

# BRITISH RAINFALL 1958

## PART III

### SNOW SURVEY OF GREAT BRITAIN

#### SEASON 1957-58

The report which follows is the second annual report of the Snow Survey of Great Britain to appear in *British Rainfall*. Previous annual reports, commencing with that for the season 1953-54, were also prepared by the Meteorological Office but were published in the *Meteorological Magazine*. Annual reports for the seasons 1946-47 to 1952-53 were prepared by the British Glaciological Society, from whom the Meteorological Office assumed responsibility for the Survey in 1953, and were published in the *Journal of Glaciology*.

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. 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 the voluntary observations, this report could not have been prepared in such detail.

The measurements of snow depth in the following pages refer, in general, to 09.00 G.M.T. or thereabouts.

#### *Summary of 1957-58 Season*

The total precipitation during the months September 1957-May 1958 inclusive was slightly less than average, sunshine was about

average, and temperatures about average or rather above until December. Temperatures in the remaining months, except for February over England and Wales, were generally below average and March was particularly cold. Data for ten representative stations in Great Britain at altitudes between 400 ft. and 1,200 ft., which have been used for seasonal comparison since the Survey of 1946-47 give for 1957-58 a mean of 27 days with snow lying at the morning observation. This may be compared with a mean of 12 days for the 1956-57 season and an average of 33 days for the 11 seasons 1946-47 to 1956-57. As in 1955-56, most of the snow fell between January and March, falls being most frequent in March in all areas except north Wales, where January had the greatest frequency.

The number of days with snow falling ranged from more than 80 in the Western Highlands to 10 or less along parts of the Channel coast and in small areas around Cardigan Bay. Totals exceeded 60 days over the Cairngorms, 50 over the northern Pennines, and 40 over the Southern Uplands and the Yorkshire Wolds; 30 or more days with snow falling were reported around Lake Vyrnwy, in the mountains of north Wales, in the southern Pennines, the Lincolnshire Wolds, much of East Anglia, parts of the east Midlands and over the North Downs in Kent. The remainder of the North Downs, the Berkshire and Hampshire Downs, large areas of the Midlands, the whole of Wales apart from the coastal plains, Lancashire and the

Lake District, reported 20 days or more with snow falling. Numerous places along the south and west coasts of England and Wales had less than 20 days, and a few areas around Aberystwyth, the Lizard, Portland Bill and St. Catherine's Point reported snow falling on less than 10 days.

The seasonal duration of snow cover in the mountainous regions of Great Britain is summarised in Table 1 and illustrated for a selected number of these regions in Fig. 2. At lower levels the number of days with snow cover decreased southwards from 30 to 40 in the Shetlands and Orkneys, to 10 to 20 days in southern Scotland, and to less than 10 days in coastal areas of Wales and southern England. Parts of the Hebrides, the north coast of Scotland, and eastern coastal districts of Scotland and England as far south as Suffolk, had between two and five times the average number of days with snow lying. On the other hand the number of days with snow lying in parts of the Southern Uplands and much of the high ground in Wales was well below average.

#### *Notes on the months*

*September* was cool, cloudy and rather wet. Snow and sleet showers occurred around the middle of the month in northern Scotland and also in a few places in north-west England and north Wales. Further snow showers were reported from northern Scotland on the 28th-30th and isolated snow showers also affected the north-east of England on the 30th. Snow lay for a few days on ground above 2,000 ft. in the north of Scotland where a little snow from the previous winter still lay in the sheltered corries in the highest parts of the Cairngorms.

*October* was dry over England and Wales and rather wet over Scotland, but temperatures were generally above average and snowfall consequently slight. No snow was reported in England and the only snow in Wales occurred late in the month, when a light sprinkling was reported at about 1,800 ft. in Radnor Forest. In Scotland there was very

little snow until the second half of the month, and it was then confined to northern districts, where it occurred in the form of showers. Snow was reported at near sea-level on ten days in the Shetlands, on five days in the Orkneys, and on two days in Ross-shire. Little snow settled below 1,500 ft. and even at the highest levels snow cover was intermittent and at times lasted for a few hours only.

