INDIA WEATHER REVIEW, 1937.

ANNUAL SUMMARY.

PART B.

SNOWFALL.

This part contains a summary of the reports of snowfall in the mountain regions to the north and northwest of India. These reports are collected by local officers from the local residents, headmen of villages, or from travellers who have passed through the region and are then transmitted to this office.

The amount of snowfall is usually measured by finding the depth of undisturbed snow lying on the ground and such measurements are given in feet and inches. At places provided with raingauges the amount of snow collected in the gauge is melted and measured as rain; this is indicated in the text and the amounts are then given in inches and cents.

Cold Weather Period, January and February.

I.—Afghanistan.

Kabul.—About 3 feet of snow fell in seven days in January, while there were six falls of snow in February varying from 2″ to 12″ in depth. Snowfall during the period was above normal.

II.—Baluchistan.

Quetta.—Snow fell on three days in January. No fall was recorded in February. Falls were normal in January and below it in February.

III.—North-West Frontier Province.

(*a*) *Hazara.*—There were falls of snow on 17 days in January and 15 days in February, the total amounts being slightly below normal during January and above normal during February. Accumulations at the end of the period were above normal. Both the actual amounts and accumulations at the end of the months at a few places are tabulated below :—

Locality.	January.		February.	
	Falls.	Accumulations.	Falls.	Accumulations.
	Ft.	Ft.	Ft.	Ft.
Naraag	7	10	8	9½
Pludran	8	6½	6½	7½
Kagan	6	4½	5	4
Jared	3½	0	½	..
Malakandi	1½	0	½	..
Sundigali	7	½	3	1
Jachha	11½	5	13	7
Thandiani	3	2½	15½	4
Dungagali	4½	5	12½	3
Birangali	2	½	4	2

(*b*) *Dir, Swat and Chitral.*—In Drosh there was no snowfall in February. Snowfall for the period was below the average, all surrounding hills above 8,000 feet were, however, covered with snow at the end of the period.

(*c*) *Khyber Agency.*—Snow fell thrice during January and twice during February. February recorded very light falls. Snowfall of the season was below average. Accumulations at the end of the period on Lakha, Toro Sar, and Per Porai were normal and approximately 12, 6, and 18 feet respectively.

(*d*) *Kohat.*—Snowfall at Fort Lockhart was 13½ and 18½ inches respectively during January and February.

(*e*) *North Waziristan.*—Dattakhel reported heavy snow storms during the period. Mountains were clad in snow.

(*f*) *South Waziristan.*—In Razmak there were five days of snowfall in both January and February. Totals for the month amounted to nearly 2″ and 1″ respectively.

IV.—Kashmir.

(*a*) *Skardu.*—In January there were 13 days of fall, while in February snowfall was limited to a period of 5 days, the snowline descending to an altitude of 7,505 feet. The depths of accumulation at the ends of January and February were 6 feet and 9 feet respectively.

(*b*) *Dras.*—Snow fell on 9 days in January and 5 days in February. Falls during the months amounted to 4 and 3½ feet respectively; January falls were above normal while February recorded normal amounts. Accumulations at the end of the month on the Zojilla and Mushkoo passes measured 20 and 23 feet respectively.

(*c*) *Srinagar.*—Several light to moderate falls of snow were observed during both the months. Both the amounts and accumulations were below normal.

(*d*) *Kargil.*—There were 10 days of fall in January and 5 in February. Amounts received during the season were

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below normal. Accumulations on the surrounding mountains were normal and measured 4 and 6 feet respectively at the end of January and February.

(*c*) *Muzaffarabad.*—No snow was recorded in Muzaffarabad proper but the surrounding mountains had normal snowfall.

V.—Punjab.

(*a*) *Rawalpindi.*—Falls were confined to the higher peaks of Narar in the Kahuta Tahsil and the neighbourhood of Murree peaks which recorded 4 days of fall in January amounting to a total of 9″ as against 8 days in February with a total of 4′ 2″. Falls during the period were normal in character.

