

2 SNOW SURVEY OF GREAT BRITAIN

Season 1961-1962

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 provided month by month daily records of snowfall and of snow-cover within sight of their stations. 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 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. The measurement of snow depths in the following pages refers in

general to observations taken at 0900 G.M.T., or thereabouts.

Summary of the 1961-1962 season

Table I gives, for England and Wales and for Scotland, mean monthly temperatures and differences from the 1921-50 average, the amount of precipitation (rainfall plus rainfall equivalent of melted snow and hail) and the percentage of the 1916-50 average for each month of the whole season, September to May. It shows that the season as a whole was a little on the cold side. Rainfall was average over England and Wales and somewhat above average over Scotland.

TABLE I

	1961				1962				May	Season 1961-62
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr		
<i>Temperature °C</i>										
England and Wales										
Mean Temp.	15.6	11.5	7.0	3.5	5.1	5.1	3.3	8.0	10.6	7.7
Diff. from average	+1.4	+0.7	-0.2	-1.8	+0.4	+0.3	-3.1	-0.6	-1.0	-0.4
Scotland										
Mean Temp.	12.1	9.1	6.0	4.7	4.1	4.6	2.7	6.8	9.5	6.6
Diff. from average	+1.1	+0.8	-0.6	-2.6	+0.2	+0.4	-2.7	-0.4	-0.3	-0.5
<i>Precipitation (inches)</i>										
England and Wales										
Monthly Total	3.1	4.6	2.4	3.9	4.4	1.5	1.7	2.8	2.6	27.0
% of average	103	128	63	111	122	58	77	122	104	100
Scotland										
Monthly Total	6.1	7.9	4.7	4.6	9.1	5.3	2.6	2.9	3.6	46.8
% of average	122	127	82	82	149	126	74	83	106	108

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 1961-62 season a mean of 29 days with snow-lying at the morning observation. This is 19 days more than the previous season and one day less than the average for the 16 seasons 1946-47 to 1961-62. The 1961-62 mean was the largest since 1955-56, but during the six seasons 1950-51 to 1955-56 only 1953-54 had a smaller mean. The number of days with snow lying in March was greater than during either January or February, usually the months of greatest snowfall.

At altitudes of about 1,000 ft. snow fell on about 70 days in the Cairngorms, in Snowdonia and in the neighbourhood of Lowther Hill, on about 50 days in Sutherland, the Grampians, the Southern Uplands and the northern Pennines, and on about 30 days over

ground at this height in most other areas away from the coasts north of a line Barmouth to Bridlington as well as in the neighbourhood of the Brecon Beacons. At stations about 400-800 ft. snow fell on about 30 days in the Yorkshire Wolds, the Chiltern Hills, the Marlborough Downs and the Malvern Hills. At heights below about 300 ft. there were 80-90 days of snow in the Shetlands, 50-60 days in the Orkneys, along the north coast of Scotland and in the Hebrides, 20-30 in Lancashire, the East Riding of Yorkshire and Lincolnshire, and 15-20 days in East Anglia, the London area and along the south coast of England.

The seasonal duration of snow-cover in the mountainous regions of Great Britain is summarized in Table II and illustrated for a selected number of stations in Fig. 2. At lower, levels snow-cover was mainly confined to the months December to March, being observed on about 40 mornings in east Scotland north of the Firth of Forth, on 30 mornings or thereabouts in the Shetlands, Orkneys and Hebrides and along the north coast of Scotland, on 20-30 mornings in north-east England and in the Manchester area,

* Fort Augustus, Braemar, West Linton, Eskdalemuir, Huddersfield (Oakes), Buxton, Luton, Little Rissington, Newton Abbot, Llandrindod Wells.

on 10–20 mornings over most of Lancashire and the Lake District, and over Wales and over central and eastern England between 53°N and $51\frac{1}{2}^{\circ}\text{N}$, and on less than 10 mornings over most of the country further south.

Notes on the weather of the months

September. The only wintry precipitation recorded in Britain during the month was some slight snow at Glenmore on the 26th as a cold front crossed the country.