*November* was generally dry, with mean temperatures about or slightly above average, although the first half of the month was rather cool. Snow fell in many parts of Scotland between the 1st and the 9th and lay for two to three weeks at heights of 3,000 ft. in the north. During this period the snow line came down to 1,000 ft. at times and to 500 ft. on the Isle of Skye on the 1st. Snow was reported in Snowdonia on the 2nd, 4th and 7th and there was a continuous snow cover from the 2nd to the 11th at 3,000 ft. and above. The snowfall of the 4th also affected many parts of northern England, including the Lake District, parts of Yorkshire, and north-east England, where further slight snow occurred on the 9th. Snow showers developed in many areas around the 20th as a cold northerly airstream spread over the British Isles, but very little snow settled except in coastal areas of north Scotland, over the Yorkshire Wolds and over ground above 2,000 ft. in other parts of Scotland and northern England.

*December* was changeable, with temperatures and sunshine slightly above average. It was rather dry over England and Wales but precipitation was above average in Scotland. There was very little snow over England and Wales, but in the north of Scotland snow fell on 11 days in parts of Ross and Cromarty and on 15 days at relatively low levels in the Orkneys. Some snow occurred in most areas between the 6th and 11th, with the heaviest falls of the month on the 10th or 11th. More than 10 hours of continuous snow were reported from parts of south and central Scotland on the 10th, where level falls of 6 to 8 in. were recorded at elevations of about 500 ft. Snow drifted heavily in strong to gale

force easterly winds, and drifts of 5 to 7 ft. were reported from the Lammermuir Hills. At Margbeg, to the south of Loch Tay, drifts of 3 to 4 ft. quickly thawed on the 12th and some flooding ensued. Further south the snowfall was of shorter duration and the thaw came on the 11th, but meanwhile level falls of 2 to 3 in. had occurred in Yorkshire, and snow ploughs were required to clear drifts over the Wolds. Cold easterly winds which on the 12th were confined to the north of Scotland, gradually spread southwards again over England and Wales during the next few days. Slight sleet and snow showers developed in many areas, notably in the Midlands and eastern England, with snow as far south as the Kent coast on the 15th. The first snow of the winter over the higher parts of Exmoor and Dartmoor fell about this time and a thin covering persisted for a few days on ground above 1,500 ft. in the latter area. Further slight snow showers occurred in Scotland around the 20th and again from the 23rd to 25th, but amounts were small and little snow settled over low ground. After a day or two of rather mild unsettled weather a cold north-westerly airstream reached Scotland on the 27th and spread to all areas late on the 28th, bringing scattered snow showers to the north of Scotland. Much colder air spread south-eastwards over Scotland on the 29th and the showers became more frequent in the north, while a small depression moving quickly eastwards brought more general snow to north-east England and parts of south Scotland on the 30th and 31st. However, no great depths of snow accumulated and there was little drifting. Nevertheless, there were reports of level falls of 3 to 4 in. at relatively low altitudes in parts of the North and East Ridings of Yorkshire.

*January* was another very changeable month. Total precipitation was very near to the average and sunshine rather above average, but mean temperatures were slightly below average. Weather was wintry for about a week commencing on the 18th—temperatures were below freezing day and night in some

districts for several days and there were severe frosts at night with temperatures falling below 0°F. in some places. There was snow in most districts except southern England during the early part of the month. Precipitation was generally in the form of showers, and the heaviest falls occurred in the north and east of Scotland and in north-east England, where depths of 5 in. and more were reported at heights of 500 ft. in Yorkshire. After milder weather on the 4th cold air spread south-eastwards on the 5th and persisted for two days. Snow showers occurred as far south as the Midlands but were largely confined to ground above 500 ft. A depression centred near north-west Scotland on the 8th moved into the southern North Sea, where it became stationary. Slight snow showers developed in many areas as the cold northerly airstream became established over the British Isles, although few showers occurred in north-west and south-east England. Areas as far south as Dorset and Devon were affected by the showers and snow lay on Dartmoor for 3 days at a height of 1,200 ft. The very cold spell in mid-month developed as a direct outbreak of arctic air reached north Scotland on the 18th and the south of England on the 19th. There were snow showers in all areas and small disturbances moving southwards over the country gave rise to periods of more continuous snow, while a small depression moving eastwards along the Channel gave continuous snow in parts of south and south-east England. Snow accumulated to a depth of 3 to 6 in. in many low-lying areas of Scotland, northern England, the Isle of Man, Wales and parts of south-east England, with depths of 1 to 2 in. in most other areas. Level falls of 16 in. were reported at near sea-level in Ross-shire and strong northerly winds between the 18th and 21st caused severe drifting in northern districts of Scotland, drifts of 4 to 5 ft. being reported on the 21st from the Orkneys and the northern counties of the mainland. Late in the cold spell, on the 24th, snow was reported lying to a depth of 8 to 10 in. in parts of south-east Essex and in

