

2 SNOW SURVEY OF GREAT BRITAIN

Season 1962-63

by R. E. Booth

The basic material for this report has been obtained, as in previous years, from returns made by voluntary observers who have, month by month, provided daily records of snowfall and of snow-cover within sight of their station. These records from a network of stations distributed over the country have been augmented by data extracted from the monthly returns of official weather stations and of voluntary climatological and rainfall stations reporting to the Meteorological Office. Without the co-operation of all those responsible for voluntary observations, this report could not have been prepared in such detail. The measurements of snow depths in the following pages refer in general to observations taken at 0900 GMT or thereabouts.

Summary of the general weather during the season

Table I gives for England and Wales and for Scotland the mean temperature for the month and the difference from the 1931-60 temperature average together with the amount of precipitation and the percentage of the 1916-50 rainfall average and the monthly average for the season as a whole. It shows that the season September 1962 to May 1963 was generally cold, temperature only exceeding the average in England and Wales during October, and in Scotland during October and March. The months December to February were exceptionally cold, especially in England and Wales, and from observations and estimations it has been judged the coldest winter in cen-

tral England since 1740. Snowfall in many places exceeded that of 1947. Rainfall (plus rainfall equivalent of melted snow and hail) was below the average both in England and Wales and in Scotland in spite of March being a very wet month; January and February were very dry and October had less than half its usual amount of rainfall.

Data for ten representative stations* in Great Britain at altitudes between 400 and 1200 ft, which have been used for seasonal comparisons since the survey of 1946-47, give for the season 1962-63 a mean of 69 days with snow lying at the morning observation. This is 40 days more than the previous season and 37 days more than the mean of the 17 seasons 1946-47 to 1962-63. The 1962-63 mean was three days more than the mean for 1946-47 and was one of only three seasons since then with a mean of more than 50 days of snow-cover at the representative stations. The other two seasons were 1950-51 and 1954-55 with means of 52 and 53 days respectively. Apart from these four seasons the mean number of days of snow-cover during any of the remaining 13 seasons since the comparative survey started was 36 (in 1955-56) or less. Snow-cover at the ten representative stations was mainly confined to the period November-March, and at most of the stations ground was covered throughout January and February.

At altitudes of about 1000 ft snow fell sometime during the day on about 70 days in the Cairngorms and Grampians, on about 60 days in the northern Pennines,

TABLE I

	1962				1963					Season 1962-63
	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
<i>Temperature (°C)</i>										
England and Wales										
Mean Temp.	13.2	11.3	6.2	3.0	-1.0	0.0	6.4	8.7	10.9	6.5
Diff from Av.	-1.1	+0.5	-1.3	-2.6	-5.3	-4.5	0.0	-0.1	-0.8	-1.7
Scotland										
Mean Temp.	11.4	10.2	5.2	3.8	0.7	1.3	5.7	7.5	9.3	6.1
Diff. from Av.	-1.0	+0.8	-1.1	-0.9	-2.8	-3.0	+0.3	0.0	-0.9	-1.0
<i>Precipitation (inches)</i>										
England and Wales										
Monthly total	4.0	1.5	2.8	2.9	1.2	1.4	4.1	3.2	2.0	23.1
% Average	133	42	74	83	33	54	186	139	46	85
Scotland										
Monthly total	6.1	3.3	4.1	6.5	1.6	1.3	6.0	3.3	4.6	37.8
% Average	122	53	72	116	26	31	171	94	135	87

* These stations are Fort Augustus, Braemar, West Linton, Eskdalemuir, Huddersfield Oakes, Buxton, Luton, Little Rissington, Newton Abbott, Llandrindod Wells.

the Cheviots and southern Uplands, about 40 days in Snowdonia and about 30 days in Dartmoor. At stations at slightly lower levels the Yorkshire Moors had about 50 days and the Cotswolds 40 days. At heights from sea level to about 300 ft snow fell on 60-70 days in the Orkneys and Shetlands, on 50-60 days in north-east Scotland, on 40-50 days over much of the East Riding of Yorkshire, Lincolnshire and East Anglia, and on 30-40 days over much of the lower ground in south and south-east England. Snow fell on about 40 days at Edinburgh, Liverpool and Manchester, on 45 days at Birmingham and on 55 days at Kew. Elsewhere in the London area there was less snow; Kensington Palace reported 40 days and Greenwich only 30 days. In the Channel Islands snow was reported on 32 days in Guernsey but on only 14 in Jersey.

