW	3	10	9	9	10
28	NW	0-1	W	0-1	NW	1-2	Calm	0	4	2	8	10
29	WNW	2-3	WNW	2-3	WNW	2	W	2-3	9	10	10	10
30	W	1-2	WSW	1-2	WSW	2-3	WSW	1-2	10	10	10	10
Mean	..	0.72	..	0.90	..	..	..	0.90	8.1	8.2	..	7.0

at Achariach, November 1901.

	Vapour Pressure.				Humidity.				In Shade.		Exposed Black Bulb.	Terrestrial Minimum.
	9	10	14	21	9	10	14	21	Max.	Min.		
	Inch.	Inch.	Inch.	Inch.	%	%	%	%				
1	·202	·211	·221	·201	66	61	55	57	52·9	43·2	88·8	36·8
2	·216	·212	(·236)	·250	69	63	(66)	70	51·7	36·1	80·7	30·8
3	·275	·266	·289	·223	86	69	78	92	53·8	39·7	67·6	30·4
4	·204	·215	·266	·255	93	94	82	92	47·5	30·6	61·5	26·3
5	·263	·275	·307	·289	85	86	81	75	51·7	35·4	61·0	29·9
6	·348	·351	·348	·266	87	86	91	81	53·6	46·9	62·3	43·1
7	·281	·273	·275	·289	91	80	76	82	50·8	45·0	63·4	40·8
8	·267	·259	·269	·254	74	72	75	70	51·1	47·5	53·1	43·9
9	·318	·326	·315	·335	86	83	78	81	53·9	48·3	56·0	45·0
10	·274	·280	·312	·261	76	79	87	80	54·4	46·5	60·0	42·0
11	·281	·281	(·261)	·231	93	87	(77)	88	49·3	41·2	60·2	38·7
12	·166	·167	·152	·134	65	64	58	54	43·1	39·0	47·8	33·7
13	·174	·178	·162	·155	85	89	72	72	41·3	33·4	51·0	30·3
14	·142	·144	·146	·147	66	66	72	88	38·0	30·2	53·0	24·5
15	·132	·130	·132	·110	84	82	85	97	32·3	21·3	35·4	15·8
16	·120	·118	·198	·203	95	92	89	83	41·2	17·3	43·7	15·5
17	·248	·251	·261	·299	80	80	81	87	49·0	39·4	52·6	32·4
18	·291	·293	·310	·350	88	92	85	89	52·8	45·9	50·3	42·6
19	·344	·331	·345	·200	87	84	84	67	54·6	44·0	51·5	41·0
20	·233	·241	(·230)	·213	92	96	(90)	86	45·2	38·3	46·9	37·3
21	·234	·221	·200	·136	95	95	81	67	41·1	32·7	44·0	26·7
22	·136	·128	·139	·118	80	70	77	91	36·0	23·5	40·9	17·7
23	·108	·115	·127	·142	97	97	93	86	31·9	19·0	30·0	15·9
24	·197	·212	·233	·289	66	69	73	86	49·0	29·3	53·8	25·9
25	·232	·249	·255	·269	90	90	75	88	49·3	39·5	56·1	31·5
26	·265	·264	·285	·279	86	85	81	93	49·3	43·9	51·6	40·1
27	·294	·290	·212	·227	85	85	66	71	49·4	43·8	52·3	40·9
28	·171	·170	·175	·196	68	67	67	82	47·7	38·5	46·0	33·0
29	·232	·233	·236	·249	72	73	71	80	48·2	38·8	54·5	34·9
30	·325	·315	·324	·288	90	83	89	78	51·7	43·5	52·5	41·4
Mean	·232	·233	·241	·229	82·6	80·6	77·8	80·4	47·4	37·4	54·3	33·0

	Rainfall.	Rainband, 0-7.	Water Temperature.		Mist on Hills.			
			Nevis.	Burn.	9	10	14	21
	Inch.							
1	..	3	39·0	39·0	0	0	0	0
2	..	..	39·1	39·0	0	0	..	?
3	..	4	43·0	43·2	0	0	0	0
4	..	4	40·2	39·6	4	1·4	1·2-4	4
5	0·09	6	41·1	42·1	1	1	1-2	?
6	0·03	5	46·0	47·0	+	+	+	0
7	0·02	4	44·4	44·3	+	+	+	?
8	0·13	4	44·7	45·1	1-2-4	1-2-4	1-2-4	4?
9	0·29	5	44·9	45·6	+	+	1-2-4	?
10	0·04	3	45·7	45·4	1-2-4	+	+	1
11	0·06	5	43·8	43·8	+	+	..	0
12	0·03	1·5	40·0	39·1	0	0	0	0
13	0·08	2	34·6	34·8	+	+	1-2-4	?
14	..	3	34·0	34·0	0	0	0	0
15	..	3	32·7	32·6	0	1-4	0	0
16	0·15	3	32·1	32·1	0	0	1-2-4	0
17	0·45	4	36·1	38·0	1-2-4	1-2-4	1-2-4	?
18	1·66	5	41·7	42·2	+	1-2-4	1-2-4	1-2-4
19	0·64	7	46·1	46·0	1-2-4	1-2-4	1-2-4	0
20	0·56	4	40·1	40·7	4	+	..	1-2-4
21	0·08	2	40·0	40·3	1-2-3	1-2	1-2	2
22	..	2	33·6	33·2	0	0	0	0
23	..	2	32·1	32·1	0	0	0	0
24	0·14	4	35·2	35·7	0	0	1-2-4	+
25	0·03	3	38·7	39·5	0	0	0	1-2
26	0·08	4	41·1	41·6	0	+	1-2-4	1-2-4
27	0·12	3	42·5	42·7	1-2-4	1-2-4	1	0
28	0·02	3	38·6	38·1	0	0	0	1-2
29	0·19	4	39·3	40·2	1-2	1-2	1-2	1-2
30	0·53	6	42·9	43·6	+	+	+	?
Mean	5·42	3·7	39·8	40·0				

TABLE X. (continued).—*Observations made*

Barometer at 32° and M.S.L.					Temperature in Shade.										
9		10		14		21		9		10		14		21	
Dry.		Wet.		Dry.		Wet.		Dry.		Wet.		Dry.		Wet.	
Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
1	0.087	0.112	0.083	0.967	50.6	48.6	49.9	47.9	50.0	46.3	50.0	47.9	50.0	47.9	47.9
2	0.953	9.945	9.957	0.044	45.8	42.3	47.1	42.5	46.5	43.2	45.0	42.6	45.0	42.6	42.0
3	0.198	0.214	0.225	0.280	41.0	39.2	41.0	40.0	45.0	42.6	41.2	39.2	41.2	39.2	39.2
4	0.195	0.186	0.113	0.014	47.0	43.6	47.8	43.8	48.0	44.6	49.0	46.9	49.0	46.9	46.9
5	9.665	9.667	9.647	9.764	47.5	44.8	46.5	43.8	43.5	41.5	41.2	39.0	41.2	39.0	39.0
6	9.735	9.707	9.569	9.556	47.2	44.2	48.5	45.6	52.0	50.3	50.5	46.9	50.5	46.9	46.9
7	9.587	9.600	9.643	9.448	43.8	40.2	42.0	39.6	42.9	39.7	44.5	41.1	44.5	41.1	41.1
8	9.221	9.241	9.187	9.087	42.2	38.2	40.3	37.2	36.1	35.0	35.0	33.4	35.0	33.4	33.4
9	9.046	9.111	9.147	9.285	37.0	32.3	32.0	30.0	35.0	32.1	34.5	33.0	34.5	33.0	33.0
10	9.402	9.431	(9.426)	9.474	34.0	33.0	33.5	33.0	(34.4)	(32.6)	34.8	33.9	34.8	33.9	33.9
11	9.601	9.618	9.653	9.717	34.4	34.0	35.7	35.0	37.5	36.2	34.3	33.8	34.3	33.8	33.8
12	9.694	9.691	9.658	9.633	24.8	24.6	23.9	23.7	25.0	24.7	26.0	22.5	24.7	26.0	22.5
13	9.724	9.723	9.741	9.854	35.3	33.6	35.2	33.5	36.5	33.8	35.0	31.8	35.0	33.8	31.8
14	9.963	9.962	9.994	0.056	36.9	34.1	37.4	34.1	38.1	33.9	33.9	31.9	33.9	33.9	31.9
15	9.855	9.819	9.634	9.415	32.7	32.1	32.7	32.3	34.5	33.8	35.9	34.4	33.8	35.9	34.4
16	9.633	9.654	9.706	9.754	24.2	23.0	26.3	25.4	(23.8)	(23.0)	22.8	22.5	22.8	22.5	22.5
17	9.376	9.359	9.303	9.272	42.1	40.0	42.2	41.0	37.0	35.0	32.7	30.3	35.0	32.7	30.3
18	9.245	9.250	(9.221)	9.304	35.6	33.3	34.5	31.9	(33.8)	(32.7)	32.0	31.7	32.0	31.7	31.7
19	9.415	9.437	9.497	9.649	25.9	25.7	23.5	23.3	38.4	34.1	37.6	34.6	34.1	37.6	34.6
20	9.748	9.744	(9.728)	9.712	37.8	34.1	38.4	33.9	(37.6)	(35.2)	39.8	36.0	39.8	36.0	36.0
21	9.509	9.496	9.457	9.449	34.5	33.3	38.5	35.8	36.8	35.4	34.3	31.7	35.4	34.3	31.7
22	0.463	0.488	0.496	0.565	19.8	19.7	18.5	18.4	20.0	20.0	24.2	24.0	20.0	24.2	24.0
23	0.394	0.347	(9.121)	8.857	25.9	25.4	31.9	30.5	(36.0)	(33.7)	37.0	34.4	37.0	34.4	34.4
24	8.697	3.699	8.635	8.601	32.8	32.5	33.0	32.7	32.9	32.8	33.7	33.5	32.8	33.7	33.5
25	8.742	8.745	8.805	8.937	35.6	34.3	34.5	33.6	38.5	36.2	37.5	35.0	36.2	37.5	35.0
26	9.003	9.024	9.089	9.193	36.3	35.3	38.4	36.3	36.3	35.4	37.2	35.4	36.3	37.2	35.4
27	9.349	9.367	(9.385)	9.421	36.9	35.0	36.9	34.9	(38.5)	(36.2)	35.9	34.8	36.9	35.9	34.8
28	9.220	9.209	9.094	9.014	37.3	34.4	36.7	34.3	37.7	35.1	39.3	36.9	36.7	35.1	36.9
29	9.050	9.055	(9.124)	9.265	36.4	36.0	37.4	36.9	(42.4)	(41.2)	37.9	37.3	37.4	36.9	37.3
30	9.052	9.041	9.005	9.052	40.1	38.2	41.1	39.1	50.1	46.7	49.3	46.0	46.7	49.3	46.0
31	9.299	9.404	(9.496)	9.458	46.2	44.7	46.9	43.7	(44.5)	(41.4)	44.1	41.5	44.1	41.5	41.5
Mean	9.488	9.495	9.479	9.487	37.0	35.2	37.2	35.3	38.4	36.3	37.9	36.0	37.9	36.0	36.0

