

VI.—*Altitudes of Places in Kumaon.* By Capt. W. S. Webb, E.I.C.S.

A LIST of Latitudes, Longitudes, and Altitudes of many Places in Kumaon, has appeared in the 'Asiatic Researches,' presented to the Society by Lord Hastings, for whom a short Memoir of the Survey was drawn up in 1817, while the work was yet in progress. Perhaps this publication was premature; but be that as it may, it was clearly indicated in the memoir itself that two corrections would eventually be required; the one affecting all the longitudes, and the other all the *geometrically-deduced* elevations in that list.

The longitude of Péléebheet, as given by Mr. Reuben Burrow, $79^{\circ} 41' 45''$ E. was taken, *pro tempore*, as the first meridian of the survey, though well known to err in defect seven or eight minutes; and I take the present opportunity of mentioning that the correction in longitude $+ 8' 39''$, which has been adopted in the map, is applicable to all the longitudes given in the 'Asiatic Researches,' including Péléebheet.

In the second place, and which is more immediately connected with my present purpose, the altitude of Kasheepoor (upon which as the zero of my observations, all the geometrically-deduced elevations in the survey are based,) was assumed from a mere estimate to be 650 feet. But since then many barometrical observations have been made at that place, (as will be seen in the annexed Table,) the mean result giving 722 feet for the difference of elevation between Mr. A. Colvin's house at Calcutta, and the station at Kasheepoor. The heights inserted in the map have been thus increased seventy-two feet, the correction indicated, which is also due to every altitude, as given in the 'Asiatic Researches,' if obtained by *geometrical* process. The height of Mr. Colvin's house above the level of the sea, though probably not much less than 100 feet, has not been taken into consideration, and the altitudes given in the following Table are those above Calcutta.

Having been occasionally referred to upon the subject, it seems desirable to place the whole of the barometrical observations made in Kumaon upon record, that the traveller in the mountains may have an easy mode of access to them, whether merely to gratify his curiosity, or for any purpose of utility.

It was not until a late period of the survey that barometers in serviceable condition were obtained, though neither trouble nor expense were spared to procure them; all were broken upon the road, until, in April, 1817, being then in camp at Gungolee-Hath, I received from a friend a portable barometer by Ramsden. The instrument was originally intended for measuring such heights as occur in Great Britain. I managed, however, to get the scale lengthened downwards by a native workman; there was no contrivance for viewing the surface of the mercury in the reservoir from without, or of adjusting it to the beginning of the scale. The irregular form of the interior of the reservoir,—a cylinder having a broad and shallow cup at either extremity,—rendered it extremely difficult to be

gauged. Near the upper surface, 13 inches in the tube were equivalent to only $\frac{1}{10}$ of an inch in the reservoir.

It was subsequently ascertained, by comparison with a barometer of the best description, that the tube had been truly filled, and the scale precisely adjusted. All the observations, from No. 1 to No. 138, inclusive, were made with this instrument only, and must be considered *approximate* results. In computing the altitudes from these, no equation has been applied to correct the place of the zero point, and that usually added to the length of the column of mercury in the lower temperature (to compensate for expansion,) has also been omitted. The one being always additive to, and the other, almost without exception, subtractive from the *result*, have a tendency, *pro tanto*, to compensate for each other.

At the time these observations commenced, no corresponding series at Calcutta was procurable, I was, therefore, obliged to adopt the mean height of the barometer and thermometer at noon, for each month of the year, as inferred from the Meteorological Diaries, which had been formerly kept at the Presidency and published in the 'Asiatic Researches,' in lieu of correspondent observations. The variations to which these are liable in different years in Bengal are so small, that they might indeed be used without risk in all cases where very great accuracy is not required. The altitudes themselves, as far as subsequent observations made with better instruments show, appear to be generally a little in defect; but upon the whole, I am of opinion that the difference between the approximate altitudes here given, and those which could have been obtained by the best barometer, and more rigorous computation, all other things remaining the same, will rarely, if ever, exceed 100 feet.

In the spring of 1818, I obtained a supply of five barometers of the best description, and in perfect order from Europe. Four of them were constructed so as to admit of the adjustment of the zero point; and the fifth, a small instrument of Sir H. Englefield's pattern, required an equation of $\frac{1}{30}$ in lieu of that adjustment. Among the observations which follow, those marked (*a*) were made with the latter instrument exclusively, and the value of the equation just mentioned is included in the *last* column.

About this time I heard that Mr. Alexander Colvin, of Calcutta, kept a Meteorological Diary, and having made application to him upon the subject, he most kindly consented to supply me, monthly, with a copy. This gentleman's diary was kept with such undeviating regularity, and was transmitted to me during the residue of my survey with such punctuality, as to render it invaluable for my purpose; and his polite and liberal attention demands my grateful acknowledgment. I am also indebted to Major General Hardwicke for occasional extracts from his diary kept at Dum-dum.

Generally speaking, I have preferred taking the mean of the Calcutta observations for five days, to that immediately corresponding with my own. Thus, an observation made in the mountains on the 10th of any month, would be computed with the mean of those by Mr. Colvin on the 8th, 9th,

10th, 11th, and 12th. I feel convinced, that almost every instance, in which any material discrepancy appears in a result deduced from more than one observation, the error is attributable to the "Equation for Temperature," the theory being, I believe, generally considered imperfect.

In steady weather, series of observations gave the same results, as nearly as possible, though made at very different seasons of the year. But the continual travelling about, which the survey required, seldom permitted observations to be made in a continued series, and made it unavoidable to register a great number which were taken when the weather was unsettled. A fall of rain will often, in particular situations in the hills, depress the temperature 10 or 15 degrees in a few hours, a circumstance which does not occur in Calcutta, though similar weather be experienced, and this, if it be a lofty station, seriously affects the altitude. The barometer meanwhile seldom varies, as dependent upon rain or even snow, and any trifling alteration which may take place in that instrument, is often contrary to what might be expected from a diminution of temperature.

The unequal variations of temperature at places *within* the mountains, and near to each other,—if differing considerably in altitude,—is still more remarkable; and corresponding simultaneous observations at two such stations would give results fluctuating between extremes more widely removed, than would limit the differences apparent in the calculations if separately compared with the Calcutta observations. The tendency of the barometer to rise and fall (at every place where I have had an opportunity of observing it for several days together) appeared to me to correspond, almost precisely, and from day to day, with the Calcutta instrument; the *general changes* of temperature are analogous also. Such instances, as I have alluded to above, are to be considered as exceptions only.

Upon the whole I am of opinion that if a series of barometrical levels could be carried on step by step from the plains to the passes of the Himaleea, (which by the way would exclude all other business,) and with that account, unavoidably, every individual error accumulated from unequal variations of temperature, and a multiplicity of other causes, the ultimate object of inquiry would not be attained with nearly an equal degree of precision to that derived from comparing *directly* the last observation of the series with one correspondent at Calcutta. By the latter mode no error is extended to a second station; and, as the barometer in India is not affected by changes of weather, &c., as in places more distant from the Equator, and as its diurnal and annual variations in the hills correspond with those observed in Calcutta, the *distance* between the places of observation furnishes of itself no argument that I am aware of, unfavourable to the greatest accuracy which this instrument is competent to afford.

In such a multitude of figures there must inevitably occur many errors, and the more so, as not one of the results have been ever recomputed, or examined by a second person. The state of my health precludes me from executing now any extensive revision, and I can only express a hope that inaccuracies may not prove unreasonably numerous.

COMPUTATION OF THE ALTITUDES.

The altitudes from No. 1 to No. 138 inclusive, have been computed according to a rule given in the pamphlet usually delivered with Sir H. Englefield's portable barometer, descriptive of the use and application of that instrument.

The residue are calculated by the formula contained in a small but useful publication, entitled 'A Companion to the Mountain Barometer,' by Mr. Thomas Jones, optician, of Charing Cross.

The following are a few examples of the latter class, given somewhat more at length. In every case, where it was possible to do so, the observation was delayed until the instrument had taken the temperature of the atmosphere; and in the Calcutta observations no registry of the detached thermometer is included.

Date.	Place of Observation.	Barom. Mean.	Therm.		Place of Comparison.	Barom.	Therm.
			A.	D.			
1818			°	°			°
Feb. 19	Kasheepoor (Factory)	29.048	70	70	{ Calcutta, Mr. Colvin's house }	29.85	73
,, 20	,, ,,	.016	68	68		.91	72
,, 21	,, ,,	.168	68.5	68.5		.94	78
,, 22	,, ,,	.138	68	68		.91	78
,, 23	,, ,,	.109	66	66		.96	80
	Mean .	29.096	68.1	68.1		29.914	76.2
			Centigrade 20°				Centigrade 24.5

B.	H.	A.	D.
		°	°
29.914	929	24.5	24.5
29.096	..	20	20
+ .026	..	4.5	44.5
29.122	1628	× .0058	22.2
	699	.290	3.0
	+ 66.6	.232	66.6
	765.6	.02610	

Altitude of Kasheepoor Factory Bungalow, 765.6 feet.—See No. 142.

Altitudes of Places in Kumaon.

II.

At Keoonlung, a halting ground, near Nectee Pass, mean of Two Days' Observation, on the 20th and 21st of August, 1818.—See No. 263.

B.	H.	A.	D.
29·485	1,305·5	° 26·1	° 26·1
17·542	..	11·	11·7
·050	..	14·4	37·8
17·592	14,762	·0035	18·9
	13,456·5	720	57·5
	1,086·75	432	945
	14,543·25	·05040	1323
			945
			1086·75

Altitude of tent at Keoonlung, 14,543 feet.

III.

August 21st, 1818, an Observation, at Crest of Nectee Pass, compared with the Barometer at Keoonlung, one hour and a quarter afterwards.

	B.	H.	A.	D.
	17·542	14,837	° 12·2	° 12·2
	16·270	..	8·3	8·3
	·013	..	3·9	20·5
	16·283	16,778	·0033	10·25
		1,941	117	8·3
		+85·08	117	3075
Diff. Altitude =		+2,026·08	·01287	8200
Keoonlung.. =		14,543·25	..	85·075
Altitude =		16,569·33		

Altitude of Nectee Pass, 16,569 feet. See No. 264.

IV.

Crest of the Pass compared with Major General Hardwicke's Diary.

B.	H.	A.	D.
		o	o
29·51	1,283	28·5	28·5
16·27	..	8·3	8·3
·065	..	20·2	36·8
16·335	16,694	·0032	18·4
	14,411	404	65·9
	1,212·56	606	1656
	16,623·56	·06464	920
			1104
			1212·56

Altitude of Neetee Pass, 16,624 feet. See No. 265.

V.

At Sireenugur Bungalow, 2d October, 1819. See No. 483.

	B	H.	A.	D.
Mr. Colvin's Observation =	29·75	1,072	31·1	31·1
	27·948	..	30	30
	·006	..	1·1	61·1
	27·954	2,695	·0056	30·5
		1,623	·00616	6·9
		+ 210·45		2745
		1,833·45		1830
				210·45

Altitude of Sireenugur Bungalow, = 1,833 feet.

VI.

The same Observation compared with one simultaneous at Paoree, the Altitude of which place, by mean of numerous Observations, is 5,238 feet.

	B.	H.	A.	D.
	27·948	2,701	30	30·
	24·685	..	20·6	20·6
	·046	..	9·4	50·6
	24·731	5,887	·0049	25·3
		3,186	846	13·6
		+ 344·08	376	1518
Below Paoree.. =		-3,530·08	·04606	759
Paoree		5,238		253
		1,707·92		344·08

Altitude of Sireenugur Bungalow, 1,708 feet. See No. 482.

VII.

A tent near Chundurbudnee Temple, 6th, 7th, 8th, 9th, and 10th of October, 1819.

B.	H.	A.	D.
29·797	1,031	28·9	28·9
23·318	..	19·5	19·5
·044	..	9·4	48·4
23·362	7,371	·0047	24·2
	6,340	658	27
	653·4	376	1694
	6,993·4	·04418	484
			653·4

Altitude of tent, 6,993 feet. See No. 487.

VIII.

The same compared with simultaneous Observations at Paoree, on the 8th, 9th, and 10th October, 1819.

	B.	H.	A.	D.
Chundurbudnee	23·306	7,433	20	20
Paoree.....	24·765	..	18·9	18·9
	·005	..	1·1	38·9
	24·770	5,846	·0050	19·4
		+1,587	·00550	6·7
Paoree ...		+129·98		1358
		5,238		1164
		6,954·98		129·98

Altitude of tent, 6,955 feet. See No. 488.

ROUTES

During which the following Observations have been made with the Barometer to determine the Altitude of Places.

THE frequent recurrence of places bearing the same name, in Kumaon, would make it extremely difficult for a traveller to identify, in the map, those contained in the following list; many of them could not be inserted there at all for want of space; and the *prodigious number* of names (not easily legible in the original on account of the shading) which are rendered quite unintelligible in the engraved copy, greatly enhances this difficulty, which it is hoped the following clue to the routes, upon which they occur, may tend to diminish.

No. 1. Pokhuree, Lat. 29° 39½' N., Long. 80° 5½' E.

The route leads viâ Bagha Ling Temple, (12,) and proceeds into Juwahîr along the course of the Goree R. to Milum, (36,) thence returning to Rañtee, (44,) turns westerly, crossing Surjoo R. at Soopee-Ford, (60,) SW. to Byznath and Runchoola, (77,) and by Gunna Nath, (83,) to Kalee Muth and Almora. From Kalee Muth E. to Chanee-Soopéh (92) and Sym-Deo, N. to Khuréh, returning by Doongralékh to Boodha-

Jagésur, (100,) Shem Deo, (111,) SE. by Jindee to Rameshur, (108,) thence returning by Chakhan to Almora. From Almora by Bandunee P. and Thath, (114,) thence SSW. through Beesjoola Purguna (not yet published) to Nanukmuth, (133,) in the Forest Péleebheet and Kasheepoor.

From Kasheepoor, (140, &c.,) by Nujeebabad, (176,) to Kotdwara Pass, (178-9,) Lungoor Fort, (182,) Muha Bulee Temple, (188,) Northward to Oonchakot, (198,) and the Nyar R., (134,) to Oolka, (209.) (Nos. 135, 136, 137, 138, will be found between the two last-named places, being misplaced in List.) The route proceeds to Sireenugur, (212,) crosses the Aluknunda R. through Sindooree, (213,) Agustmoon-dee, (219,) &c. to Kedar Nath, (228,) thence return by same road to Ookee-Muth, (235,) cross Toong Nath Ridge, (239,) by Gopésur, (242,) to Peepulkotee, (244,) and Josee Muth, (247,) a detour southerly by Pilgoenta Ridge, (250,) to Pana, (252,) back from thence to Toonghasee, (280,) and along the Dhoulée R. to Neetee Pass, (264.) Return by same road to Toonghasee, Josee Muth, (284,) Gopésur, (293,) W. to Nyl and S. to Déothula Temple, (299,) to Agur Peak, (303,) cross Ganges R. at Bumot, (306,) turn westward to Hureealee Temple, (310,) thence viâ Gopheer, (311,) and Bunraree Temple, (318,) to Oolka Gurh, (320,) Sireenugur, (321,) and south to Paoree, (322.) From Paoree ESE. to Kuneoor, (332,) SE. to Tamadhond (338,) and Boodha Kedar, (339,) westerly to Kulwaree, and along course of Saneer R. to Ooklét, thence by direct road to Kotdwara (355,) and the Plains. Re-enter the Hills at Kotdwara, and proceed thence by Bilkhét (388) on Nyar R. and Doomkot-Khal (397) to Paoree.

The next route commences with a circuit between Paoree, Oolka-Gurh, and Soomaree, proceed to Chipul-Ghat R. See Talgaon, (419,) SSE. from Oolka upon that stream. Various traverses upon upper part of Chipul-Ghat R. up to Bunas, (440,) thence the route turns E., passes through Sont, (444,) returning by a circuit to Bunas; thence in a direct line upon Roodur-Prag as far as Biraon, SW. to Déwulgurh, (468,) and by Soomaree (469) to Paoree (472 to 480.)

The next route commences from Sireenugur, (482,) viâ Chundur-budunee, (489,) to Deoprag, (492,) to confluence of Nyar R. with the Ganges, (495,) along the former stream to Bilkhét, (499,) and junction of Chipulghat R. turning NE'. to Dhour-Boonga, (501,) NNW. to Doomkot, and thence again ESE'. by Choundkot, and Guwanee, (513,) to Déba Temple, (518,) crossing Saneer R. about SbE. of the latter place to Tulaen, (520,) on Lukhor River, thence in nearly same direction to Bunduran, (524,) on Ramgunga R., and crossing the ridge separating that stream from the Kosee R., reach the latter river at Mohan, (525,) follow its stream to the Plains viâ Dhekulee, (526,) and on to Péleebheet, (531.)

