

retired from the Foreign Office in 1905, entered Parliament, and became soon afterwards President of the African Society.

His chief claim to grateful remembrance, however, lies in his advocacy of pity for and interest in the native fauna of British Africa, and indeed of the mammalian fauna of the world in general. He used his influence as a permanent official very strongly towards the summoning of an International Conference in London for the protection of Wild Animals in Africa, and was appointed one of the British Plenipotentiaries at this conference. He virtually drew up the protocols and schedules adopted by this conference, and ever afterwards worked strenuously for the enforcement of regulations for fauna protection in British Africa. He may only have adopted views long advocated by others, he may even not have held the extreme views of some enthusiasts as to the sanctity of reserves and the inviolability of the insect-eating bird; but his importance in the scheme of animal protection lay in the fact that he was rare among the permanent officials of his day in taking any interest in the question at all, and in employing his influence unceasingly for securing the enactment of preventive and protective legislation, despite the strong opposition he had to encounter from certain quarters where the blood lust was still strong. Perhaps he was aided in his struggle for a new line of policy, which now stretches its influence over the whole British Empire, by being a thorough sportsman himself, a rider to hounds, a good shot, and almost an Alpinist in his interest in Tirol, where at one time he had a shooting. This last was taken in order that he might study wild life in the less-frequented parts of the Alps, and although he secured several chamois heads, he abused his opportunities but little, and took an even greater interest in studying the life-habits of the chamois.

His attitude towards the native races of Africa was invariably sympathetic, not only through his long official career, but afterwards in Parliament and in the African Society. He was a very "human" type of official; one who opposed you openly and not covertly if he had cause for disagreement. Sometimes he was wrong in his predictions or his outlined policy, in which case no one was more handsome or prompt in acknowledgement; if he was proved to be right, he could be genial in his victory. Above all, he cared for all the subjects which came under his consideration. There was about him none of the monosyllabic affectation of inscrutability or passionless aloofness from the subject under discussion. He was a warm-hearted man who delighted in hospitality. He will be much more missed in certain circles than he would probably have surmised, had he ever thought to discuss introspectively the effect which would be produced by his death.

H. H. J.

CORRESPONDENCE.

The Tsang-Po and the Dihong.

Hartford Bridge, Winchfield, Hants.

In the March number of the *Journal* Dr. Preller raises the point of the possibility of subterranean passages existing on the Dihong. This was a matter into which we enquired, but nothing of the sort was known to the Abors; it is interesting, however, to note that the existence of such tunnels on the Subansiri is persistently reported by the tribes living near it, and at a point some 3 or 4 miles from where that river emerges into the plains there is shown an overhanging rock, which might well be taken for the mouth of a tunnel, from which it is said that a stream branches off underground and emerges at Tezpur on the Brahmaputra. Another equally

unfounded rumour is that the Subansiri takes off from the Dihong on the north of the main range, through which it flows underground. This apart from its being, I believe, an offence against geological canons, is negatived by the fact that the Subansiri and its main feeder, the Kamla, certainly rise south of the high snows. The existence of such stories is in itself significant, and it is possible that they have been unconsciously transferred from the Dihong to the Subansiri. The language test makes it tolerably certain that the Daffas, who now live west of the Subansiri, originally came down the Dihong, and were pushed westward by successive migrations, now represented by the Subansiri tribes, the Gallongs and the present inhabitants of the Dihong valley respectively, until they met an eastward-moving migration, headed by the Akas and Apa Tanangs. These early arrivals may well have brought with them stories about the Dihong which they have applied to the Subansiri, the greatest river in the hills which they now know of. The track into Tibet now used runs at a distance from the river, but the first migrants may well have preferred to hug the stream and therefore were able to see what later arrivals have missed.

As to the relative volume of the Dihong and the Tsang-Po, I believe that the Survey of India have a measurement taken at Chaksam, and a measurement was carefully taken of the Dihong at Yembung camp; I am unfortunately unable to give the figures, but I believe that they do not clash with those of Chaksam. I have given in my paper rough but pretty close figures for estimating the volume some 50 miles higher, and these are very considerably under those that I estimate for the point which Captain Bethell has in mind at Passighat; my boat having once sunk in the river just above, I can assure him that there is much more water coming down than he thinks.