(*b*) *Chamba.—Barmer Range*: January recorded 17 days of fall with a total of 6′ 11″ and February 15 days with a total of 9′. During the first half of the period falls were below normal while during the second half they were normal. Elevation of the snowline above M. S. L. was 7,500 feet. *Tissa Range*: Experienced ten days of snowfall in February with an average fall of about five feet.

(*c*) *Kulu* (*Kangra District*).—On the higher ranges snow fell on two days in January totalling 8′ and in February the total fall was about 5½ feet. The height of the snowline above M. S. L. was 5,000 feet. Falls during February were above normal. Depths of accumulations at the end of the period are given below and were normal for the period.

	Ft.
Hampta	24
Rohtang	19
Bhabbir	9½
Jalori	7
Bishlew	8

(*d*) *Kilba* (*Simla District*).—January witnessed 6 days of fall while in February there were 7. Heights above M. S. L. of the snowline were 6,000 and 5,500 feet respectively. January falls were reported to be nearly normal and February falls above the average.

VI.—United Provinces.

(*a*) *Almora.*—The following table gives the amounts as recorded in the various parts of the district :—

——	January.	February.
	Ft.	Ft.
Malla Danpur	6	10
Malla Johar	3½	2
Malla Darma	8½	30½
Chaudans	..	17½
Byans	..	24½

Snowfall for the season was above average. Accumulations recorded during the months are entered in the following table :—

——	January.	February.
	Ft.	Ft.
Nuwe	25	41
Lampia	25	35
Lipu	17	28
Masurleg	17	27

At the end of January the accumulations were normal while at the end of February they were above normal.

(*b*) *Garhwal.*—Snow fell on two days in January and 8 days in February. Falls during the month measured 1½ and 2½ feet respectively.

(*c*) *Nainital.*—Muktesar reported falls above average during February.

VII.—Assam.

(*a*) *Kamrup.*—Snowfall was reported to be below the average. Accumulations melted away by the end of January.

(*b*) *Sadiya Frontier Tract.*—Snowfall was average.

(*c*) *Baliapara Frontier Tract.*—Snowfall was heavier than last year. By the middle of January snowfall on the top of Jhumla was about 1 foot deep.

Hot Weather Period, March to May.

I.—Afghanistan.

Kabul.—There were seven falls of snow in March. Depth of accumulations on Hindu Kush during the middle of April was reported to be about 12 feet. Falls during the period were reported to be above normal. Accumulations at the end of the period were more than normal.

II.—Baluchistan.

Quetta.—A single fall was recorded in March. Snow melted away by the end of April and no trace of it was found on the peaks around Quetta by the end of May.

III.—North-West Frontier Province.

(*a*) *Hazara.*—Snow is reported to have fallen on the surrounding hills on 12 days in March. Falls during the period were normal. The following table gives the amounts and accumulations recorded in March :—

Locality.	Falls.	Accumulations.
	Ft.	Ft.
Narang	10	10½
Pludran	8½	7½
Kagan	7	3
Jared	1	..
Malalandi	1	..
Sundigali	3	..
Jachha	7½	6
Thandiani	3½	4
Birangali	2	6
Dungagali	3½	2

(*b*) *Dir, Swat and Chitral.*—There were heavy falls on the Lowari and Durrah passes in March. During the middle of April depth of accumulations on these passes measured about 9 feet; by the end of the season the major part of accumulations had melted away leaving only about 1 to 2 feet of snow. Snowfall in the valleys occurred only in March and was below the average; depth of snow on ground seldom rising above 6″. *Drosh.*—At the station there was only one snowfall during the season which occurred on the 7th and 8th March giving 18″ of snow. Falls during April and May were confined to elevations above 8,000 feet and 10,000 feet respectively. By the end of the season accumulations had melted away except on Lowari and Margalasht peaks. *Malakand.*—Malakand reported heavy falls in March and light falls in April. Accumulations at the end of the period ranged from 6 to 13 feet and were melting away rapidly.

(*c*) *Khyber.*—There was only one fall of 1½ inches depth on Tirah mountains in March. The station proper experienced no falls during the period. On the surrounding peaks accumulations at the end of the period were normal.

(*d*) *Kurram.*—Snow accumulations at the end of the period were above normal.