Re-enter the Hills at Timla Pass, (535,) to Chumpawut and Fort Hastings, (541,) viâ Deo Dhoora, (542,) Birar and Jak, (545,) to

Hawul Bagh, (546.) Descend Kosee R. to Dhekulee, and by Kath-kee Nao, (557,) Choumoonh, (562,) and Reonee, (570,) to Kalee-Muth, (571,) thence to Nyathana, (574,) Dwara Hath, (576,) Doona Giree, (577,) onwards NNW. to Loba Gurhee, (581,) in same direction, to Khetee-Malsee, (582,) Chandpoor and Kurn-Prag, returning thence to Kirsal, and Dhunpoor Dobree, (591,) which terminates this tour.

Then follow some observations on the Plains, and on the lower part of the Kalee or Gogra R. to (No. 603.)

The next route begins at Dharee Rope Bridge, (605,) about six miles eastward from Sireenugur, ascending the Mundagnee R. as far as Naluhputun, (617,) returns eastward of that river to Suteear and Agur Peak, (628,) by Deothul Temple to the Ganges near Kundara, and westward of the river by Boorañsee Peak to Gopesur, (637.) Cross Aluknunda R. at Peepulkotee Bridge, along left bank of river to Kurn Prag, (642,) SW^y. by Chandpoor-Pindooalnee, (644,) Murora, (647,) to Kunoor, (649,) SSE. by Meldhar, (652,) to Jooneea Gurh, (657,) NW. to bank of Sane R. near Dhaond, and descend with its stream to Pukholee, (665,) southward by Bhoun, (667,) to Kuman near Ram Gunga R.; thence NW. to Kulwaree, and westerly by Seela (679) to Danda Mundee (680.) Trace course of Heoñla R. NW. to Timlee, (684,) returning to Keecha Gurhee, (692.) Cross Nyar R. at Murora Ghat, (695,) Situn Temple, Mujeen Temple, (706,) near Sireenugur, and thence by Keeark Temple (707) to Paoree.

To Talgaon on Chipulghat R. (bearing from Oolka Gurh SSE. six or seven miles,) and having ascended that stream NE^y. to Boonga, turn SSW^y. reaching Sane R. at Kubura, (714,) near Kukhtoon, up the stream to Kulwaree, (716,) and confluence of Lukhor R. (718) with it at Pukholee. Eastwards along the former stream to Soongureea and Nagnee, thence S^y. to Khurgéth Peak, (721,) confluence of Nyr R. with Ram Gunga (722) at Séra, up the Ram Gunga to Bikeea-kee-Syn, (725,) Boodka-Kedar and Masee Temple, (727,) back to Bikeea-kee-Syn, and ascend Ghugas R. to Teepoula, (729,) thence viâ Koombpoor to Bainslee, (733,) by Somesur on Kosee R. to Byznath, (735,) to Chiringa on Pindur R.; (736,) Budhan Gurh Fort, (737,) Koolsaree, (146,) Sirgoor Temple, (147,) Bugolee Seera, (148,) to Kurn Prag, (149,) the last four numbers being accidentally misplaced in the catalogue. No. 150 is on the Ganges about midway between Kurn Prag and Roodur Prag.

Nos. 151 to 163, both inclusive, are near Bhudree-Nath and Mana Pass to Tartary. Nos. 164 and 165, on Aluknunda R. (or Ganges.)

Nos. 166 to 174 will be found SW. of Almora in the direction of Roodurpoor.

APPROXIMATE ALTITUDES OF PLACES AND STATIONS IN KUMAON, from Barometrical Observations made, during a Survey of that Province, by Capt. W. S. WARR.

No.	Place of Observation.	Observation.		Comparison.		Approximate Altitude, Fathoms.	Equation for Temperature, Fathoms.	Absolute Altitude, in Feet.	Remarks.
		Barometer.	Therm.	Barometer.	Therm.				
1	Pokhuree (village)	25.39	75.5	29.86	82	704.27	80.25	4,707	G. 4,784.
	Birgolee Ghat, on Ramgunga R.	27.72	66½	29.83	82	318 6	32.88	2,109	
	Koosaf (village 80 ft. below tent)	26.28	77	29.81	85	547.37	65.45	3,677	
	Stream below Booniga (Baruh Bishee P.)	25.65	75	29.81	85	652.75	76.44	4,375	
	Jumtur (village 60 ft. below tent)	25.33	76	29.81	85	707.27	83.7	4,746	
	Shera (village 70 ft. above tent)	26.07	81½	29.81	85	582.21	72.73	3,930	
	Crest of Ghatee, between Shera and Shérnar	24.56	68	29.81	85	841.34	91.35	5,596	
	Station near Mujgaof	24.633	77	29.81	85	825.35	98.67	5,544	
	100 ft. above junction of Dokuhna N. with Ramgunga R.	26.92	96	29.81	85	442.87	63.22	3,087	
	Bulteer (village)	26.81	89	29.81	85	460.65	61.81	3,135	
Station above Nainpoh.	24.0	74	29.78	87	937.14	110.9	6,292		
Bagha Ling Temple	23.85	64	29.78	87	1,150.39	122.1	7,635		
Sath (village)	24.64	74	29.78	87	822.84	97.37	5,521		
Dingathur Temple	26.78	73½	29.78	87	626.42	73.75	4,201	{ G. 4,518. (?) By another barometrical observation, 4,190 ft. Mean altitude 6,799 ft.	
Moonshereer (station)	23.59	80½	29.74	90	1,006.13	130.6	6,820		
Do. do.	23.53	70½	29.74	90	1,017.19	119.6	6,821		
Do. do.	23.56	66½	29.74	90	1,011.66	114.1	6,755		
Do. do.	27.12	83	29.74	90	400.51	53.26	2,723		
Renguleer, on Ramgunga R.	26.65	88½	29.74	90	476.44	66.49	3,258		
Nachunee (village)	26.82	92	29.74	90	448.82	64.61	3,081		
Teejurn, bridge on Ramgunga R.	23.80	80½	29.74	90	967.64	125.6	6,559		
Girgaof (village)	23.75	88	29.74	90	625.64	87.01	4,276		
Majkot (village)	22.76	78	29.74	90	1,161.69	147.4	7,856		
Munigulea (Bhotsee halting ground)	23.07	87	29.65	87	728.71	97.79	4,959		
Jyn Ghar Bridge									

* The geometrical result.

Approximate Altitudes of Places and Stations in Kumaon.

No.	Place of Observation.	Observation.		Comparison.		Approximate Altitude, Fathoms.	Equation for Temperature, Fathoms.	Absolute Altitude, in Feet.	Remarks.
		Barometer.	Therm.	Barometer.	Therm.				
30	Leepoo Kee Thaa	21.64	69	29.65	87	1,367.68	153.5	9,127	{ Confluence with Gores R. 15 ft. below.
	Dharmasul (on Lesser Buzir Ghar)	22.56	72	29.65	87	1,186.86	137.6	7,947	
	Bridge over Greater Ruffi Ghar	23.39	57	29.65	87	1,029.95	100.5	6,783	
	Confluences Bugdwar and Gores Rivers.	22.51	77	29.65	87	1,186.5	146.05	8,055	
	Camp on Gores River above Snow	21.00	53	29.65	87	1,499.06	137.1	9,811	
	Reelakot (village)	20.37	50	29.65	87	1,630.34	145.2	10,653	
	Murtoloe (village)	19.98	70	29.56	84	1,701.09	186.8	11,327	
	Bridge on Nundeejab R.	20.45	59	29.56	84	1,600.11	154.3	10,526	
	Mapasi (village)	20.69	63	29.56	84	1,677.24	169.8	11,082	
	Panchoo (village)	19.95	63	29.56	84	1,707.61	173	11,284	
40	Mitum (village)	19.90	67	29.56	84	1,718.51	182.4	11,405	
	Milum Temple	19.71	67	29.56	84	1,760.17	186.8	11,682	
	Milum, bridge on Gores R.	19.96	69	29.56	84	1,705.43	186.1	11,343	
	Gores R. emerges from the Snow	19.77	63	29.56	84	1,746.97	176.9	11,543	
	Birjoo (village)	19.92	62	29.56	84	1,714.15	171.45	11,314	
	Boorpho Spur bridge, on Gores R.	20.28	65	29.56	84	1,636.36	169.66	10,836	
	Bridge on Sooring Ghar N.	20.38	65	29.56	84	1,615.	167.5	10,695	
	Doonaur (village) Moonshcare P.	25.55	68	29.56	84	633.13	67.97	4,207	
	Raitee (village)	25.1	74	29.56	84	710.3	81.46	4,751	
	Birneagaon (village)	24.31	72	29.56	94	849.19	95.31	5,667	
50	Bétoolee Ghat	24.04	71	29.56	84	897.7	90.66	5,984	
	Kalee Moondee Ghat	21.57	63	29.56	84	1,368.54	138.6	9,043	
	Bridge on Jukoolla R.	21.49	58 ⁴	29.56	84	1,384.63	132.6	9,104	
	Nakuree (village)	25.14	66	29.56	84	703.39	-73.8	4,663	
	Water-mills on Ghut-Ghar N.	24.37	72	29.56	84	838.48	94.11	5,596	
		24.49	76	29.56	84	817.15	95.7	5,477	

Altitudes of Places in Kumaon.

Approximate Altitudes of Places and Stations in Kumaon.

No.	Place of Observation.	Observation.		Comparison.		Approximate Altitude. Fathoms.	Equation for Temperature. Fathoms.	Absolute Altitude. In Feet.	Remarks.
		Barometer.	Therm.	Barometer.	Therm.				
60	Ranthee Temple	23.96	85	29.56	84	912.17	+	6,174	G. 6,900. G. 6,489. See Nos. 85, 571. Jughthana village 90 ft. below tent, = 5,434 ft.
	Bialekh Ghat	22.84	73	29.56	84	1,120.08		7,483	
	Hokura (village)	24.41	82	29.56	84	831.18		5,607	
	Hokura, bridge on Ramgunga R.	25.72	70	29.56	84	604.33		4,024	
	Ghotorurea Dhar	23.9	76	29.56	84	923.06		6,187	
	Lethee R. (ford)	24.72	76	29.56	84	776.56		5,205	
	Lethee (village)	24.20	77	29.56	84	868.89		5,830	
	Goatberd's hamlet on Lour Dhoora	21.04	69	29.56	84	1,476.58		9,822	
	Lour (village)	23.28	72	29.56	84	1,037.21		6,922	
	Soopee (ford on Surjoo R.)	24.35	78½	29.56	84	842.05		5,659	
	Soopee (lower village)	23.91	73	29.56	84	921.24		6,154	
	Soopee (upper village)	23.47	74	29.63	84½	1,012.19		6,773	
	Byznath (station)	26.27	75	29.74	85	538.81		3,610	
	Chour (village)	23.60	71	29.74	85	1,004.29		6,702	
	Kumeree (village)	23.78	70	29.74	85	971.29		6,475	
	Kurim (village)	23.72	65	29.74	85	982.26		6,512	
	Bughnur Temple	24.10	75	29.74	85	913.24		6,121	
	Gunna Nath (Hustee Dhuip's stockade) ..	23.55	71	29.81	85	1,023.71		6,832	
	Kales Muth stockade (two days)	23.94	68	29.81	85	952.38		6,335	
	Upper Tolee (village)	23.91	72	29.74	85	947.61		6,331	
Rutmatha Hill	22.51	68	29.74	85	1,209.66		8,046		
Jughthana (tent)	24.64	83	29.74	85	817.		5,524		
Bysanee (village)	25.72	87	29.74	85	630.7		4,283		
Lumchoola Ghat	23.24	74	29.74	85	1,071.05		7,171		
Lumchoola (village)	25.02	70	29.74	85	750.54		5,003		
Ojoola (tent above the village)	25.68	86	29.74	85	637.46		4,324		

Approximate Altitudes of Places and Stations, in Kumaon.

No.	Place of Observation.	Observation.		Comparison.		Approximate Altitude. Fathoms.	Equation for Temperature. Fathoms.	Absolute Altitude. in Feet.	Remarks.
		Barometer.	Therm.	Barometer.	Therm.				
80	Runchoola (temple in fort)	25·82	68	29·74	85	613·85	66·66	4,083	G. 4,106.
	Jintoochee Churahce	24·67	79	29·74	85	811·72	99·03	5,464	G. 3,614. See No. 735.
	Byznath Temple	26·33	75	29·74	85	528·9	61·94	3,545	
	Bhéta (village on bank of Mynol N.) ..	25·02	55	29·81	85	760·75	70·53	4,988	
	Boodhulee Churahce	24·26	60	29·81	85	895·43	88·47	5,903	
	Bhydsurgon (Talookh Munsaree)	25·22	74	29·81	85	726·17	84·16	4,862	
	Reservoir near Guuna-Nath Temple ..	24·04	72	29·81	85	934·28	106·	6,242	
	40 feet above Busotee (village)	25·43	82	29·81	85	690·16	84·76	4,650	Busotee, 4,610 ft.
	Kalee Muth	23·89	67	29·81	85	961·46	103·2	6,388	G. 6,489. See Nos. 69, 571.
	Col. Lyons' house, Almora	24·64	65½	29·81	85	827·21	86·99	5,485	
	Fort Moira	24·679	64	24·685	64	+1·06	·08	5,492	C. O. at Col. Lyons' house.
	Fort Almora	24·804	64·5	24·633	63	-30·05	2·33	5,291	Do. G. 5,409.
	St. Mark's Tower	24·673	67	24·534	71	-24·54	2·22	5,325	Do. G. 5,477.
	Hawul Bagh (house)	26·04	69	29·81	85	587·21	64·47	3,910	G. 3,961. See No. 546.
	Mount Brown (Almora)	24·399	69	23·774	67	-112·7	9·9	5,626	C. O. at Kaleemuth. G. 5,777.
Scopch (village) Chance	25·40	80	29·89	85½	695·28	86·1	4,688		
Dhoul-Cheena (tent) or Sym Déo	24·16	73	29·89	85½	924·29	106·55	6,185	{ Crest of the ridge about 100 ft. higher.	
Khoonkhat (village)	26·66	78	29·89	85½	496·66	60·29	3,342		
Kurulagoon (village) Reethaghar	26·19	76	29·89	85½	573·91	68·27	3,853		
Khureh (station)	25·384	74½	29·89	85½	710·34	83·19	4,761	G. 4,833.	
Raekholee (tent)	24·62	73	29·89	85½	842·38	97·12	5,637		
Thurnolee (tent)	25·186	69	29·89	85½	742·98	82·04	4,950		
Jagésur Temple	24·375	70½	29·89	85½	886·7	99·74	5,919		
Boodha Jagésur Temple	23·408	56	24·421	63	+183·45	12·31	+1,171	{ Correspondent observation at Jagésur Temple. Boodha Jagésur above Calcutta 7,090 ft.	

Approximate Altitudes of Places and Stations in Kumaon.

No.	Place of Observation.	Observation.		Comparison.		Approximate Altitude. Fathoms.	Equation for Temperature. Fathoms.	Absolute Altitude, in Feet.	Remarks.
		Barometer.	Therm.	Barometer.	Therm.				
110	Shem Deo Ridge	23-90	64	29-93	84	977-09	100-1	6,463	G. 5,720. G. 5,169. {Another observation gives 6,194 ft. Hence Calcutta observations corresponding are used. G. 6,089. G. 7,037- (?) Hence computations made with new Tables.
	Koontola (village)	24-35	69	29-93	84	896-08	97-30	5,960	
	Biluk (station)	24-454	71	29-93	84	878-28	97-51	5,855	
	Bhysarue Temple	25-784	76	29-93	84	646-56	75-73	4,334	
	Dusoula-khét (on Shinee R.)	27-864	79	29-93	84	311-26	37-6	2,093	
	Dhuniékh Ridge	26-038	70	29-93	84	604-66	66-4	4,026	
	Baruhkot (station)	25-034	68½	29-93	84	776-46	83-84	5,162	
	Raméshur Temple, confluence Surjoo and Ramgunga R.	28-431	78	29-93	84	223-3	26-7	1,500	
	Byra (upper fields of the village)	25-812	73	29-93	84	643-19	72-98	4,297	
	Peepul tree in rice fields, on Kulisilla R.	27-234	71	29-93	84	410-59	45-59	2,737	
	Keemar (village)	25-253	67	29-93	84	738-46	78-39	4,901	
Kandé Temple (Sahim station)	24-721	63	29-93	84	830-59	84-11	5,488		
Bujkunda (shilung tree)	25-73	69	29-93	84	656-67	71-3	4,368		
Thath (station)	24-224	66	29-93	84	919-33	96-45	6,095		
Sharm-Deo Temple	23,631	60	29-93	84	1,026-43	100-2	6,760?		
Ontoona (village)	25-148	17-8	30-02	Centigr. 22-2	Feet. 4,614	Feet. 394	5,008		
Choukhoonta Temple	23-773	18-9	30-06	21-7	6,115	530	6,645		
Chooréehar (village)	25-031	15-5	30-08	21-1	4,788	373	5,161		
Sooeé (village)	24-587	18-3	30-06	21-1	5,237	441	5,678		
Kurael (village)	25-972	22-8	30-08	21-1	3,826	357	4,183		
Deogoor Ghat	23-732	15	30-06	21-1	6,160	473	6,633		

Approximate Altitudes of Places and Stations in Kumaon.