The duration of snow-cover in the mountainous regions of Great Britain during the season of this survey is summarised in Table II and illustrated for a selected number of stations in Fig. 1. At altitudes of about 1000 ft ground was snow-covered on around 90-100 days in the Cairngorms and Grampians, 80-90 days in the Cheviots and northern Pennines and on around 70-80 days in the Lake District, North Wales and around the Brecon Beacons. At lower levels snow-cover was mainly confined to the months of November to February though ground was snow-covered at many stations during the first week of March and locally on the 5th and 15th of April. It was observed on about 50-60 mornings in the eastern coastal districts of Scotland and over much of east and south-east England including the London area, on 40-50 mornings in many south coast regions, on 30-40 mornings in coastal districts of Wales and over Dartmoor, and on 10-20 mornings in the extreme south-west and in the Channel Islands.

Notes on the weather of the individual months

September. In September north-westerly winds originating in high latitudes brought some scattered snow showers to the higher ground in Scotland on the 16th.

October. Snowfall during October was confined to the last week of the month. Fronts associated with a complex depression approaching western Scotland on the 24th gave widespread rain during the night, and as they became slow-moving the rain continued in many districts for nearly 48 hours turning to sleet and snow at times over the higher ground in Scotland. Wintry showers continued daily in the north until the end of the month and there were snow showers as far south as North Wales on the 26th and 28th.

November. Most of the snowfall during the dull and rather cold month of November was confined to the period 12th to 24th, though there was some sleet or snow in parts of Scotland on the 1st associated with a deep depression to the west of the British Isles. On the 12th fronts moving slowly south-eastwards towards Scotland brought sleet and snow to the higher ground in Scotland and northern England as they displaced an easterly airstream which had been established over the country for some days. There was little snow on the 13th, but the next day northerly winds of arctic origin brought snow showers down as far south as Wiltshire. The northerly winds persisted throughout the 15th with snow showers in most areas,

but during the 16th and 17th a depression from western Scotland moved south-east across the country to northern France. Snow fell practically everywhere except in the extreme south-west, and falls were substantial in places. On the 17th snow lay 7 inches deep in parts of Scotland and Wales at heights of 1000 feet or more and there were drifts up to 3 feet deep. Behind the depression cold northerly winds with scattered snow or sleet showers persisted for the next two or three days. By the 19th snow had accumulated to a foot or more in depth in many parts of Scotland and the snow-line had descended to 500 feet. On the 20th a depression moving rapidly south-eastwards across southern England brought rain to the south-west and snow and sleet to south-east England, but although snow was fairly widespread it did not lie for long in the south-east; it lay 1 inch deep at Hampstead on the morning of the 21st. During the next two or three days any further snowfall was confined to the high ground in Scotland, but ground remained snow-covered in parts of Scotland and northern England until the 23rd.

December. December was a cold month with sunny intervals interspersed with periods of dense fog, frost, gales and heavy snowfall. In England and Wales the snow occurred during three main periods, around the 12th, around the 18th and during the last week of the month. In Scotland snow was reported over the higher ground at many places daily from the 8th until the end of the month.

Rain in Scotland and Northern Ireland, associated with a deep depression near Iceland, spread to all districts on the 8th turning to snow over much of the higher ground in Scotland. As the depression moved eastwards, north-westerly gales and frequent snow showers spread over much of the country behind it, and ground in many parts of Scotland above 800 ft became snow-covered. Another depression moving eastwards near Shetlands brought renewed snow to Scotland on the 11th and northerly winds behind the depression brought snow to nearly all districts on the 12th and 13th; it gave snow-cover as far south as Plymouth, though only 0.5 inch fell there.

