Creation of “Scientific” Knowledge: The Asiatick Society and Exploration of the Himalaya, 1784–1850

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1 Background and Context

The English East India Company started as a trading concern in 1600 CE, but by the early 19th century it ruled large parts of South Asia. This drew it deeper into matters of governance. It was, therefore, compelled to assess the resources of Company-held territories and understand their very diverse people. A trading company was drawn into the difficult task of governing an extensive area and unfamiliar people.

Early European accounts were its initial source of information. Many of these described markets and commodities. Others noted the “strangeness” of Indian practices and beliefs. These initial, sometimes misleading, descriptions attracted European curiosity. However, methodically collected data was needed for a better understanding. Increasing contact with dissimilar cultures prompted several “scientific explorations” to different parts of the globe. Information was gathered, examined and classified in accordance with European methods. Gradually, a systematic description of the world emerged. A European idea of modern science was gradually dispersed to other regions. For non-Europeans, this encounter with western science began an unimagined transformation. Their world was practically and conceptually re-ordered.

2 The Asiatick Society

In India, British bureaucrats, army officers and explorers personally initiated the study of various aspects of the country. Their work was better organised than the impressionistic travel writing that preceded. However, a forum for critical deliberation to establish the scientific veracity of this work was still lacking. William Jones (1746–1794), a linguist and scholar – also a judge of the Supreme Court at Calcutta – realised the importance of such a forum. Through his efforts, an organisation called “The Asiatick Society” was founded on 15 January 1784. Its name, though, went through several changes in the

ensuing years.¹ William Jones explicitly stated the objectives of the Society in the inaugural address. They were to explore what lay within the "geographical limits of Asia" and to enquire into "whatever is performed by man or produced by nature."²

Jones remained the President of the Society from its inception till his death in 1794. His annual addresses to the Society articulated the grand issues, which spawned numerous smaller questions. They foretold the path that organized research in colonial South Asia would follow. The diversity of interests is revealed by the Society's appeal to its members for communications on "religion, policy, jurisprudence, manners and customs, geography (towns, countries, provinces, rivers, mountains), biography (Buddha, history of saints); commerce, natural history, *materia medica*, medicine and surgery, language and literature."³

In 1829, the Society began supporting a publication called *Gleanings in Science* that focused on more "scientific" subjects. It also sought to collect as much geographical and geological information as was possible.⁴ The Society was gradually able to source information even from areas that lay beyond British influence. For example, Alexander Csomo Korosi a widely travelled Hungarian, requested the Society's support in 1834 to research the religious literature of Tibet which till then was "a vast *terra incognita* of Oriental literature."⁵ The proceedings of Society meetings reveal the great diversity of issues being explored by researchers in regions unknown to Europeans.

George William Traill's, *Statistical Sketch of Kamaon* typically illustrates the accumulation of such comprehensive data by 1828. The geographical features and the flow of rivers and streams were described in detail. Footpaths, mule-tracks and trade-routes, passes, bridges of different kinds, buildings, temples, water springs and a host of other details were meticulously noted. Villages, hamlets and total number of houses were enumerated. The minerals, flora and fauna of Kumaon also found mention.

1 L. L. F., "The Bicentenary of the Birth of Sir William Jones, F.R.S., Founder of the Royal Asiatic Society of Bengal," *Notes and Records of the Royal Society of London* 4, no. 1 (April 1946): 58; <http://www.jstor.org/stable/531239>, accessed on 20 July 2019.

2 Anonymous, "Appendix: Rules of the Asiatick Society," *Asiatick Researches* 12 (1818).

3 Anonymous, "Desiderata," *Asiatick Researches* 6 (1801): iii–vi (passim).

4 Anonymous, "Preface," *Gleanings in Science* 2 (January to December 1830): viii.

5 M. Alexander Csomo Korosi, "Biographical Sketch of M. Alexander Csomo Korosi, the Hungarian Traveller; Extracted from a Letter Addressed by the Gentleman to Captain C.P. Kennedy, of the Hon. East-India Company's Service, Assistant to the Political Resident at Delhi, &c. Communicated by Charles Elliot, of the Hon. East-India Company's Civil Service, late Political Resident at Delhi, &c, &c," *The Journal of the Asiatic Society of Great Britain and Ireland* 1 (1834): 133.

3 Understanding the Other

An explicit notion of race grew as colonialism expanded. This notion seemed to geographically overlap with the concepts of “people” and “nation.” These ideas intersected in the real world and became identifiable with one or the other region. China, Central Asia, Iran, Arabia, etc., were seen as peopled by nations or races that could be understood and classified as were other creatures of the natural world. This seemed in accordance with a world becoming increasingly “scientific.” By the 18th century the idea of race emerged as a new and influential classificatory category.⁶