October was a generally mild month, but troughs crossing the country gave a little snow on some of the higher peaks in north Scotland on the 10th and 11th. Following a spell of anticyclonic weather a north-westerly airstream brought occasional snow showers on the 16th to some of the higher ground in Scotland above 800 ft. and a generally northerly wind maintained these showers for another three days; they extended as far south as the higher ground of the North York Moors on the 18th.

November, was sunny and mainly dry with mean temperature below the average; there were cold periods around the 3rd, 10th and 26th. Northerly winds behind an eastward-moving depression brought snow showers to parts of Scotland on the 2nd; in the Monadhliath mountains snow-cover extended down to 1,000 ft. With the approach of a ridge of high pressure from the west the northerly wind and scattered snow showers persisted for another two days extending as far south as the south coast of England on the 3rd; snow lay 2 inches deep at Glenmore Lodge on the 3rd and 4th. The cold front of a depression to the north of Scotland moved eastwards across the country on the 8th bringing some snow to the highest ground in Scotland and North Wales. There were scattered wintry showers during the next three days with winds mainly between north-west and north, but these were chiefly over the high ground in Scotland and snow did not lie below about 2,500 ft. The last cold period of the month was heralded on the 22nd by slight snow showers over the higher ground in Scotland as a trough of low pressure moved across the country. From the 23rd to the 25th the British Isles came within the circulation of a deep depression almost stationary to the east of Iceland. Westerly winds brought frequent snow showers to northern Scotland, and there were scattered wintry showers over the higher ground in northwest England. Level snow lay to a depth of 3 inches in parts of the north-west Highlands even on the lower ground, and ground in this area above 1,000 ft. remained snow-covered until about mid-April. Scattered snow showers continued over the higher ground in Scotland on the 26th and 27th in a northerly airstream behind the low pressure system which was now over Scandinavia and extended southwards on the 28th and 29th over the high ground of northern England as another depression moved eastwards south of Iceland.

December was a cold month particularly during the second half. Snow fell mainly during the first and last nine days of the month; some falls were heavy. During the first week a cold northerly airstream over the Norwegian Sea, between high pressure over Greenland and low over Scandinavia, occasionally spread over the British Isles bringing snow showers to most districts. These were mainly over the higher ground in Scotland on the 1st, but on the 2nd a polar depression skirting north-east Scotland brought considerable snowfall to many northern districts; on the morning of the 3rd snow was 9 inches deep at Glenmore Lodge (1,070 ft.) and 4 inches deep at Malham Tarn (1,300 ft.) in the West Riding of Yorkshire. On the 4th a deepening depression approaching Ireland from the Atlantic brought prolonged snowfall to Scotland and northern England which lay to a depth of 6 inches over much of the Highlands and 1–3 inches further south. Fresh north-westerly winds behind the depression brought wintry showers to most districts on the 5th and these continued on the 6th as a minor trough moved south-east across the country. Snowfall was confined to the higher ground of Scotland on the 7th as a ridge of high pressure moved east across the British Isles. On the 8th wind backed towards south-east as a depression approaching from the Atlantic brought milder weather preceded by snow and sleet in most districts. The mild weather continued until the 13th when there was an exceptionally rapid rise of pressure marking the beginning of a cold foggy period. On the 21st the anticyclone which had been covering the British Isles for nearly a week declined, and from about the 23rd until the end of the month weather was dominated by cold easterly winds with high pressure to the north of the British Isles and low pressure systems moving towards the Bay of Biscay. On most days there was occasional slight snow over the higher ground in Scotland and northern England as well as in eastern coastal districts, the snow being more prolonged on the 28th in the north as a small disturbance moved across Scotland. On the 29th milder air from the Atlantic brought rain to southern England which turned to snow as it moved north, ground becoming snow-covered to a depth of 3–6 inches in parts of the Midlands on the morning of the 30th. On the last day of the month a depression from France moved north-east bringing heavy falls of snow to south-east England; much of the lower ground had 6–12 inches of snow while in the Chilterns level snow lay up to a depth of 15 inches and there were drifts 3 feet deep.