Wind Force, 0-12.								Cloud Amount, 0-10.							
9		10		14		21		9		10		14		21	
Direction.	Force.	Direction.	Force.	Direction.	Force.	Direction.	Force.								
1	WSW	1-2	SSW	1	SW	2	WSW	2-3	10	10	10	10	10	10	10
2	NW	1-2	NE	1-2	NW	2-4	W	2-3	10	10	10	10	10	10	10
3	Calm	0	Calm	0	Calm	0	Calm	0	6	8	7	10	10	10	10
4	SSW	0-1	Calm	0	SSW	0-1	S	0-1	10	10	9	10	10	10	10
5	SSW	1-3	SW	1-3	WNW	1-2	Calm	0	10	10	10	5	10	10	10
6	SSW	1-2	SSW	2-3	S	1-3	W	2-4	10	10	10	6	10	10	10
7	W	2-4	Calm	0	N	0-1	SE	1-2	8	9	9	10	10	10	10
8	SW	2-3	NW	1-2	N	0-1	W	1	10	10	10	10	10	10	10
9	W	1-2	WNW	1-2	NW	1-3	NW	1-2	9	9	10	7	10	10	10
10	WNW	0-1	WNW	1-2	..	..	Calm	0	10	10	10	10	10	10	10
11	Calm	0	Calm	0	N	0	Calm	0	10	10	9	8	10	10	10
12	Calm	0	Calm	0	Calm	0	W	1-2	0	0	3	3	10	10	10
13	NE	0-1	NW	2-4	NE	1-5	NE	0-5	9	10	9	10	10	10	10
14	NE	0-1	NE	0-1	NW	1	Calm	0	10	9	9	7	10	10	10
15	SW	0	Calm	0	Calm	0	SE	0-1	10	10	10	10	10	10	10
16	Calm	0	Calm	0	Calm	0	Calm	0	0	1	..	2	10	10	10
17	W	1-2	W	0-2	WNW	2	NW	0-1	10	10	10	6	10	10	10
18	NW	0-1	WNW	0-1	..	..	Calm	0	7	8	..	10	10	10	10
19	SSW	0-1	ESE	0-1	WNW	0-2	NW	2	6	3	9	8	10	10	10
20	NW	1-3	NW	1-2	..	..	E	2-3	5	3	..	3	10	10	10
21	W	0	Calm	0	Calm	0	SE	0	8	10	10	0	10	10	10
22	Calm	0	NW	0	Calm	0	Calm	0	0	0	0	3	10	10	10
23	Calm	0	SE	0-1	..	..	SSE	2-3	0	8	..	10	10	10	10
24	Calm	0	Calm	0	Calm	0	Calm	0	10	10	10	10	10	10	10
25	NW	0-1	E	0	WSW	0-1	Calm	0	8	9	10	10	10	10	10
26	Calm	0	W	1	Calm	0	W	1	10	10	10	10	10	10	10
27	WNW	1	NW	0-1	..	..	Calm	0	10	10	10	10	10	10	10
28	E	3-4	SE	2-3	ESE	2-3	SE	1-2	10	10	10	2	10	10	10
29	Calm	0	Calm	0	..	..	Calm	0	10	10	10	10	10	10	10
30	ESE	2-4	ESE	2-3	SE	0-1	Calm	0	10	10	10	10	10	10	10
31	WSW	0-2	SW	1-2	..	..	W	0-1	10	10	10	10	10	10	10
Mean	..	0.94	..	0.87	..	..	..	0.89	7.9	7.9	..	7.9	7.9	7.9	7.9

at Achariach, December 1901.

	Vapour Pressure.				Humidity.				In Shade.		Exposed Black Bulb.	Terrestrial Minimum.
	9	10	14	21	9	10	14	21	Max.	Min.		
	Inch.	Inch.	Inch.	Inch.	%	%	%	%				
1	·318	·309	·271	·307	86	87	76	85	52·1	48·0	53·2	44·7
2	·233	·223	·242	·233	76	69	77	78	52·8	43·0	53·5	40·0
3	·219	·235	·245	·217	86	92	82	85	47·0	38·5	52·4	32·5
4	·245	·242	·255	·296	77	73	77	85	49·0	41·0	56·5	39·6
5	·266	·255	·240	·213	82	82	84	83	49·8	40·0	47·5	35·6
6	·255	·272	·343	·279	79	80	88	76	55·2	40·0	51·2	37·2
7	·211	·218	·211	·221	73	82	77	75	51·8	39·8	50·9	34·2
8	·191	·190	·192	·172	72	76	90	84	46·7	34·3	43·5	32·0
9	·139	·137	·150	·170	63	75	73	84	37·4	29·5	46·4	29·0
10	·176	·182	(·164)	·184	89	94	(82)	92	37·9	31·0	56·9	29·1
11	·191	·196	·199	·188	96	94	89	95	37·8	33·4	51·0	30·0
12	·127	·122	·124	·139	95	95	92	65	36·0	22·3	33·8	17·0
13	·174	·173	·167	·180	84	84	77	88	38·9	33·1	42·0	29·3
14	·168	·164	·155	·155	77	73	66	80	39·1	33·0	45·3	26·9
15	·173	·178	·186	·184	94	96	93	87	37·0	30·0	42·1	26·3
16	·119	·114	(·105)	·112	92	80	(80)	92	37·2	20·7	36·7	15·5
17	·224	·243	·182	·136	84	90	83	72	43·7	21·3	50·0	18·7
18	·166	·150	(·172)	·175	79	76	(88)	96	38·9	29·9	55·0	27·6
19	·134	·119	·156	·170	96	95	67	76	40·0	23·0	58·1	16·0
20	·161	·153	(·181)	·174	70	65	(80)	71	40·4	32·0	47·9	25·3
21	·176	·182	·192	·148	87	78	89	75	40·4	31·0	46·5	22·5
22	·104	·097	·108	·123	97	97	100	95	34·8	17·1	33·4	8·7
23	·127	·149	(·170)	·172	91	82	(80)	78	37·6	21·0	42·3	15·2
24	·181	·181	·186	·190	97	96	99	98	37·9	32·1	38·2	31·8
25	·185	·182	·189	·177	88	91	82	79	40·0	32·4	46·1	30·6
26	·196	·191	·198	·187	92	83	93	84	38·9	34·0	43·6	31·2
27	·183	·182	(·189)	·192	84	84	(82)	91	39·0	31·7	47·5	28·7
28	·170	·173	·178	·194	76	80	78	81	40·0	30·6	41·5	26·0
29	·207	·214	(·245)	·215	96	96	(91)	95	42·4	36·0	49·0	34·0
30	·210	·216	·279	·273	85	84	77	77	51·0	36·7	53·4	35·1
31	·278	·249	(·227)	·233	90	79	(77)	80	50·1	42·2	52·2	38·3
Mean	·191	·190	·197	·194	84·6	84·1	82·9	83·3	42·6	32·5	47·3	28·7

	Rainfall.	Rainband.	Water Temperature.		Mist on Hills.			
			Nevis.	Burn.	9	10	14	21
	Inch.							
1	0·63	3	45·0	44·5	+	+	1-2-4	?
2	0·15	4	41·5	41·5	1	0	1-2-4	?
3	0·03	4	40·0	40·0	0	0	0	0
4	0·44	5	40·8	41·0	+	1-2-4	1-2-4	?
5	1·36	5	42·0	42·5	1-2-4	1-2-4	1-2-4	0
6	1·88	7	40·5	41·7	1-2-4	1-2-4	+	0
7	0·84	1·5	40·2	40·8	1-4	1	4	?
8	0·61	2	38·7	38·5	1	+	1-2-4	?
9	0·28	4	33·1	33·0	1-2-4	1	1-2-4	?
10	0·33	4	33·0	33·5	1-2-4	+	..	?
11	0·04	4	34·0	35·1	1-2-3	+	+	?
12	0·13	1	32·2	32·1	0	0	0	0
13	0·18	3	33·3	33·3	1-2-4	+	+	?
14	0·05	3	33·0	33·5	1-2	1-2-4	2	?
15	0·06	4	33·0	33·5	+	+	1-2-4	?
16	0·05	2	32·1	32·2	0	0	0	0
17	0·54	4	33·7	32·9	+	+	1-2-4	?
18	0·56	3	32·5	32·6	1-2-4	0	..	?
19	0·01	3	32·2	32·1	0	0	1-2	0
20	0·02	2	33·0	33·1	1	0	..	1-2
21	..	4	33·6	34·2	1	1-2	1-2-4	0
22	..	2	32·1	32·1	0	0	0	2-4
23	0·34	2	32·1	32·1	0	0	..	1-2-4
24	0·41	4	32·2	32·3	+	+	+	+
25	0·04	4	33·1	33·0	1-2-4	1-2	1-2-4	1-2-4
26	0·24	5	33·7	33·4	+	+	+	+
27	0·02	1·5	34·0	34·5	1-2-4	+	..	1-4
28	0·07	5	33·5	33·7	1-2-4	+	1-2-4	1-2-4
29	0·27	..	34·8	35·2	+	+	..	?
30	1·74	4	35·5	35·8	1-2	1-2-4	1-2-4	?
31	0·48	6	35·8	37·2	1-2-4	1-2-4	..	0
Mean	11·80	3·5	35·7	35·5				

