Explanation of the Elevations of places between Almorah and Gangri, given in Lieut. STRACHEY'S Map and Journal.

The elevations of places on my route to the lakes of Gangri, additional to the few that were already determined by the Trigonometric and Barometric operations of Captain Webb, have been deduced, in the way common with ill-equipped private travellers, from the observed temperature of boiling water.

My thermometer was small and bad, unfurnished with proper boiling apparatus (which is essential to correct observations), and lastly, it was broken before any comparisons could be obtained with a standard instrument to ascertain its error, for which purpose I had sent it to the Simla Observatory. The deduced heights are therefore liable to a wide range of uncertainty, for which I have been obliged to make arbitrary allowances, assisted only by a few boiling observations at or near places of known elevation on my route, which are inserted in the accompanying table. As my instrument was not readable to less than half degrees,---that is, when boiling in a common kettle over a smoky wood-fire,---the elevations cannot pretend to any precision within 250 feet, and I have, in most cases, therefore, made them up to the nearest quarter thousand; but the other causes of error, affecting measurements of this sort, will at least double that range of uncertainty, and the results cannot be considered anything better than rough approximations within 500 feet or so.

I have made the calculations by Prinsep's Tables (given in the Asiatic Society's Journal), which, though not strictly correct or complete, suffice for such rough observations. The mean temperature of the stratum of air under measurement (which materially affects the resulting elevation), is calculated as is done by Herbert in his Survey of the Alpine Sutluj (vide Asiatic Researches), by assuming the rate of refrigeration of the atmosphere to be 1° Fahrenheit for every 300 feet of elevation, and by deducing, according to this supposition, the temperature of the air at the level of the sea from the observed temperature and the approximate height.

I have reduced one or two Barometric observations by Manson, recorded in the Asiatic Society's Journal, for a few places about Rálam and upper Jwár, the mean temperature of the column of air being calculated as just explained, and neglecting the minor corrections, for temperature of instrument and decrease of gravity, as likely to be compensated, more or less, by the capillarity of the tube, regarding which no information is forthcoming.

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	Z	Vature	of obs	ervation	Nature of observation for determining the Altitude.	gainim'	the Alti	tude.	-	эq
01-1	-iri: . do	Barome- trical.		om Ter	nperature	of boili	ing wate	From Temperature of boiling water by H. Strachey.	rachey.	bove t et.
lyame of place.	Trigonomet	Deduced Height.	Authori- ty.	Date.	Hour.	Temp. of Boiling Water.	Temp. of Air.	ar. of a being of Air. deduced.	Presumed Error.	Elevation a Sea in fe
	1		1	1846.		•	0			
J. J. Strachey's hut on Binsar, near Almorah (estimated to be nearly 600 feet below top of hill, 7969 feet, T.).	:	:	21	21 Nov.	3 P. M.	1992	57	2002	393	7400
feet below Tower (5488 B.)		-			10 A. M.	2024	59	- 5280	158	5438
:		-	4		sunset		52	6065	35	6100
ligo Dee) Bungalow,	:	6867 W.		5		1992	53	6948	81	6867
Pharka Bungalow.		5914 W.	-	:		2014	19	5880	34	5914
amsay's house).		5649 W.	. 31	Oct.		202	63	5630	19	5649
Dhargara Bungalow.		:	29		: :	204	65	4474	36	4500
lron Bridge on the Sarju, 2 miles below confluence of Rám- ganga, estimated to be about the same height as Rámes-	_				:					
war, (1587 B.)	:	:	:	:	:	:	:	:	:	1600
9 Kantaganw Bungalow,	:	_	28		"	205	64	3892	80	3900
a phove fort (5549 B.)		1	27		5 P. M.	2024	64	5328	256	5574
Satgarh (Major Drummond's hut), 100 feet below top of		-				_	_			
Pass,	:	:	25		sunset	2013	59	5859	41	5900
12 Singhali khán, (50 feet below Pass,)	:	:	24			202	_	5579	21	5600
13 Village of Askot, (camp, 50 feet above,)	5089	:	23		43 P. M.	204	26	4519	270	5089
14 Uarjia Unat, (estimated of teel nelow commence of GOT		7	16		- 5	1806	63	1018	176	1000

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Elevations of places between Almorah and Gangri. [Nov.