(*e*) *Kohat.*—Fort Lockhart reported 2″ of snow in March and ½ inch in April.

On the Samana range there was 2″ of fall distributed over three days.

(*f*) *Waziristan Agency.*—By the end of May there were slight accumulations on the peaks of Preghal range which is unusual for this period of the year.

(*g*) *North Waziristan.*—Dattakhel reports two days of snowfall in March and none for the remaining months. Both falls and accumulations were normal.

(*h*) *Dera Ismail Khan.*—Snowfall during the period was average. As usual no traces of snow were left on Takht Sulaiman by the beginning of May.

IV.—Kashmir.

(*a*) *Skardu.*—March experienced 3 days of snowfall, April 7 days and May 3 days. Heights of the snowline at the end of these months were 7,500 feet, 9,000 feet and 10,000 feet respectively. Accumulations on the higher ranges measured 10 feet, 13 feet and 4 feet respectively. Depths of accumulations were above normal.

(*b*) *Dras.*—There were six days of snowfall in March, eight in April and one in May. Depths of accumulations on the Zojilla and Mushkoo passes at the end of the three months were 14, 6 and 3 feet respectively.

(*c*) *Srinagar.*—Several light to moderate falls were observed in the surrounding mountains and in the main valley during the period. Falls and accumulations during the period were below normal.

(*d*) *Gulmarg.*—There was light to moderate snow on the Affarwat range during the season.

(*e*) *Kargil.*—In March there were 6 days of fall and 8 days of snowfall was recorded in April. Falls during May were confined to higher elevations. Accumulations at the end of these three months on the surrounding high peaks measured nearly 9, 8 and 8 feet respectively. Falls were below the average in March, above it in April and normal in May. Accumulations were slightly above normal.

(*f*) *Sonamarg.*—March had 12 days of snowfall and April 2 days. There was no snowfall in May. Falls amounted to nearly 9½ feet in March and 2 feet in April. Accumulations on the surrounding high mountains measured 6 feet at the end of March and 3 feet at the end of April and May. Accumulations during the period were above normal.

(*g*) *Gurez.*—Information was received only for May, during which month there was no snowfall.

(*h*) *Leh.*—There were five days of snowfall in March, 3 in April and a few late falls in May. Falls in March and April were above normal whereas in May they were normal. Accumulations at the ends of March, April and May measured 5, 4 and 4 feet respectively and were normal.

(*i*) *Muzaffarabad.*—There was no snowfall at the station. Fresh falls were however recorded throughout the season on the tops of Ganga Dalla.

(*j*) *Gilgit.*—There was no snowfall during the season at the station. Depths of accumulation on Burzil pass measured six feet at the end of March.

V.—Punjab.

(*a*) *Rawalpindi.*—The last fall of the season occurred on the 9th March, which gave 5″ of snow. Accumulations on the surrounding hills melted away before the end of April.

(*b*) *Chamba.*—There were 9 days of snowfall in March. No reports were received for April. During May, falls were confined to elevations above 12,000 feet. At the end of the period accumulations of snow on the surrounding high peaks measured about 15 feet which is about the normal.

(*c*) *Kulu* (*Kangra District*).—Snowfall was confined to elevations above 5,000 feet in March, above 8,500 feet in April and above 13,000 feet in May. Falls during the period were above normal. Depths of accumulations on the well-known passes and peaks are detailed in the following table :—

Locality.	Depths of accumulations at the end of		
	March.	April.	May.
	Ft.	Ft.	Ft.
Hampta pass	26	20	10
Rohtang pass	20	18	8
Bhaboo pass	7½	4	..
Sirikhand	16	..	..
Jalori pass	5	2½	..
Bashleo	6	3	..

Accumulations at the end of March and April were slightly above normal while at the end of the period they were considerably below it.

(*d*) *Kilba Hills* (*Simla District*).—There were five days of snowfall in March. Light snow fell on high ranges on 14 days during April and one day in May. Snowfall during the season was above normal. Accumulations on the well-known passes were more than usual during the period.

VI.—United Provinces.