TABLE X. (continued).—*Observations made*

	Barometer at 32° and M.S.L.				Temperature in Shade.								
	9	10	14	21	9		10		14		21		
					Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	
Inches.	Inches.	Inches.	Inches.										
1	9.459	9.451	9.283	8.797	41.2	40.1	43.8	41.6	43.4	41.1	41.2	39.0	
2	8.852	8.891	(9.132)	9.449	46.3	44.5	45.0	44.1	(43.3)	(42.8)	46.0	43.2	
3	9.561	9.542	(9.510)	9.526	47.9	45.3	51.1	48.0	(51.4)	(48.5)	49.0	44.5	
4	9.484	9.478	9.426	9.322	43.5	38.8	43.3	39.4	43.1	38.7	45.0	41.7	
5	0.023	0.065	(0.110)	0.080	41.9	36.5	41.3	36.6	(43.1)	(39.3)	47.8	44.5	
6	0.167	0.174	0.219	0.270	49.3	46.8	49.3	46.3	49.7	45.5	47.8	44.7	
7	0.263	0.242	(0.268)	0.254	50.5	46.3	50.0	46.7	(50.5)	(47.3)	47.9	45.6	
8	0.251	0.224	0.171	9.988	46.5	44.4	47.0	44.6	46.2	44.8	47.0	44.0	
9	9.594	9.610	9.602	9.723	50.3	46.9	43.9	43.1	46.0	41.5	45.0	39.1	
10	9.776	9.779	9.808	9.927	41.7	38.3	42.0	38.3	39.4	35.8	37.1	32.8	
11	0.151	0.180	(0.180)	0.160	30.4	29.3	31.2	30.0	(33.0)	(31.1)	33.9	30.3	
12	9.993	9.990	0.049	0.225	32.3	31.3	35.3	33.5	39.3	34.7	30.5	28.0	
13	0.407	0.427	(0.468)	0.567	27.8	27.0	30.1	28.8	(32.4)	(28.1)	24.3	23.9	
14	0.731	0.739	(0.723)	0.690	18.7	18.6	18.5	18.4	(26.2)	(25.2)	32.4	29.1	
15	0.542	0.525	0.521	0.500	47.3	44.9	48.0	45.5	49.2	45.0	48.1	44.7	
16	0.560	0.562	(0.557)	0.579	47.7	45.0	47.5	45.0	(50.0)	(46.8)	47.5	45.1	
17	0.441	0.437	0.362	0.319	45.0	42.6	44.9	42.2	44.5	41.5	43.3	41.6	
18	0.281	0.276	(0.250)	0.225	39.9	38.6	40.5	39.5	(45.1)	(41.0)	43.6	39.9	
19	0.049	0.043	9.986	9.815	45.4	43.8	46.0	44.6	45.3	42.4	48.7	46.9	
20	9.807	9.845	(9.910)	0.004	45.0	44.1	44.3	43.6	(42.7)	(41.7)	40.5	39.7	
21	0.062	0.075	0.047	0.070	39.8	39.5	40.0	39.5	49.6	48.6	49.9	48.2	
22	0.137	0.144	0.135	0.043	45.0	42.7	44.5	42.9	45.4	43.2	42.9	42.2	
23	9.873	9.879	9.746	9.535	49.1	46.4	48.8	46.3	48.4	45.3	44.9	42.1	
24	9.100	9.085	9.010	8.958	36.1	35.3	36.7	35.8	35.6	34.2	34.6	32.0	
25	8.976	9.016	9.152	9.546	31.7	31.5	33.1	32.2	36.2	34.4	27.9	27.2	
26	9.681	9.685	9.704	9.647	28.1	25.1	28.0	25.0	29.3	25.5	22.1	21.6	
27	9.514	9.508	(9.421)	9.195	22.2	21.4	23.7	22.3	(27.9)	(25.5)	29.7	28.8	
28	9.220	9.236	9.461	9.748	33.8	32.4	30.1	29.0	32.1	29.1	22.1	21.4	
29	9.910	9.949	(0.046)	0.332	28.9	28.9	30.0	30.0	(24.4)	(23.9)	17.5	17.1	
30	0.684	0.699	0.743	0.884	7.3	7.1	10.6	10.3	12.3	11.9	10.7	10.5	
31	1.056	1.070	1.071	1.096	11.4	11.4	12.1	12.0	17.1	17.0	14.1	13.9	
Mean	9.955	9.964	9.968	9.983	37.8	36.0	38.1	36.3	39.4	36.8	37.5	37.3	

	Wind Force, 0-12.								Cloud Amount, 0-10.			
	9		10		14		21		9	10	14	21
	Direction.	Force.	Direction.	Force.	Direction.	Force.	Direction.	Force.				
1	SSW	0-1	S	0-1	SE	0-1	SE	3-5	10	10	10	10
2	Calm	0	Calm	0	(Calm)	0	NW	0-1	10	10	(10)	10
3	SSE	0-1	S	0	..	..	W	0-2	10	10	(10)	10
4	SW	0-1	N	0-1	W	1-2	WSW	0-2	9	9	10	10
5	W	0-1	WNW	0-1	..	..	W	0-1	6	2	..	10
6	W	0-1	NW	1-2	NNW	1	NW	1-2	10	10	10	10
7	WSW	1	SW	0-1	..	..	WNW	1-2	10	10	(10)	10
8	WNW	0-1	W	0	..	0-1	S	0-1	10	9	10	10
9	SW	1-2	NNW	0-2	NW	0-1	WSW	0-2	10	10	10	10
10	W	0-1	N	0-1	WNW	1-2	NW	1	10	10	10	10
11	Calm	0	Calm	0	(Calm)	0	SE	0-1	5	5	..	10
12	Calm	0	WNW	0-1	WNW	1-2	Calm	0	10	10	8	8
13	Calm	0	Calm	0	(Calm)	0	Calm	0	8	10	..	0
14	Calm	0	Calm	0	(Calm)	0	E	0-1	1	1	..	9
15	S	1-2	W	0-1	WSW	1-2	NW	0-2	10	10	10	10
16	WNW	2-3	WNW	2	..	..	NW	0-1	10	10	(10)	10
17	W	0-1	NW	1-2	Calm	0	WNW	0-1	10	10	10	10
18	ENE	0-1	Calm	0	(Calm)	0	SSE	0-1	10	10	(10)	10
19	SSW	0	Calm	0	SW	1	W	0-2	10	10	10	10
20	N	0-1	W	0	(Calm)	0	Calm	0	10	9	..	9
21	Calm	0	Calm	0	W	0-1	WNW	0-1	10	10	10	10
22	N	0	N	0	WNW	0	Calm	0	10	10	10	10
23	W	0-3	NW	0-1	SSE	0-1	S	0-3	10	10	10	10
24	SSW	0-1	SW	0	W	0-1	Calm	0	10	10	10	10
25	W	0	N	0-1	W	0-1	NW	0-1	10	9	10	8
26	WNW	1-2	NW	0-1	WNW	0-1	Calm	0	8	9	2	1
27	WNW	0	WNW	0	(Calm)	0	SE	0	10	10	(10)	10
28	ENE	2-4	NW	2-4	WNW	1-2	Calm	0	8	9	9	0
29	W	0	Calm	0	(Calm)	0	Calm	0	10	10	..	0
30	E	0-1	Calm	0	SE	0	Calm	0	3	2	1	0
31	WSW	0	S	0	Calm	0	E	0	0	0	0	0
Mean	..	C.60	..	0.45	..	..	..	0.63	8.6	8.5	..	7.9

at Achariach, January 1902.

	Vapour Pressure.				Humidity.				In Shade.		Exposed Black Bulb.	Terrestrial Minimum.
	9	10	14	21	9	10	14	21	Max.	Min.		
	Inch.	Inch.	Inch.	Inch.	%	%	%	%				
1	.235	.239	.232	.213	92	83	82	83	46.6	38.4	46.0	33.6
2	.272	.277	(.270)	.248	88	93	(96)	80	46.3	38.0	46.5	36.5
3	.271	.298	(.307)	.245	82	79	(81)	70	53.5	43.0	51.5	36.2
4	.189	.201	.191	.227	67	72	68	76	49.5	41.1	49.8	34.4
5	.167	.172	(.201)	.256	63	67	(72)	78	48.9	39.3	62.5	34.9
6	.291	.280	.259	.260	83	79	74	79	51.3	46.3	51.9	43.4
7	.266	.280	(.288)	.278	73	78	(79)	84	51.4	46.3	52.0	43.5
8	.268	.266	.281	.253	85	83	91	79	48.4	44.6	50.9	41.9
9	.281	.268	.216	.183	77	94	70	61	52.1	42.0	51.0	40.0
10	.197	.195	.175	.145	75	74	73	66	45.8	36.1	49.0	32.2
11	.142	.146	(.149)	.127	83	83	(79)	66	37.9	29.3	40.4	24.4
12	.161	.172	.153	.111	88	83	66	65	39.6	27.1	46.9	22.7
13	.127	.134	(.101)	.118	84	79	(55)	90	32.9	23.7	42.9	20.4
14	.098	.097	(.109)	.117	97	97	(77)	64	34.2	17.4	32.1	15.9
15	.270	.274	.253	.256	83	83	72	76	49.8	32.4	49.3	27.6
16	.268	.269	(.282)	.271	81	82	(79)	83	50.5	46.8	52.3	42.3
17	.245	.238	.229	.244	82	81	78	87	48.2	42.8	49.0	40.4
18	.220	.231	(.213)	.208	89	92	(71)	73	45.4	39.2	52.0	35.0
19	.267	.278	.239	.302	89	90	79	87	49.5	42.8	52.9	39.0
20	.277	.275	(.252)	.235	93	95	(92)	94	51.6	39.7	52.9	35.2
21	.239	.243	.330	.315	93	98	93	88	50.5	38.0	49.9	34.0
22	.247	.257	.253	.260	83	88	84	95	50.1	40.6	52.9	33.9
23	.284	.285	.267	.236	81	82	79	80	50.4	42.4	49.0	40.9
24	.198	.200	.183	.150	93	92	87	74	46.3	32.8	45.0	27.5
25	.175	.170	.180	.131	97	90	85	85	37.2	27.5	64.5	26.9
26	.073	.077	.075	.100	51	51	46	86	31.3	21.9	46.2	14.3
27	.091	.082	(.088)	.141	78	66	(58)	85	30.4	18.4	43.1	13.4
28	.168	.139	.119	.093	85	82	66	80	34.1	22.0	57.6	16.9
29	.159	.167	(.114)	.080	100	100	(86)	87	30.8	17.4	50.2	7.0
30	.055	.063	.065	.066	93	90	86	93	18.9	6.3	23.6	0.3
31	.072	.072	.091	.077	100	97	97	93	18.1	9.0	29.7	4.4
Mean	.203	.205	.199	.192	84.0	84.3	77.5	80.3	43.0	33.3	48.2	29.0

	Rainfall.	Rainband, 0-7.	Water Temperature.		Mist on Hills.			
			Nevis.	Burn.	9	10	14	21
	Inch.							
1	1.19	3	36.1	38.0	1-2-4	1-2-4	1-2-4	?
2	0.20	4	36.8	39.0	+	+	+	?
3	0.75	6	38.0	40.8	1-2-4	1-2-4	?	3-4
4	0.36	3	37.0	38.3	0	0	2	?
5	0.32	4	36.0	37.1	0	0	?	?
6	0.23	4	39.1	41.8	+	1-2-4	2	?
7	0.86	6	39.9	41.9	1-2-4	1-2-4	?	?
8	0.47	4	39.8	41.6	1-2-4	1-2-4	+	?
9	0.69	4	41.2	43.0	1-2-4	1-2-4	0	0
10	0.02	3	37.4	38.0	1	0	0	0
11	0.01	..	33.7	33.4	0	0	0	0
12	0.06	2	33.6	33.3	1-2-4	+	0	0
13	..	2	32.5	32.3	0	0	(0)	0
14	0.?	1	32.1	32.1	0	0	(0)	0
15	0.?	5	34.0	32.8	1-2-4	1-2-4	1-2-4	0
16	0.05	4	39.3	39.7	+	1-2-4	(+)	+
17	0.01	3	39.5	39.4	+	+	1-2-4	+
18	0.11	3	38.5	38.1	1-4	1-2-4	(2)	2-4
19	1.99	4	39.5	40.0	+	+	1-2-4	1-2-4
20	0.05	3	41.0	41.6	+	+	?	0
21	0.19	5	39.1	40.0	+	+	+	+
22	0.19	3	40.6	40.8	+	+	1-2-4	1-2-4
23	2.19	5	42.3	43.0	+	+	+	4
24	0.35	2	38.0	37.8	+	+	1-3	2-4
25	0.12	4	33.2	33.0	+	1-2-4	1-2-4	0
26	..	1	32.1	32.1	0	0	0	0
27	0.13	2	32.1	32.1	0	0	?	?
28	0.12	3	32.1	32.1	1-2	1-2-4	0	0
29	0.02	..	32.1	32.1	+	0	(0)	0
30	..	2	32.0	32.0	0	0	0	0
31	..	1	32.0	32.0	0	0	0	0
Mean	11.02	3.3	36.5	37.1	..	..	..	..

