

BRITISH RAINFALL 1957

PART III

SNOW SURVEY OF GREAT BRITAIN SEASON 1956-57

The report which follows is the first 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 in the climatological division of 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 any snow cover in sight. These records, from a network of stations distributed over the country, have been augmented by data extracted from the regular monthly returns from official weather stations and from voluntary climatological 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 anything like its present detail.

The measurements of snow depth in the following pages refer, in general, to 0900 G.M.T. or thereabouts.

Summary of 1956-57 season

Temperature was above average for the season as a whole and precipitation below

average, particularly over England and Wales, with snowfall well below average. Data for ten representative stations* in Great Britain at altitudes between 400 and 1,200 ft., which have been used for seasonal comparison since the Survey of 1946-47, give a mean of 12 days with snow lying at the morning observation. This compares with a mean of 36 days for the 1955-56 season and an average value of 35 days for the past ten seasons. Other relatively snow free seasons were 1948-49 and 1949-50 with means in this series of 15 days and 13 days respectively. The snowfall of the season under review occurred mainly in the months December, January and February, most frequently over the Yorkshire Pennines in December, and over the Scottish mountains in January and February.

The number of days with snow falling ranged from more than 70 in the Cairngorms to nil in a number of places along the southern coasts of England and Wales. Over high ground, totals of about 40 days were reported from the Lowther Hills and Ben Nevis, 30 to 35 days in the northern Pennines and Snowdonia, and 10 to 15 days over Dartmoor. At low levels snow fell on 50 to 60 days in the Shetlands, on 30 to 40 days in the Orkneys, and 20 to 30 days in northern coastal areas of Scotland. Totals of 10 to 20 days were

* These stations are Dalwhinnie, Braemar, Penicuik, Eskdalemuir, Huddersfield (Oakes), Buxton, Dunstable, Little Rissington, Princetown and Llandrindod Wells. Penicuik, Dunstable and Llandrindod Wells are replacements for West Linton, Whipsnade and Rhayader respectively, the three stations used until season 1954-55.

reported from many districts including northern East Anglia, eastern coastal areas as far north as the Tay, relatively low-lying areas of the Midlands, and parts of Wiltshire and Kent. Snow fell on less than 10 days over much of southern England and in western coastal districts of England, Wales and southern Scotland. The seasonal duration of snow cover in the mountainous regions of Great Britain is summarized in Table I and illustrated for a selected number of these regions in Fig. 2. For low-level areas totals of 10 to 15 days with snow lying were reported from parts of the Shetlands and from Worcestershire and the north-east Midlands, otherwise snow lay on not more than 5 days at many places near sea-level, with many coastal stations of England and Wales failing to report a single day with snow lying.

Notes on the months.—August 1956 was very wet and cool. Snow or sleet showers were reported from Baltasound, 78 ft., in the Shetlands on the 29th and from Glenlivet, Banff, 1,050 ft., on the 30th. Snow also occurred in the Cairngorms on the 30th, where, on Braeriach, it lay for 24 hours at heights above 3,700 ft. September was another wet month, but with temperatures slightly above average. Snowfall was slight and confined to northern districts. Sleet showers were reported from Stenness, 75 ft., in the Orkneys on the 11th, and late in the month scattered snow showers occurred over the Grampians, down to 3,000 ft. around Ben Nevis and to 2,000 ft. around Glenshee Lodge in Perthshire, but little settled at these levels.

October was generally dry and sunny with temperatures around normal. Cold unstable air spread southwards very early in the month and persisted until the 6th. Snow showers occurred over much of the high ground above about 1,000 ft. in Scotland and extreme northern England, and also above 2,000 ft. in Snowdonia. Snow showers were reported down to sea-level in the Orkneys and Shetlands and in a few places in north-east Scotland, while sleet showers occurred as far

south as the Wirrall. There was little further snow until the last week of the month when a fresh outbreak of arctic air brought widespread snow showers to Scotland, including the Western Isles, and more scattered showers to north-west England, the Midlands and north-west Wales. Amounts of snow were small although drifts of 18 in. to 24 in. were reported early in the month at 3,700 ft. in the Cairngorms. Snow lay for a total of 27 days at 4,000 ft. on the northern slopes of Ben Nevis, where it was to remain for much of the season. During both snowy periods snow lay at 1,000 ft. for a day or two in parts of northern Scotland and settled at this level in the Cheviots on the 25th. On the same day the snow line temporarily came down to 500 ft. around Glengyle, Perthshire, and to 1,500 ft. in both the Lake District and Snowdonia.