January was sunny but changeable; it was mostly mild except for cold periods at the beginning and towards the end of the month. Snowfall in southern and central England was mostly confined to these periods, but in Scotland there was snow at one place or another every day of the month and the higher ground was snow-covered down to 1,500 ft. in most areas. On the 1st the depression which had given widespread snow on the last day of December moved away to the southern Baltic, and in the northerly

airstream behind it there were occasional snow showers in eastern districts of England and Scotland. From 2nd to 5th a ridge of high pressure extended from the region of the Azores across the British Isles and weather remained mainly dry and cold with unusually severe night frosts. There were, however, scattered snow showers in Scotland and north and east England on the 2nd and isolated showers during the next day or two. The snow cover persisted in most districts until the 6th when a deep depression approaching Iceland brought strong south-westerly winds to all parts of the British Isles with a rapid rise of temperature and widespread rain, which effectively cleared the snow except over the higher ground in Scotland. Winds remained predominantly south-westerly with occasional rain and sleet and snow in the Scottish Highlands until the 11th. On the 12th a deep depression moving eastwards across Scotland brought heavy falls of snow to Scotland and northern England; in north and east Scotland there were drifts up to 5 ft. deep. During the next few days a complex area of low pressure between Scotland and Iceland brought more frequent northwesterly winds and an increase in snow showers to the lower ground of central and northern England; the higher ground became snow-covered again, snow lying to a depth of 1 inch at Malham Tarn (1,300 ft.) in the West Riding of Yorkshire on the 12th–16th and 3 inches deep at Moor House (1,825 ft.) in Westmorland on the 14th and 15th. There were scattered snow showers in Scotland and northern England on the 18th, but the next few days were quieter with sunny periods alternating with belts of frontal rain. A deepening depression brought heavy rain and gales to most districts on the 21st, and there were thundery showers of sleet or snow in most northern districts behind it on the 22nd. On the 29th an anticyclone over Scandinavia intensified and an easterly airstream spread over the British Isles bringing scattered snow showers to east coast districts. The showers extended to most central and southern districts the next day, but a milder south-westerly airstream brought overnight snow to most districts south-east of a line Spurn Head to Portland Bill, which lay to depths of up to 3 inches on the morning of the 31st, but it nearly all melted during the day.

February was mostly mild but there were cold periods on the 13th–15th and during the last week of the month. In Scotland snow or sleet fell at one place or another during the first 18 and last 6 days of the month; in England and Wales snowfall was rather less frequent and was confined chiefly to the higher ground in the north, except during the cold periods. After a spell of stormy weather northerly winds spread over the whole country on the 13th bringing snow showers to most districts. On the morning of the 14th snow lay 3 inches deep in parts of East Anglia. Wintry showers continued in the north throughout the day with temperatures little above freezing point, but on the 15th warm-front rain, preceded by snow over higher ground, spread over the whole country. By the 17th little snow-cover remained below 1,000 ft.,

even in Scotland, until the 25th. An anticyclone became centred over Scandinavia on the 21st bringing easterly winds to southern England. Scattered light snow showers fell in east and south-east England on the 23rd and these showers became more frequent and heavier during the next two days and covered most of the country. The easterly winds became fresh or strong on the 26th reaching gale force at times on the east coast, and snow showers became frequent and prolonged in east and south-east England and over high ground. Falls accumulated to a depth of 4–6 inches in parts of Lincolnshire and south-east England on the 27th and 10 inches in parts of north-east England. A depression over northern France gave snow in the Channel Islands, a comparatively rare event; it lay two inches deep on Guernsey and 10 inches deep on Jersey on the morning of the 28th.