Warmer air from the Atlantic brought rain to much of the country on the 14th and 15th with snow over much of the higher ground in Scotland. Overnight rain associated with a trough of low pressure moving east across the country on the 17th was followed by north-westerly winds with snow showers in Scotland and northern England. The next two or three days were milder with very little snow, even over the higher ground in Scotland.

On the 22nd a rapid drop in temperature, which for the previous two weeks had been about average for the time of year, marked the beginning of a long cold winter with temperatures near or below freezing which continued with only minor interruptions until late February; they did not approach normal values again until around March 4th. An easterly airstream from central Russia brought sub-freezing temperatures to much of England on the 23rd, and the next day a belt of rain turned to snow as it moved slowly south over northern Scotland; parts of central and northern Scotland and northern England had 2-3 inches of snow on Christmas Day. The snow belt reached southern England during the afternoon of the 26th where it remained almost stationary giving almost 24 hours of

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continuous snow; level snow accumulated to a depth of a foot or more over much of south-east England. Snow continued over most of southern England the next day.

On the 29th a depression moved northwards from the Bay of Biscay towards our south-west coasts and an associated trough of low pressure advanced slowly towards the English Channel. Winds increased to gale force in many places and during the afternoon the first of the noteworthy blizzards of the winter swept south-west England and the Channel coasts. A gust of 77 kt was recorded at the Lizard. Heavy snowfall, blown into deep drifts, spread slowly northwards during the night. Many towns and villages, including Weymouth, Blandford Forum and Okehampton, were isolated, both road and rail traffic being brought to a halt by snowdrifts up to 15 feet deep in the west country and 8 feet deep in Kent. By the evening of the 30th the snow had reached the Lake District, but in the extreme south-west with a slight rise in temperature it turned to rain. Over most of the country, however, temperature remained below freezing. At least five people are known to have died in snow storms over southern England on the 30th and five more deaths occurred on the 31st. Helicopters were used to assist people trapped in North Devon where conditions were already comparable to those of 1947.

January. The very cold weather with easterly winds continued throughout January, the coldest periods being around the 12th and the 23rd. During the first four days a strong easterly airstream covered the British Isles as a trough of low pressure moved slowly northwards from France to southern England. Scattered snow showers and periods of freezing rain on the 1st and 2nd were followed by a renewal of blizzard conditions over southern England as a depression moved northwards from France. The south-west was again the most badly hit with level snow 12-18 inches deep over wide areas and with deep snowdrifts isolating many towns and villages for the second time within a week. The depression became slow-moving over southern England, but with rising pressure during the next two days further falls of snow were mainly slight.

The 7th-12th was a generally dry but very cold period with day temperatures around freezing and with very severe frost at night. On the 13th a ridge of high pressure moved westward from the North Sea over the British Isles and light northerly winds brought a slow day-time thaw to most districts on the 14th, but the formation of an anticyclone over Scandinavia led to the re-establishment of a cold easterly airstream and scattered snow showers over the British Isles on the 16th.

Easterly winds increased to gale force in many places during the next two or three days. A blizzard over the Yorkshire Moors on the 16th moved slowly northwards. By the 18th Scotland was virtually cut off from England. Gales were widespread on the 19th and gusts of 68 kt were recorded on the 19th and 20th at Shoberyness and Ronaldsway respectively.

A complex depression in the Bay of Biscay brought renewed snow to south-west England on the 21st. At Princetown, on Dartmoor, snow was 2 feet deep and it was reported that drifts of 12-15 feet were very common in the neighbourhood and that a drift of 25 feet was observed near the village.

February. Very cold air from the Continent affected the country for most of the month, though there were some interludes with northerly winds. Deep depressions which approached western Ireland on the 4th and 14th were not successful in changing the regime for more than short periods, and the month ensured that, at least in central England, the winter as a whole was the coldest since 1740.

High pressure from Scandinavia to southern Iceland maintained cold north-easterly winds and almost continuous frost which was very severe at night during the first few days of the month. On the 4th a depression became slow-moving off the west coast of Ireland. Winds increased to gale force on the 5th and 6th and rain in the extreme south-west turned to snow as it spread north-east. Snowfall was frequently heavy and prolonged with considerable drifting. Exmoor and Dartmoor had 36 hours of continuous snow which accumulated to a level depth of 22 inches at Princetown; elsewhere there were drifts up to 20 feet deep isolating many farms and villages. In some areas it was the worst blizzard of the winter.