William Jones had a keen interest in the origin of diverse populations. The people of Asia particularly fascinated him. He believed they were descended from three populous “nations” called: the Hindu, Arabs and Tartars. These he divided into sub-groups that differed markedly from each other in appearance, language, religion, etc. Notwithstanding the diversity, he felt they had “a common root.” William Jones argued that the Chinese, Japanese and Persians, too, descended from “stocks” that intermingled over a long period of time.⁷ The lack of information on China which adjoined the British Indian empire, was of special concern to him. He saw the study of Chinese “laws, politics and morals” (instead from its “manufactures and trade”) as a means of appreciating Asian thinking. Translations of important Chinese texts were valued as sources of Asiatic philosophy and laws.⁸ The British hoped their location in India at “the utmost verge of the habitable globe known to the best geographers of Old Greece and Egypt” would allow them a glimpse into the extensive Chinese empire.⁹

Beyond the military might and high culture of grand empires were societies inhabiting the political and cultural fringes. Jones called them “races of borderers” located “on the limits of Arabia, Persia, India, China, and Tartary” and “wild tribes in the mountainous parts of those extensive regions.”¹⁰ Though peripherally situated, these peoples were integral to the political economy of

6 Snait B. Gissis, “Race’ in the Eighteenth Century,” *Historical Studies in the Natural Sciences* 41, no. 1 (Winter 2010).

7 William Jones, “Fifth Anniversary Discourse on the Tartars. Delivered 21 February, 1788 by the President,” *Asiatick Researches* 2 (1807): 40–41.

8 William Jones, “On the Second Classical Book of the Chinese,” *Asiatick Researches* 2 (1807): 195. See also Jones, “Seventh Anniversary Discourse on the Chinese. Delivered 25 February, 1790 by the President,” *Asiatick Researches* 2 (1807): 365.

9 Jones, “Seventh Anniversary Discourse on the Chinese,” 365.

10 William Jones, “The Eight Anniversary Discourse on the Borderers, Mountaineers and Islanders of Asia. Delivered 24 February, 1791 by the President,” in *Dissertations and Miscellaneous Pieces Relating to the History and Antiquities, the Arts, Sciences and Literature*

Asia. Attempts to explain social phenomena of this kind in India were part of the early colonial knowledge creation enterprise.¹¹ At an annual meeting of the Asiatic Society, William Jones argued that in the mountains of north India were "many races of wild people with more or less of that pristine ferocity, which induced their ancestors to secede from the civilized inhabitants of the plains and valleys."¹² The relatively isolated people of Tibet, too, were believed to have drawn upon old Sanskritic traditions of India.¹³ Jones understood how fields of functional knowledge in India were overlaid by mythical belief. Therefore, he insisted that "accurate knowledge of Sanscrit and a confidential intercourse with learned Brahmins, are the only means of separating truth from fable."¹⁴

4 Himalayan Societies: Categorizing People

It was the creation of a vast Himalayan empire through conquests by the kingdom of Nepal – in the late 18th and early 19th centuries – that first attracted the British. The empire stretched from Sikkim in the east to the outer defences of the besieged Kangra fort in the far west. Its economic core was Kathmandu valley that lay on a trans-Himalayan trade route. The valley nurtured a rich culture and was economically connected with distant people and places. In 1790, Father Giuseppe a missionary in Kathmandu, was particularly impressed by the many rich and well-built temples of the towns in the valley.¹⁵

In much of the Himalaya, however, mountain communities were not particularly prosperous. They had a transhumant, agro-pastoral economy that was different from the agrarian system of the Gangetic plains. Historical texts repeatedly mention Khasa mountain tribes. Zahiruddin Babar, the sixteenth

of Asia, vol. 3, ed. William Jones et al. 1–20 (London: Vernor and Hood, Birch Lane, and Darton and Harvey 1796), 1.

11 Bhargya Bhukya, "The Mapping of the Adivasi Social: Colonial Anthropology and Adivasis," *Economic and Political Weekly* 43, no. 39 (Sept. 27–Oct. 3, 2008): 103.

12 Jones, "The Eight Anniversary Discourse on the Borderers, Mountaineers and Islanders of Asia," 10. See also Bhukya, "The Mapping of the Adivasi Social," 105, 106, 107. The idea of tribal communities abandoning the mainstream was romanticized in colonial anthropology after the first violent resistance to the British by the Pahariya Sirdars of Bihar in 1778.

13 Jones, "The Eight Anniversary Discourse on the Borderers, Mountaineers and Islanders of Asia," 13.

14 William Jones, "The Tenth Anniversary Discourse on Asiatic History: Civil and Natural, Delivered 28 February, 1793 by the President," *Asiatic Researches* 4 (1807): xxiv.

15 Father Giuseppe, "Account of the Kingdom of Nepal by Father Giuseppe, Prefect of the Roman Mission. Communicated by John Shore," *Asiatic Researches* 2 (1807): 310.

century founder of the Mughal empire, wrote in his memoirs that Khasas inhabited the extensive mountain range. Three centuries later, Captain Francis Wilford's report to the Asiatic Society again referred to the Khasas as a tribe that inhabited the mountain range from the 'eastern limits of India to the confines of Persia' since very ancient times.¹⁶ Wilford was pursuing the ideas of William Jones to understand peoples in a more "scientific" manner. In this colonial endeavour, the classification and characterisation of Himalayan people was part of this new anthropological enterprise.