March was an unusually cold month with snow at one place or another on most days, falls occasionally being heavy, especially during the first week. Until the 25th weather was predominantly anticyclonic in character and winds mainly from a northerly direction. The last six days were cyclonic and somewhat milder. On the 1st the cold front of a shallow depression in the North Sea brought considerable snowfall to parts of Scotland and northern England; on the morning of the 2nd snow lay 15 inches deep at Haydon Bridge. The front moved south and became slow-moving along the English Channel on the 3rd bringing heavy falls to parts of southern England. Meanwhile snow showers continued behind the front in the north and east with moderate falls in places. On the 3rd and 4th snow lay 6–9 inches deep in parts of northern England and Scotland and 2 feet deep in the Cairngorms. A light northerly airstream maintained scattered snow showers on the 6th. The next development was from the west as weather became temporarily less cold. Fronts associated with a complex low pressure area to the west of Ireland moved north-east bringing rain and gales to Cornwall and sleet and snow to most other districts on the 7th and 8th. There was widespread rain but little sleet or snow except over the higher ground in Scotland on the 9th and 10th, but north to north-easterly winds brought snow showers to many districts during the remainder of the second week. A little frontal sleet and snow fell in western districts on the 15th and on the evening of the 16th but an anticyclone from the North Sea became centred over the country on the 17th and weather remained generally sunny and dry until the 19th when weak frontal belts of occasional rain preceded by snow moved slowly south reaching southern England on the night of the 20th/21st. Another trough moving southwards brought snow and sleet to many districts on the 22nd followed by snow showers in a north-easterly airstream on the 23rd, but the milder south-westerly winds of a depression off Scotland brought widespread rain, preceded by snow in the north, on the 25th. Disturbances from the Atlantic brought snow to northern districts on 28th and 29th followed by snow showers on the last two days of the month.

April was another cold month; day temperatures were mainly below average during the first three weeks but night temperatures, although below average in Scotland, were average or a little above in southern England. Snowfall was mainly confined to the first half of the month. The stormy weather of late March continued during the first week with snow somewhere or other every day. Winds between north and west, associated with a depression in the Norwegian Sea, brought snow and sleet showers to many districts on the 1st, ground becoming snow covered to a depth of 2-3 inches in Scotland and 1-2 inches in parts of northern England and the Midlands. A depression from the Atlantic brought snow to many northern districts on the 2nd but it soon turned to rain, and the rain was followed the next day by snow and sleet showers in a northerly airstream extending to the Midlands. On the 4th a depression moved from west Scotland south-eastwards across northern England to the North Sea. Snow which later turned to rain fell to a depth of 2-3 inches in parts of Scotland and 1 inch locally in northern England. A few scattered snow showers over the higher ground in a north-westerly airstream on the 5th and 6th were followed by milder weather on the 7th with snow mainly confined to the Scottish Highlands. The 8th was the last day of the month with snow over any considerable area; with a depression over the North Sea and a trough of low pressure moving southwards over eastern England there was snow in many eastern and Midland districts and ground became snow-

covered to a depth of 3 inches in parts of Yorkshire. There were scattered snow showers in a predominantly northerly airstream in Scotland on the 9th-13th and in northern England on the 9th-10th but falls were light and mainly over the higher ground. On the 14th-16th a ridge of high pressure extended from southern Scandinavia to Scotland and an associated north-east airstream brought scattered snow showers to eastern coastal districts of England.

May, a cool month, was notable for its consistently low daily maximum temperatures after the 10th. Minimum temperatures, however, except during the last week were mainly above average. Snow or sleet fell almost daily in Scotland during the last three weeks, but the falls were slight and of short duration and confined almost entirely to high ground.

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 relevant stations given in Table II in which the heights quoted for various mountain ranges are those of the highest peaks visible from the observing stations. On a small number of occasions it was found necessary to supplement these reports with those from other stations in the same area, although it has not been possible to include the names of these additional stations in the table.

Station: Ayrton (1,070 ft.) Cumbria	a	0	8	13	23	25	28	29	30	31
Station: Helvellyn (3,118 ft.) Westmorland	b	0	2	8	21	23	25	28	29	30
Station: Skelton Range (2,668 ft.) Station: Daltry (Forest Lodge) (2,000 ft.) Kirkcudbrightshire	c	0	0	0	0	0	0	0	0	0
Station: Ben More (3,170 ft.) Station: Rhinns (42 ft.) Argyllshire	d	0	0	0	0	0	0	0	0	0
	e	0	0	0	0	0	0	0	0	0