The blizzard was followed by a very slow thaw with some flooding due to melting snow in Devon and Cornwall and outbreaks of heavy rain on the 9th. Further falls of snow, chiefly in southern England on the 10th, gradually died away as a depression moved north-eastwards from the Bay of Biscay to Poland. Tredegar, South Wales, which was isolated for many days, reported a level snow depth of 65 inches on the 7th and 8th which decreased to 40 inches by the 10th.

Winds increased to gale force on the 13th and 14th as a vigorous depression approached the west of Ireland. Rain reached south-west England late on the 13th, but as it spread north-east the rain turned to snow on the 14th. Snowfall was considerable in the Pennines and in Scotland, a further 7 inches being added to the snow depth at Kielder Castle bringing the accumulated depth to 22 inches. In the Redewater area in Northumberland (800 feet) level snow was 32 inches deep.

The very cold weather spread back across the whole country during the third week as winds backed towards the east on the 16th. Heavy falls of snow continued in the extreme north-west of England and the Border country on the 17th. There were scattered snow showers mainly in eastern districts during the next day or two and a period of more continuous snow in southern England on the 19th and 20th as a depression off our south-west coasts moved eastwards into northern France.

The last week of the month was mainly fine with scattered snow showers until the 23rd and day temperatures a little above freezing though night frosts were severe.

March. March marked the end of an exceptionally cold winter. Temperature was about average and it was very wet.

The opening days were fine and sunny with south-easterly winds and afternoon temperatures over most of the country only slightly below normal but still with night frost. Many northern districts remained snow-covered until the 5th. Snow was 12 inches deep at many places in the north-east; at Redewater (800 ft) in Northumberland it was still 25 inches deep on the 5th and it was not until the 8th that all the snow had finally disappeared.

On the 11th a deep depression moved eastwards along the English Channel and there were some local snow showers the next day in eastern England with northerly winds behind it.

On the 21st and 22nd there were occasional light snow showers in many parts of southern England in a north-easterly airstream associated with high pressure to the north of the British Isles.

On the 25th and 26th small depressions moved eastwards along the English Channel or over northern France, and on the 28th a more vigorous depression moved south-eastwards from the south of Iceland to become centred over the British Isles on the 29th. All these disturbances were accompanied by occasional rain or showers with snow or sleet locally. This wintry precipitation was most frequent on 29th and 30th, but was observed at one place or another in the Midlands or northern England daily from the 25th to the 31st.

April. April was changeable and rather dull and wet in the south.

The first two days were mild with occasional rain, but on the 3rd an anticyclone became established to the north of Scotland and cold north-easterly winds on its southern flank brought wintry showers of snow and hail to most parts of the British Isles on the 4th and 5th. Falls were mainly slight but ground became snow-covered for a short time at Tredegar, Malham Tarn and Gorleston.

On the 11th a deep depression north of Scotland moved slowly northwards while a cold front moved slowly south-eastwards across England and Wales leaving the British Isles in a cold unstable westerly air-

stream. Showers fell as sleet and snow in many districts on the 11th and 12th ground becoming snow-covered to a depth of 1.5 inches at Cragg Gathering Grounds (1,200 ft) near Waterfoot in Lancashire on the 11th. Some showers also fell on the 12th and 13th and a few flakes were observed in southern England on the 15th and 17th, but the second half of the month was generally mild without any appreciable falls.

May. May was changeable and cool.

Cool north-westerly winds covered the British Isles during the first two or three days of the month and weather was generally sunny with scattered showers, some of which were sleet or snow. On the 4th a depression near Iceland moved rather slowly south-eastwards and an associated cold front moved across all districts of the British Isles during the night. There were snow showers in many northern and Midland districts on the 5th in the unstable air behind the front.

Duration of snow-cover on British Mountains

Diagrams showing the distribution of snow-cover relative to height for 11 areas in the British mountains are given in Fig. I. They are based very largely upon reports received from stations given in Table II in which the heights quoted for various mountain ranges are the heights of the highest peaks visible from the observing stations. It was found necessary in a few cases to supplement these reports with reports from other stations in the same area, but the names of these additional stations have not been included in the table.