Sussex. On the same day milder air reached the south-west of England and spread slowly north-eastwards to all parts of Great Britain by late on the 25th, preceded by a little snow over high ground. There was a quick thaw of snow lying over the lower ground and the snow line receded to 2,500 ft. in Snowdonia, the Pennines and Scotland.

February was wet and changeable and still rather cool in the north, but milder in the south, where mean temperatures were slightly above average; there were three distinctly cold spells commencing about the 5th, 16th and 25th, each lasting a few days only, although there was very little break between the last two spells in the north and east of Scotland. The first few days of the month were generally mild except in the extreme north where snow showers were reported from the Orkneys and Shetlands. Cold northerly winds brought snow showers to northern districts on the 5th and the showers reached the south the following day. Snow showers continued in most parts of the country during the next few days but amounts of snow were very small in the Midlands and south-east England. A depression centred off south-west Ireland on the evening of the 7th moved north-eastwards across southern Scotland and into the North Sea on the 8th. Snow fell in most areas and accumulated to a depth of 2 to 4 in. at stations near sea-level in parts of south-west England, the Midlands and Wales. Level falls of 6 to 8 in. were reported at about 1,000 ft. above sea-level in central and north Wales, with drifts 4 ft. deep. In northern England and Scotland the greatest snow depths were measured late on the 8th or early on the 9th, after which the rapid thaw which had reached southern districts on the 7th cleared most snow lying below about 2,500 ft. Strong easterly winds in these areas on the 8th gave rise to heavy drifting and drifts of about 10 ft. were reported at about 1,000 ft. in the Lowthers and Grampians. At the same time there were level falls of 12 in. or more at about 500 ft. in the Lake District, Renfrewshire, and Inverness-shire. A depth of 21 in. of level snow was

measured at Lanehead, Durham, 1,441 ft., on the following day. After a few days of unusually mild weather with widespread, heavy rain, cold northerly winds and snow showers spread southwards over the country on the 16th. There was a temporary cessation of shower activity in most southern districts after the 18th but by the 21st or 22nd snow showers were again reported in most areas except the extreme south-west. Mild air spread very slowly north-eastwards on the 23rd and 24th, preceded by a little snow over the Midlands, northern England and southern Scotland. Further north the snow showers continued and were heavy in places. The mild air receded rapidly south-westwards late on the 24th when strong to gale north-easterly winds developed over the British Isles as a depression moved quickly eastwards across southern England into the Continent. Heavy snow fell in many areas including north and east Wales, the north and east Midlands, eastern England and south-east Scotland. On the morning of the 25th a number of observers in Yorkshire, southern Lancashire and north Wales, reported snow lying to a depth of 12 in. at elevations of 500 ft. to 800 ft., whilst on the same morning there was a level fall of 16 in. at Rotherham, Yorkshire (213 ft.). Drifts of 3 to 5 ft. were common in these areas, with some 10 to 15 ft. deep in parts of south Lancashire and 6 to 10 ft. deep as far south as the Dunstable Downs. Snow showers gradually died out as warmer air spread slowly south-east, but continued in the extreme south-east of England until the 27th. The snow lying in the eastern half of the country was rather slow to clear and patches in areas of heavier drifting persisted at relatively low altitudes until the early days of March.