November, like October, was generally dry. Temperatures were above normal in Scotland, but slightly below average in England and Wales. Snowfall was confined to the last seven days of the month and then occurred in most areas except south-west England and south Wales, although the falls in many places were small. Very cold continental air spread into the British Isles on the 22nd, and many places, mainly over high ground in Scotland and northern England, had slight falls of snow. After two much milder days, very cold air returned southwards on the 26th. Snow showers became frequent over Scotland between the 26th and 30th and also occurred in many parts of England and Wales on the 28th and 29th. Snow lay at many places in Scotland for a number of days and in parts of northern England, the Midlands and Wales for a day or two, although coastal areas, particularly those in the west, remained relatively clear. Near sea-level the depth of snow lying was small, but depths of 3 in. at 3,000 ft. with drifts of 4 ft. were reported from the Cairngorms on the 27th, with 5 in. at Glenlivet, 1,050 ft., and Dalwhinnie, 1,175 ft., in the Grampians on the 29th, and 2 to 3 in. at 2,000 ft. in Snowdonia from the 28th to the

30th. Late in the month the snow line came down to sea-level in north-east England, north and east Scotland, to around 500 ft. in north Wales and to 1,000 ft. over Dartmoor.

December was dull and mostly mild, particularly during the first eight days. Outbreaks of polar air in the rear of a succession of depressions moving north-eastwards off north-west Scotland brought snow showers to much of Scotland and some northern districts of England and Wales between the 11th and the 16th. Falls were slight in the south, but heavier further north where a depth of 2½ in. was measured at Achnagoichan, Inverness-shire, 1,000 ft., on the 13th. Snow lay for 2 to 3 days in the north, down to near sea-level in places, and for 1 to 2 days in the south, but rarely below 1,000 ft. A series of troughs moving east-north-eastwards from the Atlantic brought snow to most districts of Great Britain, except south-west England, between the 23rd and 26th, with light snow continuing intermittently in the extreme north until the 28th. On the 26th and 27th snow lay to a depth of 2 to 4 in. in the south Midlands, and 6 to 8 in. in parts of the north Midlands and the higher ground in Wales. Falls of 9 in. were measured at Ross-on-Wye, Herefordshire, 223 ft., and Evancoyd, Radnorshire, 744 ft., on the morning of the 26th: on the same day drifts of 4 ft. were reported from Hirnant, Radnorshire, 1,250 ft., and at Tairbull, Brecknockshire, 660 ft., with 8 ft. drifts on the hills in Brecknockshire. Further north the greatest snow depths were reported a little later in the month, 6 in. being recorded at Slaidburn, Yorkshire, 630 ft., and at Catcleugh, Northumberland, 800 ft., on the 28th, with drifts of more than 3 ft. around Alston, Cumberland, 1,070 ft. In Scotland, 10 in. lay at Glenshee, Perthshire, 1,100 ft., on the morning of the 27th.

The first few days of January 1957 were very mild with heavy rain, but colder air reached Scotland from the north-west on the 8th and spread to all areas. Between the 9th and 13th scattered snow showers occurred in most areas

