

## 2 SNOW SURVEY OF GREAT BRITAIN

Season 1964-65

by R. E. Booth

The basic material for this report has been obtained, as in previous years, from observers who have provided, month by month, 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 stations manned by Meteorological Office staff and from climatological and rainfall stations which voluntarily make returns of their observations to the Meteorological Office. Without the ready co-operation of all those responsible for 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 observations taken at 09 GMT or thereabouts.

### Summary of general weather during the season

Table 1 gives for each month of the season and for the season as a whole, the mean temperature and the difference from the 1931-60 average, together with the corresponding amounts of precipitation and their percentages of the 1916-50 averages for England and Wales and for Scotland. It shows that the season September 1964 to May 1965 was considerably colder than usual both in England and Wales and in Scotland. Over Great Britain as a whole the autumn ended with November's temperature slightly above the average, but both winter and spring began with temperatures well below the average and ended with temperatures

only slightly below or equal to the average. After a dry start to the season in England and Wales rainfall was above the average every month except February and May. In Scotland rainfall followed rather a similar pattern except that the season started wet and rainfall in February and March was less than the average.

Over the season as a whole mean temperatures showed an accumulated deficit of 3.2 degC in England and Wales and of 3.7 degC in Scotland, giving a mean monthly temperature in both cases of 0.4 degC below the average. Rainfall was below the average both in England and Wales and in Scotland, the accumulated deficits being 4.6 inches and 2.4 inches respectively.

### Comparison of snowfall during 1964/65 with that of previous years

Data for 10 representative stations\* in Great Britain at altitudes between 400 and 1200 feet (100 ft = 30.48 m) (which have been used, with slight changes in stations, for seasonal comparisons since the survey of 1946/47) give for the season 1964-65 a mean of 25 days with snow lying at the morning observation. This was 14 days less than the previous season and 6 days less than the average for the 19 successive seasons since 1946/47.

\* Fort Augustus, Braemar, West Linton, Eskdalemuir, Huddersfield Oakes, Buxton, Luton, Little Rissington, Hawkridge and Llandrindod Wells.

TABLE 1

	1964				1965					Season 1964-65
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
<i>Temperature (°C)</i>										
England and Wales										
Mean	14.7	9.2	8.2	4.4	4.2	3.8	5.8	8.5	11.9	7.9
Diff. from average	+0.4	-1.6	+0.7	-1.2	-0.1	-0.7	-0.6	-0.3	+0.2	-0.4
Scotland										
Mean	12.1	8.7	6.6	3.4	2.9	4.5	4.5	7.3	10.0	6.7
Diff. from average	-0.3	-0.7	+0.3	-1.3	-0.6	+0.2	-0.9	-0.2	-0.2	-0.4
<i>Precipitation (inches*)</i>										
England and Wales										
Total	1.4	2.5	2.3	4.1	4.0	0.6	2.8	2.4	2.4	22.5
Per cent of average	46	69	61	117	110	24	125	102	98	83
Scotland										
Total	5.9	4.1	5.1	6.6	6.4	1.7	3.2	4.3	3.5	40.8
Per cent of average	118	66	89	117	105	41	91	125	101	94

\* 1 inch = 25.4 mm



**Number of days with snow falling during the season**

At altitudes of about 1000 ft or above, snow fell on 60-80 days in the Cairngorms (on 116 at Braemar) and Grampians, in the extreme north of Scotland, in the Southern Uplands and in the northern Pennines. At slightly lower levels, most of Scotland north of a line Fort William to Montrose, parts of central Wales, the Peak District, the Lincolnshire Wolds and the White Horse Hills, Wiltshire, had about 40 days. Some of the lower lying areas in Norfolk and Suffolk also had about 40 days. At heights from sea level to about 300 ft snow fell on 20-30 days over much of southern Scotland and northern England north of a line from the Mersey to the Humber and on 15-20 days over much of the Midlands and southern England. Much of the lower ground in south Devon and Cornwall had less than 10 days with snow lying.