A last word about Kinthup in Aborland (I have no criticism to make of his work in Tibet). Mr. Field, who has not been over the ground, finds his work marvellously accurate. Now Kinthup may be supposed to have retained a pretty clear recollection of the furthest point he reached, if of nothing else. A traveller who worked up the valley of the Thames and then struck across country to Birmingham, whence he turned back, would not command much credence if he described that place as in the Thames valley and 4 miles from the river, yet this is how Kinthup describes Damro with regard to the Dihong. It has been my duty for the last fifteen years to hear witnesses and weigh evidence, and I have observed that directly to question a witness's veracity has always a most stimulating effect on his imagination. If a characteristic story of an interview on the subject of his Abor travels between Kinthup and an officer, not of the Survey of India, is true, it was after Kinthup had been so doubted that he produced his story in its present form, and small blame to him.

A. BENTINCK.

61, Melville Street, Edinburgh, March 15, 1913.

Following up my notice on this subject in the March *Geographical Journal*, and referring to Lieut. Field's interesting historical synopsis published in the same number, I beg to point out a certain conflict of evidence in some of the figures adduced in that synopsis on the one hand, and in Mr. Bentinck's paper, as well as in Sir Thomas Holdich's remarks in the discussion, on the other.

(1) Mr. Bentinck avers (p. 106) that the Dihong "in a course of not less than 85 miles from Singging to Gyala has to drop some 10,000 feet." The drop is, of course, in the reverse direction; but, apart from that, although the rate of fall of 116 feet per mile would by no means be excessive *per se*, the figure of 10,000 feet is obviously much too high if the altitude of 8000 feet above sea-level assigned, according to

Lieut. Field, by Nain Singh to the river at Gyala Lindong, is even approximately correct. Even Chetang, about 225 miles up the river from Gyala, is only 10,000 feet above sea-level. True it is that the crest-line of the hills from the 25,000-foot peak about 20 miles south-east of Gyala to the hills near Singging about 15,000 feet in altitude, shows a drop of 10,000 feet; and there is a further drop of 10,000 feet from the Singging hills to those near Pasighat of 5000-foot altitude. But the drop of the river all the way from Gyala to Pasighat—185 miles—cannot be more than about 7300 feet.

(2) In Mr. Bentinck's paper (p. 107) the 25,000-foot peak south-east of Gyala is stated to be at long. 90° , lat. $90^{\circ} 45'$. This should obviously be long. 95° , lat. $29^{\circ} 45'$. Again, Sir Thomas Holdich (p. 113) places the supposed falls at $91^{\circ} 17'$, which should be $94^{\circ} 17'$, Gyala being at $94^{\circ} 15'$, or roughly 94° , as given by Lieut. Field. Long. 91° would place the falls near Chetang ($91^{\circ} 45'$).

I.—AVERAGE RATE OF FALL OF THE TSANGPO-DIHONG.

	Long. E.	Altitude. Feet above sea-level.	Fall. Feet.	Length. Miles.	Fall. Feet per mile = 1 in 1000.	
	o /					
Miriamla	82 45	15,500	—	—	—	—
Tadum	84 15	14,600	900	120	7.5	1.42
Tala Letang	85 45	14,200	400	80	5	0.95
Changlatse	87 45	13,600	600	100	6	1.14
Shigatse	88 45	12,400	1200	100	12	2.27
Chushul	90 45	11,300	1100	100	11	2.08
Chetang	91 45	10,000	1300	100	13	2.46
Gyala Sindong	94 15	8,000	2000	225	9	1.70
Singging	94 45	3,500	4500	85	53	10.0
Pasighat	95 20	700	2800	100	28	5.29
Kobo-Sadyia	95 30	400	300	25	12	2.27
			15,500	1035	14.57	2.75

II.—FALL OF ALPINE RIVERS.