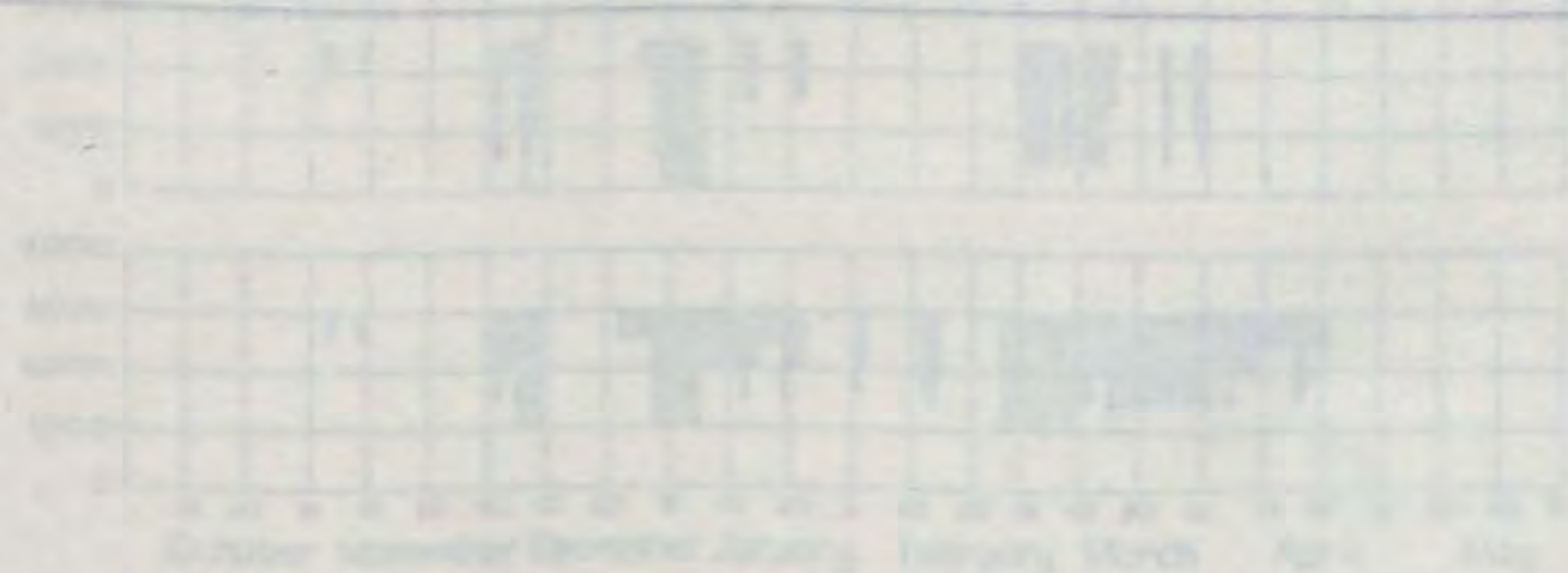


Fig. 1. DURATION OF SNOW COVER
Number of days with snow cover 1951-1952

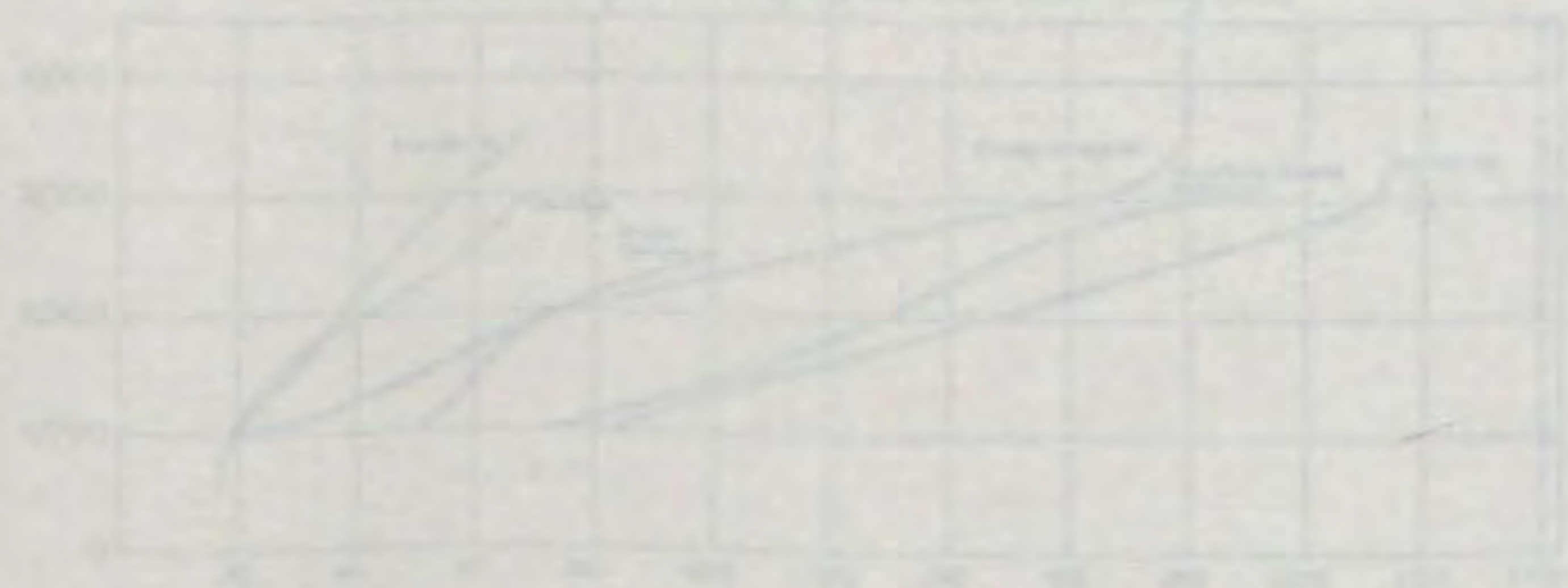


TABLE II 1961-1962
Number of days with snow lying in the British mountains

(a) Near summit. (b) At about 2,500 ft. (c) At station level.
* Observations not available.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Season
Clisham and Roneval (2,622 ft.)	a	0	11	18	12	24	8	0		
Station: Liverburgh, Harris	b	0	11	18	*	12	24	8	0	*
Inverness-shire (25 ft.)	c	0	0	10		1	16	4	0	
Mountains round Glen Lyon (3,407 ft.)	a	10	19	31	31	28	31	26	7	183
Station: Meggernie Castle (760 ft.)	b	5	16	19	28	28	26	22	5	149
Perthshire	c	0	0	15	13	9	5	5	0	47
Cairngorms (4,296 ft.)	a	11	22	31	31	28	31	28	30	212
Station: Achnagoichan (1,000 ft.)	b	8	14	31	31	28	31	27	10	180
Inverness-shire	c	0	0	16	5	13	22	4	0	60
Beinn A Chaorinn (3,437 ft.)	a	17	16	19	31	28	30	30	9	180
Station: Fersit (850 ft.)	b	5	12	15	29	16	17	20	0	114