European explorers saw the Himalaya as a meeting point of two "nations": the "Hindu" and "Tartar." Each of these "nations" were believed to have distinguishing characteristics. The degree to which these were present or absent in inhabitants also defined the territory. Internal distinctions within different mountain tribes and communities were similarly made. The popular myth of martial hill communities, that provided recruits to the British Indian army, originated in such distinctions.

During his search for the source of river Ganges, Raper became familiar with the people of Garhwal. He was surprised that Manah, a town bordering Tibet, had inhabitants of a "different race" with "features of the Tartars or Butias," but who professed Hinduism and called themselves Rajputs.¹⁷ Raper had till then not noticed the lack of religious and caste rigidity in Himalayan societies.¹⁸ Four years later (1812), William Moorcroft (1765–1825) a veterinarian turned trader-explorer, passed through another part of Garhwal on his way to Mansarovar lake (Tibet) through the Niti pass. His observations echo those of Raper. At Malari village, the people had a "Tartar countenance mixed with that of the Hindu."¹⁹ The transhumant agro-pastoral nature of the higher Himalayan economy was noticed by all travellers. The inhabitants of Malari, too, migrated in winter to villages in lower areas. Moorcroft also noticed that the Malaris functioned as intermediaries in the trade between trans-Himalayan Tibet and the lower hills of India.²⁰

Sheep-raiding was practised against rival villages. Fraser and Hodgson (passing through Garhwal in 1820 and 1822 respectively) were astonished at the brazenness of the robbers. At Durali village, Fraser learnt that all the men had "gone to buy corn, or to steal sheep," seemingly part of normal "business,

16 Francis Wilford, "On Mount Caucasus," *Asiatick Researches* 6 (1801): 455–56.

17 F. V. Raper, "Narrative of a Survey for the Purpose of Discovering the Sources of the Ganges," *Asiatic Researches* 11 (1812): 525–26.

18 *Ibid.*, 527–28.

19 William Moorcroft, "A Journey to Lake Manasarovara in Un-des, a Province of Little Tibet," *Asiatick Researches* 12 (1818): 398–99.

20 *Ibid.*, 399.

too ordinary and common to conceal."²¹ He later met these men returning with about 500 stolen sheep and goats. They were pursued by another 100 or so armed men – not owners of the sheep – but themselves intending to rob the robbers. Fraser was surprised that they saw nothing illegal in their acts. His views and those of the hill-men represented opposing perspectives on legality and justice.²² Similar transhumant practices existed – with some variations – in eastern Himalayan Bhutan and other areas of north-eastern India.²³ Here shifting cultivation (*jhoom*) was common. This required the slashing and burning of thick forests for cultivation and then shifting to another place every few years.

The delineation of Himalayan people, their peculiarities and their territories remained an integral part of British interest. An example, is a study of three tribes (Lepchas, Limbos and Bhotias) resident in Sikkim wherein their social ranking and the areas that they dominated are demarcated.²⁴ In parts of Garhwal, it was the unhygienic state of houses and the lack of material possessions that struck the traveller.²⁵ People were often judged and identified by physical appearance. For instance, Bashahris (inhabitants of Kinnaur) were described as:

stout well-built figures, are frequently fair [...]; their eyes often blue, and their hair and beards curled, and of a light or red colour. They seem admirably calculated to be formed into soldiers for a hilly region. Here and there traces may be detected of the Tartar features, the small eye, high cheekbones and meagre moustaches [...]²⁶

21 James B. Fraser, "An Account of a Journey to the Sources of the Jumna and Bhagirathi Rivers," *Asiatick Researches* 13 (1820): 215.

22 Ibid., 235; J. A. Hodgson, "Journal of a Survey to the Heads of the Rivers, Ganges and Jumna," *Asiatick Researches* 14 (1822). See 126 for customary sheep-raiding practices of people of Rawain and Bashahr.

23 Kishen Kant Bose, "Some Account of the Country of Bhutan," *Asiatick Researches* 15 (1825): 141, which mentions that cold winters compelled peasants to shift down to lower areas. They maintained two houses in separate areas to cultivate crops in different seasons.

24 J. J. T., "Some further particulars of the Country of Siccim, and of its Inhabitants, the Lepchas and Bhotias," *Gleanings in Science* 2 (1830): 180.

25 Moorcroft, "A Journey to Lake Manasarovara in Un-des, a Province of Little Tibet," 399; Hodgson, "Journal of a Survey to the Heads of the Rivers, Ganges and Jumna," 65 mentions that though the houses are well built with wood and stone, they are "exceedingly filthy within, and full of vermin."