No.	Place of Observation.	Observation.		Comparison.		Approximate Altitude, Fathoms.	Equation for Temperature, Feet.	Absolute Altitude, in Feet.	Remarks.
		Barometer.	Therm.	Barometer.	Therm.				
			Centigr.		Centigr.				
	Soonkot, Lower (village).....	25·478	17·8	30·04	21·7	4,292	362	4,654	{The village about 100 feet higher = 3,374 ft. In Turasee. See No. 595. The temperature at the station of comparison, though used in the <i>calculation</i> , has been omitted by mistake. Corresponding Observation at Ju- wara. Height of Muloakhal above Calcutta = 3,856 ft. The village about 90 ft. higher = 2,843 ft.
	Suleancee (village).....	25·884	20	30·07	21·7	3,906	347	4,253	
	Khurêh (village).....	25·526	16·7	30·08	21·7	4,278	351	4,629	
	Bâfî.....	24·678	16·1	30·09	21·1	5,067	402	5,469	
	Kâla-Ghat (on Beesjoola N.).....	27·952	20	30·13	20·6	1,955	168	2,123	
	Bhimjur (tent).....	26·837	18·9	30·13	21·1	3,016	258	3,274	
	Khutolee (village).....	25·454	16·1	30·13	19·4	4,394	323	4,717	
	Tand (village).....	26·056	15·5	30·13	19·4	3,785	280	4,065	
	Loolan-Gurhee (Gorkha stockade).....	24·859	11·7	30·13	18·3	5,011	321	5,332	
	Doorga Peepul (on Oghuleea N.).....	27·984	16·7	30·13	18·3	1,925	143	2,068	
	Kul-luga (a cattle station at foot of hills).....	29·214	23·9	20·13	19·4	804	73	877	
	Nanukmuth.....	29·398	18·9	30·06	20·5	581	49	630	
130	Ford, Nyar R.	28·376	Fahr. 58	29·875	..	Fathoms. 223·6	Fathoms. 28·6	1,513	
	Birung (fields about 250 ft. below village).....	26·780	82	29·875	..	475	59·8	3,209	
	Juwara (village).....	25·850	83	29·832	..	396·6	51·3	2,687	
	Muloakhal.....	24·816	66	25·852	..	177·6	17·1	1,168	
	Koonjeth (tent).....	25·782	80	29·832	..	408·1	50·8	2,733	

ALTITUDES OF PLACES AND STATIONS IN KUMAON DEDUCED FROM BAROMETRICAL OBSERVATIONS, MADE DURING A SURVEY OF THAT PROVINCE, BY CAPT. W. S. WESS.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Barometer. Attached.	Thermometers. Detached.	Barometer. Attached.	Thermometers. Detached.					
139	Kasheepoor Factory, Bungalow	°	°	°	°					See also No. 529. { See this computation at length.
	Mean of 4 days in February, 1818	29.280	16.1	30.097	21.1	.029	691	55.8	746.8	
	Do. 4 do.	29.229	16.1	33.033	21.1	.029	681.5	53.94	735.44	
	Do. 4 do.	29.222	20.6	30.005	22.2	.009	681.5	52.06	743.56	
	Do. 5 do.	29.096	20.	29.914	24.5	.026	699	66.6	765.6	
	Mean of the above observations in 1818	..	..	..	..	..	..	..	747.8	
	Mean of 3 days' observation in January, 1819	29.129	16.7	29.975	22.8	.045	704.5	59.1	763.6	
145	Do. 5 do. in February, 1819	29.145	20.	29.998	22.8	.016	737	66.34	803.34	
	Do. 5 do.	29.131	21.7	29.908	26.1	.026	663	66.92	729.92	
	Mean of the above observations in 1819	..	..	..	..	..	..	..	765.6	
	Mean result of both years	..	..	..	..	..	..	..	756.7	

The elevation of the factory Bungalow, at Kasheepoor, is thus computed to be 757 feet above Mr. Colvin's house, at Calcutta, where the corresponding observations were made: the station, whence altitudes of some of the snowy peaks were observed, is about 35 feet lower, or 722 feet.

A list of altitudes of many places in this survey has been published in the Asiatic Researches, in which the height of the station, at Kasheepoor, was assumed (from a general estimate of the declination of level to the sea) to be 650 feet; and upon that estimate, Kasheepoor being taken as the zero of my observations, all the *geometrical* altitudes in the survey are based. The barometrical result exceeds this estimate by 72 feet, which quantity must therefore be added to all the elevations given in the above-named list, which are *geometrically* deduced.

No allowance has been made for the height of Mr. Colvin's house above the sea, which is probably from 70 to 100 feet.

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Thermometers Attached.	Thermometers Detached.	Barometer Attached.	Thermometers Detached.					
		Centi grade.	Centi grade.	Centi grade.	Centi grade.					
150	Koolsare rope bridge, on Pindur R.	26.54	31.7	31.7	30.04	31.1	31.1	433	3,733	(a.)
	Sirgoor Temple	25.832	26.7	26.7	30.01	31.7	31.7	488	4,467	(a.)
	Bugolee-Seera rope bridge	27.234	28.9	28.9	29.98	32.2	32.2	323	2,864	(a.)
	Old Temple at Kum Prag, 50 ft. above junction of Pindur and Ganges Rivers	27.584	30.6	30.6	30.0	32.2	32.2	292	2,521	(a.) See Nos. 165 and 642.
	Nugrasoo Temple	27.366	28.3	28.3	30.03	32.2	32.2	308	2,763	(a.)
	Burosee-Chara	24.968	23.9	23.9	29.99	29.4	29.4	540	5,287	This and following observations from Mr. Tate's Field Book.
	Bishun Prag (Peepul Tree)	25.422	17.8	16.7	24.968	23.9	23.9	43	4,743	{ C. O. at Burosee Chara, (See No. 286.)
	Confluence of Khuroh R.	22.550	17.8	17.2	29.98	29.4	29.4	732	8,097	C. O. at Gundolee.
	Gundolee (village)	20.378	13.3	13.3	29.96	28.9	28.9	899	10,861	C. O. at Gundolee.
	Mana Bridge	20.640	7.8	7.8	20.350	6.1	5	10	10,492	C. O. at Moospanee.
	Moospanee (halting ground)	19.475	3.9	3.3	20.375	5	4.4	+1,172	+19	C. O. at Ghasdoolee.
	do.	18.560	-2.8	-2.8	19.475	0	0	+1,241	-17	C. O. at Ghasdoolee.
	Dhun-Rao do.	17.37	-9.4	-9.4	18.56	-2.8	-2.8	+1,693	-44	C. O. at Ghasdoolee.
	Ratha-Koond do.	16.572	-10	-10	17.37	-9.4	-9.4	+1,222	-50	C. O. at Dhun-Rao.
	Do. compared with Calcutta (noon)	16.64	1.7	1.7	30.034	28.9	28.9	15,246	+996	(Supposed to be at least 1,000 ft. below summit of the pass. Barometer injured.
Jograo (halting ground)	15.855	-13.9	-13.9	16.572	-10	-10	+1,133	-58	{ C. O. at Ratha-Koond.	
Bhudree Nath Temple	20.70	9.4	7.2	29.99	28.9	28.9	9,560	734		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Approximate Altitude.		Equation for Corrections in Feet.	Absolute Altitude in Feet.	Remarks.
		Thermometers.		Thermometers.		Approximate Altitude in Feet.				
		Barometer Attached.	Detached.	Barometer Attached.	Detached.	in Feet.	+			
170	Pandkaur Temple	24.02	15.15	30.03	29.4	0.069	5,744	544	6,288	See No. 634. See Nos. 149 and 642. (C. 1,343. { Mr. Tate's observations and G. 7,265. See Nos. 356 and 374. See No. 375. See No. 376. C. O. at the Ford. C. O. at Lungoor Fort.
	Nand Prag	27.12	18.9	29.96	23.9	0.27	2,569	233	2,802	
	Kura Prag (temple in village)	27.376	26.1	29.94	29.4	0.18	2,315	272	2,587	
	Nynsee-Tal	23.915	7.2	29.97	26.7	0.094	5,779	417	6,196	
	Bheem-Tal	25.735	24.4	29.945	29.4	0.25	3,923	449	4,372	
	Hunooman-Koond	25.98	23.3	29.98	30.	0.33	3,696	420	4,116	
	Luchnum-Koond	25.932	23.9	29.98	30.	0.32	3,747	430	4,177	
	Nokoocheea Tal	25.78	26.7	29.87	30.	0.17	3,820	461	4,281	
	Muleea Tal	26.435	29.4	29.95	32.8	0.18	3,235	429	3,664	
	Ulmakhan (ridge of Ghagur above Nynsee Tal)	23.2	20.	29.96	31.1	0.5	6,607	719	7,326	
	Kath-Godam	28.08	35.	29.82	30.6	0.26	1,589	220	1,809	
	Secaloe Temple	23.20	23.3	29.86	31.1	0.36	6,536	762	7,298	
	Shaktot	29.29	17.2	30.02	25.	0.46	601	53	654	
	Nripetabad	29.129	18.3	30.03	23.3	0.29	768	67	835	
	Jafurabad	28.97	26.	30.03	23.8	0.10	945	96	1,041	
	Kottwara (Tuh Koh R.)	28.607	23.3	29.98	23.3	0.3	1,221	121	1,342	
	Kottwara (Tuhseedar's House)	28.413	24.4	28.569	25.	0.03	1,140	15	1,155	
Dhoora kee Tal	25.873	21.7	29.98	23.3	0.08	3,831	369	4,200		
Churakh Ridge	25.021	22.2	29.93	24.4	0.11	4,657	464	5,121		
Lungoor Fort	23.904	18.9	29.947	27.2	0.40	5,829	573	6,402		
Do.	23.941	18.9	29.922	27.2	0.40	5,767	566	6,333		
Balee (village)	26.652	26.1	23.936	17.8	0.40	8,766	268.4	3,353		
Darmakhet	23.322	21.1	30.035	27.8	0.34	4,413.5	461.2	4,874		
Gurheer Peepul Tree (40 ft. below tent)	26.302	24.7	30.03	27.8	0.32	3,422	361	3,783		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldst Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet.	Remarks.	
		Barometer, Attached, Detached, Centigrade.	Thermometers, Attached, Detached, Centigrade.	Barometer, Attached, Detached, Centigrade.	Thermometers, Attached, Detached, Centigrade.					
190	Dhoora (station) near Ajmeer Temple.	25-137	15°	29-966	27-8	0°	4,924	411	C. O. at Dhoora.	
	Ajmeer Temple (Mahaabait T.)	24-364	8-9	25-039	12-8	12-8	5,647	32	Do.	
	Do.	24-454	15°	25-104	15°	15°	5,651	43	Do.	
	Observatory (tent)	25-108	15°	25-052	15°	15°	4,863	3	Do.	
	Gourae (village)	27-050	23-9	30-01	28-9	28-9	2,982	301		
	Tent near Runchoola (station)	25-542	21-1	21-1	30-032	28-9	0-40	4,180	447	
	Do.	25-519	21-1	21-1	29-964	28-9	0-40	4,144	447	
	Runchoola (station)	25-304	16-7	16-7	25-395	12-8	12-8	4,591	7	C. O. at Tent.
	Phuldakot (tent)	25-732	21-1	21-1	25-365	12-2	12-2	4,731	22	C. O. at Runchoola Tent.
	Phuldakot Peak	25-619	16-7	16-7	25-712	18-3	18-3	4,350	5	C. O. at Tent.
200	Koehunda-Seera (on Heonia R.)	27-045	29-4	29-88	28-3	28-3	2,928	329	C. O. at Tent.	
	Camschakot (tent)	25-653	22-8	29-88	28-9	28-9	4,376	433	C. O. at Tent.	
	Phausa-Khai (tent)	24-618	22-2	29-87	28-3	28-3	5,007	539		
	Do. do. Peak	24-472	15°	24-590	20°	20°	5,652	7	C. O. at Tent.	
	Bureth (80 ft. below village)	25-437	19-4	29-88	28-9	28-9	4,572	427		
	Nogurh Peak	24-113	18-9	29-88	28-9	28-9	6,114	578		
	Huthnoura Temple	27-079	27-8	29-875	29-4	29-4	2,863	312		
	Kunoulee (tent)	23-385	18-9	29-825	31-1	31-1	6,944	676		
	Oolka (tent)	23-57	21-7	29-872	31-7	31-7	6,820	697		
	Do. do.	23-563	20-6	29-897	31-1	31-1	6,150	677		
Do. do.	23-544	20°	29-895	30°	30°	6,831	660			
Do. do.	23-495	16-7	29-845	31-1	31-1	6,787	629			
Mean of the above	..	..	..	..	..	6,816	..	..	See No. 320.
Oolka (tree in the upper part)	23-421	15-6	23-506	15-6	15-6	6,918	6	..	C. O. at Tent.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for expansion + to coldst Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Barometer, Attached. Centigrade.	Thermometers, Attached. Detached. Centigrade.	Barometer, Attached. Centigrade.	Thermometers, Attached. Detached. Centigrade.					
210	Soomaree Temple	25-133	22-6	22-8	31-1	31-1	4,372	503	4,875	See No. 469. C. O. at Temple. See Nos. 321, 482, 483.
	Soomaree Station (tree)	25-259	17-8	17-8	17-8	17-8	-195	14	4,666	
	Sireenugur (Bungalow)	27-907	30-6	30-6	29-69	31-1	1,611	211	1,822	
	Sindoorree (village)	26-778	32-8	32-8	29-689	31-7	2,694	371	3,065	
	Dharkot (120 ft. above village)	25-423	31-1	31-1	29-689	31-7	4,039	543	4,582	
	Soura (80 ft. below village)	24-503	27-8	27-8	29-678	32-2	4,969	636	5,605	
	Sukraana (about 120 ft. above vil- lage)	24-277	27-8	27-8	29-678	32-2	5,210	667	5,877	
	Pokree-Khal.	25-695	31-1	31-1	29-688	32-2	3,758	506	4,264	
	Soorah-Khal.	25-722	31-1	31-6	29-688	32-2	3,730	506	4,236	
	Agustinondee (tent) near Temple	27-041	35-6	35-6	29-688	32-2	2,450	356	2,806	
220	Chundrapoor Temple	27-023	35	35	29-688	32-2	2,464	353	2,817	See No. 612.
	Temreea (village)	26-384	28-3	28-3	29-687	32-2	3,052	393	3,445	
	Naluhputun (about 70 ft. above temple)	25-164	29-4	29-4	29-687	32-2	4,292	567	4,859	
	Mykhinda (village)	24-538	25	25	29-706	32-2	4,942	603	5,545	
	Ukrotkotee (do.)	24-121	26-7	26-7	29-706	32-2	5,397	679	6,076	
	Gouree Koond (tent)	23-412	22-8	22-8	29-79	31-7	6,232	726	6,958	
	Gouree Koond (hot well)	23-620	17-8	17-8	23-337	18-3	-316	23	6,619	
	Bheem Odeear	21-881	17-8	17-8	29-75	31-7	7,933	837	8,770	
	Kedar Nath (porch of temple)	19-642	12-8	12-8	29-76	32-2	10,725	1,030-5	11,755-5	
	Bheem Odeear	21-884	20	20	29-73	31-7	7,923	872	8,795	
230	Gouree Koond (tent)	23-375	25-5	25-5	29-72	31-7	6,225	761	6,986	See No. 277. See No. 225.
	Jhilmilputun Bridge	24-353	16-7	16-7	29-69	31-7	5,083	525	5,608	
	Ukrotkotee (village)	24-083	28-9	28-9	29-60	31-7	5,461	706	6,167	
	Mykhinda	24-593	15-5	15-5	29-67	31-1	4,810	478	5,288	
	Naluhputun	25-184	27-2	27-2	29-65	30-5	4,238	530	4,768	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Thermometers.		Thermometers.						
		Barometer. Attached.	Centigrade.	Barometer. Attached.	Centigrade.					
240	Oolkee Muth Temple, or Oolkee Muth	25-543	20-5	20-5	31-1	31-1	3,909	431	4,340	See No. 619.
	Oolkee Rope Bridge	26-333	17-2	17-2	20-6	20-6	-811	64	3,465	C. O. at Temple.
	Dhumsahu on Khaakra R.	24-189	17-8	17-8	18-3	18-3	+1,394	108	5,842	Do.
	Toong Nath (Dhumsala)	21-538	17-2	17-2	25-634	21-1	+4,516	369	9,924	Do.
	Crest of Toong Nath Ridge	21-254	20-5	20-5	25-634	21-1	+4,579	433	9,654	Do.
	Head of Nighol Gunga.	21-416	17-8	17-8	25-521	18-3	+4,566	351	9,257	Do.
	Mandul.	25-108	25-6	25-6	29-756	32-2	4,390	449	4,839	
	Gopesar Temple.	25-22	22-2	21-1	29-722	32-2	4,228	479	4,707	See Nos. 293 and 637.
	Peepulkotee Bridge.	36-311	24-4	23-3	29-692	31-7	3,112	366	3,478	See No. 292.
	Peepul Tree.	25-450	31-7	31-7	29-692	31-7	4,017	545	4,562	See Nos. 290 and 638.
	Bridge on Putal-Gunga R.	24-285	31-7	28-9	29-686	31-7	4,181	542	4,723	
	Road crosses Pugnauon R.	23-704	21-7	21-1	29-686	30-6	5,811	656	6,467	See No. 287.
	Josee Muth (tent)	23-928	27-8	27-8	29-648	30-6	5,604	698	6,302	See No. 284.
	Goatherd's Hamlet (tent)	21-782	21-1	21-1	29-60	28-9	7,951	849	8,800	
Ascent of Pilgoenta Hill (second tent)	19-689	13-3	13-3	29-622	28-3	10,566	938	11,504		
Crest of Pilgoenta Hill	18-910	12-2	12-2	29-63	28-3	11,618	1,002	12,620		
Panagaon (five days)	22-007	18-3	18-3	29-632	30-30	7,691	793	8,484		
Do. (five days)	21-985	18-3	18-3	29-572	29-6	7,666	782	8,448		
Do. (six days)	21-957	20-6	20-6	29-537	27-8	7,689	794	8,483		
	Mean altitude	..	..	..	..	..	..	..	8,471	
	Tupobun	24-001	25-6	25-6	29-70	29-4	5,532	650	6,182	See No. 275.
	Sunungantha	23-012	23-3	23-3	29-70	29-4	6,617	744	7,361	See No. 271.
	Mulrees	20-693	17-2	17-2	29-63	28-9	9,309	969	10,278	See No. 270.
	Phurkeea	20-348	17-2	17-2	29-63	29-4	9,728	968	10,696	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to colden Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Barometer Attached.	Centigrade.	Thermometers Attached.	Centigrade.					
210	Somaree Temple	25·133	22·6	22·8	31·1	31·1	4,372	503	4,875	See No. 469. C. O. at Temple. See Nos. 321, 482, 483.
	Somaree Station (tree)	25·259	17·8	17·8	31·1	17·8	-195	14	4,666	
	Sireenagur (Bungalow)	27·907	30·6	30·6	29·69	31·1	0·03	211	1,892	
	Sindoorree (village)	26·778	32·8	32·8	29·689	31·7	0·06	2,694	3,063	
	Dharkot (120 ft. above village)	25·423	31·1	31·1	29·689	31·7	0·03	4,039	4,582	
	Soura (80 ft. below village)	24·503	27·8	27·8	29·678	32·2	0·22	4,969	5,605	
	Sukneana (about 120 ft. above vil- lage)	24·277	27·8	27·8	29·678	32·2	0·22	5,210	5,877	
	Pokree-Khal.	25·695	31·1	31·1	29·688	32·2	0·06	3,758	4,264	
	Soorah-Khal.	25·722	31·1	31·6	29·688	32·2	0·06	3,730	4,236	
	Agstumoodee (tent) near Temple ..	27·041	35·6	35·6	29·688	32·2	0·20	2,450	2,806	
	Chundrapoor Temple	27·023	35·	35·	29·688	32·2	0·16	2,464	2,817	
	Temreea (village)	26·384	28·3	28·3	29·687	32·2	0·21	3,052	3,445	
220	Nalubputun (about 70 ft. above temple)	25·164	29·4	29·4	29·687	32·2	0·14	4,292	4,859	See No. 233. See No. 232. See No. 230. C. O. at Tent. See No. 229. See No. 277. See No. 225. See No. 224. See No. 223. See No. 617.
	Mykhinda (village)	24·538	25·	25·	29·706	32·2	0·35	4,942	5,545	
	Ukrotkotee (do.)	24·121	26·7	26·7	29·706	32·2	0·26	5,397	6,076	
	Gouree Koond (tent)	23·412	22·8	22·8	29·79	31·7	0·42	6,232	6,958	
	Gouree Koond (hot well)	23·620	17·8	17·8	23·337	18·3	0·02	-316	23	
	Bheem Odeear	21·881	17·8	17·8	29·75	31·7	0·61	7,933	8,770	
	Kedar Nath (porch of temple)	19·642	12·8	12·8	29·76	32·2	0·76	10,725	1,030·511, 735·5	
	Gouree Koond (tent)	21·884	20·	20·	29·73	31·7	0·51	7,923	8,795	
	Bheem Odeear	23·375	25·5	25·5	29·72	31·7	0·29	6,225	6,986	
	Jhilmilputun Bridge	24·355	16·7	16·7	29·69	31·7	0·73	5,083	5,608	
	Ukrotkotee (village)	24·063	28·9	28·9	29·60	31·7	0·13	5,461	6,167	
	Mykhinda	24·593	15·5	15·5	29·67	31·1	0·16	4,810	5,288	
Nalubputun	25·184	27·2	27·2	29·65	30·5	0·16	4,238	4,768		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Thermometers.		Thermometers.						
		Barometer. Attached.	Centigrade.	Barometer. Attached.	Centigrade.					
240	Oolkee Muth Temple, or Oolkee Muth	25-543	20-5	20-5	29-74	31-1	31-1	0-054	4,340	See No. 619.
	Oolkee Rope Bridge	26-333	17-2	17-2	25-543	20-6	20-6	0-18	3,465	C. O. at Temple.
	Dhumsalu on Khaakra R.	24-189	17-8	17-8	25-521	18-3	18-3	0-002	5,842	Do.
	Toong Nath (Dhumsala)	21-538	17-2	17-2	25-634	21-1	21-1	0-017	9,224	Do.
	Crest of Toong Nath Ridge	21-254	20-5	20-5	25-634	21-1	21-1	0-002	9,224	Do.
	Head of Nighol Gunga.	21-416	17-8	17-8	25-521	18-3	18-3	0-002	9,654	Do.
	Mundul.	25-108	25-6	25-6	29-756	32-2	32-2	0-033	9,257	Do.
	Gopésur Temple.	25-22	22-2	21-1	29-722	32-2	32-2	0-050	4,839	See Nos. 293 and 637.
	Peepulkotée Bridge.	36-311	24-4	23-3	29-692	31-7	31-7	0-039	4,707	See No. 292.
	Peepul Tree.	25-450	31-7	31-7	29-692	31-7	31-7	..	4,562	See Nos. 290 and 638.
	Bridge on Putal-Gunga R.	24-285	31-7	28-9	29-686	31-7	31-7	0-048	4,723	See No. 287.
	Road crosses Pugnauon R.	23-704	21-7	21-1	29-686	30-6	30-6	0-13	6,467	See No. 284.
	Josee Muth (tent)	23-928	27-8	27-8	29-648	30-6	30-6	0-034	6,302	
	Goatherd's Hamlet (tent)	21-782	21-1	21-1	29-60	28-9	28-9	0-034	8,800	
Ascent of Pilgoenta Hill (second tent)	19-689	13-3	13-3	29-622	28-3	28-3	0-058	11,504		
Crest of Pilgoenta Ridge	18-910	12-2	12-2	29-63	28-3	28-3	0-061	12,620		
Panagaon (five days)	22-007	18-3	18-3	29-632	30-3	30-3	0-051	1,002		
Do. (five days)	21-985	18-3	18-3	29-572	29-6	29-6	0-050	7,666		
Do. (six days)	21-957	20-6	20-6	29-537	27-8	27-8	0-032	7,689		
	Mean altitude	..	..	..	..	..	..	..	8,471	
250	Tupobun	24-001	25-6	25-6	29-70	29-4	29-4	0-18	6,182	See No. 275.
	Sumungenta.	23-012	23-3	23-3	29-70	29-4	29-4	0-28	7,361	See No. 271.
	Mulrees	20-683	20-2	20-2	29-63	28-9	28-9	0-036	10,278	See No. 270.
	Phurkees	20-348	17-2	17-2	29-63	29-4	29-4	0-050	10,696	