TABLE X. (continued).—*Observations made*

	Barometer at 32° and M.S.L.				Temperature in Shade.							
	9	10	14	21	9		10		14		21	
					Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
	Inches.	Inches.	Inches.	Inches.								
1	1.030	1.035	(0.982)	0.852	14.2	13.7	15.1	14.2	(20.5)	(19.2)	16.9	16.0
2	0.618	0.608	0.553	0.496	41.8	36.3	42.2	36.6	40.9	36.5	40.8	36.1
3	0.382	0.369	(0.327)	0.297	39.3	35.4	40.5	36.1	(42.0)	(37.1)	37.7	34.3
4	0.276	0.271	0.221	0.148	32.0	30.9	32.5	31.5	35.0	33.2	27.1	26.0
5	9.349	9.910	(9.794)	9.608	24.3	24.0	27.1	26.5	(34.8)	(32.0)	37.2	34.1
6	9.361	9.859	9.348	9.409	38.4	36.4	38.1	36.0	35.1	34.8	31.2	30.2
7	9.494	9.494	9.495	9.516	24.8	24.2	24.8	24.1	29.1	26.7	20.0	19.6
8	9.520	9.522	9.432	9.400	19.8	19.5	21.0	20.6	32.0	28.3	27.9	27.5
9	9.386	9.386	9.427	9.573	32.6	31.6	33.7	32.3	33.9	33.5	29.6	28.0
10	9.618	9.632	(9.590)	9.595	23.7	22.9	19.8	19.2	(32.7)	(30.4)	28.3	27.8
11	9.706	9.717	(9.769)	9.821	20.0	19.5	17.5	16.8	(29.2)	(26.9)	29.9	28.3
12	9.870	9.878	9.893	9.948	22.1	21.7	23.9	22.3	32.5	30.6	23.0	22.3
13	0.047	0.053	0.068	0.102	12.4	12.2	14.9	14.7	24.1	22.7	13.6	13.1
14	9.949	9.962	0.027	0.147	38.7	36.1	40.1	36.1	(38.6)	(34.1)	20.3	24.9
15	0.166	0.142	0.111	0.045	40.0	36.3	39.8	34.7	42.3	36.2	41.0	38.0
16	9.880	9.875	9.801	9.797	43.5	38.2	43.9	33.4	47.5	39.3	44.0	37.9
17	9.842	9.864	9.893	0.017	39.8	35.4	40.0	35.7	41.2	36.7	39.3	36.0
18	0.076	(0.078)	(0.011)	9.989	36.8	34.4	(37.5)	(35.0)	(42.4)	(36.2)	40.6	37.9
19	0.002	(0.002)	0.029	0.102	39.0	37.0	(39.4)	(37.0)	41.6	37.7	40.2	37.1
20	0.141	0.143	0.112	0.047	39.8	37.0	39.6	37.0	39.4	36.0	33.0	35.8
21	9.920	9.926	9.871	9.816	37.7	35.9	38.4	36.2	39.8	37.0	40.7	37.9
22	9.692	9.684	9.636	9.582	41.3	39.0	42.8	40.5	44.1	41.3	43.8	40.6
23	9.568	9.578	9.578	9.536	43.9	42.0	44.5	42.8	48.0	46.9	43.3	45.0
24	9.506	9.517	9.520	9.577	50.9	47.6	50.1	47.1	50.6	47.0	47.2	44.9
25	9.648	9.648	(9.648)	9.674	45.5	42.9	46.9	43.8	(46.8)	(44.4)	42.0	40.1
26	9.602	9.596	9.592	9.403	33.5	34.1	39.1	34.5	41.4	35.9	37.9	33.9
27	9.240	9.226	9.228	9.294	37.4	34.0	39.0	34.8	40.4	36.3	37.9	34.9
28	9.306	9.322	(9.346)	9.390	33.9	35.8	39.8	36.5	(40.1)	(37.4)	41.1	38.4
Mean	9.850	9.850	9.831	9.828	34.2	31.9	34.7	32.2	38.0	34.8	34.7	32.4

	Wind Force, 0-12.								Cloud Amount, 0-10			
	9		10		14		21		9	10	14	21
	Direction.	Force.	Direction.	Force.	Direction.	Force.	Direction.	Force.				
1	E	0	SE	0	..	..	S	0	0	0	(0)	0
2	ESE	2-3	SE	2-5	SE	1-3	ESE	2-4	5	6	2	1
3	E	0-1	ESE	1	..	..	Calm	0	6	4	..	0
4	Calm	0	Calm	0	Calm	0	Calm	0	10	10	10	0
5	Calm	0	Calm	0	(Calm)	0	S	0-1	10	10	..	10
6	SE	0-1	SE	0-1	SE	0	Calm	0	10	10	10	0
7	Calm	0	ESE	0	Calm	0	Calm	0	6	1	0	0
8	NE	0	Calm	0	Calm	0	WNW	0-1	9	7	1	10
9	W	0-1	Calm	0	Calm	0	Calm	0	10	10	10	4
10	Calm	0	Calm	0	(Calm)	0	Calm	0	7	6	..	10
11	Calm	0	ESE	0-1	..	..	W	0-1	2	1	..	9
12	Calm	0	Calm	0	NW	0-1	Calm	0	8	3	8	10
13	Calm	0	ESE	0	Calm	0	Calm	0	0	2	6	0
14	WSW	0-1	W	1-2	..	..	Calm	0	10	10	..	2
15	SSW	1-2	SE	0-1	S	0-1	SSE	0-1	3	1	9	10
16	SSW	1-3	SW	1-2	SE	1-2	SE	0-1	10	10	8	10
17	E	1-2	E	1	E	1	SE	0-1	10	10	10	10
18	E	0-1	..	..	..	..	SE	0-1	10	(8)	..	10
19	SE	1	..	..	ESE	1	ESE	1	10	(10)	9	10
20	ESE	0-1	ESE	0-1	ESE	1	SSW	0-1	10	10	10	10
21	ESE	0-1	ESE	0-1	E	0	SE	0-1	10	10	10	10
22	ESE	1	ESE	0-1	SE	1	ESE	2-3	10	10	10	10
23	ESE	1	ESE	0-1	Calm	0	ESE	0-1	10	10	10	10
24	ESE	1-2	ESE	1	SE	1	SE	1	10	10	10	9
25	SE	1	SE	1	..	..	ESE	1-2	9	9	..	10
26	E	3-4	E	3	E	2-4	E	4-6	10	10	9	2
27	ESE	3-5	SE	1-3	E	1-3	E	1-2	10	10	10	8
28	ESE	0-1	ESE	1-2	..	..	ESE	1	6	9	..	3
Mean	..	0.88	..	..	..	..	..	0.79	7.9	7.4	..	6.4

at Achariach, February 1902.

	Vapour Pressure.				Humidity.				In Shade.		Exposed Black Bulb.	Terrestrial Minimum.
	9	10	14	21	9	10	14	21	Max.	Min.		
	Inch.	Inch.	Inch.	Inch.	%	%	%	%				
1	·068	·060	(·069)	·066	83	67	(63)	71	22·0	13·2	46·9	6·0
2	·165	·167	·174	·168	63	63	63	66	43·8	16·4	74·5	8·4
3	·169	·170	(·176)	·164	71	67	(67)	72	45·0	36·0	73·9	30·0
4	·155	·164	·168	·112	86	88	82	78	39·8	26·5	48·0	22·7
5	·120	·128	(·150)	·165	92	87	(73)	75	37·6	20·0	44·0	18·1
6	·193	·189	·199	·151	84	82	97	85	39·1	31·2	53·5	27·8
7	·113	·110	·099	·093	84	82	62	86	31·8	19·1	72·6	16·7
8	·097	·097	·106	·140	91	87	69	92	32·0	18·4	77·0	16·9
9	·164	·165	·187	·122	88	85	96	74	37·3	24·7	66·0	15·3
10	·099	·086	(·138)	·140	79	81	(73)	90	36·9	15·7	101·7	6·1
11	·090	·074	(·102)	·122	83	88	(63)	75	31·8	17·7	87·9	7·8
12	·104	·108	·144	·098	88	90	78	80	37·9	21·3	95·1	9·5
13	·071	·080	·083	·066	93	93	66	83	28·4	10·0	75·6	0·2
14	·186	·173	(·154)	·099	80	69	(66)	70	43·3	7·7	83·3	0·0
15	·177	·154	·160	·197	71	63	59	77	43·1	26·0	94·6	17·3
16	·179	·179	·168	·171	63	62	51	59	48·5	40·1	95·1	33·3
17	·165	·167	·174	·188	67	67	67	75	44·9	39·0	51·0	35·0
18	·174	(·178)	(·159)	·200	80	(80)	(59)	79	44·0	36·5	78·0	32·4
19	·199	(·195)	·188	·189	84	(81)	73	76	42·5	38·8	70·0	33·0
20	·191	·193	·177	187	78	79	74	81	40·9	36·7	42·4	34·0
21	·192	·190	·191	·199	84	83	78	79	41·0	34·3	47·1	32·4
22	·213	·223	·229	·218	82	83	78	76	45·8	39·0	56·0	35·9
23	·245	·256	·307	·261	85	87	92	77	49·1	42·8	65·0	39·8
24	·291	·287	·280	·271	79	80	76	84	51·5	45·0	63·9	42·8
25	·247	·251	(·264)	·227	81	80	(83)	86	47·9	41·3	62·3	39·9
26	·155	·156	·161	·157	66	66	61	69	45·0	37·4	68·5	35·0
27	·162	·161	·174	·173	72	69	69	76	40·8	36·2	55·0	33·1
28	·179	·183	(·195)	·203	76	75	(78)	79	41·7	36·8	49·9	34·3
Mean	·163	·162	·171	·162	79·8	78·0	71·9	77·5	40·5	28·8	68·1	23·7