March was very cold and dry. The second and third weeks were the coldest, and during this period the mean temperature at many places in the Midlands and north-east England was as much as 10°F. below average. Snow occurred in most areas between the 5th and 12th, with further snow in most

northern and eastern districts on the 13th and 14th, and from the 18th to 24th. The month opened with slight rain and drizzle on the 1st and after a few mainly dry days a cold northerly airstream spread southwards on the 5th and 6th. Temperatures fell progressively as this airstream persisted until the 11th and there were widespread snow showers throughout the period, with more general sleet or snow in many districts on the 12th and 13th as a depression moved east-south-eastwards across northern England. Strong winds on the 7th and 8th caused heavy drifting in parts of Scotland and north-east England. Snow depths were generally small in East Anglia and southern England, but falls accumulated to a depth of 3 in. in parts of the north and east Midlands. A level depth of 5 in. was measured at Whipsnade, Bedfordshire, 720 ft., on the morning of the 9th and some patchy snow lay in this area until the 27th. Snow depths of 6 in. to 8 in. were reported at heights of 500 ft. and above in Merionethshire and Caernarvonshire, but falls were generally lighter in south Wales. Some of the heaviest falls of the period occurred over the Yorkshire Moors, where at Kildale, 575 ft., a level fall of 27 in. was reported, with drifts up to 5 ft. At 1,300 ft. snow lay to a depth of between 36 in. and 42 in. In this area, too, patches of snow persisted until the end of the month. Heaviest falls in Scotland were in the north and west. A level fall of 15 in., with drifts of 4 ft., was reported from near sea-level at Glenbrittle on the Isle of Skye on the morning of the 11th, whilst, at Drummair, Banffshire, 500 ft., there was 11 in. of snow lying late on the 13th. Snow lay in the latter area from the 5th until the 28th. An anticyclone developed over the northern North Sea on the 14th and cold easterly winds persisted over much of Great Britain until the 24th. A trough of low pressure which made a limited penetration into south-western districts on the 16th gave heavy rain in this area, with some sleet and a little snow over the hills, but the snow did not settle. From then on until the 24th the weather was generally dry with only very well

scattered light snow showers. Subsequently warmer air spread very slowly north-eastwards to all areas except north-east Scotland, Orkney and Shetland, preceded by light snow in Scotland and north-east England on the 29th.

*April* was dry with mean temperatures rather below average in spite of rather warm weather during the last two weeks. Winds were mainly between south-east and east for the first few days of the month. A small depression centred off the Lincolnshire coast at noon on the 3rd moved south-westwards across England on the 3rd and 4th, and a second depression followed a similar track some 24 hours later. There was snow in most districts on the 3rd and 4th and snow showers continued over England and Wales on the 5th and 6th. Appreciable depths of snow were reported in eastern districts from the 3rd to the 5th, but although snow occurred over higher ground in the west, including Dartmoor, little snow settled in western districts. Snow depths of up to 6 in. were reported on the 5th (Easter Saturday) from Surrey, and falls of the same order occurred over relatively low ground in the North Riding, but the Yorkshire Moors appear to have escaped any large falls. Heavy falls were reported from south-east Scotland, where snow reached a depth of 8 in. at altitudes of 700 ft. to 1,000 ft. in East Lothian, to give the heaviest fall of the winter. Further north, in Perthshire, snow drifts of 10 ft. to 12 ft. were reported at heights of around 1,400 ft., and by the morning of the 4th snow had accumulated to a level depth of 12 in. at Derry Lodge, Aberdeenshire, 1,400 ft. The easterly winds over Great Britain on the 5th gradually backed to the north and there were sleet or snow showers in many northern districts on the 8th and 9th, but no heavy falls were reported. A small depression moved quickly south-south-eastwards across Northern Ireland and extreme south-west England on the 10th and brought heavy rain to Devon and Cornwall and a little sleet or snow to the hills of Wales and south-west England. Meanwhile a few scattered snow showers

continued in the Midlands, east and south-east England. Rather cold easterly winds were re-established behind the depression and persisted in the south until the 14th by which time another outbreak of very cold air had reached Scotland and subsequently spread south to all areas. Snow showers occurred as far south as the north Midlands on the 15th and 16th, but by the 17th were confined to north Scotland. Mild air then spread from the Atlantic to all parts of Great Britain. A cooler west to north-west airstream was established over the country on the 24th and 25th and there were a few snow showers over the higher ground in Scotland, northern England and north Wales during the next two days, but little snow settled. The month closed with fine warm weather and by the 31st the only snow lying was in the Cairngorms and Grampians at heights of 3,000 ft. and above.