58 2250			214 4750	3883		3500	0000	000 2000	7750		10,000	7500	•••	7250	137 7500		10.500		182 8000		7500	2000			39 8000			86 8650			2/2'01 06
2192	2784	:	4536	:		:	mean	7932	:		:		:	:	7363		:	mean	7818		:		:	:	7961		:	8564			10,177
29	69	:	72	:		:	58]	62)	:		:		:		62	;	:	5241	52		:		:	:	F19		:	62		::	20
	207	:	204	:		:	198	_			:		:		199			198	198		:		:	:	198			197		:	194
5 P. M.	5	:	44 .,	:		:	54		.:		:		:	:	41 P. W.		•	74 4. W.	7 A. M		:		:	:	sunset		:	24 P. M.		:	4 ;
21 Oct.	20 "	:	18 ,,	:		:	16 Sept.	18 Oct.	:		:		:	:	17 Oct		:	22 Sent.	16 Oct.		:		:	:	22 Sept.	•	:	12 Oct.		: : :	
:	:	:	:	:		:	<u> </u>	~	' :		:		:	:			:	-	~	·	:		:	:	:		:	:		:	:
:	:	:	:	:		:	:	:	:		:		:		: :		:		::		:		:	:	:		<u>`</u> :	:		:	:
:	:	3794	:	3883		:	:	:	:		:		:	:	: :	:	:		::		:		:	:	:		:	:			10,272
15 Bank of Káli river under Balwakot,	16 Dhárchula, 100 feet above,	17 Confluence of the Relagarh with Kali River,	18 Village of Kela,	19 Bridge on the Dhauli, under Kela,	20 Confiuence of Dhauli and Kali, (estimated 383 feet be-	low No. 19,)	(In Chaudáns.)	21 Village of Titila.		23 Rholing Dhura, top of Pass, (estimated 2000 feet	above No. 21;)	24 buboun framiet, (estimated to be about the same neight	25 Svankwang, crossing of the Gárh. (estimated 250 feet	above No. 26.)	:	27 Nirpania Dhura. top of Pass. (estimated 3000 feet above	No. 26.)	(In Bvána.)	28 Golam-Lá, (at the great rock,)	29 Thin, hamlet, (left bank of Kali), (estimated 500 feet	below No. 28.)	30 Crossing of the Najangarh, (estimated 1000 feet below	31 Confluence of the Naiangarh with Kali River (estimated	1500 feet below No. 28,)	:	33 Confluence of the Palangarh with Kali River (estimated	250 feet above No. 32.)	34 Budhi village, 100 feet below,	35 Cheto Binaik, top of Pass, (estimated 1750 feet above	:	30 Garbian Village,

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		Nat	ure o	f observati	Nature of observation for determining the Altitude.	erminin	g the A	ltitude.		ъųз
······································		Barc trical.	Barome- ical.	From Te	mperature	of boil	ing wate	From Temperature of boiling water by H. Strachey	trachey.	аро че ееt.
Name of Flace.	Trigonome	Deduced Height.	Authori-	Date.	Hour.	Temp. of Boiling Water.		Temp. Elevation of Air. deduced.	Presumed Error.	Elevation f
37 Confluence of the Tinkar River with Kali, 100 feet above,	.:	:	:	23 Sept.	4 P. M.	1943	60	10,046	54	0066
38 Changrew village, (Estimated 500 feet above No. 37,)	:	:	:	:	:	:	:	:	:	10,500
39 Confluence of Kali with Kunti-Yankti, supposed to be the same as Webb's "Kalavani and Kali."	the 11.413	:	:	:	:	:	:	:	:	11,413
Kunti River,	:	:	:	25 Sept.	45 "	192	26	11,518	232	11,750
41 Kunti viliage,	:	:	:	07	4 3	188	10	12 659	348	14 000
42 Sangchungma, encamping ground above the Kiver,	:	:	:	" 97		185	33	15.363	387	15.750
44 Lánknya Dhura, top of Pass, (estimated 2000 feet above	:	:	:	**						
No. 44, and 1750 feet above No. 45,)	:	:	:	:	:	:	:	:	:	17,750
(In Gnari, Gugi, Fruang.)		;	:	1 Oct.	9 A. M.		29	15,598	402	16,000
at the Dharm-shála.		: :	:	2	7 "	185	20	14,970	280	15,750
50 feet above No. 46.)	: :	:	:	:	:	:	:	:	:	16,000
48 S. E. End of Chujia Tol, (estimated same height as the										15 950
49 Pass between Chujia Tol and Amlang, (estimated 1750	:	:	:	:	:	:	:	:	:	000 41
feet above valley on either side,)	:	:	:	:	:	:	:	:	:	17,000
50 Amlang, bottom of valley,	;	:	:	3 Oct.	Noon.	186	45	15,025	225	15,250
51 Jungbwa Iol, bottom of valley (estimated same neigue as No. 50),	:	:	:	f 4 Oct.	2_P. M.		54		: _	15,250
52 Cho Lagan (Rákas Tal), level of Lake,	:	:	:	-			No. 55	14,578	>166	15,250
53 Gangri Mountains, average Height (estimated 4250 feet							mean	15,084	7	10 500
above Lakes),	:	:	:		:		:	:	:	nnn'er