	Rainfall.	Rainband, 0-7.	Water Temperature.		Mist on Hills.			
			Nevis.	Burn.	9	10	14	21
	Inch.							
1	..	2	32·0	32·0	0	0	(0)	0
2	..	3	32·1	32·2	0	0	0	0
3	..	2	32·0	32·3	0	0	(0)	0
4	..	3	32·0	32·8	0	0	0	0
5	0·40	2	32·0	32·0	0	0	..	1-2-4
6	0·08	1	32·4	33·2	+	+	+	0
7	..	1	32·0	32·0	0	0	0	0
8	0·13	2	32·0	32·0	0	0	0	?
9	0·09	3	32·0	32·2	+	+	+	0
10	0·01	2	32·0	32·0	1-2-4	1-2-4	?	?
11	0·11	2	32·0	32·0	0	0	?	?
12	..	3	32·0	32·2	1-2	2-3-4	1-2	0
13	0·08	3	32·0	32·0	0	0	0	0
14	..	..	32·1	32·2	1-2	0	(0)	0
15	0·23	3	32·1	32·6	2-4	0	0	1-2-4
16	0·07	3	32·7	32·3	2-4	2-4	0	2-4
17	..	4	33·7	33·7	2	2	1-2	1-2
18	..	3	34·5	34·8	?	?	?	1-2-4
19	..	3	35·3	35·7	1-2	1-2	1-2	1
20	0·08	3·5	34·7	35·1	+	+	+	+
21	0·03	3	34·2	34·7	+	+	1-2-4	+
22	0·07	3·5	35·7	36·2	2-3	1-2-4	+	+
23	0·03	4	35·4	36·7	+	1-2-4	4	1-2-4
24	0·17	6	37·3	39·5	+	+	1-2-4	1-2-4
25	..	3	37·7	39·0	+	1-2	?	?
26	..	2	35·5	35·7	0	0	0	0
27	..	2	33·6	33·6	1-2	1	1-2-4	+
28	0·18	4	34·4	34·6	1-2	1-2	?	0
Mean	1·76	2·8	33·4	33·8				

Notes.—Achariach, Glen Nevis.

1901.

- Oct.* 2.—Heavy rain in early morning.
 „ 3.—Fog on hills all day.
 „ 5.—River in flood in forenoon. Heavy squalls and rain at times.
 „ 6.—Snow on hills from 2800 feet.
 „ 10.—River in flood.
 „ 12.—Heavy rain 14^h to 15^h.
 „ 15.—Mist in forenoon, forming a ring round Glen Nevis at height of 600 feet.
 „ 16.—Fine and clear till 13^h; heavy rain after 15^h, with fog on hills.
 „ 20.—Rainbow at 14^h 12^m.
 „ 22.—Clear and sunny till 14^h.
 „ 26.—Thick hoar-frost.
 „ 28.—Heavy rain; river in flood after 13^h 30^m.
 „ 31.—Cloudless after 11^h. Föhn.

Nov. 1.—Cloudless throughout. Föhn.

- „ 2.—Fine. Föhn. Lenticular cirro-cum. in afternoon.
 „ 3.—Hazy. Heavy dew.
 „ 4.—Hazy.
 „ 5.—Mist on hills from 2000 feet. Thick haze.
 „ 7.—Mist on hills all day.
 „ 8.—Mist on hills from 3000 feet.
 „ 9.—Mist on hills from 2200 feet.
 „ 10.—Mist as low as 1700 feet at times.
 „ 13.—Showers of snow and sleet.
 „ 14.—Hills clear.
 „ 15.—Thick hoar-frost. Solar halo at 10^h.
 „ 16.—Thick hoar-frost. River frozen over in places.
 „ 17.—Base of mist on hills from 2000 to 3000 feet.
 „ 18.—Heavy rain all day. Mist on hills from 2000 feet. River in flood.
 „ 19.—Heavy rain and squalls till 15^h. River in flood.
 „ 20.—Mist as low as 1500 feet. Squally at 20^h 40^m.
 „ 22.—Thick hoar-frost.
 „ 23.—Thick hoar-frost. Cloudless till 14^h.
 „ 26.—Mist as low as 2000 feet at times.
 „ 28.—Hills clear till evening.
 „ 29.—Mist on hills from 3200 feet.
 „ 30.—Mist on hills from 1500 feet.

1901.

- Dec.* 2.—Squally, with passing showers of rain.
 „ 3.—Hills clear all day.
 „ 6.—Heavy rain. Squally. River in high flood.
 „ 8.—Rain and heavy squalls of sleet and snow. Lightning at 22^h 20^m.
 „ 9.—Snow, hail, and drift. Lightning at 19^h.
 „ 10.—Snow, hail, and rain in passing showers.
 „ 12.—Almost cloudless. Thick hoar-frost.
 „ 13.—Squalls of snow and sleet. Very squally, with snow about 11^h.
 „ 14.—Very squally till 16^h. Almost calm in evening.
 „ 16.—Thick hoar-frost.
 „ 17.—Sleet, hail, and snow in afternoon. Lightning to N. at 22^h 30^m.
 „ 18.—Distant thunder at 15^h 20^m.
 „ 20.—At times there was apparently a slight Föhn blowing.
 „ 21.—Slight drizzle in morning. Very fine and air remarkably clear at 21^h.
 „ 22.—Hoar-frost on ground all day. Lunar halo of 45° radius at 18^h.
 „ 24.—Wet snow and sleet. Mist on hills from 1000 feet.
 „ 26.—Sleet and rain. Mist on hills from 1200 feet.
 „ 29.—Heavy rain at 14^h and showery later.
 „ 30.—Heavy showers of rain. River in flood at night.
 „ 31.—Heavy rain during night, and heavy rain with heavy hail till 16^h 30^m. Distant thunder at 13^h.

1902.

- Jan.* 1.—Heavy rain and squally. Mist on hills from 3000 feet.
 „ 2.—Heavy rain. Level of base of clouds at 9^h 2000, at 17^h 350, and at 18^h 1800 feet.
 „ 3.—River in flood after 15^h. Thunder and lightning at 19^h 27^m and later. Mist on hills from 3000 feet.
 „ 4.—Heavy rain and hail in passing showers. At noon mist on hills from 3000 feet. Strong squalls from 20^h to 21^h. Maximum wind velocity 52 miles per hour.

1902.

- Jan.* 6.—Heavy rain at times. River in flood. Very squally at noon.
- „ 8.—At 10^h mist on hills from 2800 feet, descending on N. side of Sgor-a-Mhaim to 1400 feet.
- „ 9.—Heavy rain 9^h to 10^h 30^m, amount 0.30 inch; hail at 12^h 15^m; very squally 18^h to 20^h. River in flood.
- „ 10.—Hail at noon. Fresh snow from 2000 feet.
- „ 11.—Ugly appearance in sky at 10^h; cirro-stratus in dense masses moving from S.W.
- „ 12.—Snow in early morning. Mist on hills from 2000 feet till noon.
- „ 13.—Slight hoar-frost at 9^h. Hills clear and air calm all day.
- „ 14.—Hoar-frost. Hills clear. Lunar halo at 18^h.
- „ 15.—Heavy rain during night. Mist on hills from 2800 feet. Very squally at 21^h 23^m.
- „ 16.—Mist on hills from 2000 feet.
- „ 17.—Mist on hills 2000 to 2600 feet.
- „ 19.—Heavy rain and squalls after 17^h 30^m. Mist on hills 1600 to 3000 feet.
- „ 20.—Very heavy rain till 5^h. River in high flood. Mist on hills 1400 to 1800 feet in morning.
- „ 21.—Mist on hills from 500 feet at 9^h, but rising to 2000 feet at 14^h.
- „ 22.—Mist on hills 2000 to 3000 feet.
- „ 23.—Mist on hills from 2000 feet. Thick haze and heavy rain at 21^h.
- „ 24.—Mist on hills 650 to 1000 feet till noon. Showers of rain, snow, hail, and sleet. River in flood in forenoon.
- „ 26.—Snow in early morning. Hills clear of mist; a very fine day.
- „ 28.—Snow and much drift in morning. Hills clear of mist after 11^h. Squally.
- „ 29.—Hills clear after 9^h; very fine in afternoon.
- „ 30.—Hills clear; fine.
- „ 31.—Hills clear; fine. Hoar-frost all day.

1902.

- Feb.* 1.—Hoar-frost; very fine.
- „ 2.—Föhn all day.
- „ 4.—Hoar-frost in evening.
- „ 5.—Hoar-frost till noon.
- „ 6.—Rain and mist low down on hills (600–2000 feet) till 14^h 15^m. Snow between 20^h and 21^h.
- „ 7.—Hoar-frost. Aurora to N.W. and thick haze at 21^h.
- „ 8.—Hoar-frost in forenoon. Snow in passing showers from 15^h 40^m to 17^h 15^m.
- „ 9.—Mist on hills 800 to 1700 feet till 14^h.
- „ 10.—Aurora to N.W. at 21^h. Haze 20^h to 21^h.
- „ 12.—Two inches of snow fell during night. Mist on hills till 14^h.
- „ 13.—Slight hoar-frost in morning and evening. Hills clear of mist.
- „ 14.—Hoar-frost at 21^h.
- „ 15.—Solar halo at 14^h. Mist on hills from 2500 feet at 18^h.
- „ 16.—Air very dry at times, the lowest humidity being 36 per cent., but drizzling rain at 21^h.
- „ 18.—Solar halo in afternoon.
- „ 19.—Mist on hills from 3000 feet.
- „ 20.—Mist on hills from 2000 feet. Thick haze all day. Rain at 20^h and 21^h.
- „ 21.—Fresh snow on hills from 950 feet. Mist on hills 2000 to 2800 feet.
- „ 22.—Mist on hills 2000 to 2800 feet.
- „ 23.—At 14^h belt of fog about 400 feet thick on S. side of Ben Nevis at a height of 1500 feet.
- „ 24.—Mist on hills 2000 to 3000 feet. Heavy rain after 14^h.
- „ 25.—Mist on hills from 2000 feet.
- „ 26.—Hills clear. Gale from E. after 20^h.
- „ 27.—Strong gale in early morning. Maximum velocity of squalls 117 miles per hour from E.S.E. A building at Glen Nevis House was blown down.
- „ 28.—Mist on hills from 3000 feet till 18^h. Fresh snow from 1500 feet at 19^h. Rain from noon to 19^h.