May was cool, changeable and wet. The first day of the month was warm with temperatures reaching  $65^{\circ}$  to  $70^{\circ}$ F. in many places, but cold air reached north Scotland early on the 2nd and spread south to all areas except south-west England by mid-day on the 3rd. Small depressions moved eastwards over Scotland on the 4th and 6th, and there was a little snow at heights of 500 ft. and above, but very little snow settled at any level. Warmer air spreading north-eastwards over the country on the 7th was preceded by some snow at heights of 1,500 ft. to 2,000 ft. in the moun-

tains of north Scotland. Colder air again spread to Scotland on the 8th and to all areas by the 11th, persisting until the 13th. There were scattered snow showers in parts of north and west Scotland, north-west England and north Wales, but snow did not settle below 1,500 ft., even in the north. Depressions moved eastwards across England and Wales on the 14th and early on the 16th. Strong northerly winds developed in the rear of the second depression as it deepened appreciably, and there were snow showers in the north of Scotland. Very disturbed weather followed, and during rather frequent spells of cold west to north-west winds there were snow showers over the mountains of Scotland on most days between the 19th and 25th. Rather cool, wet weather persisted until the end of the month, but little snow was reported. By the end of the month the snow line had gradually receded to about 3,000 ft. in the Cairngorms and over Ben Nevis, with the mountain ranges further south completely clear of snow.

Diagrams showing the distribution of snow cover relative to height for 11 areas are given in Fig. 1. They are based very largely upon the reports received from the relevant stations given in Table 1. 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 those additional stations in the table.