(*a*) *Almora.*—Falls during the various months are entered in the statement below :—

Locality.	March.	April.	May.
	Ft.	Ft.	Ft.
Malla Johar	1½	½	2½
Malla Danpur	3	2½	3
Byans	5	2	1
Malla Darma	..	½	0
Chaudans	4½	2½	..

Snowfall in March and May was below normal and above it in April.

Depths of accumulations on the well known passes and peaks are given below :—

Locality.	March.	April.	May.
	Ft.	Ft.	Ft.
Lipu	22	24	11
Lampia	33	36	16½
Masurleg	17	19	..
Nuwe	..	19	10

Accumulations at the end of April were above normal, but became normal by the end of May.

(*b*) *Garhwal.*—Snowfall was confined to elevations above 11,000 feet. There were 12 days of snowfall in April and 8 days in May. Details of March falls are not available. For the period as a whole snowfall is reported to be slightly above normal. Accumulations on the higher passes ranged from 3 to 5 feet in April and 3 to 4 feet in May and were above normal at the end of the period.

VII.—Assam.

(*a*) *Kamrup.*—No snow fell in March and April. The Tasigong and the Poonakha routes were almost free from snow during the period.

(*b*) *Sadiya Frontier Tract.*—Accumulations on the Abhor hills melted away by the end of March.

(*c*) *Baliapara Frontier Tract.*—There was a snowstorm about the middle of March which gave about 3 feet of snow in the Se La pass.

South-West Monsoon Period, June to September.

JUNE AND JULY.

I.—Afghanistan.

Kabul —There was some slight fall of snow on the Paghman range in the second week of June which melted away rapidly. Accumulations on this range persisted abnormally leaving deposits in crevices at a height of about 13,000 feet, which melted away by the end of June.

II.—North-West Frontier Province.

(*a*) *Hazara.*—At elevations from between 10,000 feet and 15,000 feet snowfall ranged from 2″ to 4″. Above this height 4″ to 7″ falls were recorded. Snowfall during the season was normal. Accumulations, which were above normal, ranged from 2½ to 4½ feet at the lower levels and 4½ to 8 feet at the higher.

(*b*) *Dir, Swat and Chitral.*—Falls were below the average. *Drosh* : Snowfall during the season was confined to elevations above 12,000 feet and was below the average. Accumulations of snow existed only at heights above 12,000 feet ; at the end of the season, however, they were confined to Lowari and Madaglasht peaks. *Malakand* : No snowstorm occurred during the season under report. Accumulations on Mankiyal, Rashkar and Hindu Raj ranges measured from 4 to 8 feet at the end of June and 3 to 6 feet at the end of July. Elevations below 12,000 feet were free from snow.

(*c*) *Khyber.*—No snow fell during the months of June and July. At the end of the season there were 2 feet of snow on the high peaks of Morga hill.

(*d*) *Kurram.*—No snowfall was recorded in the Kurram district and adjacent hills. Depths of snow at the end of the season were lower than usual. Details regarding depths are entered below. Accumulations were above normal.

	Ft.
Sikaram Peak	3½
Badina Peak	2½
Zehran Pass and passes in the proximity of Sikaram	Trace.

(*e*) *Dera Ismail Khan.*—Snowfall was average.

III.—Kashmir.

(*a*) *Skardu.*—No falls occurred in June while July witnessed 3 falls on the surrounding hills at elevations above 12,000 feet. Depth of snow on higher passes and peaks was above normal and measured about 3 feet at elevations above 12,000 feet.

(*b*) *Dras.*—No snowfall was recorded during June ; eighth of July recorded a fall and on the 21st of the month slight snow of thickness ¼″ was seen on high peaks around the station which melted away by the next afternoon. Falls during the season were normal. On the high peaks surrounding Dras, accumulations at the end of the season measured about 6 inches.

(*c*) *Srinagar.*—There was no snowfall during the season. Accumulations practically melted away by the end of the season and were much less than what they were in the corresponding period of last year.

(*d*) *Gulmarg.*—June witnessed several light to moderate falls on the Affarwat range, snow descending down to Khalamarg. During the next month there was one fall on the Affarwat range on the 7th which melted away soon. Falls during the season were below the average. On some of the peaks and gorges accumulations of last winter persisted till the end of the season.