TABLE XI.—*Supplementary Observations at Achariach.*

Date.	Hour.	Pressure at 32° and Sea-level.	Dry.	Wet.	Humidity.	Vapour Pressure.	Wind.		Cloud.	Weather.	Mist on Hills.
							Direction.	Force.			
		Inches.			%	Inch.					
Oct. 3	16	9·771	51·2	51·0	99	·373	WSW	0-1	10	or	1-2
" 4	16	9·983	49·7	47·1	83	·292	WSW	1	10	o	1-2
" 5	Noon	9·488	51·6	44·6	59	·224	NW	2-4	10	odq	0
" "	18	9·527	47·6	43·1	70	·230	NW	1-4	9	crq	1-2
" 6	Noon	9·200	45·6	42·3	77	·234	W	1	10	o	1-2
" "	18	9·384	43·1	43·0	77	·214	W	2-3	10	od	1-2
" 7	16	9·637	44·1	39·7	68	·199	NW	1	5	bc	0
" 8	Noon	9·415	49·1	44·2	68	·238	Calm	0	10	o	1-2
" "	16	9·240	52·9	49·0	75	·300	SW	0-1	10	od	1-2
" "	17	9·178	52·4	50·0	84	·330	Calm	0	10	od	1-2
" 9	Noon	9·833	50·5	44·0	60	·222	W	0-1	3	bc	0
" "	13	9·869	50·3	43·4	59	·213	WNW	1	5	bc	0
" 10	Noon	9·847	55·5	52·7	82	·362	Var.	0-1	10	or	+
" "	16	9·905	50·9	47·8	80	·295	WNW	1	10	or	1-2
" 11	11	0·161	51·4	46·0	66	·251	Calm	0	10	o	0
" "	Noon	0·158	51·9	45·8	63	·243	Calm	0	10	o	0
" "	17	0·098	48·9	45·7	79	·271	Calm	0	10	o	0
" 12	11	9·894	53·6	43·1	67	·273	W	0-1	10	od	0
" "	Noon	9·878	51·9	48·7	79	·306	SW	0-1	10	od	0
" "	18	9·964	44·2	43·0	91	·263	W	0-1	8	c	1-2
" 13	Noon	0·078	48·9	45·8	80	·274	Calm	0	7	c	0
" "	17	0·001	49·7	43·4	61	·218	SSE	2	4	bc	0
" 14	16	9·774	48·7	47·7	93	·319	Calm	0	10	or	2
" "	17	9·777	48·9	46·2	81	·282	W	1-2	10	or	+
" 15	16	9·785	47·0	45·0	86	·275	Calm	0	10	o	1
" "	17	9·786	44·1	42·6	88	·256	Calm	0	4	bc	0
" 16	16	9·423	45·0	42·5	79	·243	SSE	2-3	10	or	1-2
" 17	11	9·065	47·4	43·7	75	·243	SSW	0-1	10	o	2
" "	Noon	9·071	48·4	44·1	72	·242	SE	0-1	7	c	0
" "	16	9·048	50·7	43·8	59	·217	SE	1-2	8	od	0
" 18	Noon	9·053	46·3	45·1	92	·285	Var.	0-1	10	or	1-2
" "	16	9·080	47·2	45·0	85	·273	Calm	0	4	bc	0
" 19	11	9·383	47·8	44·0	74	·245	SSE	1	9	cr	1-2
" "	17	9·507	47·5	44·1	77	·250	W	0-1	10	o	1-2
" 20	Noon	9·713	48·9	44·0	68	·236	N	0-1	9	c	1-2
" 21	16	9·806	46·0	43·9	85	·263	Calm	0	9	c	0
" 22	Noon	9·850	47·7	43·1	70	·229	SSE	0-1	5	bc	0
" "	16	9·844	47·8	43·5	71	·236	SSE	0-1	10	o	2
" 23	Noon	9·967	47·5	44·9	82	·268	E	0-1	10	o	1-2
" "	19	0·008	46·1	44·0	85	·264	Calm	0	10	o	1-2
" 24	Noon	9·751	45·6	43·4	84	·257	SE	2-3	10	or	1-2
" "	16	9·725	45·5	43·7	87	·263	SE	1-2	10	or	1-2
" 25	Noon	9·840	48·2	43·8	71	·238	SW	0-1	10	or	2-4 *
" 26	Noon	0·145	46·6	43·6	79	·250	Calm	0	9	c	0
" "	16	0·094	51·1	46·0	68	·254	Calm	0	10	o	2-4
" 27	Noon	9·861	56·6	52·9	77	·355	SE	1-2	10	or	1-2-4
" 28	Noon	9·622	59·8	56·7	81	·417	WNW	2-4	10	odq	1-2-4
" "	16	9·594	58·1	55·0	80	·392	W	2-3	10	orq	1-2-4
" 29	16	0·321	44·7	38·9	61	·182	SE	1-2	10	o	0
" "	17	0·353	44·5	38·7	61	·180	SE	1-2	10	o	0
" 30	Noon	0·517	44·7	38·5	64	·192	ESE	1-2	3	bc	0
" "	17	0·529	45·1	40·0	65	·196	E	1-2	3	bc	0
" 31	11	0·555	49·8	43·6	62	·221	ESE	2	2	bc	0
" "	16	0·505	48·0	42·9	67	·222	ESE	3	0	b	0
" "	17	0·516	48·0	42·0	62	·207	E	2-4	0	bq	0
" "	18	0·517	45·5	40·6	67	·203	ESE	2-3	0	bq	0
Nov. 1	15	0·342	52·2	45·0	58	·226	SE	2-3	0	bq	0
" "	16	0·360	50·9	44·6	61	·230	ESE	2-4	0	bq	0
" "	17	0·359	49·0	43·5	65	·226	SE	1-3	0	bq	0
" 2	18	0·338	50·0	45·0	68	·245	SSE	1-2	10	o	2?

* On and after this date the occurrence of mist on the Corrie Derrach was noted, indicated by the figure 4.

TABLE XI.—*Supplementary Observations at Achariach*—continued.

Date.	Hour.	Pressure at 32° and Sea-level.	Dry.	Wet.	Humidity.	Vapour Pressure.	Wind.		Cloud.	Weather.	Mist on Hills.
							Direction.	Force.			
		Inches.			%	Inch.					
Nov. 2	19	0·344	49·6	45·1	71	·251	SE	0-1	10	o	
" 3	Noon	0·318	52·0	47·5	72	·277	W	0-1	6	c	0
" 4	16	0·323	48·3	45·9	83	·281	SE	0-1	7	c	0
" 5	16	0·311	45·5	43·9	88	·268	Calm	0	9	c	1-2-4
" 5	Noon	0·371	50·5	47·5	80	·293	Calm	0	10	o	1-2
" 6	18	0·345	50·4	47·7	82	·298	Calm	0	10	o	1-2
" 6	Noon	0·211	53·4	51·3	86	·350	W	0-1	10	o	+
" 7	16	0·196	50·1	47·6	83	·299	NNW	0-1	10	or	+
" 8	16	0·186	48·4	45·2	78	·264	W	0-1	10	o	+
" 8	Noon	0·071	49·9	45·3	70	·252	NW	0-1	10	o	1-2-4
" 9	16	0·051	49·6	45·7	74	·264	N	1-2	10	o	1-2-4
" 9	Noon	9·915	52·7	50·0	82	·326	Var.	0-1	10	od	+
" 10	16	9·868	52·7	49·6	80	·318	SW	0-1	10	or	+
" 10	Noon	9·715	50·3	47·8	80	·296	N	0-1	10	o	1-2-4
" 11	18	9·682	47·9	45·1	81	·266	W	0-1	10	od	1-2-4
" 11	15	9·644	48·8	45·5	79	·268	NW	0-1	10	o	1-2-4
" 11	16	9·647	45·7	44·8	94	·287	Calm	0	10	or	+
" 11	18	9·645	44·3	43·7	96	·277	Calm	0	10	o	1-2
" 12	Noon	9·496	42·0	36·5	63	·167	SE	1-3	10	oq	0
" 12	16	9·441	40·3	34·9	61	·153	E	3-4	10	oq	0
" 13	18	9·592	36·2	34·0	81	·173	SW	0-1	2	bc	1-2
" 14	16	9·613	32·7	31·0	80	·147	Calm	0	9	c	0
" 14	18	9·576	35·0	32·3	75	·153	Calm	0	10	o	0
" 15	16	9·671	27·5	26·7	84	·126	Calm	0	0	b	0
" 15	18	9·740	24·4	24·0	90	·118	Calm	0	0	b	0
" 16	13	0·040	34·0	32·1	80	·158	Calm	0	10	o	1-2-4
" 16	17	0·073	38·2	36·1	83	·190	NW	1	9	c	1-2-4
" 17	Noon	0·100	46·9	44·4	83	·263	WSW	1-2	10	od	1-2-4
" 17	16	0·061	47·0	45·1	87	·277	W	1-2	10	or	1-2-4
" 18	13	9·834	43·9	46·9	86	·299	W	1-3	10	or	+
" 18	17	9·704	51·7	50·1	89	·342	NW	0-1	10	o	1-2-4
" 19	13	9·424	52·6	51·2	90	·358	SW	3	10	orq	+
" 19	16	9·461	50·0	48·5	90	·322	WNW	2-3	10	oq	+
" 20	15	9·725	40·7	39·1	87	·220	SE	1-2	10	or	1-2-4
" 20	16	9·723	40·6	38·8	86	·216	SE	1-2	10	or	1-2-4
" 21	Noon	9·620	40·0	37·5	80	·198	SE	0-1	10	or	1-2
" 21	16	9·725	39·0	35·3	72	·169	SE	1-2	9	c	2
" 22	16	0·293	29·6	28·4	79	·132	W	0-1	0	b	0
" 22	18	0·353	25·8	25·2	82	·122	Calm	0	0	b	0
" 23	13	0·561	25·9	25·3	86	·121	ESE	0-1	0	b	0
" 23	18	0·547	30·0	29·4	90	·150	Calm	0	10	o	0
" 24	Noon	0·416	46·9	42·0	68	·215	S	1-2	9	c	2-4
" 24	18	0·406	47·3	45·1	85	·273	S	0-1	10	or	1-2
" 25	16	0·591	47·2	44·3	80	·258	SW	0-1	10	o	0
" 25	18	0·604	46·1	44·0	85	·264	Calm	0	10	o	2
" 26	13	0·576	49·5	46·6	80	·283	W	0-1	10	od	+
" 27	13	0·406	47·1	42·4	68	·221	NW	1	10	o	0
" 27	16	0·372	44·9	42·1	80	·236	NW	1-2	10	o	1-2
" 28	16	0·534	41·1	37·1	71	·181	W	1	9	c	0
" 29	16	0·361	47·9	44·0	74	·244	NW	1-2	10	od	1-2-4
" 30	16	0·151	50·0	47·6	84	·300	SW	3-4	10	or	+
" 30	18	0·110	49·7	47·7	87	·307	WSW	2-3	10	or	?
Dec. 1	Noon	0·104	49·7	47·4	85	·300	N	0-1	10	o	+
" 1	18	0·040	49·1	46·0	78	·275	WNW	1-2	8	c	1-2-4
" 2	Noon	9·942	48·0	42·7	66	·219	NNW	2-4	9	cq	0
" 3	16	9·969	45·0	42·0	78	·233	NW	2-4	10	orq	+
" 4	16	0·090	48·0	45·5	83	·274	SSW	1-2	10	orq	+
" 5	Noon	9·638	47·0	45·0	86	·275	Calm	0	10	or	+
" 5	16	9·686	41·5	40·0	88	·230	W	0-1	10	o	1
" 6	Noon	9·631	51·5	48·7	81	·310	S	1-3	10	orq	+