26 Fraser, "An Account of a Journey to the Sources of the Jumna and Bhagirathi Rivers," 192.

In terms of cultural characteristics, Raper regarded the lack of “bashfulness and reserve” amongst women of the higher mountains as a mark of being “more civilized.”²⁷ “Racial” traits and behavioural habits were seen to overlap. Herbert noted that “Tartar” women (referring to Kinnaur women) had fair complexions that “emulate those of Europe.” He reiterated Raper’s observation that these women “exhibited a variety of character and expression” different from the women of Hindustan.²⁸ Herbert delighted at seeing them fetch water as they did in Europe: “with ruddy cheerful countenances, unconcealed and unsuspicious, and a wooden pail under the arm.”²⁹

Colonial administrators soon discovered that the Himalaya encompassed considerable socio-cultural diversity. At the Shipki pass – between Kinnaur with Tibet – Herbert saw an “assemblage of Hindustanis, Kanawaris, and Tartars seated in groups; the contrast of whose dresses was scarcely less striking than that of their features and of their speech.”³⁰ This made it abundantly clear that knowledge about Hindu society of the Gangetic doab was not of great help in understanding the religion and society of the mountains. Fraser’s description of a religious celebration at the Garhwali village of Cursall further reinforces this. At the celebration, liquor was consumed in huge quantities, loud music was played and everyone danced together. Fraser called these “savage and inconsistent” practices enough to shock even “Hindus who are less bigoted.”³¹ The heterodoxy that marks Himalayan Hinduism, was fully appreciated only much later.

The presence of a large Buddhist population further differentiated the Himalaya and trans-Himalaya from the plains. The value of ancient Buddhist religious texts preserved in Himalayan monasteries was gradually appreciated by European explorers, scholars and administrators with the help of Indian specialists. These were later translated and helped retrieve a substantial part of Buddhist philosophy. However, some early 18th century European explorers regarded literature of this kind as impractical for impoverished Himalayan societies. Hodgson lived many years in Nepal where books on Buddhism

27 Raper, “Narrative of a Survey for the Purpose of Discovering the Sources of the Ganges,” 472.

28 J. D. Herbert, “An Account of a Tour made to lay down the Course and Levels of the River Setlej or Satudra, as far as Traceable within the Limits of the British Authority, performed in 1819,” *Asiatic Researches* 15 (1825): 372.

29 Ibid., 392.

30 Ibid., 374. On his way up to Shipkila, Herbert noticed that he had entered a zone of cultural transition. He wrote: “Hitherto we had been accustomed to brahmins, (of a degenerate race, no doubt) but still Hindus, but here we had the worship of Budh fairly established [...]”.

31 Fraser, “An Account of a Journey to the Sources of the Jumna and Bhagirathi Rivers,” 192.

proliferated through printing technology introduced from China. Yet, he was surprised that "literature of any kind should be so widely diffused as to reach persons covered with filth."³² Furthermore, he felt that literature should bring about change as it did in Europe.³³ European interest in Himalayan Buddhist literature and the "moral feelings and religious principles of the people" of that region, nevertheless, continued to grow.³⁴

5 The Geography of Disease

There were some diseases and physiological problems that particularly afflicted people in the mountains. The journals of European explorers of the early 19th century specifically mention these.

5.1 *Goitre*

Goitre was common in areas where iodine had leached out from the soil through the effects of snow, water flow and heavy rainfall. Among these were the mountain areas of Europe, the Andes of South America, highlands of China, the uplands of Africa as well as North India, especially the Himalayan region. Thomas Hardwicke, who travelled through the Garhwal-Himalaya in 1799, saw many people affected by this deficiency in Srinagar. But they seemed to suffer no pain or discomfort from it. After discussions with local residents he concluded that goitre affected "natives who reside near rivers which receive increase from the melting snows."³⁵ This explanation provided by locals was widely accepted even by Europeans who came later. Raper (1808) met people with large goitres near Chamoli village and initially concluded that those who lived 'in the vicinity of snow' were especially prone to this.³⁶ But he began doubting this local wisdom when he met many goitre afflicted people at

32 Brian Houghton Hodgson, "Notices of the Language and Literature, and Religion of the Baudhas of Nepal and Bhot," *Asiatic Researches* 16 (1828): 419.

33 Ibid., 421. He wrote dismissively: "[...] the general diffusion of books (that most potent of spurs to improvement is our ideas) becomes, in Bhot," an "agreeable means of filling up the tedious hours of the twilight of civilization."

34 Horace Hayman Wilson, "Note on the Literature of Thibet," *Gleanings in Science* 3 (January to December 1831): 243–44. The Asiatic Society successfully acquired the multi-volume texts (the complete sets being a total of 325 volumes) of two major Tibetan Buddhist works.

35 Thomas Hardwicke, "Narrative of a Journey to Sirinagar," *Asiatick Researches* 6 (1801): 344.

36 Raper, "Narrative of a Survey for the Purpose of Discovering the Sources of the Ganges," 473.

Sancot village in the lower hills where the water was not drawn from a snow-melt source.³⁷

Traill, who lived for long in the region, knew how widespread the goitre was. Yet, he failed to understand its cause. He realized that water from snow-melt did not cause the problem but felt that: "Goitre is in part produced by the effects of the keen mountain air acting on the exposed throat."³⁸ By the mid-19th century, iodine was being used for treating goitre. But it was not till the end of the century that the nature and cause of the disease came to be fully explained.