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TABLE II

Number of days with snow lying in the British Mountains 1962-63

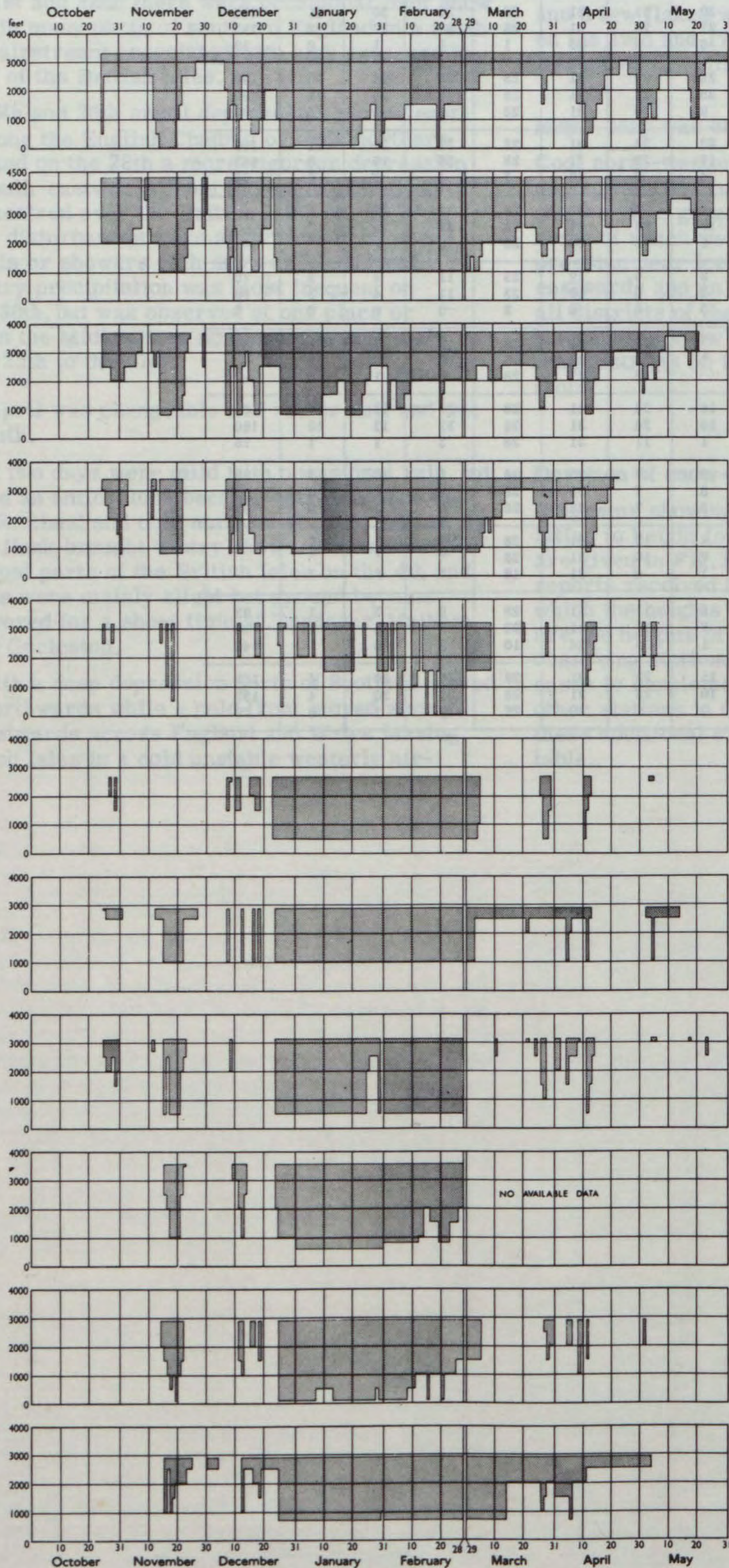
(a) Near summit (b) At about 2500 ft (c) At station level