TABLE XI.—*Supplementary Observations at Achariach—continued.*

Date.	Hour.	Pressure at 32° and Sea-level.	Dry.	Wet.	Humidity.	Vapour Pressure.	Wind.		Cloud.	Weather.	Mist on Hills.
							Direction.	Force.			
		Inches.			%	Inch.					
Dec. 6	16	9.517	53.0	50.9	85	.345	Calm	0	10	or	+
" 7	Noon	9.619	45.0	40.0	66	.197	W	1-3	8	c	0
" 8	18	9.618	44.3	39.7	67	.198	SE	0-1	6	c	?
" 8	Noon	9.212	39.0	36.5	81	.190	N	1-2	10	orq	1-2
" "	18	9.122	38.0	35.0	75	.173	NW	0-3	10	oq	?
" 9	13	9.148	32.1	30.8	83	.152	WNW	1-2	10	orq	1-2-4
" "	16	9.209	33.2	31.8	84	.161	NW	1-2	10	olrq	1-2-4
" 10	16	9.436	33.9	33.4	94	.187	WNW	1-2	10	orl	+
" "	18	9.434	34.7	33.5	89	.178	Calm	0	5	bc	0
" 11	13	9.649	37.8	36.1	86	.194	Calm	0	10	o	+
" "	17	9.687	35.0	34.2	92	.188	Calm	0	10	o	+
" 12	13	9.663	23.8	23.5	92	.117	Calm	0	1	bc	0
" "	16	9.640	24.9	24.2	83	.110	W	0	0	b	0
" "	18	9.658	23.0	22.7	91	.112	W	0	0	b	0
" 13	13	9.701	36.6	33.8	76	.167	NW	1-3	7	cqs	1-2-3
" "	16	9.762	37.3	34.1	74	.165	NE	0-1	8	cqs	1-2-3
" 14	Noon	9.979	37.0	34.5	79	.174	W	0-1	9	cs	1-2-4
" "	18	0.048	36.9	33.0	69	.150	NW	0-1	5	bc	?
" 15	Noon	9.723	33.7	33.2	94	.184	Calm	0	10	os	+
" "	16	9.555	34.4	33.6	92	.183	Calm	0	10	orl	+
" 16	17	9.736	24.1	23.4	81	.105	Calm	0	0	b	0
" "	18	9.742	22.2	22.0	94	.112	Calm	0	1	bc	0
" 17	13	9.281	39.6	37.5	83	.203	WNW	2-3	9	odq	1-2-4
" "	17	9.350	35.0	30.9	65	.132	WNW	1-2	9	c	1-2-4
" 18	16	9.241	33.1	32.0	88	.166	NE	0-1	9	c	1-2
" "	18	9.267	32.5	31.0	82	.152	Calm	0	9	c	1-2-4
" 19	13	9.478	36.5	32.4	66	.144	WNW	3-4	10	olr	1-2
" "	16	9.550	39.0	34.9	69	.163	NW	0-1	6	cs	1
" "	18	9.597	39.4	35.3	69	.166	NE	1	9	cs	1
" "	19	9.602	39.3	34.8	67	.159	NW	1-2	9	c	1
" 20	16	9.731	35.3	33.8	86	.178	Calm	0	5	bc	1-2
" "	18	9.721	34.7	32.1	74	.151	E	1-2	2	bc	1-2
" 21	Noon	9.482	38.3	36.1	82	.189	Calm	0	10	o	1-2-4
" "	16	9.433	35.8	34.9	93	.195	Calm	0	9	c	1-2-4
" "	18	9.453	34.5	33.7	92	.184	SSW	0-1	9	c	1
" 22	Noon	9.477	18.8	18.8	100	.102	SW	0	1	bc	0
" "	17	9.507	21.9	21.5	89	.104	Calm	0	6	c	0
" "	18	9.527	21.0	20.9	97	.109	SE	0	2	bc	0
" "	20	9.549	23.1	23.0	97	.120	Calm	0	10	o	0
" 23	17	8.985	36.0	34.1	83	.177	SE	2-3	10	orlq	+
" "	18	8.940	36.2	34.0	81	.173	ESE	2-3	10	osq	+
" 24	17	8.618	32.9	32.6	97	.182	Calm	0	10	osl	+
" "	18	8.606	33.7	33.4	92	.183	Calm	0	10	o	+
" 25	Noon	8.785	38.1	35.9	81	.187	NNW	1	10	o	1-2-4
" "	15	8.815	39.1	36.2	77	.184	E	1	9	c	2-4
" 26	Noon	9.059	38.1	35.8	80	.186	WSW	1-2	10	o	+
" "	17	9.119	35.1	34.4	93	.191	Calm	0	10	od	+
" 27	17	9.403	34.2	32.5	83	.164	Calm	0	3	bc	1
" "	18	9.406	32.1	31.1	87	.159	Calm	0	2	bc	?
" 28	Noon	9.147	36.3	34.3	83	.177	ESE	2-3	10	orl	+
" "	16	9.051	37.8	35.4	80	.182	E	1-2	10	od	+
" 29	16	9.172	38.6	37.8	94	.219	Calm	0	10	o	1-2-4
" 30	Noon	9.016	45.9	44.0	87	.266	ESE	1-2	10	or	1-2-4
" "	16	9.002	50.0	46.2	75	.269	S	0-1	10	o	1-2-4
" "	18	9.012	50.0	46.3	76	.271	SE	1-2	10	or	?
" 31	11	9.434	46.6	43.2	76	.241	NW	1-2	10	o	1-2-4
" "	Noon	9.469	46.1	43.0	78	.243	SW	1-2	10	o	1-2-4
" "	18	9.533	44.9	41.5	76	.225	SW	0-1	7	cr	?
1902											
Jan. 1	Noon	9.378	44.7	41.5	77	.227	S	0-1	10	or	1-2-4
" "	18	9.008	44.5	41.1	75	.221	SE	1-2	10	orq	?

TABLE XI.—*Supplementary Observations at Achariach—continued.*

Date.	Hour.	Pressure at 32° and Sea-level.	Dry.	Wet.	Humidity.	Vapour Pressure.	Wind.		Cloud.	Weather.	Mist on Hills.
							Direction.	Force.			
		Inches.			%	Inch.					
Jan. 2	17	9.244	43.8	43.5	94	.279	WSW	0-1	10	od	+
" "	18	9.300	45.1	43.0	84	.252	WSW	1	10	or	+
" 3	Noon	9.535	52.9	50.0	81	.323	S	1	10	od	1-2-4
" "	16	9.521	50.9	47.0	75	.277	SW	1	10	or	1-2-4
" "	18	9.518	49.1	46.6	82	.288	W	0	10	or	?
" 4	Noon	9.482	41.8	39.1	80	.211	W	1	10	op	1-2-4
" "	17	9.426	43.1	38.7	68	.191	W	1-2	10	o	2
" 5	18	0.086	48.5	44.3	72	.245	WNW	0-1	10	orq	+
" 6	Noon	0.204	50.5	45.5	68	.250	NW	2-5	10	orq	1-2
" "	16	0.247	48.6	46.0	82	.280	NNW	1-2	10	orq	1-2
" "	18	0.275	48.5	44.3	72	.245	NNW	1-2	10	odq	?
" 8	Noon	0.201	46.7	44.0	81	.257	NW	0-1	10	od	1-2-4
" "	16	0.126	46.1	43.2	79	.247	Calm	0	10	or	1-2-4
" 9	Noon	9.621	45.0	41.9	77	.231	NNW	1	10	orq	2
" "	18	9.623	45.0	41.7	76	.227	WNW	1-2	10	orq	1-2-4
" 10	13	9.797	39.6	37.2	81	.197	W	0-1	10	o	1-2
" "	18	9.876	37.3	32.9	65	.146	W	1-2	10	o	0
" 11	17	0.189	30.8	30.0	88	.151	Calm	0	2	bc	0
" "	18	0.182	30.1	29.3	87	.147	NW	0	0	b	0
" 12	Noon	9.964	38.2	35.7	80	.183	WNW	0-2	10	od	1-2-4
" "	18	0.134	34.6	30.0	60	.120	WNW	0-1	1	bc	0
" 13	16	0.490	29.8	28.4	78	.128	Calm	0	5	bc	0
" "	18	0.518	27.0	26.0	79	.114	Calm	0	1	bc	0
" 14	15	0.693	25.3	24.3	76	.104	Calm	0	0	b	0
" "	18	0.711	24.2	23.4	79	.102	Calm	0	1	bc	0
" 15	13	0.523	49.1	45.5	75	.265	WSW	0-1	10	od	1-2-4
" "	18	0.530	48.7	45.0	75	.257	W	0-2	10	od	1-2-4
" 16	17	0.554	49.3	46.5	81	.284	W	1-2	10	od	+
" "	18	0.546	50.0	46.5	77	.276	WNW	2	10	od	1-2-4
" 17	16	0.335	43.6	41.2	82	.232	WNW	0-1	10	o	+
" "	18	0.313	43.8	41.2	80	.230	W	0-1	10	od	1-2-4
" 18	15	0.237	44.9	40.9	71	.215	NE	0	10	o	2
" "	18	0.246	44.2	39.0	64	.187	SE	1	10	o	2
" 19	Noon	0.039	45.9	42.7	78	.240	S	1	10	od	1-2-4
" "	16	9.934	45.8	44.1	88	.269	W	0-1	10	or	1-2-4
" 20	16	9.944	42.1	40.9	90	.242	Calm	0	10	o	0
" "	18	9.979	40.6	39.8	93	.235	Calm	0	10	o	0
" 21	13	0.051	45.0	44.9	99	.297	Calm	0	10	od	+
" "	18	0.051	48.3	47.7	94	.320	W	0-1	10	od	+
" 22	16	0.119	44.9	43.3	88	.261	Calm	0	10	o	1-2-4
" "	18	0.083	41.6	40.8	94	.247	S	0	7	c	4
" 23	1	9.795	48.0	45.3	81	.270	SSW	0-1	10	or	+
" "	18	9.669	46.0	43.4	82	.252	S	0-1	10	or	+
" 24	Noon	9.023	36.0	35.4	95	.201	Calm	0	10	osl	+
" "	18	8.974	34.1	31.1	71	.139	Calm	0	2	bc	0
" 25	20	8.970	33.6	31.4	77	.149	NW	0-1	10	o	0
" "	Noon	9.037	35.7	34.3	87	.184	W	0-1	10	osl	+
" "	17	9.337	35.0	32.0	72	.148	NW	1-2	8	c	0
" "	18	9.401	32.1	30.9	85	.154	WNW	1-2	10	os	?
" 26	16	9.685	27.0	24.9	59	.087	W	0-1	1	bc	0
" "	18	9.672	25.2	23.3	58	.079	WNW	0-1	1	bc	0
" "	20	9.661	23.2	22.0	68	.084	Calm	0	1	bc	0
" 27	16	9.359	28.9	26.4	59	.093	E	0-1	10	os	2
" "	18	9.278	29.2	27.1	67	.106	SE	1-2	10	o	?
" "	20	9.219	29.9	28.4	75	.125	ESE	0-1	10	os	?
" 28	Noon	9.382	33.0	28.9	59	.111	NE	0-2	7	eq	0
" "	18	9.633	30.5	27.4	60	.100	NW	0-1	9	c	0
" "	20	9.706	25.6	24.2	68	.094	Calm	0	0	b	0
" 29	17	0.172	25.2	24.0	71	.096	SSW	0-1	1	bc	0
" "	18	0.209	23.1	22.2	75	.092	SW	0-1	0	b	0