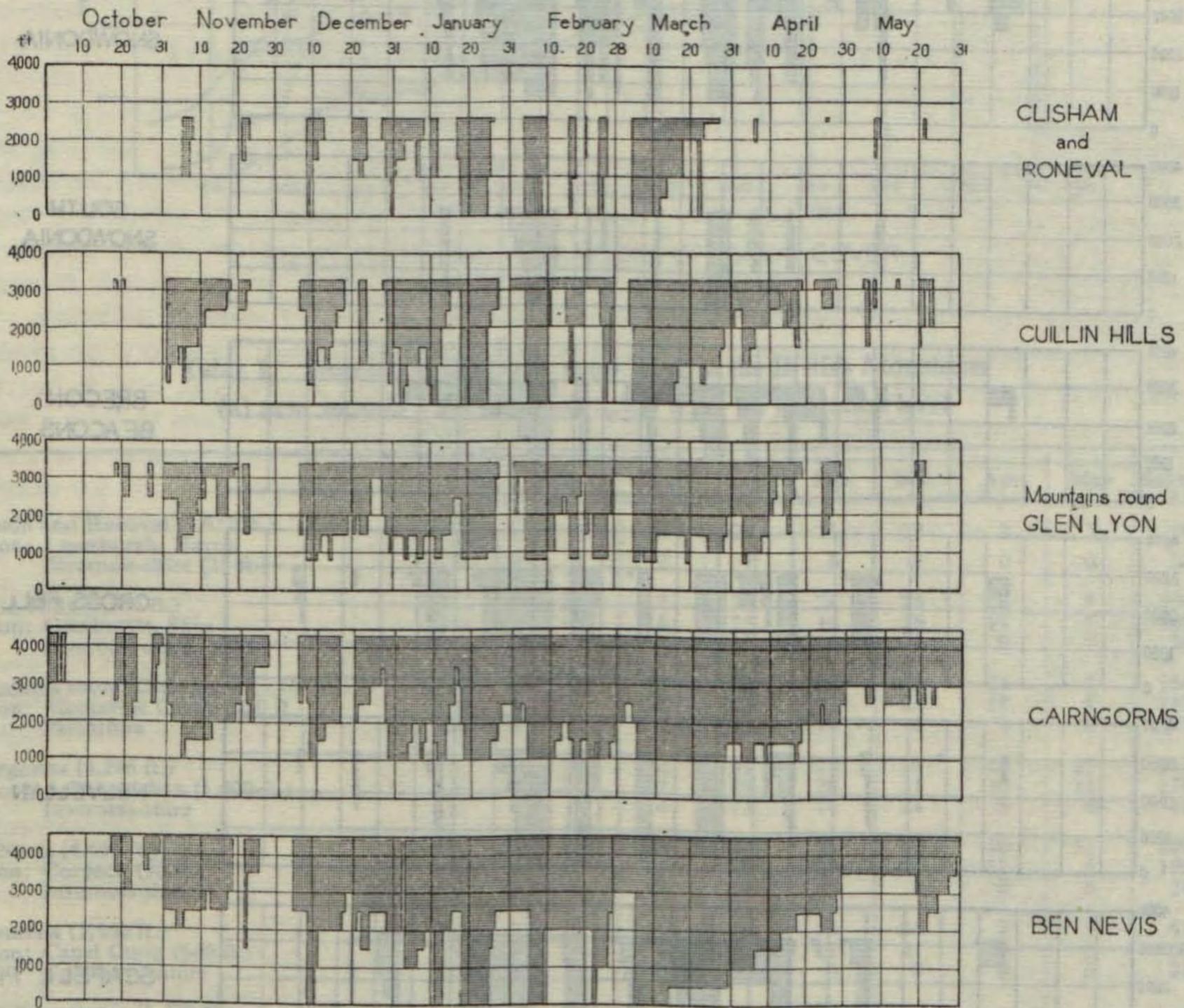


Fig. 1. DISTRIBUTION OF SNOW COVER IN RELATION TO HEIGHT  
SCOTLAND

continued in the Midlands, east and south-east England. Rather cold easterly winds were re-established behind the depression and persisted in the south until the 14th by which time another outbreak of very cold air had reached

parts of north Scotland. Colder air again spread to Scotland on the 8th and to all areas by the 11th, persisting until the 13th. There were scattered snow showers in parts of north and west Scotland, north-west England and