			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Season
A'Chailleach	(3276 ft)	a	6	30	31	31	28	31	30	31	218
* Station Glackour	(80 ft)	b	6	27	24	31	28	31	27	23	197
Ross-shire		c	0	6	6	25	1	0	1	0	39
Cairngorms	(4296 ft)	a	6	26	24	31	28	30	28	26	199
Station Achnagoichan	(1000 ft)	b	6	25	23	31	28	30	25	12	180
Inverness-shire		c	0	9	10	31	28	5	3	0	86
Creag Meagaidh	(3700 ft)	a	6	23	24	31	28	31	31	21	195
Station Fersit	(850 ft)	b	6	17	23	31	28	31	19	8	163
Inverness-shire		c	0	4	9	16	5	1	3	0	38
Mountains Round Glen Lyon	(3407 ft)	a	6	14	24	31	28	31	22	*	—
Station Meggernie Castle	(760 ft)	b	5	12	23	31	28	31	14	*	—
Perthshire		c	0	9	6	28	28	6	2	*	—
Ben More	(3170 ft)	a	2	3	5	19	23	11	4	3	70
Station Rhuvaal	(63 ft)	b	2	3	4	19	23	11	4	3	69
Argyllshire		c	0	0	0	0	2	0	0	0	2
Kells Range	(2668 ft)	a	2		16	31	28	9	3	2	—
Station Forrest Lodge	(500 ft)	b	2	*	16	31	28	9	3	2	—
Kirkcudbrightshire		c	0		8	27	28	6	1	0	—
Cross Fell	(2893 ft)	a	6	16	24	31	28	31	13	12	161
Station Alston	(1070 ft)	b	5	16	24	31	28	31	13	12	160
Cumberland		c	0	1	11	31	28	3	1	1	76
Helvellyn	(3118 ft)	a	6	9	7	30	28	5	10	3	98
*Station Patterdale	(520 ft)	b	6	8	7	30	28	4	9	0	92
Westmorland		c	0	5	7	26	28	0	1	0	67
Snowdonia	(3560 ft)	a	0	8	13	31	28	*	*	*	—
Station Capel Curig	(640 ft)	b	0	7	10	31	28	*	*	*	—
Caernarvonshire		c	0	1	4	31	16	*	*	*	—
Cader Idris	(2927 ft)	a	0	8	11	31	28	9	5	1	93
Station Dolgelly	(90 ft)	b	0	8	11	31	28	9	5	1	93
Merionethshire		c	0	1	5	24	10	0	0	0	40
Brecon Beacons	(2906 ft)	a	0	15	23	31	28	31	30	4	162
Station Tairbull	(660 ft)	b	0	10	23	31	28	31	30	4	157
Brecknockshire		c	0	0	6	30	28	14	1	0	79

* No Record Available

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DISTRIBUTION OF SNOW COVER



A'CHAILLEACH
Station GLACKOUR (80 ft.)
observations
from 0 to 3,276 ft.

CAIRNGORMS
Station ACHNAGOCHAN
(1,000 ft.)
observations
from 1000 to 4296 ft.

CREAG MEAGAIH
Station FERSIT (850 ft.)
observations
from 800 to 3,700 ft.

**Mountains around
GLEN LYON**
Station
MEGGERNIE CASTLE (760 ft.)
observations
from 760 to 3407 ft.

BEN MORE
Station RHUVAAL (63 ft.)
observations
from 0 to 3,170 ft.

KELL'S RANGE
Station FORREST LODGE (500 ft.)
observations
from 500 to 2,668 ft.

CROSS FELL
Station ALSTON (1,070 ft.)
observations
from 1,000 to 2,893 ft.

HELVELLYN
Station PATERDALE (520 ft.)
observations
from 500 to 3,118 ft.

SNOWDONIA
Station CAPEL CURIG (640 ft.)
observations
from 640 to 3,560 ft.

CADER IDRIS
Station DOLGELLY (90 ft.)
observations
from 100 to 2,927 ft.

BRECON BEACONS
Station TAIRBULL (660 ft.)
observations
from 660 to 2,906 ft.

NUMBER OF DAYS WITH SNOW LYING