5.2 *High Altitude Sickness*

Explorers often experienced the debilitating effects of rarefied air at high altitudes. Local people too suffered whenever they ascended to higher heights. The latter believed that travellers became senseless because certain flowers in high mountains released "poisonous perfumes."³⁹ Around 1822, Hodgson's search for the source of the Ganges and Yamuna took him to the confluence of the Bhagirathi and Jahnvi rivers. To the north of this confluence, near Nilang village, was a difficult pass through which Indian traders crossed into Tibet. A local Brahmin informed Hodgson that travellers had difficulty in breathing while traversing this pass because of "the *bi'ch* or *bish*, i.e. exhalations from poisonous herbs which grow on the bare high knolls."⁴⁰

Fraser experienced the debilitating effect of high altitude sickness on his trek across an elevated ridge between the Yamuna catchment area and the Ganges valley. His exhausted porters complained of "poisoned wind." He too "experienced much difficulty and oppression, as if there were an insufficiency of air [...]." Fraser realised that "this supposed poison was nothing more than the effect, which the rarefied state of the air, from the great height we have reached, has on the lungs [...]."⁴¹ A complete explanation still eluded him. Herbert's experience at Gunas pass (4775 m) above Sangla village in Kinnaur was similar. He refers to the "fatigue" and "hurried breathing" he suffered and concluded like Fraser that these were caused by "a want of sufficient air."⁴²

37 Ibid., 551.

38 George William Traill, "Statistical Sketch of Kamaon," *Asiatic Researches* 16 (1828): 215–16.

39 Fraser, "An Account of a Journey to the Sources of the Jumna and Bhagirathi Rivers," 200–01.

40 Hodgson, "Journal of a Survey to the Heads of the Rivers, Ganges and Jumna," 92.

41 Fraser, "An Account of a Journey to the Sources of the Jumna and Bhagirathi Rivers," 201.

42 Herbert, "An Account of a Tour made to lay down the Course and Levels of the River Setlej or Satudra, as far as Traceable within the Limits of the British Authority, performed in 1819," 347.

During his second attempt on Mt. Blanc in 1787, Horace-Bénédict de Saussure (1740–1799) experienced severe mountain sickness caused by “the rarity of the air” as it had “hardly more than half of its density.”⁴³ Many years after de Saussure, Humboldt recounted his experience of climbing Chimborazo. He argued that oxygen in the air at higher altitudes was the same as at lower elevations, but the lower barometric pressure reduced inhalation of adequate amount of oxygen. Despite his flawed argument, Humboldt came nearest to providing an explanation for high altitude sickness by placing oxygen at the centre.⁴⁴ Only years later was it understood that insufficiency of oxygen in the blood stream at high altitudes critically affected the functioning of body organs.⁴⁵

6 Navigating the Wilderness: Resources, Trade and Traders

Early surveys of the Himalaya had little prior information to rely upon. Descriptions by preceding travellers evoked inquisitiveness amongst British administrators. This prompted further studies. Interests of the East India Company were the prime concern. In 1829, a contributor to *Gleanings in Science* felt that the Himalayan possessions of the Company offered enormous unexploited wealth.⁴⁶ On the contrary, British reports argued that the region suffered extreme impoverishment under Nepalese rule (late 18th century to 1815). When the British annexed some parts of it in 1816, the region's agriculture and trade were reportedly in decline.⁴⁷

However, networks created over centuries do not disappear easily. Himalayan societies survived through interdependence. William Moorcroft, who traversed extremely difficult trans-Himalayan areas in 1812, illustrates this point. His notes reveal the complex socio-economic (even political) network

43 As quoted in Charles S. Houston, David E. Harris, and Ellen J. Zeman, *Going Higher: Oxygen, Man, and Mountains*, 5th ed. (Seattle: The Mountaineers Books, 2005), 85.

44 Ibid., 86.

45 In 1862, Denis Jordanet, a French physician discovered that low levels of oxygen in the blood caused high altitude sickness (hypoxia). Paul Bert is also sometimes credited with being the first person to make this discovery in 1878. The two knew each other and were familiar with each other's work.

46 Anonymous, “On the Introduction of the Iron Chain Suspension Bridge into the Himalaya Mountains,” *Gleanings in Science* 1, no. 12 (12. December 1829): 349–50.

47 Raper, “Narrative of a Survey for the Purpose of Discovering the Sources of the Ganges,” 495, 496, 499. Raper argued that heavy exactions of the Nepali rulers caused a decline of trade. Garhwal was compelled to pay an annual sum of Rs. 3000 to avoid annexation. In 1803, Garhwal was nevertheless annexed.

that endured into modern times in the most challenging landscapes. Moorcroft had to skilfully negotiate his passage through the intricate web that knit the region together. At Niti, the last Indian village on the Tibet border, he had to persuade reluctant local people to help him cross into the Tibetan plateau. He sighted Gartok (a collection of “black tents”) in the distance as he descended into the plateau. The intervening plain was “covered with prodigious bodies of sheep, goats and yaks” estimated at not “less than 40,000”.⁴⁸

This nondescript trading post on a desolate plain was a busy summer market for traders from distant places. Gartok was connected – directly or indirectly – with Ladakh, Kashmir, Amritsar, Delhi, Yarkand, Bokhara, Bashahr and numerous other centres of trade. Even Russian traders came to Gartok with large caravans.⁴⁹ Moorcroft learnt about the Bashahr route from traders at Gartok and wished to explore it on his return. The Tibetan administration, however, refused permission and he reluctantly returned by the route he had entered.