Inverness-shire	c	0	8	6	8	8	8	3	0	41
Snowdonia (3,560 ft.)	a	0	5	12	9	7	26	10		
Station: Capel Curig (640 ft.)	b	0	4	10	7	7	18	1	*	*
Caernarvonshire	c	0	0	3	5	4	8	0		
South Snowdonia (2,527 ft.)	a	0	3	10	8		13		0	
Station: Llanfrothen (475 ft.)	b	0	3	10	8	*	13	*	0	*
Merionethshire	c	0	0	4	5		7		0	
Brecon Beacons (2,906 ft.)	a	0	2	17	23	7	28	21		
Station: Tairbull (660 ft.)	b	0	2	17	23	7	28	21	*	*
Brecknockshire	c	0	0	0	0	0	0	0		
Cross Fell (2,893 ft.)	a	0	3	16	22	23	28	20	0	112
Station: Alston (1,070 ft.)	b	1	3	16	22	23	28	20	0	113
Cumberland	c	0	0	14	1	5	5	1	0	26
Helvellyn (3,118 ft.)	a	0	8	8	23	15	8	7	0	69
Station: Patterdale (520 ft.)	b	0	2	8	21	13	7	7	0	58
Westmorland	c	0	0	5	5	3	2	1	0	16
Skells Range (2,668 ft.)	a	0	10	19	16	9	18	9	0	81
Station: Dalry (Forest Lodge) (500 ft.)	b	0	*	19	16	9	18	9	0	*
Kirkcudbrightshire	c	0	0	10	3	0	5	0	0	18
Ben More (3,170 ft.)	a	0	7	6	4	8	11	6	0	42
Station: Rhuvaal (42 ft.)	b	0	7	6	4	8	11	6	0	42
Argyllshire	c	0	0	4	0	0	3	0	0	7