**Number of days with snow lying during the season**

The seasonal duration of snow-cover in the mountainous regions of Great Britain is summarized in Table 2 and illustrated for a selected number of stations in Figure 1. At lower levels, snow-cover, which was mainly confined to October 1964 to March 1965, was observed on 20-30 mornings in the Orkneys and Shetlands, in the Trossachs and over south-east Scotland south of the Firth of Forth except the coastal areas, and on 10-15 mornings over most of the Midlands and southern England except coastal areas bordering the Thames Estuary and the English Channel and western coastal districts from the Solway Firth southwards to Wales and south-west England which were snow-covered on only 5-10 mornings.

**Notes on the weather of individual months**

**September.** September was a sunny and dry month except in north and west Scotland. No snow was reported during the month but a few sleet showers were observed over high ground in Scotland on the 20th in a cold north-westerly airstream.

**October.** Dry and rather cold. Most of the snow during the month fell during an unsettled period on the 5th-11th or on the 22nd-25th in a northerly airstream from high latitudes. Some sleet and snow fell over the higher ground in Scotland on the 5th and 6th but on the 7th winds became north-westerly and on the 8th and 9th snow showers were reported as far south as the London area. The northerly airstream associated with a very deep depression near Jan Mayen brought frequent snow showers to Scotland on the 22nd and to most districts of England and Wales on the 23rd and 24th. Ground was snow-covered over much of northern Scotland on 1-4 days, but in England and Wales snow-cover was confined to 1 or 2 days in the Yorkshire Wolds and on the higher ground in south Wales.

**November.** November was dry and rather mild with snow and sleet mainly confined to the latter half of the month. On the 13th a deep depression moved eastwards between Iceland and Scotland and behind the depression an unstable west to north-west airstream brought snow and sleet showers to Scotland. On the 26th, a cold front, associated with a rapidly deepening depression north of Scotland, brought a sharp fall in temperature as it moved south-east

across the country. The next day wintry showers with scattered thunderstorms spread to all districts, and many parts of the Midlands had longer periods of snow on the 28th as the depression moved southwards over the British Isles. The month ended with two days of wintry showers in a north to north-westerly airstream. Ground was snow-covered in parts of Scotland on 5-6 days (the 16th-18th and 27th-30th) and in parts of north-west England and the Midlands on 2-4 days (around the 28th-30th).

**December.** During the rather cold month of December snow or sleet fell on every day except the 20th at one place or another in Scotland, and daily in England and Wales during the first six days and from the 25th until the end of the month. A northerly airstream from high latitudes between high pressure to the west and south-west of the British Isles and low pressure over Scandinavia brought snow showers to most of the country during the first four days of the month, but rain replaced the showers on the 5th as winds backed towards the west. Snow lay 1-2 inches (1 inch = 25.4 mm) deep in parts of the Midlands and eastern England on the 1st, 2nd and 4th. On the 24th an airstream of arctic origin spread southwards over the British Isles bringing scattered snow showers to northern districts. Wintry showers continued in the north and east on Christmas day and on the 26th a belt of snow moved eastwards across the country reaching the London area during the evening. The next day a depression with associated troughs brought longer periods of snow to most districts as it moved southwards over the country. Snow lay 2-4 inches deep in many parts of the Midlands and northern and eastern England on the 27th-29th. The total duration of snow-cover during the month was about 15 days in the North-west Highlands, Grampians and Cairngorms, about 10 days in parts of the Southern Uplands and about 5 days in eastern coastal areas from Acklington southwards to the Wash and over much of east and south-east England east of a line from the Wash to Brighton except in parts of the Thames Estuary and coastal areas from Aldeburgh southwards.

**January.** Snow or sleet fell at one place or another every day in Scotland, and parts of the country were snow-covered throughout the month. In England and Wales there was some snow in northern and eastern districts during the first four days of the month, but the main falls occurred around the 19th-22nd and 26th-28th. During the first three days of the month pressure was high to the west of Ireland and a northerly airstream brought snow showers to all districts. Snow lay 4-5 inches deep in some north-eastern districts on the 4th and snow-cover persisted locally until the 6th. On the 13th-15th an unstable westerly airstream brought scattered snow and sleet showers to parts of the Midlands, but the snow did not lie. On the 18th a polar depression brought frequent snow showers to western Scotland and towards midnight the next day a deep depression from the Atlantic reached southern Ireland later moving south-eastwards into northern France. The associated easterly airstream brought heavy falls of snow to much of the southern half of the country; on the 22nd level snow was 18 inches deep at Tredegar, south Wales, and 6-12 inches deep in the Peak District. On the 25th an anticyclone to the north of the British Isles intensified and this brought a cold north-easterly airstream which persisted across the whole country