except the extreme south. Amounts of snow were small over low ground, but 3½ in. was measured on the 9th at Llanbadarnfynydd, Radnorshire, 1,250 ft. Showers became more widespread in central and eastern districts on the 14th and 15th as winds veered east of north. A few showers also occurred on the 16th in the south and, although a patchy cover of snow existed by this time over a substantial area including north Scotland, north and east England, the Midlands and parts of south-west England, falls were not heavy. After a few days of quiet, anticyclonic weather, unsettled conditions developed around the 20th and persisted until the end of the month. Snow was reported from some part of Great Britain on each day from the 21st to the 31st, with widespread snow showers on the 24th, 26th and 27th, days on which successive outbreaks of maritime polar air covered all areas. Many places in west Scotland, north-west England, the Midlands, Wales and south-east England reported snow lying between the 24th and 26th. There was a fairly general snow cover over north and east Scotland on the 27th, where depths of 6 in. were reported from Fairburn, 500 ft., and Glenferness, 700 ft., both in Ross and Cromarty, with drifts of 2 to 4 ft. at about 600 ft. in the Ardtalnaig area of Perthshire. The snow line came down to sea-level at times in most northern and eastern districts, but did not fall below about 500 ft. in west Scotland and north Wales and about 1,000 ft. in south Wales and south-west England.

Snow showers were widely reported over north and east Scotland on February 1 and 2, with scattered showers over high ground in northern England. Snow lay fairly generally over north Scotland and reached a depth of 3 in. at Achnagoichan, Inverness-shire, 1,000 ft., on the 2nd. Further snow showers occurred over much of Scotland on the 5th and 6th, but amounts were small and little snow settled on low ground. A mild unsettled spell followed in all areas with much rain but very little snow. Cold weather spread southwards over Great Britain on the

14th, persisting until the 20th in the south and until the 25th in the extreme north. This was the snowiest part of the winter, with fairly frequent outbreaks of snow in all areas. South-west England and Wales were affected from the 16th to the 18th, there being a fall of $3\frac{1}{2}$ in. at Wootton Courtenay, Somerset, 485 ft., on the 16th. Falls were numerous over the Midlands and parts of Yorkshire on the 18th and 19th, snow lying to a depth of 15 in. at Redmires, Yorkshire, 1,100 ft., and 12 in. at Leicester on the morning of the 19th. The latter fall was noteworthy in that relatively very little snow fell outside the city boundary. A vigorous trough of low pressure moving north-eastwards brought general snow to northern England on the 23rd and to Scotland on the 24th and 25th; drifts of 3 ft. were reported at 1,000 ft. in Cumberland and drifts of 7 ft. at 1,500 ft. in Perthshire. Snow lay from the 12th to the 28th at Derry Lodge, Inverness-shire, 1,400 ft., and from the 15th to the 23rd at Glackour, Ross and Cromarty, 64 ft. As far south as the Midlands a snow cover persisted at Bishops Castle, Shropshire, 735 ft., from the 15th to the 24th, whilst snow was lying from the 15th to the 20th at 1,400 ft. on Dartmoor. The snow line came down to sea-level in most parts of Great Britain during the month except in the extreme south-west where it reached down to about 800 ft. on Dartmoor on the 16th.

March was very mild with very little snow. Between the 2nd and 4th scattered snow showers occurred in north and east Scotland and there were a few sleet showers in north-west England on the 4th and 5th. Amounts of snow were very small and little settled below 1,000 ft., even in the north. After a mild, rainy spell very warm dry air spread northwards from Spain and temperatures rose to above 70 °F. in many places. Snow cleared from most high ground except the highest peaks in Scotland where the snow line receded temporarily to 3,000 to 3,500 ft. Temperatures fell after the 13th, and on the 20th an influx of polar air gave a few snow showers in Scotland and northern England with sleet

showers in the Midlands, but no snow settled below 1,500 ft. Further showers occurred in the extreme north on the 26th and 27th and, although no snow settled at low levels, a depth of 12 in. was measured at a height of 2,400 ft. in the Cairngorms.

April was an exceptionally dry month with temperatures slightly above average. The first five days were warm, but cooler north-easterly winds then spread across all areas. On the 10th a further abrupt fall in temperature followed in the north and reached the extreme south on the 12th. Snow showers developed in many areas between the 10th and 12th and were widespread on the 11th, affecting areas as far south as Dorset. Amounts were small, however, and no snow lay below about 1,500 ft. in England and Wales and below 500 ft. in Scotland, although a little settled near sea-level in the Shetlands. Milder weather with slight rain, preceded in Scotland by moderate snow in places above 2,500 ft., followed on the 14th and persisted for a few days, but outbreaks of polar air on the 17th, 18th and 19th brought a few snow showers to the Orkneys and Shetlands and parts of Sutherland. Further light snow was reported over the mountains of Scotland on the 22nd and 31st.