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Elevations of places between Almorah and Gangri.

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54 Peak of Tise (Kailas), Estimated 1500 feet above the average of the Range, and 5,750 above the Lakes,	:	:	:	:	:	:	:	:	:	21,000
55 Cho Mapan (Manasarowar), [deducting* 175 feet height of station above Lake.]	:	:	1.	5 Oct.	3 P. M.	186	46 No. 52	14,878* 15,291		
56. Momonangli (Gurla), (Estimated 8250 feet above the			hiel	_			mean	15,084		15,250
	:	:	10	:	:	:	:	:	166	23,500
(Estimated 1000 feet above Lakes,)	:	:	:	:	:	:	:	:	:	16,250
58 Baldak Dharmshala, (Estimated about the same as Lakes,)	:	:	:	:	:	:	:	:	:	15,250
Ditto above No. 60.)	:	:	:	:	:	:	:	:	:	15,000
60 Camp in Ravine next above the great Ravins of Toiyon,	:	:	:	7 Oct.	2 P. M.	187	56	14,709	41	14,750
61 Toiyon village, (Estimated 250 feet below No. 60,)	:	:	:	:	:	:	:	:	:	14,500
62 Bridge over Karnáli R. between Toiyon and Taklakarh, (Estimated 200 feet below No. 61,)	:	:	:	:	:	:	:	:	:	14,300
63 Confluence of Tidya-Chu with Karnali, (Estimated 50 feet										14 950
64 Takla-karh. summit of hill, (Estimated 500 feet above	:	:	:	:	:	:	:	:	:	14,200
No. 63.)	:	:	:	:	:	:	:	:	:	14,750
65 Maghram village, (Estimated 250 feet above No. 63 and										14 500
Ditto below No. 64.)	:	:	:	:	:	:	:	:	:	15,000
66 Pala-Dúng, (Estimated 500 feet above No. 65), 67 Ningri, Estimated 100 feet above No. 66, and 1,744 feet	:	:	:	:	:	:	:,	:	:	000'or
below top of Pass,	:	:	:	:	:	:	:	:	:	15,100
68 Lipu Lekh, top of Pass. [148 Oct. 1828 ? Vide Calcutta Gipanines of Science. Avril 1829.]		* 16.844 M	M	:	:	:	:	:	:	16,844
69 Ravine entering left bank of Kali, supposed to be Webb's										11 200
[" Mandarin's Camp,"] 70 Yirkha hamlet, above Kalapani (Estimated 1500 feet below	14506	:	:	:	:	:	:	:	:	14,500
No. 69),	:	:	:	:	:	:	:	:	:	13,000
three bridges over the Kali in this vicinity, but suppos- ed to be not far below Yirkha.	08- 12742*	:	:	:	:	:	:	:	:	12,742
n the above Table, an Signifies Webb. Manson	h H. Stra trical.	achey's	Map	and Journs B. b. t. ?	al, Signifies		Barometrical. Boiling Thermometer. Estimates by Eye.	nometer. Eye.	-	7

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