until the end of the month. By the 28th snow had accumulated to a level depth of 5-10 inches in parts of north-east England and 2-3 inches in parts of Kent. Taking the month as a whole, ground was snow-covered over much of the Grampians, Cairngorms and North-west Highlands on 20-25 days, and over the Southern Uplands, north-east England, north of Bridlington except the coastal strip, the Peak District and parts of north Wales on 10-15 days. Over most of the remainder of the country, ground was snow-covered on 2-4 days except in the coastal areas of Wales and south-west England where snow-cover was of an even shorter duration.

**February.** A dull, rather cold and very dry month. Snow or sleet was reported from Scotland on 16 days, ground being snow-covered on 19 days. In England and Wales wintry showers occurred mainly during the last half of the month, ground being snow-covered in many places on the 19th-21st. Snow-cover during the first four days of the month, in many places as far south as Dartmoor, was mainly associated with snowfall during the latter part of January. A deep depression which was near Iceland deepened on the 12th as it moved eastwards towards the coast of Norway and the next day a strong northerly airstream brought snow and sleet showers to all parts of the British Isles. Ground became snow-covered for a time in some eastern districts on the 13th. Northerly winds brought further snow showers to many districts during the next four or five days. On the 19th an anticyclone was centred off the north of Scotland and a belt of rain and drizzle spread across most districts of the British Isles but the rain turned to snow during the night and outbreaks of snow persisted during the next two days as troughs crossed the country; snow lay 1-2 inches deep in many places on the mornings of the 20th and 21st. During the last week of the month a northerly airstream brought sleet and snow to many parts of the country but the snow did not settle except on higher ground. Snow fell on 10 days or more in the Grampians, Cairngorms, the northern Pennines and parts of Norfolk and Suffolk and on 5-10 days in the North-west Highlands, the Southern Uplands and over most of England north and east of a line from Clacton to Manchester and Carlisle. It lay 10-15 days over parts of the Cairngorms, the North-west Highlands and the northern Pennines, 5-10 days over the Southern Uplands and parts of north Wales, but only 1-2 days in most other parts of the country.

**March.** Snow or sleet fell on 26 days in Scotland, ground being snow-covered on 22 days. In England and Wales it fell on the 1st-9th and 19th-26th and parts of northern England and the Midlands were snow-covered for most of this time. The very cold weather at the end of February continued during the first week of March. Strong north-easterly winds associated with a trough of low pressure over the Irish Sea brought widespread snow on the 1st, falls being heavy over northern England; over parts of the north-east, level snow accumulated to a depth of 9-12 inches. After a generally sunny day on the 2nd with a few scattered snow showers in the south-east, southerly winds reached gale force in most areas on the 3rd as a vigorous depression moved from the west of Scotland southwards over Ireland. A belt of snow, heavy at times, spread southwards across the country and continued to affect southern England for much of the 4th. On the morning of the 4th, level snow lay 9 inches deep in the Somerset-Wiltshire-Hampshire area, with drifts in places 6-10 feet deep. Snow

showers continued on the 5th and 6th in a northerly airstream and further light falls were reported on the 8th in parts of east and south-east England. Most of the snow-cover had gone by the 8th but it lingered on in parts of central Wales until the 12th and in parts of Scotland until the 13th. Easterly winds on the northern side of a trough lying across southern England brought snow to parts of north-east England on the 19th and snowfall increased in intensity and spread to the Midlands during the next two or three days; at Buxton, ground was covered to a depth of 14 inches on the 21st. Snow showers continued in some northern districts until the 26th. The total duration of snow-cover during the month was 10-15 days over parts of the North-west Highlands, the Cairngorms and eastern Grampians, the northern Pennines and the Peak District and over much of northern and eastern Wales. It was 4-8 days over much of the Midlands and south-east England but generally 3 days or less over south-west England and south and south-west Wales.