TABLE XI.—*Supplementary Observations at Achariach—continued.*

Date.	Hour.	Pressure at 32° and Sea-level.	Dry.	Wet.	Humidity.	Vapour Press-ure.	Wind.		Cloud.	Weather.	Mist on Hills.
							Direction.	Force.			
		Inches.			%	Inch.					
Jan. 29	19	0·242	23°0	21°5	61	·075	SSE	0	0	b	0
" "	20	0·298	17·8	17·4	87	·085	E	0	0	b	0
" 30	17	0·801	11·0	10·7	89	·063	Calm	0	1	bc	0
" "	18	0·816	12·0	11·7	89	·066	E	0	0	b	0
" "	19	0·843	10·9	10·7	93	·066	Calm	0	0	b	0
" "	20	0·869	11·0	10·8	92	·065	Calm	0	0	b	0
" 31	13	1·074	15·0	14·9	96	·083	Calm	0	0	b	0
" "	15	1·057	15·6	15·2	87	·077	E	0	0	b	0
" "	16	1·078	15·0	14·7	89	·076	Calm	0	0	b	0
" "	17	1·077	15·9	15·6	90	·080	E	0	0	b	0
" "	18	1·088	14·5	14·2	90	·076	Calm	0	0	b	0
" "	19	1·090	14·0	13·8	92	·075	Calm	0	0	b	0
" "	20	1·092	15·2	15·0	93	·081	Calm	0	0	b	0
" "	22	1·094	15·3	...	92	...	...	...	...	...	...
" "	23	1·092	14·5	...	92	...	...	...	...	...	...
Feb. 1	16	0·922	20·9	18·7	46	·052	Calm	0	0	b	0
" "	17	0·893	17·9	16·8	66	·064	E	0	0	b	0
" "	18	0·883	18·7	17·0	54	·053	ESE	0	0	b	0
" "	19	0·875	19·7	18·0	54	·057	Calm	0	0	b	0
" "	20	0·869	18·7	17·2	58	·057	Calm	0	0	b	0
" 2	11	0·587	42·0	36·5	63	·167	SE	2-3	3	bcq	0
" "	Noon	0·595	41·2	36·6	67	·173	SE	1	2	bc	0
" "	13	0·575	41·0	36·7	68	·175	SE	1-2	1	bc	0
" "	15	0·538	40·6	36·5	70	·176	SE	1-2	1	bc	0
" "	16	0·529	41·0	36·4	66	·170	SE	1-2	2	bc	0
" "	17	0·522	40·0	36·2	70	·175	SE	1-2	2	bc	0
" "	18	0·518	41·0	36·5	67	·172	E	0	1	bc	0
" "	19	0·507	41·2	36·8	68	·176	ESE	0-3	1	bcq	0
" "	20	0·502	40·9	36·4	67	·172	ESE	0-1	1	bc	0
" 3	17	0·295	41·0	36·6	68	·174	ESE	0-2	1	bc	0
" "	18	0·289	40·0	35·8	68	·169	W	0	0	b	0
" 4	13	0·235	34·8	33·0	82	·166	Calm	0	10	o	0
" "	17	0·176	32·5	30·6	78	·145	Calm	0	2	bc	0
" "	18	0·159	29·8	28·5	78	·130	Calm	0	1	bc	0
" "	20	0·156	27·9	27·0	82	·125	SE	0	0	b	0
" 5	16	9·728	35·0	32·3	75	·153	Calm	0	10	o	1-2-4
" "	18	9·684	36·8	34·0	76	·167	NNE	0-1	10	o	1-2-4
" 6	13	9·349	37·4	36·1	89	·198	WNW	0-1	10	or	+
" "	18	9·372	36·0	33·1	75	·160	Calm	0	9	c	2
" 7	18	9·517	29·1	26·7	62	·078	Calm	0	0	b	0
" "	20	9·519	20·0	19·3	77	·083	SW	0-1	0	b	0
" 8	18	9·478	23·8	23·1	83	·104	Calm	0	7	c	0
" "	20	9·444	23·8	23·5	92	·117	Calm	0	10	o	?
" 9	Noon	9·402	33·1	32·7	95	·180	Calm	0	10	os	+
" "	18	9·539	24·7	23·3	67	·090	E	0	3	bc	0
" "	20	9·559	27·1	25·8	74	·108	W	0-1	2	bc	0
" 10	17	9·587	29·9	28·5	78	·130	WSW	0	6	c	1-2
" "	18	9·599	27·8	26·8	80	·122	Calm	0	8	c	?
" "	19	9·602	27·3	26·5	84	·124	Calm	0	6	c	?
" "	20	9·601	28·8	27·8	82	·129	Calm	0	8	c	?
" 12	18	9·918	30·0	27·8	67	·112	W	0-1	2	bc	0
" "	19	9·930	25·5	24·3	72	·100	Calm	0	2	bc	0
" "	20	9·937	21·5	20·9	83	·095	Calm	0	0	b	0
" 13	Noon	0·064	23·5	21·8	59	·073	Calm	0	7	c	0
" "	13	0·066	23·0	21·9	70	·085	NW	1	6	c	0
" "	18	0·101	13·8	13·5?	90?	·073?	E	0-1	0	b	0
" "	19	0·104	17·5	16·4	67	·064	SSW	0	0	b	0
" "	20	0·104	12·3	12·0	89	·068	Calm	0	0	b	0
" 14	13	0·112	29·8	28·0	72	·118	Calm	0	0	b	0
" "	19	0·127	29·1	27·5	74	·117	Calm	0	0	b	0

TABLE XI.—*Supplementary Observations at Achariach*—continued.

Date.	Hour.	Pressure at 32" and Sea-level.	Dry.	Wet.	Humidity.	Vapour Pressure.	Wind.		Cloud.	Weather.	Mist on Hills.
							Direction.	Force.			
		Inches.	°	°	%	Inch.					
Feb. 15	18	0·078	38·8	35·3	80	·188	S	0-1	10	or	1-2-4
" 16	Noon	9·861	44·1	39·8	69	·201	SSW	1-2	10	oq	2-4
" "	18	9·770	46·8	37·6	46	·148	S	0-1	9	eq	2
" "	19	9·771	47·2	37·2	43	·141	SE	0-1	10	oq	2
" "	20	9·796	45·7	43·2	82	·251	E	0-1	10	oq	2-4
" 17	Noon	9·871	40·8	35·9	64	·164	E	1	10	o	2
" 19	13	0·014	41·9	37·8	72	·189	E	1-2	9	c	1-2
" "	16	0·042	41·6	38·0	74	·193	SE	0-1	10	o	1-2
" "	18	0·077	40·3	37·0	74	·186	SE	1	10	o	1-2
" "	20	0·091	40·3	37·0	74	·186	ESE	0-2	10	o	1
" 20	18	0·061	38·2	35·7	79	·181	ESE	1	10	o	+
" "	19	0·062	37·9	35·5	80	·183	SE	0-1	10	o	+
" "	20	0·049	37·0	35·2	85	·186	SE	0-1	10	or	+
" 21	13	9·890	39·6	36·9	78	·192	ESE	0	10	o	1-2-4
" "	17	9·848	39·7	37·1	79	·194	E	0-1	10	o	+
" 22	Noon	9·666	43·7	40·7	77	·221	ESE	0-1	10	o	1-2-3
" 23	Noon	9·585	46·0	43·4	82	·252	ESE	0-1	10	o	1-2-4
" "	18	9·561	49·1	45·0	72	·254	SE	1-2	10	oq	1-2-4
" 24	16	9·539	48·0	46·0	86	·285	SE	0-1	10	or	1-2-4
" "	18	9·565	46·2	45·5	96	·297	W	0	10	or	1-2-4
" 25	17	9·648	46·1	43·4	81	·251	SE	1-2	8	c	+
" "	18	9·642	45·0	42·3	80	·239	ESE	0-1	4	bc	+
" "	20	9·665	43·0	41·0	84	·234	SE	1-2	3	bcq	?
" 26	Noon	9·524	40·0	35·3	65	·161	E	1-2	10	o	0
" "	18	9·463	39·1	34·5	66	·156	E	2-4	10	o	1
" 27	Noon	9·227	39·7	36·0	71	·175	ESE	3-5	10	oq	1-2-4
" "	13	9·235	39·0	35·7	75	·176	ESE	2-4	10	orq	1-2
" "	15	9·240	39·0	35·6	74	·174	E	1-2	10	oq	1-2
" "	18	9·248	38·0	35·1	76	·175	E	2-4	10	or	+
" 28	17	9·349	40·0	37·6	81	·200	ESE	1-2	10	or	+
" "	18	9·359	38·5	37·1	88	·205	ESE	0-1	10	or	1-2-4
" "	20	9·383	39·5	37·2	82	·193	SE	0-1	4	bc	0

TABLE XII.—*Observations taken on January 14th, 1902, during an Ascent of Sgor-a-Mhaim.*

Hour.	Height.	Temperature.	Wind.	Force.	Cloud.	Temperature.		
						Ben Nevis.	Fort-William.	Achariach.
	Fect.							
10.23	273	20·9	Calm	0	2	...	...	18·7
10.29	389	22·0	Calm	0	3	...	...	19·0
11	1346	24·4	Calm	0	4	23·3	23·7	20·0
11.30	2182	24·3	SSE	1-2	7	...	...	22·5
12	2954	23·2	S	1-2	3	24·2	25·6	23·8
12.30	3601	22·5	SSW	2	1	...	...	23·7
12.45	3601	22·5	SSW	2	1	(19·2)	(26·7)	23·7
13	3197	23·7	S	0-1	1	19·2	27·0	23·2
13.30	2644	24·6	S	1	1	(19·2)	...	23·5
14	1741	26·9	S	0-1	1	19·2	27·7	26·2
14.30	848	26·0	Calm	0	0	...	...	26·0
14.48	320	28·2	Calm	0	0	...	...	25·5

ISOBARS AND WINDS AT 8 A.M. From the *Weekly Weather Reports* of the Meteorological Office, London.

27th October 1901.

FIG. 2.—Föhn. Rainy Weather.

1st November 1901.

FIG. 3.—Föhn. Fine Weather.

1st February 1902.

FIG. 4.—Up-bank Thaw. Anti-cyclonic conditions.

11th February 1902.

FIG. 5.—Up-bank Thaw. Cyclonic conditions.