May was dry and sunny with temperatures a little above average. After two warm sunny days in all areas, arctic air spread quickly southwards on the 3rd. Between the 3rd and 6th snow showers occurred in many areas except south Wales and south-west England and were widespread on the 5th, when they were reported as far south as Sussex. Snowfall was generally slight and none settled at low levels, the snow line falling only to 1,000 ft. in northern Scotland and not below 2,500 ft. in north Wales and north-east England. Troughs of low pressure moving slowly eastwards brought substantial rain to many districts between the 7th and 9th, with snow, moderate in places but non-persistent, above 2,500 ft. in the mountains of north and west Scotland and above 3,000 ft. on the peaks in north Wales. After a mild, unsettled spell

another outbreak of polar air brought a few snow showers to the highest ground in northern districts of Scotland and Wales on the 18th and 19th. By about the 20th Snowdonia was

clear of snow, there was less than half cover on the Ben Macdhui plateau at 4,000 ft. in the Cairngorms, but snow still lay at 3,000 ft. on the north-facing slopes of Ben Nevis.

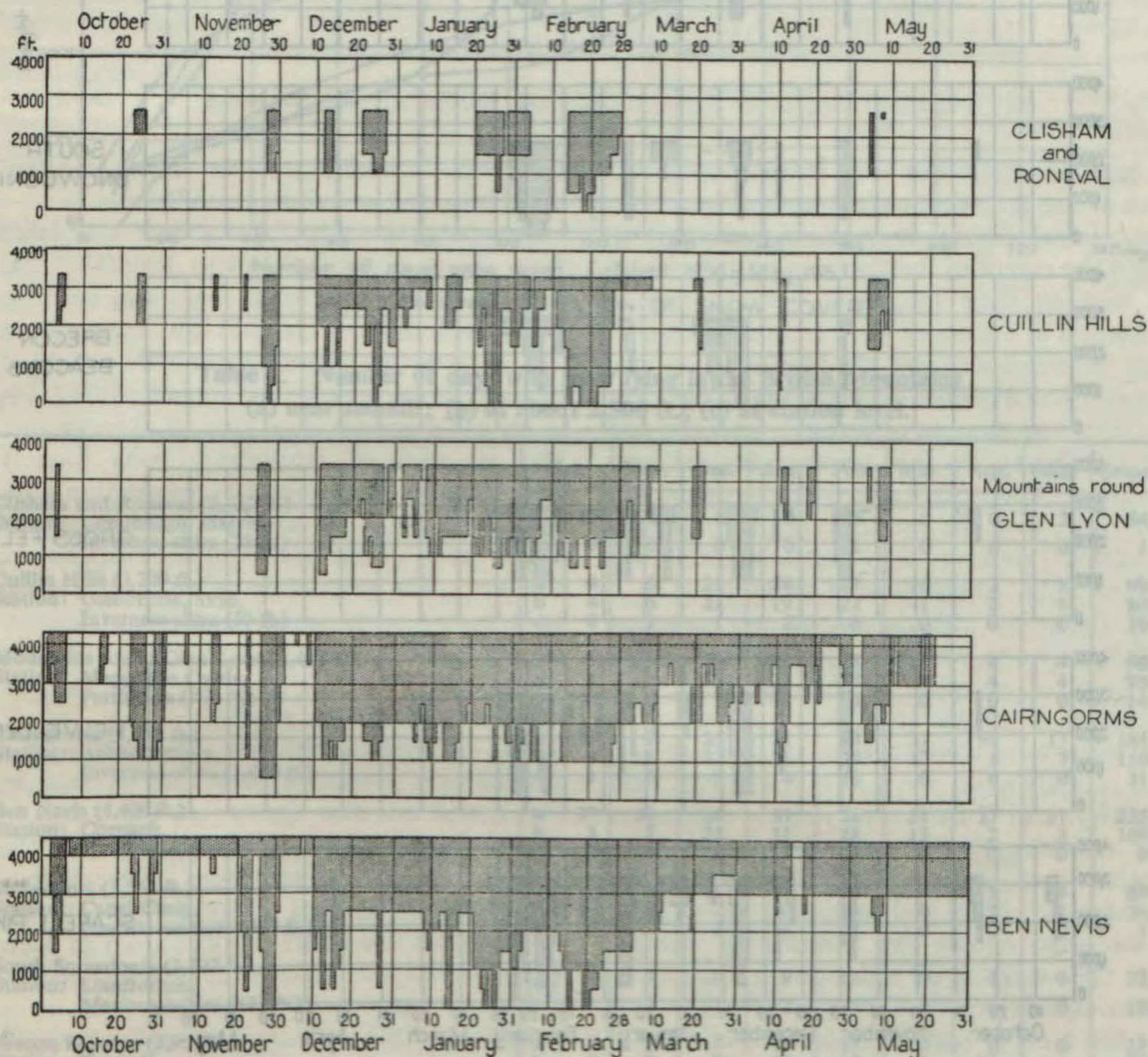
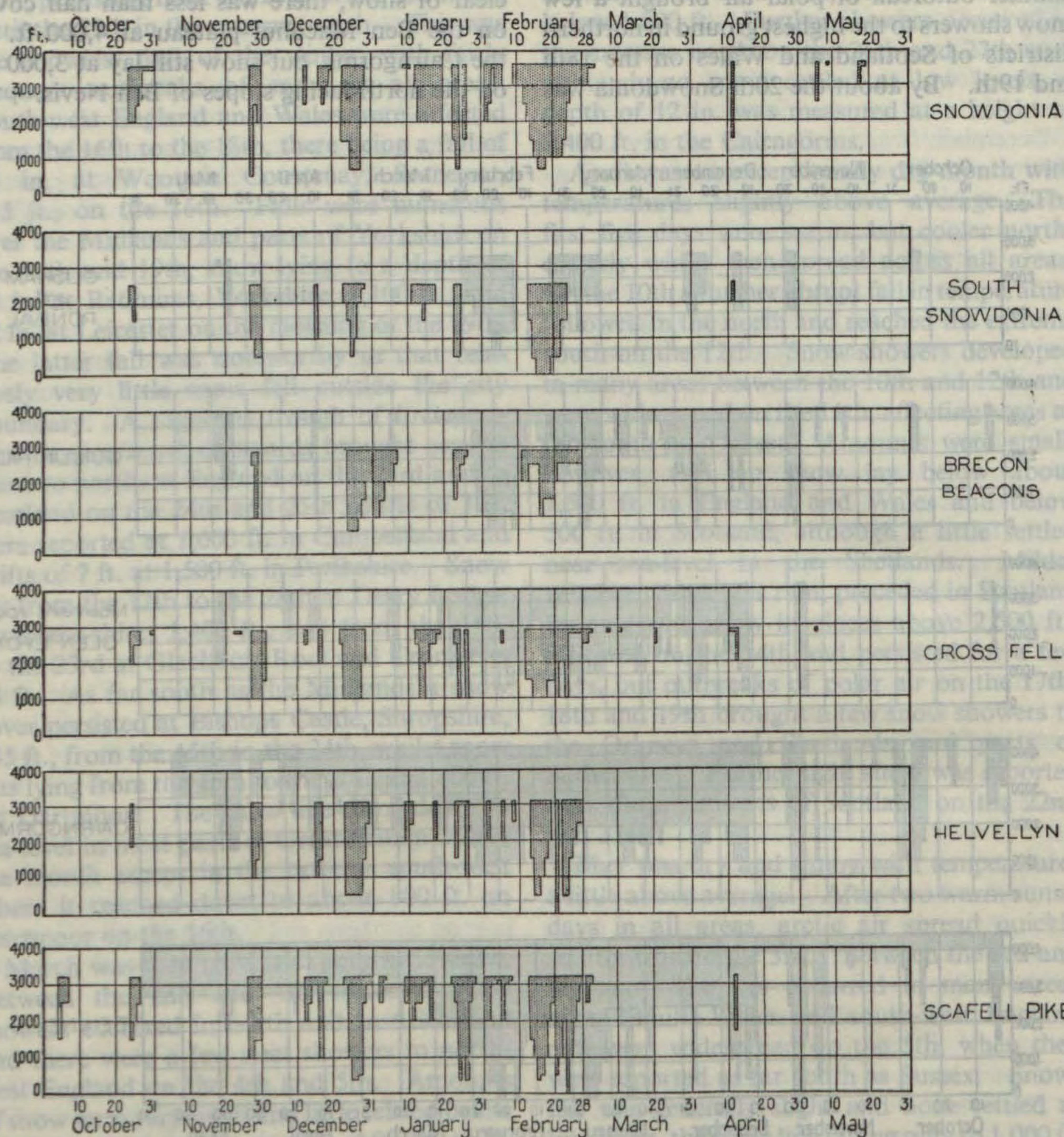