**April.** April was cool and showery after a warm start. In Scotland snow or sleet was reported at one place or another on 23 days with ground covered on two mornings, the 12th and the 19th. In England and Wales snowfall was mainly confined to the 18th-20th, but parts of the Midlands had 10 days of snow. After a generally wet day on the 17th, as a depression skirting the north coast of Scotland moved towards southern Norway, winds veered to north-west on the 18th bringing snow showers to much of the higher ground. On the 19th winds veered further to the north and showers were of snow in most districts, and some parts of the north Yorkshire Moors became snow-covered for a time. Showers fell as snow locally over the eastern half of England on the 26th-28th in a north to north-westerly airstream associated with a depression moving southwards over the North Sea. Snow fell on 18 days in parts of the Cairngorms, 11 days locally in the Southern Uplands and 10 days in the Pennines, but generally it occurred on only 1-3 days north of a line from the Mersey to the Wash, and few places reported more than one day south of this line.

**May.** In Scotland snow or sleet was reported at one place or another on 8 days and ground was snow-covered in places on the 17th and 18th. In England and Wales snow showers were reported as far south as East Anglia on the 18th and 19th in a northerly airstream. Ground was snow-covered to a depth of 2 inches for a time at Kielder Castle, Northumberland. Easterly winds brought snow to Scotland on the 15th and snow or sleet fell almost daily until the 19th as winds slowly backed to north. The Grampians and Cairngorms had about 3 days of snow during the month and there were 1-2 days in the Southern Uplands and Edinburgh area, and 1 day in the Pennines, the Yorkshire Wolds and locally in eastern England.

#### Duration of snow-cover in British mountains

Diagrams showing the distribution of snow-cover relative to height for 11 areas in the British mountains are given in Figure 1. They are based very largely on reports received from stations in Table 2 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.



TABLE 2

Number of days with snow lying in the British mountains, 1964-65

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

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Season
A'Chailleach (3276 ft)	a	12	16	31	31	28	31	30	31	210
Station: Glackour (80 ft)	b	4	14	31	31	28	23	30	7	168
Ross-shire	c	1	0	10	11	1	7	0	0	30
Cairngorms (4296 ft)	a	7	13	31	28	23	29	25	19	175
Station: Achnagoichan (1000 ft)	b	3	7	23	24	23	23	11	3	117
Inverness-shire	c	0	5	14	20	7	10	2	2	60
Creag Meagaidh (3700 ft)	a	6	12	31	31	28	31	30	10	179
Station: Fersit (850 ft)	b	3	8	27	31	28	16	28	7	148
Inverness-shire	c	0	3	10	24	8	4	5	0	54
Ben Vane (3004 ft)	a	3	6	25	24	8	16	12	1	95
Station: Loch Arklet (480 ft)	b	3	6	18	24	7	16	12	1	87
Stirling	c	0	2	5	4	2	12	4	0	29
Ben More (3170 ft)	a	4	5	15	23	14	9	3	0	73
Station: Rhuvaal (63 ft)	b	3	5	15	23	13	9	3	0	71
Argyll	c	0	0	0	1	0	2	0	0	3
Kells Range (2668 ft)	a	4	5	18	26	7	15	6	1	82
Station: Forrest Lodge (500 ft)	b	4	5	18	26	7	15	6	1	82
Kirkcudbrightshire	c	0	0	4	4	1	10	0	0	19
Cross Fell (2893 ft)	a	3	4	21	31	28	25	9	1	122
Station: Alston (1070 ft)	b	0	4	21	31	28	25	9	1	119
Cumberland	c	0	2	3	10	7	8	0	1	31
Helvellyn (3118 ft)	a	4	4	13	26	19	18	4	2	90
Station: Patterdale (520 ft)	b	1	4	13	24	16	15	2	2	77
Westmorland	c	0	1	4	9	1	8	0	0	23
Snowdonia (3560 ft)	a	0	0	10	19	28	12	0	0	69
Station: Capel Curig (640 ft)	b	0	0	10	14	28	11	0	0	63
Caernarvonshire	c	0	0	0	1	1	5	0	0	7
Cader Idris (2927 ft)	a	2	3	11	22	12	12	3	0	65
Station: Dolgellau (90 ft)	b	2	3	11	22	12	12	3	0	65
Merioneth	c	0	0	3	0	0	7	0	0	10
Brecon Beacons (2906 ft)	a	3	3	16	31	28	29	10	0	120
Station: Tairbull (660 ft)	b	3	3	16	31	28	29	10	0	120
Brecknockshire	c	0	0	2	1	2	20	0	0	25