Herbert, who visited Kinnaur in 1819, heard about the commercial importance of Gartok (also known as Garo) and its rich and extensive pastures to which large Kinnaur flocks were herded in summer.⁵⁰ A Tibetan trader reconfirmed to Herbert that Yarkandi traders visited Gartok.⁵¹ The extensive economic linkages of Himalayan societies with trans-Himalayan Tibet and through it to Central Asia were slowly being revealed.⁵² Rampur – the capital of Bashahr state – was the most important Indian trading town corresponding to Gartok. Herbert, who witnessed the annual trade fair at Rampur, has described how transactions were conducted by traders from different countries.⁵³

Trade was crucial for the survival of communities in the Himalaya. So was the supervisory influence exercised by political structures. In the hostile, barren terrain of the greater Himalaya, regulation of *points of crossing* and *locations*

48 Moorcroft, “A Journey to Lake Manasarovara in Un-des, a Province of Little Tibet,” 444. He describes Gartok (Ghertope) as an “assemblage of tents in clusters made of blankets surrounded by hair ropes fixed to stakes.”

49 Ibid., 452–54.

50 Herbert, “An Account of a Tour made to lay down the Course and Levels of the River Setlej or Satudra, as far as Traceable within the Limits of the British Authority, performed in 1819,” 359.

51 Ibid., 378.

52 Ibid., 340, 368.

53 Ibid., 402–03; Fraser, “An Account of a Journey to the Sources of the Jumna and Bhagirathi Rivers,” 340; says that the remotest parts of Satlej valley were connected with neighbouring regions. Considerable trade existed between western Tibet to the north and the Panjab to the south. Garhwal villages, on the other hand, were isolated. This explained the economic disparity between Bashahr and Garhwal.

for interaction was no less important than maintenance of *lines of separation*. Political allegiances were tempered by pragmatic necessities and mutual interest. Communities at the border were the crucial link and had the aptitude to win the trust of different sides. Typically, people of Tungsah, a frontier area, paid land revenue to Tibet. They also sent a tribute of blankets to Bashahr every third year and a complimentary tribute of raisins to Garhwal. These payments kept the trade flowing while the linguistic skills of the Tungsah people kept the traders' conversation going.⁵⁴

7 Where Do the Rivers Come From?

Hindu pilgrimage centres are often located along rivers. Almost by default, itinerant holy men and mendicants become the most knowledgeable about them. Param Swatantra Prakashanand Brahmachari, a religious ascetic and pilgrim whose family was settled in eastern India, was one such person. He had travelled to Mansarovar lake in Tibet through Nepal and returned to India by the Kashmir route.⁵⁵ Jonathan Duncan (1797) mentions two other *fakirs* (ascetics) who were great travellers. They journeyed through the Himalaya and Tibet to Mansarovar as well as to distant places in the Caspian, Moscow, Central Asia and the Middle East.⁵⁶ Little was, however, obtained from their testimonies. Suspensions that "natives" tended to hide the truth and the conviction that western science was vastly superior to indigenous knowledge made European explorers sceptical about information provided by Indians. Contrary to information provided by knowledgeable Indians, Major James Rennell – the first Surveyor-General of India – had argued that the Ganges originated near Mansarovar in Tibet, and then cut across the Himalaya into India. As part of the colonial policy to verify and record, therefore, an 'actual survey of the Ganges, above Haridwar to the farthest point to which it had been traced by Hindu pilgrims' was ordered.⁵⁷

Lieutenant Webb, assistant to the Surveyor-General of India, was placed in charge and was assisted by Captain F. V. Raper and Captain Hearsay. In 1808,

54 Hodgson, "Journal of a Survey to the Heads of the Rivers, Ganges and Jumna," 92.

55 Param Swatantra Prakashanand Brahmachari, "Translation of the Relation Delivered by Purrum Soantuntre Purkasanund Brehmchary of his Travels and Life: Delivered on the 14th of August 1792," *Asiatick Researches* 5 (1807).

56 Jonathan Duncan, "An Account of Two Fakeers with their Portraits," *Asiatick Researches* 5 (1807).

57 Henry Thomas Colebrooke, "On the Sources of the Ganges in the Himadri or Emodus," *Asiatic Researches* 11 (1812): 441.

Raper submitted a report on this survey clearly stating that the source of the Ganges lay to the south of the Himalaya. Webb, reiterated this fact in a letter to the Society in 1810, and called it the “most important information gained.”⁵⁸ In 1812, Moorcroft’s report on his own expedition to Mansarovar in Tibet was published in the Society’s journal. Herein he correctly asserted that the Ganges did not originate in Tibet. But he also erred significantly in another way. Henry Thomas Colebrooke, (1765–1837) an Orientalist, Sanskrit scholar and President of the Asiatic Society of Calcutta highlighted three important achievements of Moorcroft’s expedition in his introduction to the Report. He wrote it: (1) “ascertained, and approximately determined the situation of Manasarovara, verifying at the same time the fact, that”; (2) “it gives origin neither to the Ganges,” (3) “nor any other of the rivers reputed to flow from it.”⁵⁹ While the first two points were correct, the last of these claims was entirely false. Despite reaching the lake, Moorcroft had failed to discover the surrounding glaciers from which four major Himalayan rivers originate. Yet, his erroneous assertion that no river originated from the lake was readily accepted by those in authority.