	Altitude. m.	Fall. m.	Length. Kilom.	Fall 1 in 1000.
Upper Inn: Maloja	1802	986	120	8.22
Landeck	816			
Upper Rhone: Glacier mouth	1761	1285	120	10.70
Martigny	476			
Upper Rhine: Oberalp	2344	1754	80	22.56
Coire	590			
Upper Reuss: St. Gotthard	2082	1620	50	33.00
Altorf	462			

In the Table I. above I have worked out, on the basis of the most recent data of altitudes, the approximate gradual fall of the Tsangpo-Dihong from its source in Tibet to its junction with the Lohit, between Kobo and Sadyia in the plains of India. In the unexplored, dotted-line section from Gyala to Singging the river will probably be found to drop only about 4500 feet (instead of 10,000 feet), equal to 53 feet per mile, or 10 feet in 1000; while the total mean rate of fall of the river in 1035 miles does not exceed 14.57 feet per mile, or 2.57 in 1000. There is nothing whatever abnormal in either of these rates of fall.

As regards the supposed falls, Nain Singh, as quoted by Lieut. Field, estimated the width of the river near Gyala at "450 feet, though deep and with moderate current." This, in conjunction with the estimated height of the "Singi Chogyal cliff," or cataract of 150 feet according to Kinthup, and of 70 feet according to Sir Thomas Holdich, would approximate to the general features of the Rhine falls of Schaffhausen (with 380 feet, height 65 feet), or, in the more probable case of rapids, of the Trollhättan rapids (in four sections, total length 1200 yards, total height 112 feet) below Lake Venern in Sweden.

In either case, the falls, if they do exist, would constitute a fact not only of paramount geographical, but also industrial importance, for they would open up a brilliant prospect of utilizing their enormous hydraulic power for generating electrical energy and transmitting the same to the plains of India. *Quod est in rotis.*

It is to be hoped that the surveys of the Abor Expedition *and after* will, among other things, establish an authentic, uniform system of spelling the names of places, rivers, etc., which, all along the Tsangpo from its source to Gyala Sindong (Bentinck) or Gya La Dzong (Field), vary according to local pronunciation in hopeless confusion, aggravated in maps by the phonetic spelling of European geographers of different nationalities.

C. DU RICHE PRELLER.

MEETINGS OF THE ROYAL GEOGRAPHICAL SOCIETY, SESSION 1912-1913.

*Tenth Meeting, March 17, 1913. The Right Hon. Earl CURZON OF
KEDLESTON, G.C.S.I., G.C.I.E., President, in the Chair.*

ELECTIONS.—*Henry Bridger Adames; Mrs. Harriet Chalmers Adams; George Griffiths Aitken; Charles Napier Bell; Frederic William Bois; Sir Edward Boyle, Bart.; Cyril K. Butler; Eric M. Carter; Hon. Mountstuart W. Elphinstone; C. Bruce Ismay; H. H. Prince Shrimant Sadashiva Rao Jiwaji; Rev. Arthur Lucas; Captain Charles Arthur Murray Lyon-Campbell; Deane Prescott Mitchell; Mrs. Louise Oliver; Edward Dickson Park; George Prescott; Mrs. Ellen A. Quarrell; Charles Henry Rosher; Mrs. Violet Roy-Batty; Miss Margaret Sichel; Charles Howard Stevens; Miss Phæbe May Swift; Mrs. F. L. Thomson; Miss Mary Charlotte Lucy Williams; Mrs. Amy Wolfen; Miss Agnes Mary Wood; Miss Grace Burton Wood; David Wynter; Frank K. McClean; J. Howard A. Chapman.*

The meeting was in Commemoration of the Centenary of the Birth of David Livingstone. Address by Sir Harry Johnston, G.C.M.G., K.C.B.

*Eleventh Meeting, April 14, 1913. Major LEONARD DARWIN,
Vice-President, in the Chair.*

ELECTIONS.—*Hon. Susan Hicks Beach; Miss Edith A. Browne; Miss Alice Minna Burton; Miss M. C. Fripp; Wilfrid Armstrong Harrison, B.A.; Mrs. Ernest Hills; Mrs. Bertus Jansen; Janjore P. Kailasam; Miss Alice A. Methley; Benjamin Varley; The Hon. Mrs. Wilkinson.*

The paper read was:—

"The Mfumbiro Mountains, Central Africa." By Captain F. M. Jack, R.E.