Auriferous Passes and Streams in Kumaon, deduced from Measurements of Barometers.

No.	Place of Observation.	Observation.		Comparison.		Difference in		Approximate		Elevation in		Remarks.
		Barometer.	Thermometer.	Thermometer.	Barometer.	Thermometer.	Barometer.	Thermometer.	Feet.	Fathoms.	Feet.		Fathoms.
260	Jelum	21-462	16.7	16.1	28.9	28.9	0.02	8,472	810	2,819	27.3	See No. 273
	Nettee Village (five days)	19-828	20	20	29.57	29.4	0.18	10,332	1,094	11,426		
	Khurason (baling ground)	19-425	22.2	22.2	19-842	22.2	0.02	4,327	33	12,034		C. A. of Nettees
	Gothing Pasture, 30 ft. above Dhoulce R.	18-882	23.3	23.3	29.56	29.4	0.18	11,017	1,067	12,084		
	Gidoong, baling ground, three days	17-407	12.8	12.8	29.52	29.4	0.18	13,000	1,340	14,340		
	Kooncing (" ") two days	17-542	11.7	11.7	29-485	29.1	0.50	13,430	1,087	14,517		
	Nettee Pass (the pile of stones)	16-270	8.3	8.3	17-542	12.2	0.18	11,941	85	10,869		C. A. of Kooncing
	The same with Calcutta (Col. Hard- wick)	16-270	8.3	8.3	29.51	28.5	0.05	15,411	1,213	16,624		H. M. Col. Hardwick for 29,403 ins. Barometer 28.5, Altitude 10,000 ft.
	Nettee Pass (extremity of tongue pro- jecting northward)	16-328	12.8	12.8	16-270	8.3	0.15	-60	3	14,497		C. A. of Pile of Stones
	Confluence Khurusea and Dhoulce Rivers	18-341	17.8	17.8	29-562	28.9	0.41	12,300	1,343	13,643		
Nettee Village (six days)	19-841	18.9	18.9	29-658	29.4	0.48	10,490	1,079	11,569			
Do. do. (six days)	19-856	16.7	16.7	20-728	28.9	0.49	10,454	1,019	11,473		Mean Altitude of Nettee 11,104 ft. See No. 261, 262, 263, 264, 265, 266, 267, The Bridge on Dhoulce R. is 10 ft. below this village 10,317 ft.	
Phurkeea	20-458	18.9	18.9	20-716	28.3	0.69	0,678	0.77	10,055			
Mularee	20-812	20.6	20.6	29-716	28.3	0.59	0,340	0.41	10,304		See No. 266, This Bridge is near Phurkeea.	
Spar Bridge on Doulee R.	21-274	16.7	16.7	20-812	20.6	0.17	-503	46	9,804		C. A. of Mularee This Bridge is near Phurkeea.	
Jelum	21-425	24.4	24.4	20-716	28.3	0.17	8,505	0.55	9,460		See No. 268.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Exposition for Expansion + to column Barom.	Approximate Altitude, in Feet.	Exposition for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.			
		Barometer. Attached. Detached. Centi grade.	Thermometers. Attached. Detached. Centi grade.	Barometer. Attached. Detached. Centi grade.	Thermometers. Attached. Detached. Centi grade.								
280	Spar Bridge on Dhoulie R. (3 spars)	21.534	21.7	21.7	21.425	24.4	24.4	0.12	-147	14	9,299	(C. O. at Jelum. This bridge is between Mularee and Jelum. See No. 256. (C. O. at Sumningantha. This bridge is near Jelum. C. O. at Reendee Bridge.	
	Sumungefiba	23.058	22.8	22.8	29.712	29.3	28.3	0.25	6,578	717	7,295		
	Spar Bridge on Dhoulie R.	22.724	15.6	15.6	23.958	22.8	22.8	0.33	+382	27	7,654		
	Do. do. on Reendee R.	23.696	16.7	16.7	29.706	28.3	28.3	0.55	5,829	560	6,389		
	Do. do. on Ringee R.	23.956	20.	20.	23.696	16.7	16.7	0.16	-268	26	6,101		
	Toonghasee Village (two days)	22.307	16.7	16.7	29.668	27.8	27.8	0.50	7,382	699	8,081		
	Do. do. (six days)	22.424	15.6	15.6	29.842	28.9	28.9	0.60	7,377	699	8,076		
	Do. do. (six days)	22.431	18.3	18.3	29.805	28.9	28.9	0.48	7,351	741	8,092		
	Mean of the above		8,083
	Mergh (Punchukee)	22.658	19.4	19.4	29.766	29.4	29.4	0.46	6,828	710	7,538		
Josee Muth (tent)	23.991	23.9	23.9	29.77	27.2	27.2	0.16	5,606	612	6,218			
Josee Muth (station)	22.031	19.4	19.4	29.907	29.4	29.4	0.44	7,825	815	8,640			
Josee Muth Nur-Sing Temple	24.072	17.8	17.8	24.026	19.4	19.4	0.08	-59	4	6,155			
Bishun Prag (Spar bridge)	25.239	22.8	21.7	23.958	23.9	23.9	0.05	-1,362	126	4,730			
Road crosses Pugnawn R.	23.811	24.4	24.4	29.80	28.3	28.3	0.13	5,826	655	6,481			
Punkhee Muth Temple	25.343	27.8	27.8	29.80	28.3	28.3	0.03	4,219	504	4,723			
Bridge on Patal Gungwa R.	25.464	15.6	15.6	25.343	27.8	27.8	0.62	-137	17	4,519			
Peepulkotee (fields of)	25.639	22.8	22.8	29.81	30.	30.	0.37	3,890	438	4,328			
Doongree (80 ft. below village)	24.928	23.6	23.6	29.87	29.4	29.4	0.19	4,693	553	5,246			
Peepulkotee Bridge	26.424	14.4	14.4	24.928	25.6	25.6	0.59	-1,577	134	3,535			
290												C. O. at Punkhee Muth. See Nos. 244 and 638. See No. 639. (C. O. at Doongree Tent. See No. 243.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Barometer Attached. Centigrade.	Barometer Detached. Centigrade.	Thermometer Attached. Centigrade.	Thermometer Detached. Centigrade.					
300	Gopéaur Temple (about 100 ft. above temple)	25.203	25.6	29.4	29.4	.019	4,408	517	4,925	See Nos. 242 and 637. C. O. at Tent. C. O. at Camp. See No. 628. C. O. at Bamot Tent. Do. do. C. O. at Tolear. C. O. at Tent. C. O. at Doongra. Do. do.
	Bridge and Punchukee on Bal-Gunga R.	25.460	19.4	29.4	29.4	.051	4,111	419	4,530	
	Kandé (30 ft. below village)	24.512	24.4	29.4	29.4	.024	5,126	589	5,715	
	Bungbéla (tent)	21.855	18.9	29.87	29.4	.046	8,087	831	8,918	
	Bungbéla (station)	21.736	8.9	29.830	11.1	.010	4,499	4	9,021	
	Jourasee	25.115	23.3	29.87	29.4	.030	4,487	502	4,989	
	Déothula Temple (two days)	24.017	23.3	29.87	29.4	.029	5,652	636	6,288	
	Chonudée (about 100 ft. above village)	25.224	22.2	29.87	29.4	.036	4,369	480	4,849	
	Muhur Temple (25 ft. below temple)	25.015	22.8	29.87	29.4	.033	4,588	512	5,100	
	Agur Camp (three days)	23.176	17.2	29.92	29.4	.056	6,583	657	7,280	
	Agur Peak	22.590	12.8	23.103	9.4	.016	4,603	28	7,981	
	Himala	25.832	25.6	29.93	29.4	.020	3,817	448	4,265	
	Bumot (20 ft. below village)	27.228	23.9	29.95	29.4	.030	2,454	279	2,733	
	Do. rope bridge on Aluknunda R.	27.592	11.7	27.228	23.9	.067	-409	30	2,294	
	Kandé (about 160 ft. above village)	25.144	23.3	27.184	27.8	.022	2,010	217	4,960	
Taleear (25 ft. below village)	24.986	22.8	30.025	30.0	.036	4,749	536	5,285		
Hurealee (tent)	23.019	12.2	24.986	22.8	.049	2,082	156	7,253		
Hurealee Temple	21.346	8.3	22.998	7.2	.005	1,947	64	9,534		
Gopheer (about 60 ft. below village)	24.542	18.9	29.978	28.3	.046	5,164	519	5,683		
Goar (about 80 ft. above village)	24.369	16.1	29.977	27.8	.057	5,335	499	5,834		
Doongra (village)	24.950	16.7	29.95	27.8	.055	4,702	446	5,148		
Burjakhnee Ghat	23.499	10.6	24.976	18.3	.036	1,548	90	6,786		
Ford on Echuha Gudh R.	26.312	15.0	24.976	18.3	.013	-1,375	95	3,678		
Pithondee-Khal	23.155	16.7	29.94	28.3	.053	6,686	591	7,227		
Chopura Tent (two days)	23.567	17.8	29.94	27.2	.044	6,188	594	6,782		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equations for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Barometer. Attached. Centigrade.	Thermometers. Detached. Centigrade.	Barometer. Attached. Centigrade.	Thermometers. Detached. Centigrade.					
320	Chopura Station (Bunraee Temple)	23-403	12-2	11-7	23-55	11-1	11-1	0-05	18	C. O. at Tent.
	Khurson-Syna (Deota's Than)	24-420	18-3	18-3	30-	27-2	27-2	0-44	515	See Nos. 205-208.
	Oolka Camp (same ground)	23-613	15-6	15-6	30-05	27-2	27-2	0-55	569	See Nos. 212, 482, 483.
	Sireenugur Bungalo	28-279	19-4	19-4	30-032	26-7	26-7	0-42	1,780	(C. O. at Sireenugur. See Nos. 400, 472-481, inclusive; also No. 522.
	Paoree (village)	24-942	18-3	18-3	28-251	20-	20-	0-08	264	C. O. at Nishunee Tent.
	Nishunee (about 60 ft. below village)	25-344	17-2	17-2	30-03	26-1	26-1	0-45	4,779	C. O. at Chopureeof Tent.
	Booba-Khal	24-392	11-7	10-6	25-344	17-2	17-2	0-27	5,805	
	Chopureeon (50 ft. below village)	25-872	21-7	21-7	30-	25-	25-	0-17	4,223	
330	Bhynsoora-Khal	23-834	11-1	10-6	25-853	21-1	21-1	0-48	6,429	
	Bidolee (80 ft. below village)	26-164	19-4	19-4	30-	25-	25-	0-29	3,871	
	Chinud-Ghat (Peepul Tree)	26-438	20-6	20-6	30-	25-	25-	0-23	3,590	
	Synjee (Dak Hut)	25-090	19-4	19-4	30-005	24-4	24-4	0-25	5,069	
	Kufurolee (lower houses)	23-544	21-1	21-1	30-01	24-4	24-4	0-14	6,919	
	Punjik-Khal	22-558	9-4	8-9	23-544	21-1	21-1	0-53	675	C. O. at Kufurolee.
	Kuneoor (about 150 ft. below village)	24-245	19-4	19-4	30-02	23-9	23-9	0-22	8,040	See No. 649.
	Ford on Saneer R.	24-732	1-1	0-	24-25	6-7	6-7	0-28	5,505	C. O. at Kuneoor Tent.
	Masoñ (about 120 ft. below village)	24-65	20-	20-	30-03	23-9	23-9	0-19	5,604	C. O. at Mason Tent.
	Khundee-Khal	22-824	13-9	12-8	24-65	20-	20-	0-29	7,715	
	Chouthan (Dak Hut)	25-512	20-6	20-6	30-026	23-9	23-9	0-17	4,628	
	Ooturala (Dak Hut on Chouthan R.)	26-634	19-4	19-4	30-022	23-9	23-9	0-24	3,097	
Tamsadmond (Dak Hut)	27-130	20-	20-	30-028	24-4	24-4	0-24	2,870		
Hoodha-Kedar Temple	27-323	20-6	20-6	30-025	24-4	24-4	0-21	2,671		
Kuman (village)	26-439	16-7	16-7	29-99	25-	25-	0-44	3,240		
N-agee (village)	25-019	20-	20-	30-	25-6	25-6	0-28	4,702		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Barometer. Attached. Centigrade.	Thermometers. Attached. Detached. Centigrade.	Barometer. Attached. Detached. Centigrade.	Thermometers. Attached. Detached. Centigrade.					
350	Jaeraj-Khal.....	23-935	14.4	0	12.2	25.019	+1,126	77	6,364	C. O. at Nagnee.
	Tulaen (village).....	26.024	20.6	20.6	30.006	25.	3,687	358	4,045	
	Punas (lower village).....	25.832	13.9	13.9	30.035	23.9	3,875	314	4,189	C. O. at Punas.
	Kanda (village).....	25.52	17.2	17.2	25.832	13.9	+334	22	4,545	
	Kundoollee-Khal.....	24.362	13.9	13.9	30.036	23.9	5,402	437	5,839	
	Kola (village).....	26.060	22.2	22.2	24.362	13.9	-1,712	131	3,995	C. O. at Kundoollee-Khal.
	Jula kee Syna (35 ft. above Saneer R.).....	27.119	15.6	14.4	26.060	22.2	0.036	84	2,838	C. O. at Kola.
	Tolee (40 ft. above village).....	25.557	11.7	11.7	27.119	15.6	14.4	0.020	4,449	C. O. at Jula kee Syna.
	Choumasoo (lower village).....	27.825	18.3	18.3	30.06	22.2	22.2	0.022	2,165	
	Choumasoo (ford, Saneer R.).....	28.128	7.8	6.7	27.80	18.3	18.3	0.059	1,786	C. O. at Lower Choumasoo.
	Deodallee (village).....	26.036	15.	15.	27.78	16.7	16.7	0.009	3,937	Do. do.