British occupation of Kumaon and Garhwal after 1816 made it easier for “scientific” explorations to be conducted in the area. James Fraser volunteered to explore the higher valleys of the Ganges and Yamuna.⁶⁰ He first went up to Jamnotri, very near the source of the Yamuna. His account provides details of the temple, its physical surroundings and the vegetation around.⁶¹ At Gangotri, however, the actual source of the Ganges river was much higher up. His exploration around Gangotri reconfirmed that unlike the Satlej, the Ganges originated south of the Himalaya and did not cut across.⁶² Having failed to reach the actual source, Fraser (unlike some other Europeans) accepted the testimony of local guides and traders who were well informed.

In 1822, J. A. Hodgson trekked up the Ganges valley beyond the Gangotri. Raper and Webb had already explored the lower portion in 1808 and 1810 respectively.⁶³ Hodgson hoped to locate the exact source of the Ganges; to measure the heights and locations of villages and also to mark the course of the rivers. His equipment was probably superior to that used in earlier explorations.

58 Ibid., 442.

59 Moorcroft, “A Journey to Lake Manasarovara in Un-des, a Province of Little Tibet,” 473.

60 James Fraser was the brother of William Fraser, First Assistant, Delhi Residency who was at this time assigned the task of administering the Garhwal territory recently freed from Nepali control. See Fraser, “An Account of a Journey to the Sources of the Jumna and Bhagirathi Rivers,” 171.

61 Ibid., 195–97.

62 Ibid., 224–27.

63 Hodgson, “Journal of a Survey to the Heads of the Rivers, Ganges and Jumna,” 118.

On proceeding beyond Gangotri he discovered that the river disappeared beneath the snow for about 4 or 5 miles.⁶⁴ Regarding the Yamuna, Hodgson realised that the maps he had were inaccurate. The Tons, a tributary of the Yamuna, was for instance, about thrice the size of the latter at their junction.⁶⁵

The territories to the east of the Satlej river came under British control in 1816. Soon thereafter in 1819, J. D. Herbert surveyed the Satlej watershed area.⁶⁶ He travelled up to Shipki pass where Tibetan authorities blocked his intended passage to the source of the Satlej. However, at Dubling village near the Tibetan border, Herbert met its headman Lama Ring Jing [sic] (probably Rinzen) who had travelled extensively in Tibet. Rinzen revealed that the Satlej flowed past Chaprang in Tibet that was nine days journey from Dubling. At Chaprang, too, the river was large and unfordable. Mansarovar (Mapang) was 18 days' journey from Shipki pass. More interestingly, Lama Rinzen told Herbert that Mansarovar (Mapang) lake was the source of four major rivers that flowed into India from different directions. Unfortunately, Moorcroft's mistaken information had already found wide acceptance. Herbert refused to accept the lama's statement. His disbelief perhaps indicates initial European scepticism towards information provided by "natives." Herbert was intrigued why Rinzen insisted on something "so completely contradicted by Mr. Moorcroft's journey, and which no one can believe to be other than some legend of their sacred books."⁶⁷

Mansarovar lake held the answers to several questions agitating 19th century British explorers. One of these was the mysterious source of the Brahmaputra that flowed into India's far eastern region of Assam. A brief report about Assam was sent by John Neufville in 1828 to the Asiatic Society.⁶⁸ He described different tribes: some of whom were nominally "Hindu" while others he saw as clearly "wild."⁶⁹ He encountered many of these tribes in his attempt to trace the course of the Brahmaputra. Tribal resistance and the difficulty of

64 Ibid., 118–19.

65 Ibid., 129.

66 Captain Alexander Gerard and Dr. Govan had travelled along the river in 1817. Again in 1818, Alexander was accompanied by his brother Dr. J. G. Gerard. Their journals remained inaccessible till they were later edited by George Lloyd and published by James Madden & Co., London, 1841.

67 Herbert, "An Account of a Tour made to lay down the Course and Levels of the River Setlej or Satudra, as far as Traceable within the Limits of the British Authority, performed in 1819," 369: "[...] he maintains, how much soever questioned that four rivers originate from it: – 1. Tamja Kampa flows through Usang; 2. Mamja Kampa through Purang; 3. Lang Jing Kampa through Kanawer; and 4. Sin Jing Kampa through Ladak"

68 John Bryan Neufville, "On the Geography and Population of Asam," *Asiatic Researches* 16 (1828).

69 Ibid., 334.

navigating turbulent streams, prevented a definite conclusion. Predominant thinking was that the Brahmaputra – like the Ganges – originated in the Himalaya. Neufville, however, regarded this as “far from probable.” But he mistakenly thought the Brahmaputra had the same source as the Irrawaddy that turned towards Burma.⁷⁰ Neufville guessed correctly that the Dihong (called the Siang further north), which flowed down from the north and joined the “Brahmaputra” in Assam, was a river that cut across the Himalaya. Its heavy flooding and strong current indicated its elevated trans-Himalayan origins. But he wrongly suggested that the Dihong also originated in the glaciers of eastern Tibet.⁷¹ European explorers till then were unaware that the Tsangpo (Tibetan name of Brahmaputra) arose in the far west, flowed into eastern Tibet and then turned sharply southwards. It cut across the Himalaya through deep and narrow gorges and descended to Assam as the Siang (later Dihong) that then became the Brahmaputra.