SNOW SURVEY 1961-62

Fig. 1. DISTRIBUTION OF SNOW COVER IN RELATION TO HEIGHT

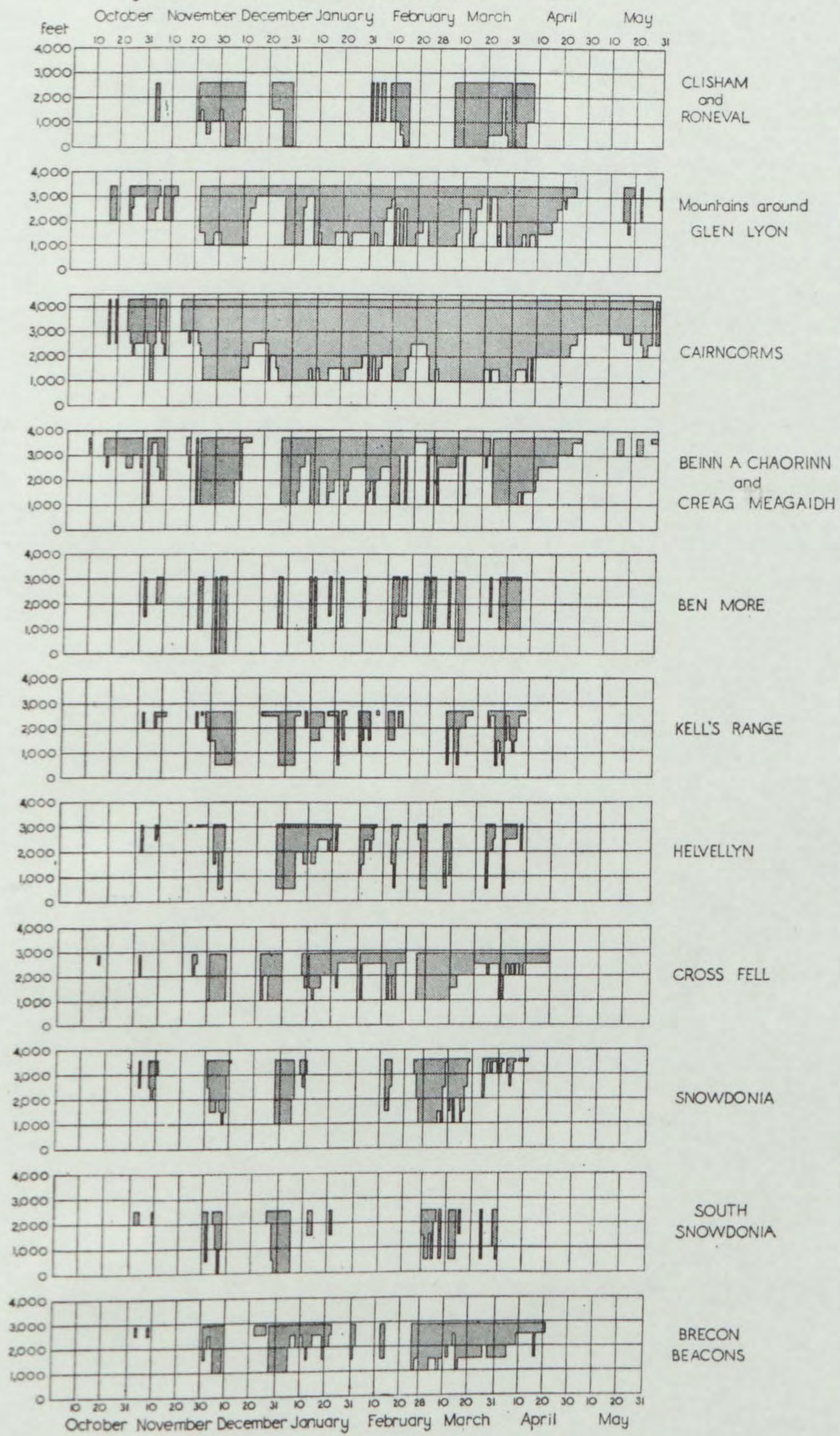


Fig 2 SEASONAL DURATION OF SNOW COVER
Number of days snow lying, October 1961 - May 1962.