(*e*) *Kargil.*—June witnessed four falls of which three were very small. July witnessed no falls. Accumulations at the end of the months measured about 2 feet, which was above normal.

(*f*) *Sonamarg.*—No snowfall was reported during June and July. Accumulation on high peaks and ranges measured about 4 inches, which was above normal.

(*g*) *Gurez.*—No fresh snowfall occurred during June or July. Accumulations on the surrounding mountains had practically disappeared by the end of the season.

(*h*) *Leh.*—As usual there was no snowfall. Accumulations were confined to the mountain peaks. Passes were open to traffic.

(*i*) *Muzaffarabad.*—There was no fresh fall during the season as usual.

IV.—PUNJAB.

(*a*) *Chamba.*—One or two snowstorms occurred in June which gave snow of about 3" thickness at elevations above 12,500 feet. There was no snow in the lower ranges. Accumulations of snow on high hills and peaks were below normal at the end of the season.

(*b*) *Kulu (Kangra District).*—Elevations above 13,000 feet were subject to slight snowfall. Accumulations were more than usual at the end of the season.

(*c*) *Kilba (Simla District).*—Occasional slight falls were experienced at elevations above 11,500 feet. A little snow fell at elevations above 14,000 feet. Snowfall of the season was above the average.

V.—UNITED PROVINCES.

(*a*) *Almora.*—The snowfall of the season was above average in patties Malla Danpur and Malla Darma but below it in Byans. The following table gives the amounts of falls and accumulations at the end of each month :—

Locality.	June.	July.
Falls.	Ft.	Ft.
Malla Danpur	3	3
Malla Johar	1	..
Chaudans	5½	..
Byans	4½	8¾
Malla Darma	4	5
Accumulations.		
Lipu	12	10
Lampia	18	15
Nuwe	..	6½

Accumulations at the end of both June and July were generally above normal.

(*b*) *Garhwal.*—There was no snowfall in the mountain ranges below the height of 12,000 feet during the months of June and July. Depth of accumulations above the height of 9,000 feet was 8 to 10 feet and above 12,000 feet it was 12 to 15 feet.

AUGUST AND SEPTEMBER.

I.—NORTH-WEST FRONTIER PROVINCE.

(*a*) *Dir, Swat and Chitral.—Drosh* : Snowfall of August was confined to elevations above 15,000 feet; September however recorded one fall on peaks above 13,000 feet in height. Falls during the season were below normal and accumulations existed on heights above 15,000 feet. *Malakand* : The Agency experienced no snowfalls during August, while in September falls occurred at elevations above 13,000 feet. Falls were below normal during the season. Accumulations on the Mankiyal, Bashkar and Hindu Raj ranges measured from 2 to 5 feet in depth. Elevations below 13,500 feet were free from snow.

(*b*) *Dera Ismail Khan.*—There was no snowfall during the season.

II.—KASHMIR.

(*a*) *Skardu.*—Falls were recorded on two days in August and on a single day in September. Accumulations were confined to elevations above 12,000 feet at the end of August and 10,000 feet by the end of September and measured about one foot and six inches respectively at the end of each month.

(*b*) *Dras.*—No fresh falls were observed in August while in September there were six days of snowfall. Throughout the season the surrounding hills were free from snow as any snow that fell melted away rapidly. Falls for the season were below normal.

(*c*) *Srinagar.*—No fresh falls were observed in August while September witnessed several fresh light falls of snow. Falls during the season were below the average. Throughout the season there was no snow on the surrounding hills.

(*d*) *Gulmarg.*—Either on the surrounding mountains or on the plains no fresh falls were observed in August, while in September four light to moderate falls of snow were observed on the Affarwat range. Snowfall of the season was below normal. A very thin layer of snow existed throughout the season on the peaks of the Affarwat range.

(*e*) *Kargil.*—There was no snowfall during August while in September two falls were recorded. Falls for the season were below normal in character. Depths of accumulations measured about 1½ to 2 feet and were normal.

(*f*) *Sonamarg.*—No falls were recorded during the season ; no accumulation of snow was also observed on the neighbouring peaks.