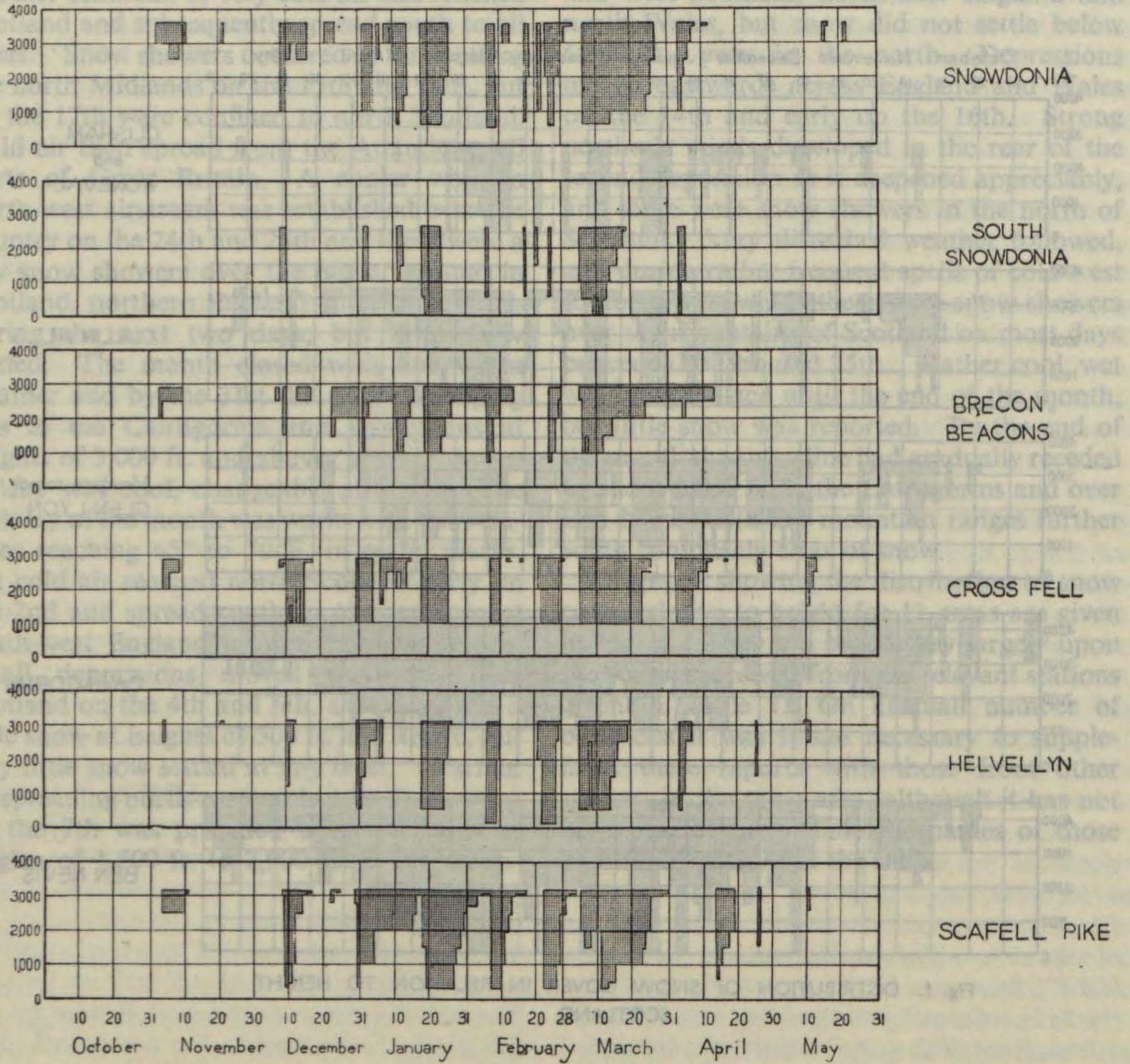


Fig. 1. (cont.) DISTRIBUTION OF SNOW COVER IN RELATION TO HEIGHT ENGLAND AND WALES

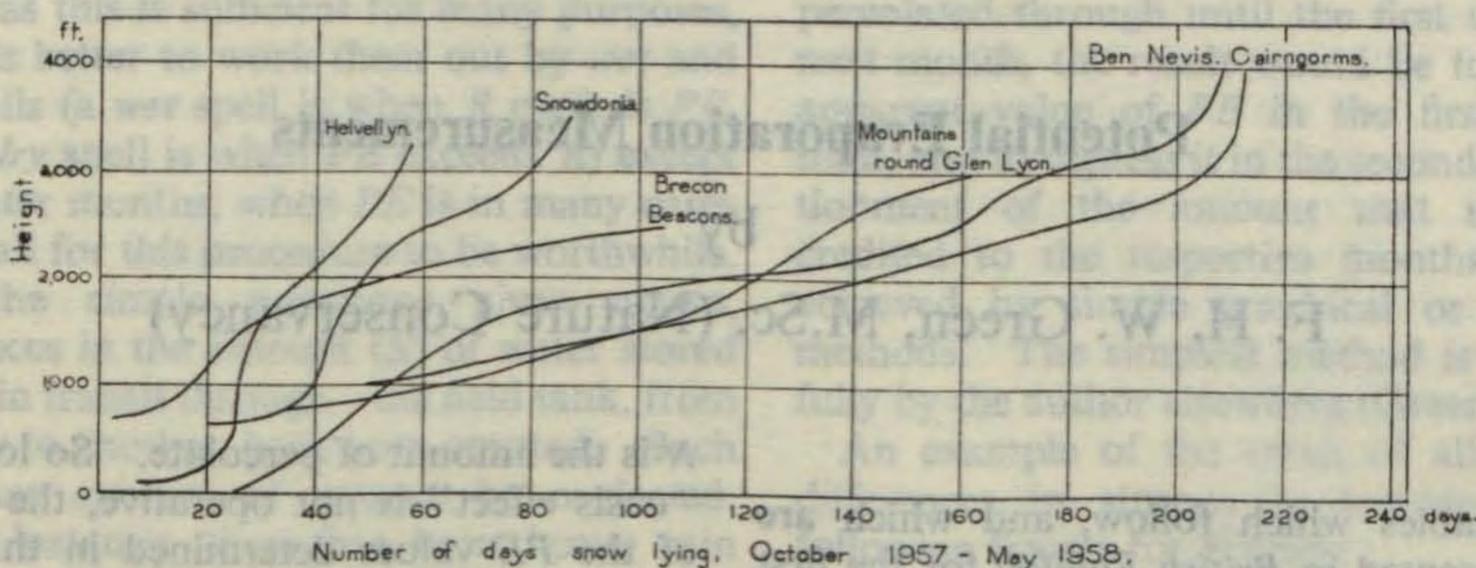


Fig. 2. SEASONAL DURATION OF SNOW COVER.

Table 1. Number of days with snow lying in the British Mountains  
(a) near summit; (b) at about 2,500 ft.; (c) at station level

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Season
Clisham and Roneval (2,622 ft.) Station: Leverburgh, Harris Inverness-shire (25 ft.)	a) 0 b) 0 c) 0	5 0 0	12 2 0	20 7 0	11 6 0	23 8 0	2 0 0	3 0 0	76 23
Cuillin Hills (3,309 ft.) Station: Glenbrittle, Skye Inverness-shire (30 ft.)	a) 2 b) 0 c) 0	20 18 0	17 16 0	28 25 9	28 16 6	26 26 11	25 19 0	8 5 0	154 125 26
Mountains round Glen Lyon (3,407 ft.) Station: Meggernie Castle (760 ft.) Perthshire	a) 4 b) 3 c) 0	22 16 0	25 22 4	28 27 12	27 23 12	31 26 6	24 18 1	3 1 0	164 136 35
Cairngorms (4,296 ft.) Station: Achnagoichan (1,000 ft.) Inverness-shire	a) 12 b) 5 c) 0	27 22 1	22 17 4	31 29 13	28 28 14	31 31 24	30 30 5	31 12 0	212 174 61