	Goona-Khal.....	25.145	3.9	3.9	26.036	15.	15.	0.055	4,843	C. O. at Deodallee.
	Merooa (village).....	26.658	18.9	18.9	26.036	15.	15.	0.020	3,320	Do. do.
	Koh R. (halting ground in wood).....	27.703	18.9	18.9	30.075	21.7	21.7	0.016	2,308	See Nos. 176-374.
	Nujeebabad (grove and tomb).....	29.161	18.9	18.9	30.05	21.7	21.7	0.006	849	
	Nugeona (Mr. Chalmers's house).....	29.206	20.6	20.6	30.098	21.7	21.7	0.006	779	
	Dhampoor.....	29.348	22.8	22.8	30.13	22.2	22.2	0.004	699	
Seohara, or Soohara.....	29.404	20.	20.	30.154	22.2	22.2	0.013	645		
Gurhee.....	29.440	23.3	23.3	30.158	22.2	22.2	0.007	695		
Sunduleepoor-Mampoor.....	29.408	19.4	19.4	30.15	22.2	22.2	0.017	634.5		
Moradabad.....	29.404	22.2	22.2	30.108	22.2	22.2	0.017	674		
Peepulsanda.....	29.380	23.9	23.9	30.074	22.2	22.2	0.010	678		
Kuchnar.....	29.265	20.	20.	30.052	22.2	22.2	0.018	618		
Belawala.....	29.240	21.1	21.1	30.022	22.2	22.2	0.006	680		
Kaseepoor-Sooar.....	29.206	19.4	19.4	29.972	21.7	21.7	0.013	664		
Khuteel-poor.....	29.4	22.2	22.2	30.042	21.1	21.1	0.007	569	See No. 373.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to column Barom.	Approximate Altitude in Feet.	Equation for Temperatures in Feet.	Absolute Altitude in Feet.	Remarks.		
		Thermometers.		Thermometers.								
		Barometer. Attached.	Centi grade.	Barometer. Detached.	Centi grade.							
370	Futtehgunj	29.428	23.3	23.3	30.042	21.1	21.1	0.13	549.5	51	600.5	{ See No. 366. Mean altitude 752 ft. { See Nos. 176, 356. Mean altitude 836 ft. { See No. 177. Mean altitude 1,063 ft. { See No. 178. Mean altitude 1,307 ft. { C. O. at Koldwara Ford. { C. O. at Jooee. { C. O. at Chunda Tent. { See No. 680. { C. O. at Danda Mundeec. { C. O. at tent. { C. O. at do. { C. O. at Mango tree. See No. 499.
	Hórhóree	29.466	22.2	22.2	30.042	21.1	21.1	0.07	511	47.5	558.5	
	Dhunalee (second)	29.418	22.8	22.8	30.07	22.2	22.2	0.04	575	56	631	
	Kumora-Dhumora	29.464	26.1	26.1	30.066	22.8	22.8	0.22	546	56	602	
	Burhépoor	29.372	21.7	21.7	30.066	22.8	22.8	0.06	603	55.5	658.5	
	Kaseepoor-Sooar	29.266	24.4	24.4	30.066	22.8	22.8	0.10	711	71	782	
	Nujeebabad (grove)	29.059	28.9	28.9	29.913	27.8	27.8	0.07	761	90.5	851.5	
	Jafurabad	28.814	29.9	29.9	29.90	28.3	28.3	0.04	968	117	1,085	
	Koldwara (ford)	28.607	29.4	29.4	29.88	28.3	28.3	0.07	1,131	141	1,272	
	Jooee (hamlet)	27.564	23.3	21.1	28.607	29.4	29.4	0.34	+936	101	2,344	
380	Phoolinda (village)	26.230	25.6	23.3	27.564	23.3	21.1	0.13	+1,305	122	3,771	{ C. O. at Koldwara Ford. { C. O. at Jooee. { C. O. at Chunda Tent. { See No. 680. { C. O. at Danda Mundeec.
	Chunda (tent)	25.468	23.9	23.9	29.897	28.3	28.3	0.22	4,155	465	4,620	
	Chunda-Khal	25.009	16.7	15.	25.468	23.9	23.9	0.36	+436	35	5,090	
	Danda Mundeec (Kheema Nund's house)	27.089	20.3	20.3	29.93	28.9	28.9	0.46	2,555	268	2,823	
	Chumee-Khal	25.670	13.3	12.2	27.098	20.	20.	0.34	+1,377	95	4,295	
	Dkosa, 30 ft. above village	25.575	23.3	23.3	29.93	28.3	28.3	0.26	4,071	449	4,520	
	Tent in the wood	25.894	25.6	25.6	29.916	28.9	28.9	0.17	3,745	435	4,180	
	Dooree-Khal	24.764	12.8	12.2	25.894	25.6	25.6	0.64	+1,095	89	5,364	
	Bilkhet Ford, Nyar R.	28.164	23.9	22.8	25.814	25.6	23.6	0.10	-2,280	235	1,165	
	Do. Mango tree	28.051	23.3	23.3	29.912	28.9	28.9	0.31	1,646	183	1,829	
Do. village	27.890	26.1	25.6	27.956	28.3	28.3	0.12	+51	3	1,882		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

...ces in Kumaon.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude in Feet.	Equivalent Temperature in Feet.	Absolute Altitude in Feet.		
		Barometer. Attached.	Detached. Centigrade.	Thermometers. Attached.	Detached. Centigrade.						
390	Sakinee	25-85	25	29-918	28-9	-020	3,788	433	4,221	C. O. at Muknee	
	Bunékh-Khal	25-487	17-2	25-850	25-9	-040	+328	27	4,777		
	Giduraso (15 ft. above village)	24-698	21-7	29-904	28-9	-035	4,948	534	5,482	C. O. at Ghidurason,	
	Sakinee (2d)	25-752	15	24-698	21-7	-035	-1,124	84	4,274	Do. do.	
	Asooe (village)	25-047	17-8	24-698	21-7	-019	-385	31	5,066	Do. do.	
	Doongra	24-852	18-9	24-698	21-7	-014	-177	15	5,289	Do. do.	
	Doongra-Khal	24-600	20-6	24-698	21-7	-005	+98	8	5,588	Do. do.	
	Bungargaof	25-052	24-4	29-92	28-3	-019	4,608	515	5,123	C. O. at Bungargaon.	
	Doornkot-Khal	24-248	13-3	25-068	24-4	-053	+830	63	6,016		
	Téka kee Manda	24-042	13-3	24-962	6-1	-036	+1,017	42	6,182		
	Paoree (tent)	24-735	17-8	29-819	29-4	-058	-4,810	484	5,294		
	Do. Bungalo	24-871	10	24-83	10	..	-44	..	5,250	(a) C. O. at tent. See Nos 392, and 472 to 481 inclusive; also No. 322.	
	400	Bithuee (village)	26-27	18-8	24-83	10	-044	-1,423	79	3,762	(a) C. O. at tent.
		Ford on Goree R.	27-348	24-0	24-83	10	-070	-2,444	174	2,624	(a) Do. do.
		Sirkot (village) 40 ft. below village ...	27-108	27-2	24-836	19-6	-038	-2,241	225	2,779	(a) Do. do. See No. 411.
Bugooes (village)		25-656	18-7	27-083	27-3	-044	+1,366	130	4,303	(a) C. O. at Sirkot.	
Kuthoor (village)		26-064	21-7	27-083	27-3	-029	+970	103	3,873	(a) Do. do.	
Kumúra Temple		26-434	22-4	27-083	27-3	-026	+606	60	3,449	(a) Do. do.	
Churgaon (village)		26-561	15-2	27-020	12-3	-016	+462	29	3,279	(a) Do. do.	
Buchelee (village)		27-368	18-6	27-020	12-3	-034	-309	16	2,456	(a) Do. do.	
Junction of Sirkot and Goree R.		27-482	22-7	27-059	22-7	..	-405	37	2,328	(a) Do. do.	
Kotee (upper village)		26-628	25-8	27-083	27-3	-008	+134	46	3,269	(a) Do. do.	
Sirkot (village)		27-077	25	29-802	31-1	-033	2,468	294	2,617	(a) See No. 403.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Observation.		Comparison.		Equation for Expansion + to evident Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
	Thermometers.		Thermometers.						
	Barometer, Attached.	Centi grade.	Barometer, Attached.	Detached.					
420	Kuthoolce (village).....	16.1	29.87	28.9	28.9	4,186	403	4,080	(a.) C. O. at Kuthoolce.
	Guarkeea-Khal.....	24.152	18.3	25.404	16.7	3,328	98	6,135	(a.)
	Boonga (tent).....	26.130	18.9	29.765	28.3	3,345	337	3,756	(a.)
	Soorar-Khal.....	24.475	15.6	26.255	28.3	3,763	164	5,721	(a.)
	Seemult (village).....	25.624	22.2	24.475	16.6	1,763	90	4,445	(a.) C. O. at Boonga.
	Puhlee (tent).....	24.220	21.7	29.744	28.3	1,161	90	4,445	(a.) C. O. at Soaar-Khal.
	Murota, Bidolee (between villages) ..	25.77	27.2	29.802	29.4	3,320	567	5,987	See No. 448.
	Tent 100 ft. above Tal (village).....	25.69	22.2	29.87	27.8	3,778	456	4,234	
	Rultuna (village).....	25.058	8.9	25.771	22.2	3,899	417.5	4,316	C. O. tent near Tal (a.)
	Koodh kee Séra Ghat.....	26.835	12.8	25.771	22.2	4,662	42.56	5,035	Do.
	Pang (Kumeen's house).....	25.420	21.1	29.854	28.3	4,152	423.6	4,667	(a.)
	Pinaace (village).....	24.55	23.3	29.875	28.9	5,086.5	566.4	5,653	
	Boorkhila-Khal.....	24.512	13.9	24.626	23.3	472	5.5	5,732	(a.) C. O. at Pinaace.
	Ookal (village).....	25.429	19.4	29.826	23.3	857	76.96	4,700	Do.
	Sunee (25 feet above village).....	25.663	28.9	29.780	29.4	3,874	483	4,444	(a.)
	Seewala (village).....	24.52	18.3	25.663	28.9	4,132	115.6	5,717	(a.) C. O. at Sunee.
	Singar Déo ke Séra.....	26.548	32.2	29.772	30	2,998.5	398.08	3,465	(a.)
Sookhra (village).....	24.913	25.5	25.781	27.8	4881	95	5,229	{ C. O. camp near Murota, See No. 418.	
Coolee (village).....	25.203	17.2	25.782	14.4	4602	36.2	4,864	(a.) Do.	
Than (village).....	25.207	17.2	25.782	14.4	4603	36.2	4,886	(a.) Do.	
Rutkotee (village).....	25.686	30	29.82	29.5	3,891.5	487.6	4,379		
Boonga (village).....	26.000	26.1	26.226	28.3	4214	24.5	3,999	{ C. O. at Boonga camp. See No. 414.	
Water mill on Nyar R.....	26.314	18.3	26.226	18.9	91	7	3,655	(a.) Do.	
Naece (village).....	25.363	15.5	26.226	18.2	4854	58.46	4,686	(a.) Do.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldst Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.	
		Barometer.	Thermometers, Attached, Detached, Centil grade.	Barometer.	Thermometers, Attached, Detached, Centil grade.						
440	Doongree (village).....	23-604	0	18-9	29-708	27-2	3-838	377-2	4,299	(a.)	
	Dang (village).....	23-774	26-7	26-7	29-716	27-8	3,702	429-764	2,214	(a.)	
	Muloond (village).....	23-198	15-5	15-5	25-774	26-7	+531	47-844	805	(a.)	
	Khundgaon (village).....	23-300	19-5	18-3	25-774	26-7	+445	40-5	4,710	(a.)	
	Bunas (village).....	23-214	12-8	12-8	24-330	21-7	-975	72-244	819	(a.)	
	Naor (45 ft. above the village).....	23-945	18-9	18-9	29-770	29-4	050	5,619	578-4	6,197	(a.)
	Burath (village).....	24-082	17-2	16-7	24-065	18-9	008	-27	1,426	5,168	(a.)
	Tent near Sont.....	23-765	22-2	22-2	29-737	30-6	040	5,850	660	6,640	(a.)
	Sont (village).....	23-930	19-4	18-9	23-748	20-5	19-4	205	15-3	6,416	(a.)
	Koocholee (village).....	23-337	22-2	22-2	29-754	31-4	043	6,282	718-247	7,000	(a.)
	Putee-Khal.....	22-768	17-8	16-7	23-456	22-2	020	+753	62-087	832	(a.)
	Kireal (the Panchakee).....	24-944	21-7	21-7	29-754	31-4	048	4,544	514-1	5,159	(a.)
	Tent 35 ft. above Publee (2d observation)	24-400	23-3	23-3	29-754	31-4	040	5,127	597-875	5,839	(a.)
	450	Silolee (village), Choprakot Purguna.	25-000	27-8	27-8	29-754	31-4	4,517	571-285	1,990	(a.)
Molka-Khal.....		23-385	16-1	14-5	29-77	31-7	6,209	612-156	958	(a.)	
Kolee (village).....		25-807	26-1	26-1	29-77	31-7	3,693	456-624	2,333	(a.)	
Doongree (village).....		23-030	26-1	25	29-77	31-7	028	4,493	543-365	137	(a.)
Goar (village), lat.....		24-524	24-5	24-5	29-77	31-7	035	5,014	601-345	728	(a.)
Ridge between Doongree and Goar...		23-506	18-9	18-3	24-524	24-5	026	+1,076	98-446	926	(a.)
Nurkot (deserted village).....		27-168	35	35	29-77	31-7	020	2,401	339-662	795	(a.)
Loolee (village).....		26-096	21-1	20	29-77	31-7	055	3,377	371-523	823	(a.)
Chutoora (20 ft. below the village)...		23-862	31-7	31-7	29-777	31-7	055	3,673	497-694	254	(a.)