100 feet = 30.5 metres

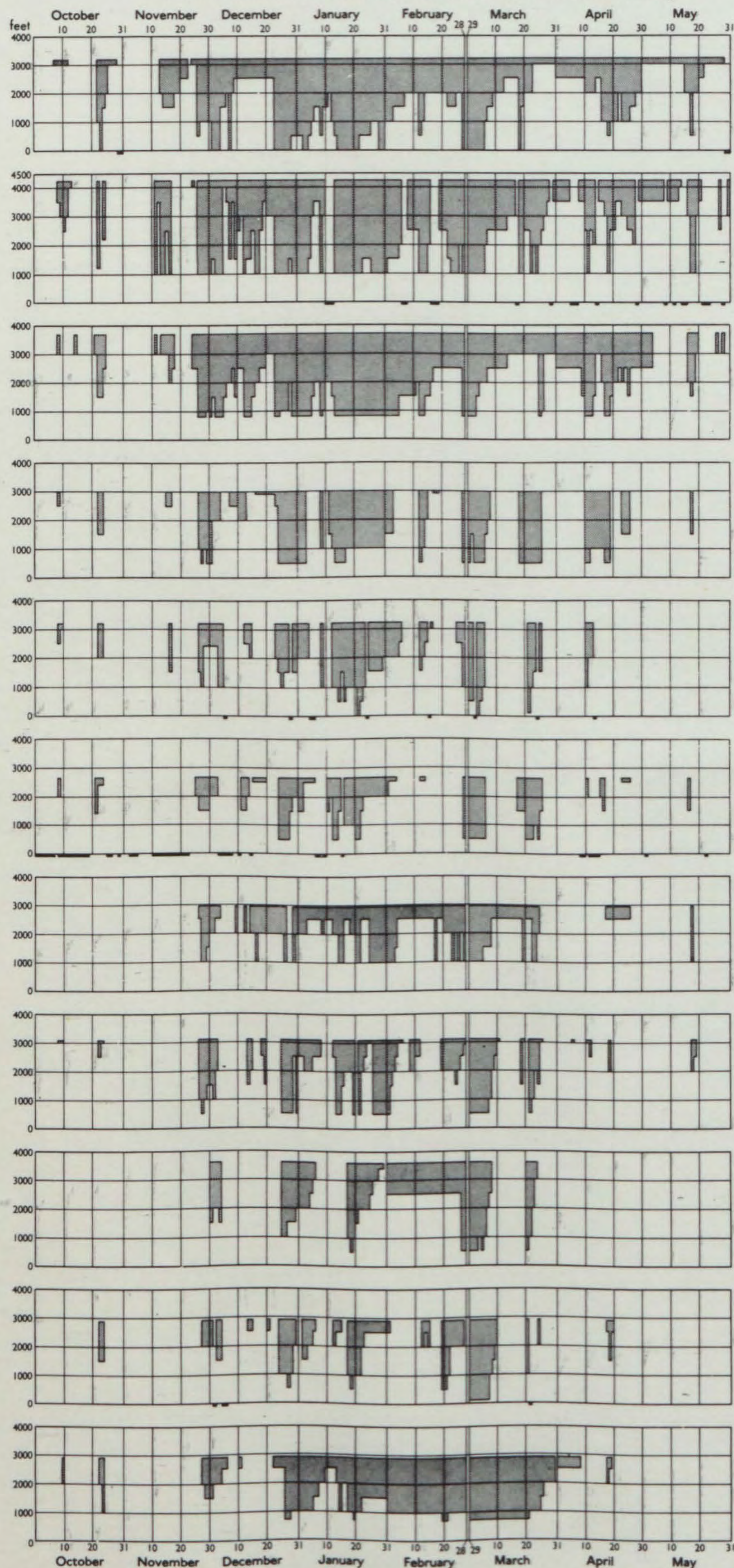


# SNOW SURVEY OF GREAT BRITAIN

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### DISTRIBUTION OF SNOW-COVER

DAYS WHEN SNOW COVER WAS POSSIBLY OBSCURED BY CLOUD SHOWN BY BLACK SQUARES BELOW 0 FEET



NUMBER OF DAYS WHEN SNOW WAS SEEN TO BE LYING