Ben Nevis (4,406 ft.) Station: Corpach (30 ft.) Inverness-shire	a) 10 b) 0 c) 0	22 17 0	27 25 2	30 30 9	28 28 5	31 26 8	30 28 0	31 5 0	209 159 24
Snowdonia (3,560 ft.) Station: Capel Curig (640 ft.) Caernarvonshire	a) 0 b) 0 c) 0	10 3 0	11 6 0	19 16 7	13 11 6	24 21 8	7 3 0	3 0 0	87 60 21
South Snowdonia (2,527 ft.) Station: Llanfrothen (475 ft.) Merionethshire	a) 0 b) 0 c) 0	0 0 0	2 0 0	10 6 0	4 3 0	14 7 0	2 1 0	0 0 0	32 17
Brecon Beacons (2,906 ft.) Station: Tairbull (660 ft.) Brecknockshire	a) 0 b) 0 c) 0	7 7 0	14 14 0	27 27 0	18 18 2	26 26 0	13 13 0	0 0 0	105 105 2
Cross Fell (2,893 ft.) Station: Alston (1,070 ft.) Cumberland	a) 0 b) 0 c) 0	5 5 0	11 6 4	21 20 12	12 9 8	22 21 18	13 10 5	3 3 0	87 74 47
Helvellyn (3,118 ft.) Station: Patterdale (530 ft.) Westmorland	a) 0 b) 0 c) 0	2 1 0	4 3 1	15 14 8	12 10 7	15 14 7	5 5 1	2 1 0	55 48 24
Scafell Pike (3,210 ft.) Station: Windermere (350 ft.) Westmorland	a) 0 b) 0 c) 0	8 7 0	14 6 2	31 29 8	23 12 7	30 21 2	7 7 1	2 1 0	115 83 20