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperatures, in Feet. +	Absolute Altitude, in Feet.	Remarks.	
		Thermometers, Attached, Detached, Centigrade.		Thermometers, Attached, Detached, Centigrade.							
		Barometer.	Centigrade.	Barometer.	Centigrade.						
460	Nowasoo (village).....	25.028	23.3	29.777	31.7	0.42	4,484	525.25.5	5,169	(a.)	
	Pokree (village).....	25.314	26.7	29.777	31.7	0.25	4,205	525.6	4,835	(a.)	
	Gaar (24) 30 ft. below village.....	24.986	28.9	29.777	31.7	0.14	4,556	590.85.5	5,250	(a.)	
	Boodeesoo (village).....	24.836	28.	24.986	28.9	0.04	+134	19.88.5	4,427	(a.)	
	Bhynskot (30 ft. above village).....	25.536	30.5	29.758	32.2	0.09	3,977	532.1	4,599	(a.)	
	Kotkee (village).....	25.000	16.7	25.536	30.5	0.09	+482	47.2	5,139	(a.)	
	Jhala (village).....	25.444	19.5	25.536	30.5	0.56	+37	2.44	4,640	(a.)	
	Koffha (village).....	25.686	23.3	21.7	25.536	30.5	0.37	-190	20.88	4,384	(a.)
	Bhutolee (village).....	26.278	33.3	29.758	32.2	0.07	3,246.5	451.26	3,772	(a.)	
	Boogranee (village).....	25.874	21.7	19.5	26.278	33.3	0.60	+344	36.96	4,160	(a.)
	Dewulgurh Temple.....	26.398	23.3	23.3	26.278	33.3	0.53	-171	22.64	3,574	(a.)
	Soomaree Hill.....	25.228	28.3	28.3	29.758	32.2	0.19	4,283	552.66	4,932	(a.)
470	Julétha (village).....	25.664	22.8	21.7	25.228	28.3	28.3	50.	4,398	(a.)	
	Kholee (45 ft. above village).....	26.772	26.7	26.7	29.758	32.2	0.29	2,727	341.04	3,129	(a.)
	Paoree Bungalow (10 days mean).....	24.872	26.7	26.7	29.672	30.9	0.21	4,577	564.48	5,244	(a.)
	Do. (10 do.).....	24.806	25.5	25.5	29.588	31.3	0.29	4,563	553.8	5,219	(a.)
	Do. (10 do.).....	24.790	25.5	25.5	29.625	30.8	0.26	4,615	550.76	5,270	(a.)
	Do. (10 do.).....	24.700	22.8	22.8	29.722	29.2	0.31	4,790	533.	5,323	(a.)
	Do. (15 do.).....	24.704	23.3	23.3	29.673	30.8	0.37	4,737.5	548.1	5,286	(a.)
	Do. (16 do.).....	24.721	23.3	23.3	29.645	29.5	0.30	4,701.5	530.64	5,232	(a.)
	Do. (15 do.).....	24.745	23.3	23.3	29.717	30.	0.33	4,736	539.98	5,276	(a.)
	Do. (16 do.).....	24.693	22.2	22.2	29.566	30.	0.38	4,652	518.39	5,170	(a.)
	Do. (15 do.).....	24.730	21.7	21.7	29.619	29.4	0.38	4,661	507.45	5,168	(a.)
	Do. (15 do.).....	24.812	20.	20.	29.776	30.6	0.53	4,752	513.59	5,266	(a.)

Best barometers. See Nos. 322, 400, and 522.

C. O. at Bhynskot.
Do. do.
Do. do.
C. O. at Bhutolee.
Do. do.
See No. 210.
C. O. at Soomaree Hill.

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldst Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Barometer. Attached.	Centi grade.	Barometer. Detached.	Centi grade.					
	Mean of the above.....	°	°	°	°	5,238	Best barometers. Mean of another month's observations, by my assistant, 5,270 feet. C. O. at Paoree Bungalow. See Nos. 212 and 321. C. O. at Paoree. C. O. at Paoree. C. O. at Paoree. C. O. at tent. 7,408 is the mean altitude. Do. do. C. O. at Paoree. Do. do. Do. do. Do. do. Do. do. Do. do. Do. do. Do. do. Do. do. Do. do. See No. 388. Do. do. Do. do. at Buchlee. Do. do. at Buchlee.
	Sireenugur (the Bungalow).....	27.948	30.	24.685	20.6	.046	-3.186	344.081	1,708	
	Do. (same observation compared with Calcutta).....	27.948	30.	29.75	31.1	.006	1.623	210.451	1,833	
	Mulétha (village).....	27.818	30.	24.652	18.3	.037	-3.089	309.161	1,839	
	Banga (village).....	26.311	27.8	29.75	29.5	.009	3.192	391.823	3,584	
	Teeragaon (village).....	25.964	23.3	29.75	29.5	.032	3.515	396.	3,911	
	Chundurbudnee (tent) five days.....	23.318	19.5	29.797	28.9	.044	6.340	653.4	6,993	
	Do. (tent) three days.....	23.306	20.	24.765	18.9	.005	+1.587	129.986	955	
	Chundurbudnee Temple.....	23.024	15.6	23.399	18.9	.015	+405	29.247	408	
	Nagruce-Danda.....	24.23	15.5	24.736	17.2	.008	+520	33.	5,801	
	Hoonkot Peak.....	24.96	18.3	24.759	17.8	.002	-209	13.765	5,015	
	Deoprag (rope bridge).....	28.343	26.1	29.79	29.5	.019	-1,280	152.9	1,433	
	The same compared with Paoree.....	28.343	26.1	24.800	18.3	.039	3.439	326.34	1,473	
	Kapur (village).....	26.700	26.1	24.777	21.7	.022	-1,925	196.	3,117	
	Confluence of Nyar R. with Ganges R.....	28.45	27.8	24.794	19.4	.042	-3,540	356.36	1,342	
	Bhunaldoo (village).....	26.340	24.5	24.804	19.5	.025	-1,540	145.2	3,553	
	Deosee (village).....	26.345	26.1	24.833	18.9	.036	-1,502.5	144.	3,391	
	Dharae (village).....	25.58	21.7	24.83	17.2	.022	-752	62.084	424	
	Bilkhet (village).....	28.007	24.5	29.91	27.8	.018	1,696.5	187.921	1,894	
	Tent near Buchlee village.....	26.158	22.8	24.861	15.	.039	-1,285	103.953	3,949	
	Dhaur-Boonga Fort.....	24.736	13.3	26.208	21.7	.033	+1,472	106.475	428	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Equation for Approximate Altitude, in Feet.	Equation for Absolute Altitude, in Feet.	Remarks.
		Thermometers.		Thermometers.					
		Barometer Attached.	Barometer Detached.	Barometer Attached.	Barometer Detached.				
510	Bhutnagon Temple	25-540	20.	24-840.	13-9	13-9	0-93	50-7	C. O. at Paoree.
	Bhudeear Ford, Nyar R.	27-956	11-7	25-540	20.	20.	-2-398	153.	Do. at Bhutnagon Temple.
	Paurolee (45 ft. above the village)	25-392	17-2	24-845	13-3	13-3	-548	34-96	Do. at Paoree.
	Dang (50 ft. below village)	25-960	21-1	24-878	12-8	12-8	-1,067	76-05	Do.
	Simtolee (50 ft. above village)	24-736	13-9	24-786	12-8	12-8	+58	2-68	Do.
	Lumkhunee Peak	24-823	19-5	24-850	13-3	13-3	+61	3-16	Do.
	Oophurdeen Peak	25-541	21-7	24-823	19-5	18-3	-732	61-07	Do. at Lumkhunee P.
	Gungolee Ghat on Nyar R. (ford)	27-38	11-7	24-856	10.	10.	-2,512	104-76	Do. at Paoree.
	Mason (village)	26-688	22-2	24-858	13-3	13-3	-1,805	136-29	Do.
	Punchoor Temple	24-608	13-3	24-807	12-8	12-8	+212	11-7	Do.
	Durasoo (village)	25-236	20.	24-838	13-3	13-3	-380	26-56	Do.
	Guwanee (village)	25-852	21-1	24-872	13-3	13-3	-966	70-52	Do.
	Gooratour-Khal	24-142	11-1	24-888	13-9	13-9	+779	39-61	Do.
	Deba (camp)	22-714	10.	24-855	12-2	12-2	+2,336	111.	Do.
	Do. do.	22-692	11-7	24-820	12-8	12-8	+2,329	117-81	Do.
	Deba Temple	21-868	12-8	24-868	12-8	12-8	+3,350	183-04	Do.
	Do. do.	21-868	12-8	30-055	25.	25.	8,222-5	663-39	Do.
	Ghunee-Khal	24-100	13-9	24-876	11-7	11-7	+837	42-84	C. O. at Paoree.
	Tulaen village on Lukhor R.	26-093	16-9	24-853	11-1	11-1	-1,239	74-2	Do.
	Liskot-Khal	23-573	10-5	24-842	10-5	10-5	+1,366	56-26	Do.
Paoree Bungalow (thirty days mean) ..	24-781	18-9	29-833	28-9	28-9	0-50	4,782	487-56	Do.
Bohwan Debee's Temple	25-518	17-2	30-082	22-8	22-8	0-29	4,258	364.	Do.
Bundaran (village)	28-212	22-2	30-05	22-2	22-2	..	1,645	155-4	Do.
Mohan (30 ft. below the village)	28-528	20-5	30-05	22-2	22-2	0-10	1,346	121-41	Do.
Dhekulee Guard Room	28-842	26-7	30-068	22-8	22-8	0-23	1,105	116-09	Do.

{ See Nos. 322, 400, and Nos. 472 to 481 inclusive.

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Barometer.	Thermometers Attached, Detached, Centigrade.	Barometer.	Thermometers Attached, Detached, Centigrade.					
	Mean of the above.....	5,238	
	Sireenagar (the Bungalow).....	27-948	30.	24-685	20-6	0-46	-3,186	344-08	1,708	{ Best barometers. Mean of another month's observations, by my assistant, 5,270 feet. C. O. at Paoree Bungalow. See Nos. 212 and 321. C. O. at Paoree. C. O. at Paoree. { C. O. at Paoree. 7,408 is the mean altitude. C. O. at Paoree. Do. do. C. O. at Paoree. Do. do. Do. do. Do. do. Do. do. Do. do. Do. do. Do. do. See No. 388. Do. at Buchelee. Do. at Buchelee.
	Do. (same observation compared with Calcutta).....	27-948	30.	29-75	31-1	0-06	1,623	210-45	1,833	
	Mulétha (village).....	27-818	30.	24-652	18-3	0-57	-3,089	309-16	1,839	
	Banga (village).....	26-311	27-8	29-75	29-5	0-09	3,192	391-82	3,584	
	Teeragaon (village).....	25-964	23-3	29-75	29-5	0-32	3,515	396.	3,911	
	Chundurbudnee (tent) five days.....	23-318	19-5	29-797	28-9	0-44	6,340	653-4	6,993	
	Do. (tent) three days.....	23-306	20.	24-765	18-9	0-05	+1,587	129-98	6,955	
	Chundurbudnee Temple.....	23-024.	15-6	23-399	18-9	0-15	+405	29-247	4,08	
490	Nagnee-Danda.....	24-23	15-5	24-736	17-2	0-08	+520	33.	5,801	
	Hoonkot Peak.....	24-96	18-3	24-759	17-8	0-02	-209	13-76	5,015	
	Deoprag (rope bridge).....	28-343	26-1	29-79	29-5	0-19	1,280	152-9	1,433	
	The same compared with Paoree.....	28-343	26-1	24-800	18-3	0-39	-3,439	326-34	1,473	
	Kapur (village).....	26-700	26-1	24-777	21-7	0-22	-1,925	196.	3,117	
	Confluence of Nyar R. with Ganges R.....	28-45	27-8	24-794	19-4	0-42	-3,540	356-36	1,342	
	Bhumaloo (village).....	26-340	24-5	24-804	19-5	0-25	-1,540	145-2	3,553	
	Deesee (village).....	26-345	26-1	24-833	18-9	0-36	-1,502	5	3,591	
	Dharee (village).....	25-58	21-7	24-83	17-2	0-22	-752	62-08	4,424	
	Bilkhét (village).....	28-007	24-5	29-91	27-8	0-18	1,696	5	1,894	
	Tent near Buchelee village.....	26-158	22-8	24-861	15.	0-39	-1,285	103-95	3,849	
500	Dhour-Boonga Fort.....	24-736	15.	26-208	21-7	0-33	+1,472	106-47	5,428	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.		
		Thermometers.		Thermometers.								
		Barometer.	Centigrade.	Attached, Detached.	Barometer.						Attached, Detached.	Centigrade.
510	Bhutgaon Temple	25-540	20°	20°	24-840	13-9	13-9	0-30	-693	50-7	4,494	C. O. at Paoree.
	Bhudear Ford, Nyar R.	27-956	11-7	10°	25-540	20°	20°	0-46	-2-398	153	1,943	Do. at Bhutgaon Temple.
	Puroolee (45 ft. above the village)	25-392	17-2	17-2	24-845	13-3	13-3	0-19	-548	34-96	4,655	Do. at Paoree.
	Dang (50 ft. below village)	25-960	21-1	21-1	24-878	12-8	12-8	0-41	-1,067	76-05	4,095	Do. do.
	Simtolee (50 ft. above village)	24-736	13-9	13-9	21-786	12-8	12-8	0-05	+58	2-685	2,999	Do. do.
	Lumkhunee Peak	24-823	19-5	18-3	24-850	13-3	13-3	0-31	+61	3-165	3,021	Do. do.
	Oophurazeen Peak	25-541	21-7	21-1	24-823	19-5	18-3	0-11	-732	61-07	4,509	Do. at Lumkhunee P.
	Gungolee Ghat on Nyar R. (ford)	27-38	11-7	9-4	24-856	10°	10°	0-08	-2,512	104-76	2,621	Do. at Paoree.
	Masoof (village)	26-688	22-2	22-2	24-858	13-3	13-3	0-44	-1,805	136-29	3,296	Do. do.
	Punchoor Temple	24-608	13-3	13-3	24-807	12-8	12-8	0-02	+212	11-7	5,462	Do. do.
	Durasoo (village)	25-236	20°	20°	24-858	13-3	13-3	0-33	-880	26-56	4,831	Do. do.
	Gurvanee (village)	25-852	21-1	21-1	24-872	13-3	13-3	0-39	-966	70-52	4,201	Do. do.
	Goora'tour-Khal	24-142	11-1	9-5	24-888	13-9	13-9	0-13	+779	38-61	6,056	Do. do.
	Deba (camp)	22-714	10°	10°	24-855	12-2	12-2	0-10	+2,336	111	7,685	Do. do.
	Do. do.	22-692	11-7	11-1	24-820	12-8	12-8	0-05	+2,329	117-81	7,685	Do. do.
	Deba Temple	21-868	12-8	12-8	24-868	12-8	12-8	..	+3,350	183-04	8,771	Do. do.
	Do. do.	21-868	12-8	12-8	30-055	25°	25°	0-54	8,222-5	663-39	8,866	Do. do.
Ghunsee-Khal	24-100	13-9	12-2	24-876	11-7	11-7	0-11	-837	42-84	6,118	C. O. at Paoree.	
Tulaen village on Lukhor R.	26-093	16-9	16-9	24-853	11-1	11-1	0-29	-1,239	74-2	3,925	Do. do.	
Liskot-Khal	23-573	10-5	8-9	24-842	10-5	10-5	..	+1,366	56-26	6,650	Do. do.	
Paoree Bungalow (thirty days mean)	24-781	18-9	18-9	29-833	28-9	28-9	0-50	4,782	487-56	5,270	{ See Nos. 392, 400, and Nos. 472 to 481 inclusive.	
Bohwan Debee's Temple	25-518	17-2	17-2	30-082	22-8	22-8	0-29	4,258	364	4,622		
Bunduran (village)	28-212	22-2	22-2	30-05	22-2	22-2	..	1,645	155-4	1,800		
Mohan (30 ft. below the village)	28-528	20-5	20-5	30-05	22-2	22-2	0-10	1,346	121-41	1,467		
Dhekulee Guard Room	28-842	26-7	26-7	30-068	22-8	22-8	0-23	1,105	116-09	1,221		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to correct Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.
		Barometer.	Thermometers.	Barometer.	Thermometers.					
		Attached.	Detached.	Attached.	Detached.					
530	Chilkeoa Mundee.....	28-992	26-1	30-076	22-8	0-20	974	102-48	1,076	{ See Nos. 139 to 146 inclusive. See No. 594. C. O. at Choornapanee. C. O. at Lohoo Ghat. (G. 6,742). C. O. at Tent. (G. 3,961.) See No. 90.
	Huldooa.....	29-304	21-7	30-08	23-3	0-09	672-5	65-25	798	
	Kasheepoor Bungalow (three days)...	29-297	21-7	30-05	23-3	0-10	652	63	715	
	Rampoor (city).....	29-45	22-2	30-024	23-3	0-06	499	47-67	547	
	Peleebheet (twelve days mean).....	29-464	18-3	30-075	21-7	0-20	516-5	44	560-5	
	Bundara.....	29-312	26-1	29-97	22-8	0-20	595	61	656	
	Bilchree Mundee.....	29-222	25-5	29-97	22-8	0-16	672	69-89	742	
	Choornapanee.....	28-446	23-9	29-97	23-9	..	1,361	138-62	1,500	
	Timla Fort.....	28-188	13-3	28-474	11-7	0-09	2,219	102-6	3,821	
	Kela Ghat.....	27-856	26-7	29-96	25-1	0-10	1,907	209-79	2,117	
	Reedlee.....	26-122	18-9	29-99	25-1	0-27	3,571	336-6	3,908	
	Kundulgaon (30 ft. below village).....	24-844	15-5	29-97	26-7	0-66	4,819	434-66	5,254	
	Lohoo-Ghat (Capt. McHarg's house) three days.....	24-507	12-2	29-94	25-5	0-65	5,148	413-6	5,563	
	Pharka (Bungalow).....	24-174	10	29-84	27-2	0-93	5,397	429-66	5,827	
	Fort Hastings.....	23-806	6-7	24-438	12-2	0-26	1-652	26-04	6,240	
Deo-Dhoora (Bungalow).....	23-402	7-2	29-964	24-5	0-81	6,352	428-18	6,780		
Darnee (tent).....	25-678	15-5	29-964	24-5	0-46	3,976	340	4,316		
Darnee (village).....	25-416	8-9	25-682	12-8	0-20	1-250	10	4,576		
Jak (80 ft. above village).....	24-526	15-5	30-09	22-8	0-36	5,290	433-92	5,724		
Hawul Bagh (Mr. Trail's house) six days.....	26-083	22-2	29-972	26-7	0-23	3,599	377-3	3,976		
Dhanus (village).....	25-384	23-3	29-99	28-3	0-25	4,920	477-3	4,797		
Doba (50 ft. below village).....	26-034	25	29-97	29-5	0-23	3,646	159-32	3,798		
Munrasa (100 ft. below village).....	26-444	25	30-02	28-3	0-17	3,288	379-4	3,660		