Fig 1. DISTRIBUTION OF SNOW COVER IN RELATION TO HEIGHT
SCOTLAND

Duration of snow cover on British mountains.

—The mean number of days of snow cover at 2,500 ft. on four mountain groups is used as an index for comparing successive seasons. For 1956-57 it was 61 compared with 97 in the

previous season and an average of 81 for the past ten seasons. The stations used were Glenbrittle (Cuillin Hills, 3,309 ft.), Meggernie Castle (mountains around Glen Lyon, 3,407 ft.), Capel Curig (Snowdonia, 3,560 ft.)



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

and Tairbull (Brecon Beacons, 2,906 ft.). The heights of the various mountain ranges given here and also in Table 1 are those of the highest peaks visible from the observing stations.

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 for the relevant station 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 these additional stations in the table.

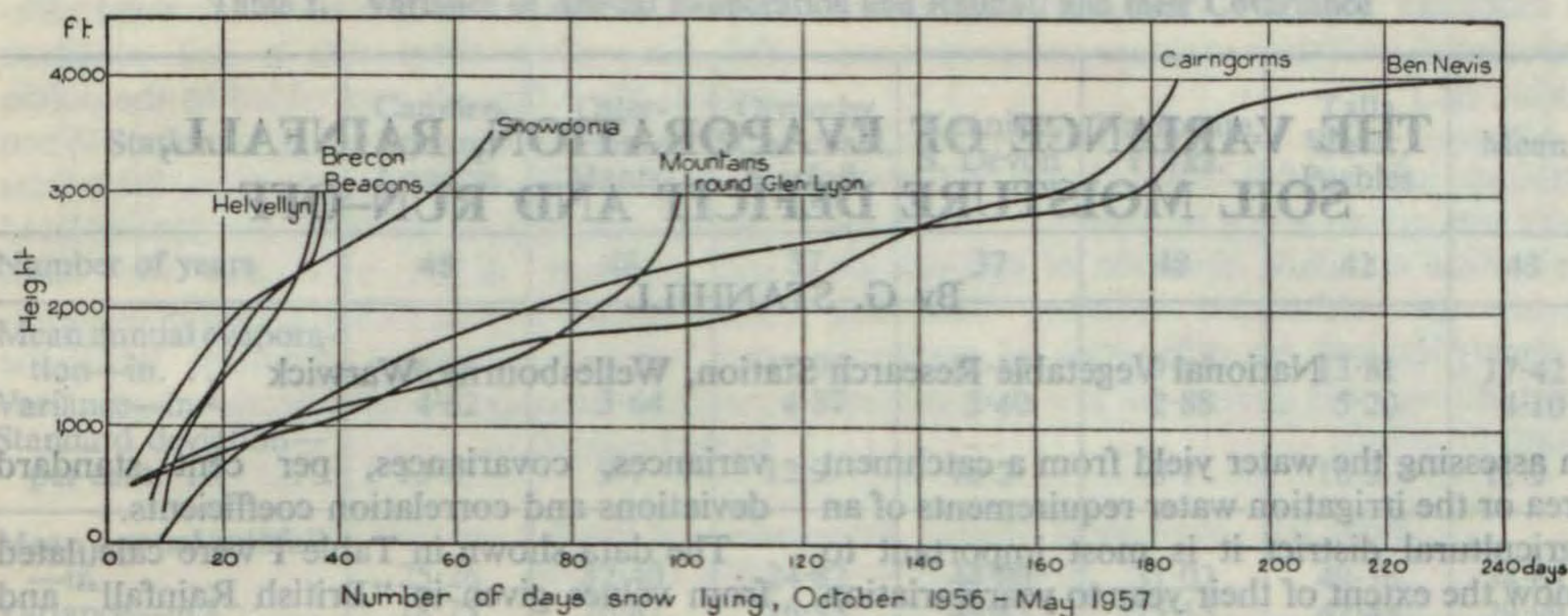


Fig 2 SEASONAL DURATION OF SNOW COVER

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.)	a	3	3	8	10	18	0	0	2	44
Station: Leverburgh, Harris, Inverness-shire (25 ft.)	b	0	0	0	0	1	0	0	0	1
	c	0	0	0	0	0	0	0	0	0
Cuillin Hills (3,309 ft.)	a	4	6	21	24	27	10	2	5	99
Station: Glenbrittle, Skye, Inverness-shire (30 ft.)	b	4	6	21	19	22	1	2	5	80