(*g*) *Leh.*—No falls were recorded during the season. The surrounding passes and peaks were also free from snow.

(*h*) *Muzaffarabad.*—At the top of Ganga Dalla only one fresh fall of snow was observed during the season. The station proper experienced no fall.

III.—PUNJAB.

(*a*) *Kilba (Simla District).*—Height of snowline at the end of August was 13,000 feet above M. S. L. and 10,000 feet above M. S. L. at the end of the season. Snowfall of the season was above normal.

IV.—UNITED PROVINCES.

(*a*) *Almora.*—Snowfall of the season was normal. The following table gives the amounts and accumulations at the end of each month separately :—

Locality.	August.	September.
Falls.	Ft.	Ft.
Malla Danpur	2½	3
Malla Johar	..	1½
Byans	3	..
Malla Darma	5½	6
Talla Darma	..	5½
Accumulations.		
Untadhura	7½	17
Nuwe	15	10
Masurleg	9½	15
Lipu	3	..

(*b*) *Garhwal.*—No snowfall was recorded during the season

The Retreating Monsoon Period, October to December.

I.—Afghanistan.

Kabul.—There were three falls each in October and December and five in November. The falls of the 2nd and 24th November were fairly heavy, the former causing about 6″ of snow on the Shibar Pass. On peaks of 8,000 feet height accumulations of snow were reported to be about 6″ deep.

II.—Baluchistan.

Quetta.—No report was received.

III.—North-West Frontier Province.

(*a*) *Hazara.*—No report was received for October and November. Falls of December were heavier than usual. The following table gives the estimated falls during December and the accumulations at the end of the month. Depth of accumulations was normal.

Locality.	Falls.	Accumulations.
	Ft.	Ft.
Narang	8	6
Pludran	6	5½
Kagan	5	4½
Jared	1	1½
Malakandi	½	..
Sundigali	2	1
Thandiani	6	6
Dungagali	7	2½
Birangali	2½	2½
Jachha	3	1½

(*b*) *Dir, Swat and Chitral.—Drosh* : The falls of the season were confined to elevations above 9,000 feet except in December when the station experienced 3 falls of snow. The falls were fairly heavy and the whole district was covered with snow at the end of the month. *Malakand*: Reported snowfall on the high ranges in October. Snow fell in December on the peaks of Lowari, Mankiyal, and Bashkar ranges. Height of the snowline was 5,000 feet above M. S. L. The accumulations on these ranges were reported to be between 1 and 4 feet. The falls of the season were below normal.

(*c*) *Kurram.*—No snow fell at Parachinar excepting on the second December when a light fall occurred. On the Sikaram and Badina peaks 2 to 2½ feet of snow is said to have fallen during the season.

(*d*) *Kohat.*—Snowfall of about 9″ depth was observed on the high mountains and peaks.

(*e*) *Waziristan.*—No report was received from North Waziristan. In South Waziristan no snowfall occurred during the period.

(*f*) *Dera Ismail Khan.*—Snow fell on the Sulaiman range on two days in December. Height of the snow-line above sea level was 6,000 feet.

IV.—Kashmir.

(*a*) *Skardu.*—The surrounding mountains had six days of snow in October, three in November and fourteen in December. Passes and peaks of the neighbourhood had 8, 9 and 10 feet of snow at the end of the respective months. Depths of accumulations were above normal.

(*b*) *Dras.*—Several falls of snow were experienced on the adjacent hills during all the months of the season. The fall of the 29th October was the heaviest ever noticed during the past 20 years. The falls were above the average. The following table gives the depth of accumulations of snow at the end of each month of the season. Accumulations were above normal.

Locality.	October.	November.	December.
	Ft.	Ft.	Ft.
Adjacent hills	3	2	4
Higher peaks and passes	6	4	7

(*c*) *Srinagar.*—Several light to moderate falls of snow occurred on the surrounding mountains during all the three months. The first fall which occurred on the 28th October was the heaviest of all those recorded in the past 60 years, and did a lot of damage to the *kacha* houses, trees, telegraph lines, etc. The falls were above the average in October and normal in November and December. Accumulations at the end of the period were normal.