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldst Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Thermometers. Attached, Detached, Centigrade.		Thermometers. Attached, Detached, Centigrade.						
		Barometer.	Thermometer.	Barometer.	Thermometer.					
550	Nongson (village).....	26-568	27-2	30-05	29-5	0-12	3,178	384-88	3,563	C. O. at Nongson.
	Kankur Ghat Tree.....	26-980	27-2	26-588	27-2	..	-308	32-64	3,227	
	Boojan (30 ft. below village).....	27-206	27-8	30-06	28-9	0-06	2,594	314-13	2,908	
	Punt kee Peepul.....	27-458	27-8	30-04	28-9	0-06	2,336	283	2,619	
	Dubra (village).....	28-124	28-3	29-97	29-5	0-07	1,650	202-3	1,852	
	Khyralce Peepul Tree.....	28-196	30-5	29-96	28-9	0-10	1,591	201-96	1,793	
	Kath kee Nao (tent) 4 days.....	25-477	25-5	29-895	29-5	0-20	4,146-5	486-75	4,633	
	Kath kee Nao (the fort).....	25-216	18-3	25-492	20-5	0-11	+272	20	4,925	
	Khatolee (village).....	26-136	25	29-92	30	0-26	3,497	412-5	3,910	
	Phulsofi (40 ft. below village).....	25-720	26-7	29-90	30-5	0-20	3,904	477-62	4,382	
	Choonnee.....	25-496	28-3	29-86	31-1	0-14	4,163	519-75	4,628	
	Tent near Choonnee Temple (two days).....	24-199	26-1	29-84	30-5	0-21	5,437	656-6	6,094	
	Choonnee Temple.....	23-904	18-3	24-106	18-3	0-21	+219	15-48	6,328	
	Jyrs (village).....	24-664	26-1	29-83	30-5	0-22	4,931	597-13	5,528	
	Musulakot (village).....	25-418	28-3	29-83	30-5	0-11	4,159	523-32	4,682	
Poodolee (village).....	24-772	26-1	29-80	30-5	0-22	4,793	580-15	5,373		
Pujéna (100 ft. above village).....	25-438	23-9	29-860	28-9	0-25	4,151	467-28	4,618		
Shér Temple.....	24-520	15	29-87	21-1	0-38	+967	71-75	5,657		
Gadée (30 ft. above village).....	25-096	22-2	29-87	28-3	0-30	4,507	493-44	5,000		
Butoulees.....	24-268	22-8	29-88	28-9	0-30	5,388	593-4	5,981		
570	Réonce Temple.....	23-672	18-3	24-198	21-1	0-13	+559	45-36	6,586	C. O. at Butoulees. (G. 6,599.) { (G. 6,489.) See Nos. 69 and 85. See No. 733.
	Kaleemuth Tree.....	23-780	18-9	29-806	30-5	0-56	5,823	607-56	6,431	
	Bafoles Seers (30 ft. below village).....	26-105	31-1	29-87	31-1	..	3,511	466-5	3,977	
	Sourah Temple (at tent 40 ft. below).....	25-572	29-5	29-76	30-5	0-05	3,643	468	4,111	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Barometer. Attached, Detached, Centigrade.	Thermometers. Attached, Detached, Centigrade.	Barometer. Attached, Detached, Centigrade.	Thermometers. Attached, Detached, Centigrade.					
	Nyathana Tree (three days).....	24-435	26-1	29-817	31-1	31-1	5,161	629-2	5,790	(G. 5,857.)
	Kuthol Khét.....	24-412	29-5	29-82	31-1	31-1	5,206	672-66	5,879	
	Dwara-hath (the tank).....	25-236	30-5	29-90	30-5	30-5	4,419	576-45	4,995	(G. 7,344.)
	Doona-giree Temple (two days).....	23-092	20-5	29-857	30-5	30-5	6,643	724-2	7-367	
	Punchukée at junction of Kothar N. with Kamgunga R.	26-696	33-9	29-857	30-5	30-5	2,933	405-72	3,339	
	Turag Tal.....	26-068	31-1	29-79	30-5	30-5	3,482	458-92	3,941	
	Loba (tent) two days.....	24-953	32-2	29-735	31-1	31-1	4,575	619-36	5,194	
	Loba Gurhee.....	23-946	21-7	25-000	27-2	26-7	+1,094	112-33	6,401	C. O. at tent (G. 6,430.)
	Khétee-Malsee (large mulberry tree) on Khétee R.	24-996	28-3	29-77	31-1	31-1	4,540	576-18	5,116	
	Dewalee-Khal.....	23-186	12-2	24-996	28-3	28-3	+1,876	152-8	7,145	C. O. at Khétee-Malsee.
	Kaifsooa (tent about 150 ft. below village).....	25-832	32-8	29-84	31-1	31-1	3,767	510-4	4,277	
	Adh-Bhudree Temple.....	25-888	18-3	25-862	29-5	28-3	-85	6-99	4,185	
	Notee Temple.....	24-704	29-4	29-79	31-1	31-1	4,871	631-18	5,502	C. O. at Kaifsooa tent. See No. 643.
	Jak (village).....	25-372	32-2	29-76	31-1	31-1	4,162	562-48	4,724	
	Bhutgoalee (about 100 ft. below village).....	23-624	25-5	29-70	31-7	31-7	5,933	726-44	6,659	
	Goor Choura.....	23-700	26-1	29-76	31-1	31-1	5,908	720-72	6,629	
	Tilkhnee-Khal.....	22-114	13-3	23-834	23-9	23-3	+1,896	141-75	8,707	C. O. at Goor-Choura (a). C. O. at Tilkhnee-Khal (the Copper Mine about 50 ft. higher.) (a).
590	Dobree (village 50 ft. below Copper Mine).....	22-698	13-3	22-114	13-3	11-7	-679	35-38	7,979	{ This observation from Mr. Tate's Field Book.
	Roodurpoor (three days).....	29-395	20-	30-067	22-2	22-2	577	53	630	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.	
		Barometer. Attached.	Centigrade.	Barometer. Detached.	Centigrade.						Thermometers. Attached.	Thermometers. Detached.
620	Gooput-Kasee Temple	25-584	16-7	15-6	25-320	19-4	18-3	0-14	-285	20	(a.) Do.
	Naluhputan Temple	25-532	19-4	18-3	25-262	20-6	20-6	0-06	-284	23	(a.) Do.
	Purkundee (camp)	25-61	22-2	22-2	29-98	28-9	28-9	0-34	4,070	441	See No. 620.
	Ookee Muth, or Oolkee Muth	25-830	13-3	13-3	25-682	20-0	20-0	0-85	-185	13	{(a.) C. O. at Camp. See No. 235.
	Purkundee (village)	25-564	11-7	10-6	25-616	11-7	10-0	0-06	+53	1	(a.) Do.
	Juloee (village)	25-918	12-8	12-2	25-616	11-7	10-0	0-06	-299	13	(a.) Do.
	Jagoth (about 120 ft. below village) ..	25-193	21-7	21-7	30-02	28-9	28-9	0-36	4,530	491	(a.) Do.
	Oorkolee (village)	24-680	22-2	22-2	30-02	28-9	28-9	0-33	5,070	553	(a.) Do.
	Bawh (about 140 ft. above village) ..	25-498	20-6	20-6	30-07	29-4	29-4	0-45	4,251	440	(a.) Do.
	Seoporee (30 ft. above village)	25-686	21-1	21-1	30-03	30-0	30-0	0-45	4,026	440	(a.) Do.
	Chapur (village)	26-042	21-7	21-7	30-06	29-4	29-4	0-40	3,699	404	(a.) Do.
	Agurgaon (about 60 ft. above village), } two days	23-375	15-6	15-6	29-98	28-9	28-9	0-63	6,414	608	(a.) Do.
	Agur Peak	22-776	13-9	11-7	23-522	17-2	15-0	0-15	+823	47	{(a.) C. O. at Tent. See No. 303.
	Choundee (village)	25-401	17-8	17-8	29-97	30-0	30-0	0-62	4,247	433	(a.) Do.
Bamun-Thula (50 ft. above village) ..	24-406	17-2	16-1	30-06	28-9	28-9	0-57	5,369	515	(a.) Do.	
Gogulee (30 ft. below village)	25-008	16-7	16-1	30-07	29-4	29-4	0-63	4,738	471	(a.) Do.	
Atee (village)	24-62	16-7	15-6	30-13	29-4	29-4	0-62	5,197	499	(a.) Do.	
Maseof (village)	27,213	22-8	22-2	30-13	28-3	28-3	0-30	2,624	282	{(a.) C. O. at Maseof. See No. 164.	
Nund, Prag	27-262	16-1	14-4	27-124	18-9	18-3	0-15	-146	10	(a.) Do.	
Bucher (village)	24-728	17-8	17-8	30-09	26-7	26-7	0-44	5,068	480	(a.) Do.	
Booranaw Peak	22-118	7-2	6-1	24-768	19-4	18-3	0-54	+2,965	150	(a.) Do.	
Gop'saur (tent)	25-315	18-3	18-3	30-10	26-1	26-1	0-45	4,466	422	(a.) C. O. at Bucher.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion also + to coldest Barom.	Approximate Altitude, in Feet.	Expansion for Tempers, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Barometer.	Centigrade.	Thermometers.	Thermometers.					
		Attached, Detached.	Centigrade.	Attached, Detached.	Centigrade.					
640	Gopésur Temple.....	25-392	15-6	13-9	25-318	15-6	15	4	4,807	{(a.) C. O. at Tent. See Nos. 242 and 293.
	Peepulkotee (Peepul Tree).....	25-841	17-8	17-8	30-11	25-6	25-6	365	4,307	See Nos. 244 and 290.
	Doongree (village).....	25-082	18-3	17-8	30-11	26-7	26-7	448	5,268	(a.) See No. 291.
	Junction of Birhei Gunga.....	26-612	15-6	14-4	25-830	16-1	16-1	50	3,460	(a.) C. O. at Peepulkotee.
	Bydana (Peepul Tree).....	27-384	18-9	18-9	30-04	25	25	221	2,652	(a.)
	Kurn Prag Tent (about 50 ft. above Spar Bridge).....	27-512	17-2	17-2	30-015	24-4	24-4	200	2,480	(a.) See Nos. 165 and 149.
	Notee Temple.....	24-752	12-8	12-8	30-03	23-9	23-9	390	5,369	See No. 586.
	Upper Pindoolnee (30 ft. below village).....	23-909	13-9	12-8	30-02	23-9	23-9	459	6,337	(a.)
	Koocholee (village).....	23-462	15-6	13-9	30-05	23-9	23-9	516	7,059	(a.)
	Ootelgudhree-Khal.....	21-368	3-9	3-9	23-392	15-6	13-9	87	9,489	(a.) C. O. at Koocholee.
	Murora (about 100 ft. below village).....	24-152	16-7	16-7	30-06	23-3	23-3	484	6,148	(a.) C. O. at Murora Tent.
	Chak-Khal.....	22-524	11-1	10-6	24-234	16-7	16-7	109	8,273	See No. 332.
650	Kunoor (lowest house).....	24-276	16-1	16-1	30-08	23-3	23-3	467	6,016	(a.) C. O. at Kunoor.
	Kunoor Thana.....	24-130	14-4	12-8	24-364	16-1	16-1	14	6,277	(a.)
	Rundola Ghat on Saneer R. (or ford).....	23-324	4-4	3-3	24-364	16-1	16-1	44	4,881	(a.)
	Meldhar (tent about 200 ft. below village).....	24-676	17-8	17-8	30-07	22-8	22-8	445	5,682	(a.)
	Lower Byrgaon (village).....	25-212	16-1	16-1	30-07	23-3	23-3	384	5,037	(a.)
	Oopren-Khal.....	24-000	12-2	11-1	25-142	16-1	16-1	69	6,322	(a.) C. O. at Byrgaon.
	Chukungoon (50 ft. below village).....	25-052	16	16	30-01	23-3	23-3	390	5,059	(a.)
	Jooneea (40 ft. below village).....	24-110	16-1	15-6	30-025	22-8	22-8	467	6,150	(a.)
	Do. Fort.....	23-568	5-6	3-3	24-156	15-6	14-4	21	6,773	(a.) C. O. at Tent.
	Masool (about 80 ft. below village).....	25-538	20	18-9	30-10	22-8	22-8	379	4,741	(a.)
	Muthela (40 ft. above Saneer R.).....	25-936	17-2	16-1	30-07	22-8	22-8	321	4,145	(a.)
	660	Juwarae (village).....	25-430	12-8	11-1	25-862	11-7	10-6	19	4,618	(a.) C. O. at Muthela Tent.
Sookhaee (village).....		25-482	12-8	11-7	25-862	11-7	10-6	19	4,564	(a.) Do. Do.