	c	0	1	1	2	6	0	0	0	10
Mountains round Glen Lyon (3,407 ft.)	a	1	3	19	28	28	11	4	4	98
Station: Meggernie Castle, Perthshire (760 ft.)	b	1	3	19	27	28	9	4	4	95
	c	0	1	5	2	6	0	0	0	14
Cairngorms (4,296 ft.)	a	13	9	25	31	28	31	30	17	184
Station: Achnagoichan, Inverness-shire (1,000 ft.)	b	9	8	22	31	28	17	8	7	130
	c	1	5	5	4	16	0	0	0	31
Ben Nevis (4,406 ft.)	a	27	30	30	31	28	31	27	31	235
Station: Corpach, Inverness-shire (30 ft.)	b	3	7	22	31	28	13	2	3	109
	c	0	3	0	3	3	0	0	0	9
Snowdonia (3,560 ft.)	a	7	3	11	13	23	4	1	4	66
Station: Capel Curig, Caernarvonshire (700 ft.)	b	3	3	7	10	14	0	1	1	39
	c	0	1	3	1	2	0	0	0	7
South Snowdonia (2,527 ft.)	a	2	3	6	9	11	0	1	0	32
Station: Llanfrothen, Merionethshire (475 ft.)	b	2	3	6	9	11	0	1	0	32
	c	0	2	1	2	5	0	0	0	10
Brecon Beacons (2,906 ft.)	a	0	2	7	11	17	0	0	0	37
Station: Tairbull, Brecknockshire (660 ft.)	b	0	2	7	10	17	0	0	0	36
	c	0	0	3	0	0	0	0	0	3
Cross Fell (2,893 ft.)	a	4	6	10	10	17	6	3	1	57
Station: Alston, Cumberland (1,070 ft.)	b	3	3	10	9	13	3	1	0	42
	c	0	3	5	4	6	0	0	0	18
Helvellyn (3,118 ft.)	a	1	3	9	7	16	0	0	0	36
Station: Patterdale, Westmorland (520 ft.)	b	1	3	9	5	16	0	0	0	34
	c	0	0	5	0	5	0	0	0	10
Scafell Pike (3,210 ft.)	a	6	4	14	16	23	2	1	0	66
Station: Windermere, Westmorland (350 ft.)	b	6	4	8	12	17	1	1	0	49
	c	0	0	2	2	2	0	0	0	6