(*d*) *Kargil.*—Eight falls of snow were observed in each of the months of October and December and three in November. The falls were above the average during all the months of the period. Accumulations of snow on the higher peaks at the ends of the several months of the period measured 5, 3 and 12 feet respectively and were above normal.

(*e*) *Sonamarg.*—There were 2 days of fall in October, 4 in November and 11 in December. The falls were above normal in October and December and normal in November. Depths of accumulations of snow on the neighbouring hills and on the well-known passes and peaks are entered in the following table. Depths of snow accumulations were above normal.

Locality.	October.	November.	December.
	Ft.	Ft.	Ft.
Neighbouring hills	3½	2½	9
Passes and peaks	10	6	12

(*f*) *Leh.*—There were two falls in October, three in November and several falls of varying severity in December. The falls were confined to high peaks and mountains and were above the average throughout the period. Accumulations of snow on the higher peaks measured about 2 and 3 feet at the end of November and December respectively.

(*g*) *Muzaffarabad.*—Snow fell over Ganga Dalla hills in all the three months of the period. The falls of the season are reported to be above the average.

V.—Punjab.

(*a*) *Kulu* (*Kangra District*).—No snow fell in October, one fall occurred in November and two in December. Height of the snowline descended to about 5,500 feet above M. S. L. The falls of the season were normal. The depths of accumulations were estimated to be about 9 feet deep on the Hampta and Sirikhand passes and about 3 feet on the Bashleo and

Jalori passes which were open to traffic. Accumulations at the end of the period were slightly above normal.

(*b*) *Chamba.*—Frequent falls of snow occurred during all the months of the period. The falls in December were very heavy. The snowfall of the season was above normal.

(*c*) *Kilba* (*Simla District*).—There were 3 falls each in October and November and seven main falls in December. The falls were above the average during the period. At the end of December all the passes were closed to traffic.

VI.—United Provinces.

(*a*) *Almora.*—The total depths of falls in each of the months October—December are given below :—

Locality.	October.	November.	December.
	Ft.	Ft.	Ft.
Malla Danpur . . .	3	7	6
Malla Johar	3	1	15
Malla Darma . . .	8	3½	..
Talla Darma . . .	5½	3	..
Byans	10½	13	1½

(*b*) *Garhwal.*—There were two falls each in October and December and one in November. The falls were below the average throughout the season. Accumulations of snow on the high peaks measured 1½ feet at the end of October and November and 1 foot at the end of the season.

VII.—Assam.

(*a*) *Kamrup.*—Snowfall during the period was slightly below normal. The peaks were covered with snow 3″ to 4″ deep, while the passes were open to traffic.

(*b*) *Sadiya Frontier Tract.*—Heavy snow fell in the early part of November and was followed by falls on the peaks of Peki Modi in the last part of the months. In the last week of December snow fell on the peaks of Moting and Takek. The falls were below normal.

(*c*) *Baliapara Frontier Tract.*—No information is available excepting that snow on the Se La Pass was normal. In December about 1½ feet of snow was estimated on the Se La at an elevation of 14,200 feet. Accumulations at the end of the period are reported to have been knee-deep.

Summary.

Cold Weather Period, January and February.—Falls and accumulations were above average in Afghanistan and the United Provinces and below the average in Baluchistan and about the average in North-West Frontier Province, Kashmir, Punjab and Assam.

Hot Weather Period, March to May.—Falls and accumulations were slightly above the average during the period.

Southwest Monsoon Period, June and July.—Falls were about the normal in the North-West Frontier Province and Kashmir and above normal in the Punjab and the United Provinces. Accumulations were above average excepting on the Punjab Hills where they were normal.

Southwest Monsoon Period, August and September.—Falls were below normal in the North-West Frontier Province and Kashmir, normal in the United Provinces and about the normal in the Punjab. Accumulations were normal.

Retreating Monsoon Period, October to December.—Snowfall and accumulations were above normal in the North-West Frontier Province, Kashmir and Punjab. In the United Provinces and Assam falls were below normal while the accumulations were normal.

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