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

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		Barometer. Attached. Centigrade.	Thermometers. Detached. Centigrade.	Barometer. Attached. Centigrade.	Thermometers. Detached. Centigrade.						
620	Gooput-Kasee Temple	25·584	16·7	15·6	19·4	18·3	0·14	20	4,651	(a.) Do. See No. 234.	
	Nalhaputun Temple	25·532	19·4	18·3	20·6	20·6	0·06	23	4,649	(a.) Do. See No. 234.	
	Purkundee (camp)	25·61	22·2	22·2	28·9	28·9	0·34	441	4,511	See No. 620.	
	Ookee Muth, or Ookee Muth	25·830	13·3	13·3	25·682	20·	0·35	13	4,309	(a.) C. O. at Camp. See No. 235.	
	Purkundee (village)	25·564	11·7	10·6	25·616	11·7	0·	1	4,566	(a.) Do. See No. 618.	
	Julaee (village)	25·918	12·8	12·2	25·616	11·7	0·06	13	4,193	(a.) Do.	
	Jagroth (about 120 ft. below village) ..	25·193	21·7	21·7	30·02	28·9	0·35	491	5,021	(a.) Do.	
	Oorkolee (village)	24·680	22·2	22·2	30·02	28·9	0·33	553	5,623	(a.) Do.	
	Bawéh (about 140 ft. above village) ..	25·498	20·6	20·6	30·07	29·4	0·45	455	4,706	(a.) Do.	
	Seoporee (30 ft. above village)	25·686	21·1	21·1	30·03	30·	0·45	440	4,466	(a.) Do.	
	Chapur (village)	26·042	21·7	21·7	30·06	29·4	0·40	3,699	4,103	(a.) Do.	
	Agurgaon (about 60 ft. above village), } two days	23·375	15·6	15·6	29·98	28·9	0·63	6,414	7,022	(a.) C. O. at Tent. See No. 303.	
	Agur Peak	22·776	13·9	11·7	23·522	17·2	0·15	+823	47	7,909	(a.) C. O. at Tent. See No. 164.
630	Choundee (village)	25·401	17·8	17·8	29·97	30·	0·62	433	4,680	(a.) Do.	
	Bannun-Thula (30 ft. above village) ..	24·406	17·2	16·1	30·06	28·9	0·57	5,369	6,002	(a.) Do.	
	Gogulee (30 ft. below village)	25·008	16·7	16·1	30·07	29·4	0·63	471	5,313	(a.) Do.	
	Alee (village)	24·62	16·7	15·6	30·13	29·4	0·62	5,197	5,810	(a.) Do.	
	Mason (village)	27,213	22·8	22·2	30·13	28·3	0·30	2,624	2,964	(a.) Do.	
	Nund, Prag	27·262	16·1	14·4	27·124	18·9	0·15	-146	10	2,905	(a.) C. O. at Masof. See No. 164.
	Bucher (village)	24·728	17·8	17·8	30·09	26·7	0·44	5,068	480	5,548	(a.) Do.
Boranssee Peak	22·118	7·2	6·1	24·768	19·4	0·54	+2,985	150	8,644	(a.) C. O. at Buchér.	
Gopésur (tent)	25·315	18·3	18·3	30·10	26·1	0·45	4,466	422	4,888	(a.) Do.	

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
		Barometer. Attached, Detached, Centigrade.	Thermometers. Attached, Detached, Centigrade.	Barometer.	Thermometers. Attached, Detached, Centigrade.					
640	Gopéur Temple.....	25-392	15-6	13-9	25-318	15-6	15-6	4	4,807	{(a.) C. O. at Tent. See Nos. 242 and 293.
	Peepulkoote (Peepul Tree).....	25-841	17-8	17-8	30-11	25-6	25-6	365	4,307	{(a.) See Nos. 244 and 290.
	Doongree (village).....	25-082	18-3	17-6	30-11	26-7	26-7	448	5,268	{(a.) See No. 291.
	Junction of Birhei Gunga.....	26-612	15-6	14-4	25-830	16-1	16-1	50	3,460	{(a.) C. O. at Peepulkoote.
	Bydana (Peepul Tree).....	27-384	18-9	18-9	30-04	25-6	25-6	221	2,652	{(a.)
	Kura Prag Tent (about 50 ft. above Spar Bridge).....	27-512	17-2	17-2	30-015	24-4	24-4	200	2,480	{(a.) See Nos. 165 and 149.
	Notée Temple.....	24-752	12-8	12-8	30-03	23-9	23-9	390	5,369	{(a.) See No. 586.
	Upper Pindoolnee (30 ft. below village).....	23-909	13-9	12-8	30-02	23-9	23-9	459	6,337	{(a.)
	Koocholee (village).....	23-462	15-6	13-9	30-05	23-9	23-9	516	7,059	{(a.) C. O. at Koocholee.
	Ootegudhree-Khal.....	21-368	3-9	3-9	23-392	15-6	13-9	87	9,489	{(a.)
	Murora (about 100 ft. below village).....	24-152	16-7	16-7	30-06	23-3	23-3	484	6,148	{(a.)
	Chak-Khal.....	22-524	11-1	10-6	24-234	16-7	16-7	109	8,273	{(a.) C. O. at Murora Tent. See No. 332.
	Kunoor (lowest house).....	24-276	16-1	16-1	30-08	23-3	23-3	467	6,016	{(a.) C. O. at Kunoor.
	24-130	14-4	12-8	24-364	16-1	16-1	0-08	14	6,277	{(a.)
	23-324	4-4	3-3	24-364	16-1	16-1	0-60	44	4,881	{(a.)
Rudola Ghat on Sancee R. (or ford).....	24-676	17-8	17-8	30-07	22-8	22-8	415	5,682	{(a.)	
Meldhar (tent about 200 ft. below village).....	25-212	16-1	16-1	30-07	23-3	23-3	384	5,037	{(a.)	
Lower Byrgoon (village).....	24-000	12-2	11-1	25-142	16-1	16-1	69	6,322	{(a.) C. O. at Byrgaon.	
Oopren-Khal.....	25-052	16-6	16-6	30-01	22-8	22-8	390	5,059	{(a.)	
Chukurgaon (50 ft. below village).....	24-110	16-1	15-6	30-025	22-8	22-8	467	6,150	{(a.)	
Jooneea (40 ft. below village).....	23-568	5-6	3-3	24-156	15-6	14-4	21	6,773	{(a.) C. O. at Tent.	
Do. Fort.....	25-538	20-6	18-9	30-10	22-8	22-8	379	4,741	{(a.)	
Masof (about 80 ft. below village).....	25-936	17-2	16-7	30-07	22-8	22-8	321	4,145	{(a.)	
Muthela (40 ft. above Sancee R.).....	25-430	12-8	11-1	25-862	11-7	10-6	19	4,618	{(a.) C. O. at Muthela Tent. Do.	
Juwacee (village).....	23-482	12-8	11-7	25-862	11-7	10-6	19	4,564	{(a.) Do.	
Sookhnee (village).....							19			{(a.)

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

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		Thermometers.		Thermometers.						
		Barometer. Attached.	Centi. grade.	Barometer. Attached.	Detached.					
670	Séra (village).....	26-096	16-1	22-2	22-2	.032	3,688	297	3,985	C. O. at Séra. (a.)
	Bungar (village).....	26-086	13-9	12-2	16-1	.011	+27	1	4,013	
	Choundul (60 ft. below village).....	25-802	16-7	15-6	22-2	.029	3,959	319	4,363	
	Pukholee (village).....	25-856	13-9	13-9	22-8	.047	3,879	304	4,266	
	Deokhar (30 ft. above village).....	25-370	13-9	13-9	23-3	.048	4,379	348	4,633	
	Bhoon (30 ft. below village).....	25-57	13-3	13-3	21-7	.032	4,172	313	4,574	
	Puthaotee (40 ft. below village).....	26-216	15-6	15-6	21-7	.032	3,551	283	3,911	
	Loñteea.....	27-252	17-2	16-1	20-6	.019	2,537	355	2,989	
	Confluence Khulee and Mundal Rivers	28-236	15-6	15-6	20-6	.025	1,609	121	1,763	
	Duhrganon (about 80 ft. below village)	26-460	15-6	15-6	20-6	.023	3,344	255	3,670	
	Seerana (60 ft. below village).....	25-684	16-7	15-6	18-9	.011	4,106	301	4,495	
	Kotee (70 ft. below village).....	25-72	15-6	15-6	18-3	.014	4,040	292	4,419	
	Oonéree (30 ft. below village).....	25-486	14-4	13-9	18-9	.023	4,278	300	4,578	
	Munneergazon (about 90 ft. below village)	25-26	14-4	13-3	20-6	.029	4,512	320	4,832	
	Usunkhet (about 120 ft. below village)	26-506	14-4	13-9	19-4	.026	3,296	234	3,601	
	Choondaee (about 100 ft. below vil- lage) on Mydee R.....	27-082	14-4	13-9	19-4	.027	2,744	194	2,997	
	Soommaree (about 80 ft. below village).....	26-683	16-1	16-1	19-4	.018	3,139	239	3,445	
Seela (village).....	26-974	16-1	16-1	20-6	.024	2,869	223	3,092		
Danda-Mundee.....	27-30	17-2	17-2	21-7	.025	2,546	210	2,811		
Bureth (about 100 ft. below village).....	25-918	15-6	15-6	22-2	.037	3,886	309	4,278		
Chopura (lower village).....	27-509	17-2	17-2	23-3	.034	2,357	202	2,610		
Do. (upper village).....	26-456	11-7	11-1	15-6	.017	4,870	48	3,546		
Timlee.....	27-182	17-8	17-8	23-9	.033	2,634	233	2,924		
Kuthoor.....	26-158	15-6	15-6	23-3	.040	3,626	301	4,005		
Junction of Timlee and Heoola Rivers (tree).....	28-222	8-9	8-3	15-6	.038	-2,084	106	1,772		

See No. 361.

C. O. at lower village.

C. O. at Kuthoor.

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.		Observation.		Comparison.		Equation for Expansion + to coldest Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet, +	Absolute Altitude, in Feet.	Remarks.
			Barometer.	Thermometers.	Barometer.	Thermometers.					
		Attached.	Detached.	Attached.	Detached.	Centi grade.	Centi grade.				
690	25-698	14-4	14-4	23-3	23-3	0	0-45	4,075	327	4,490	C. O. at Ghunsalee.
	25-266	14-4	14-4	14-4	14-4	23-3	..	+370	22	4,890	(a.)
	25-602	15-13-9	30-08	23-3	23-3	15-13-9	0-09	-712	41	4,578	(a.)
	26-230	13-3	25-532	15-13-9	23-9	23-9	0-38	3,502	304	3,810	(a.)
	26-242	16-7	30-06	23-9	23-9	10-30-08	0-67	5,840	423	3,806	(a.)
	23-974	10-10	30-08	23-9	23-9	15-30-08	0-37	4,122	311	6,388	(a.)
	25-642	16-7	30-08	23-9	23-9	15-30-07	0-47	3,455	287	4,463	(a.)
	26-288	15-15	30-07	23-9	23-9	15-15	0-06	-2,133	128	3,817	(a.)
	28-448	13-9	26-218	15-15	23-9	17-2	30-05	3,455	303	1,511	(a.)
	26-282	17-2	30-05	23-9	23-9	15-15	29-98	4,524	374	3,833	(a.)
	25-157	15-15	29-98	23-9	23-9	16-7	16-7	+860	50	4,996	(a.)
	24-262	11-1	25-104	16-7	23-9	13-3	29-97	3,918	311	5,924	(a.)
	25-732	13-3	29-97	23-9	23-9	10-9-4	29-94	3,918	282	4,314	(a.)
	25-442	10-9-4	29-94	23-3	23-3	9-4	25-372	-83	3	4,400	(a.)
25-450	9-4	25-372	10-9-4	23-3	10-10	29-95	4,557	325	4,312	(a.)	
25-078	10-10	29-95	23-3	23-3	6-7	5-6	25-008	11	4,980	(a.)	
25-314	6-7	5-6	23-00	22-8	12-8	30-00	-335	11	4,627	(a.)	
25-632	12-8	30-00	22-8	23-8	13-9	30-10	4,049	303	4,439	(a.)	
25-662	13-9	30-10	21-7	21-7	19-4	30-05	4,117	313	4,519	(a.)	
26-514	19-4	30-05	21-7	21-7	19-4	30-01	3,250	283	3,604	(a.)	
25-514	19-4	30-01	21-7	21-1	22-8	30-02	3,904	337	4,326	(a.)	
25-826	19-4	30-01	26-7	26-7	22-8	30-01	4,668	476	5,247	(a.)	
25-07	22-8	30-01	26-7	26-7	24-67	30-01	5,081	508	5,700	(a.)	
24-67	21-7	30-01	27-2	27-2	25-004	30-02	4,741	497	5,343	(a.)	
25-004	22-8	30-02	27-2	27-2	22-714	30-03	+2,396	179	7,965	(a.)	
22-714	16-1	24-934	22-8	21-7	25-38	30-06	4,369	445	4,910	(a.)	
25-38	20-20	30-06	27-6	27-6	26-096	30-03	3,630	412	4,123	(a.)	
26-096	23-9	30-03	29-4	29-4							C. O. at Guderee Tent.

Altitudes of Places and Stations in Kumaon, deduced from Barometrical Observations.

No.	Place of Observation.	Observation.		Comparison.		Equation for Expansion + to correct Barom.	Approximate Altitude, in Feet.	Equation for Temperature, in Feet. +	Absolute Altitude, in Feet.	Remarks.	
		Thermometers.		Thermometers.							
		Barometer. Attached. Detached.	Centi. grade.	Barometer. Attached. Detached.	Centi. grade.						
720	Kubura	26-854	20°	20°	28-3	0-045	2,844	292	3,199	C. O. at Dang.	
	Byalee	26-82	15°	13-9	29-95	0-075	2,803	257	3,121		
	Kulwasee (upper houses of village)	25-62	20-6	20-6	29-86	0-037	3,953	409	4,449		
	Dang	26-096	20°	20°	29-96	0-040	3,558	363	3,999		
	Junction of Lokhor and Nyar Rivers	26-714	13-3	13-3	26-076	20°	-715	50	3,219		
	Pursolee (25 ft. above village)	26-20	20°	20°	30-06	26-1	0-032	3,567	350		3,995
	Aoleth (50 ft. below village)	26-084	21-1	21-1	30-05	26-1	0-026	3,662	368		4,111
	Khurgeth Peak	25-59	17-2	17-2	30-05	27-2	0-051	4,134	393		4,617
	Junction of Nyar and Ramgunga Rivers	27-81	18-3	18-3	29-99	27-2	0-05	1,920	186		2,148
	Indola (60 ft. below village)	27-023	17-2	17-2	29-95	25-6	0-045	2,636	240		2,933
	Suknesana (80 ft. below village)	25-468	17-2	17-2	29-87	27-8	0-054	4,100	394		4,584
	Bikeea kee Syn	27-385	26-7	26-7	29-91	26-7	..	2,299	262		2,612
	Junction of Khutren and Ramgunga Rivers	27-174	25°	25°	29-82	28-3	0-018	2,404	271		2,728
	Sonath Temple on Ramgunga R.	27-176	25-6	25-6	29-87	26-1	0-003	2,461	271		2,787
Choor	25-617	20-6	20-6	29-77	27-2	0-034	3,880	397	4,362		
Teerpoula (30 ft. below village)	27-076	25°	25°	29-85	29-4	0-024	2,518	294	2,868		
Budhan (40 ft. below village)	24-966	23-3	23-3	29-86	28-9	0-028	4,635	517	5,255		
Dhanguleesa	24-86	22-8	22-8	30-02	30°	0-036	4,877	552	5,538		
Réonee Village (Byroob's Temple)	24-404	16-7	17-2	24-790	22-8	0-030	3,377	32	5,955		
Banshee Seera	26-406	28-3	28-3	30-03	30°	0-039	3,342	402	3,817		
Lodhi (40 ft. below village)	25-192	21-7	21-7	29-95	29-4	0-098	4,468	486	5,053		
Byzmath Temple	26-405	26-1	26-1	29-97	30-6	0-024	3,277	396	3,746		
80 ft. above junction of Chiringa and Pindur Rivers	25-934	26-7	26-7	29-98	30-6	0-020	3,757	458	4,299		
Budhan Gurh (fort)	22-492	20°	20°	29-985	30-6	0-048	7,437	805	8,242		
730										Near Masee. (G. 2978.) C. O. at Dhunguleesa. See No. 572. (G. 3614.) See No. 79.	