In 1830, Lieutenant R. Wilcox, was deputed to survey Assam. He chanced upon a Chinese lama-pilgrim who had travelled through the area for the last ten years. To illustrate the course of his journey, Kho-shang Lama drew a sketch for Wilcox that solved the puzzle troubling the British. It revealed that the Tsangpo did not flow into Burma to become the Irrawaddy but penetrated the towering Himalaya into Assam to become the Brahmaputra.⁷²

8 How High Are the Mountains?

It was the enormity and ruggedness of the Himalaya that first struck Europeans visitors. A description of the Garhwal Himalaya illustrates this fact:

From the edge of the scarp, the eye extended over seven of eight distinct chains of hills, one rising above the other, till the view was terminated by the *Himalaya*, or snowy mountains. It is necessary for a person to place himself in our situation before he can form a just conception of the scene. The depth of the valley below, the progressive elevation of the intermediate hills, and the majestic splendour of the “cloud-capt”

⁷⁰ Ibid., 336.

⁷¹ Ibid., 335, 336.

⁷² R. Wilcox, “On the Identity of the Sampu and Irawadi Rivers,” *Gleanings in Science* 2 (1830): 66–67. To quote Wilcox, the lama: “travelled from Lhasa to Koombo, from Koombo to Deva Dharma, from Deva Dharma to Assam, from Assam to Bengal. Says the road from Lhasa to Koombo lies occasionally on bank of river, occasionally over mountains.”

Himalaya, formed so grand a picture, that the mind was impressed with a sensation of dread rather than of pleasure.

Fraser described the "scenery" of the Yamuna valley becoming increasingly "savage" as he went higher. Upon his departure from upper Satlej valley in Kinnaur, Captain Herbert heaved a sigh of relief. His journey through "naked and lofty precipices" and "broken declivities" had numbed the senses to a point where they "had, in Macbeth's words, 'supped full with horror'."⁷³

Thomas Hardwicke who was in Srinagar (Garhwal) in 1796, also mentions the ranges that were visible from Srinagar. His visual calculation of the distance to the snow range prompted him to dispute the estimate made by the well-known landscape artist Thomas Daniell (1749–1840) who – along with his nephew William Daniell – visited Srinagar in 1789. On the basis of information provided by local people, Daniell had concluded that the base of the snow-covered mountains was only 14 or 15 "geographic miles" from where he stood. Hardwicke, however, calculated the snow range at no less than "eighty *English* miles" distant.⁷⁴ The difference in these estimates was important because it affected calculations pertaining to the heights of peaks.

Early estimates of the height of the Himalaya were met with scepticism. In the absence of proper instruments, a definite conclusion was difficult. Yet the towering presence of the Himalaya was obvious. Henry Thomas Colebrooke was reluctant to accept the initial findings. Rather grudgingly he suggested that "Without however supposing the Himalaya to exceed the Andes, there is still room to argue, that an extensive range of mountains, which rears, high above the line of perpetual snow, in an almost tropical latitude, an uninterrupted chain of lofty peaks, is neither surpassed nor rivalled by any other chain of mountains but the Cordilleras of the Andes."⁷⁵

The British government in Bengal had authorized a systematic survey in 1807 to determine the sources of important rivers and location of important places. It further directed the height of every halting place to be documented. The latter was to enable trigonometrical calculations for determining the heights

73 Herbert, "An Account of a Tour made to lay down the Course and Levels of the River Setlej or Satudra, as far as Traceable within the Limits of the British Authority, performed in 1819," 399.

74 Hardwicke, "Narrative of a Journey to Sirinagur," 345. [The geographical mile is a unit of length determined by 1 minute of the arc along the Earth's equator. For the 1924 International Spheroid this equalled 1855.4 metres. The English mile at that point of time would have been about 1609.3 metres.]

75 Colebrooke, "On the Sources of the Ganges in the Himadri or Emodus," 445.

of Himalayan peaks. Raper's tour, mentioned above, was part of this effort.⁷⁶ Colebrooke now re-examined the supplementary material collected by Webb and the information provided by Lieutenant Colonel Crawford's survey of 1805. Crawford had estimated the heights of some peaks around Kathmandu when he was there in 1802.⁷⁷ These mountains were visible from as far as Patna in Bihar. Colebrooke was thereafter compelled to revise his views. He stated explicitly: "I consider the evidence to be now sufficient to authorize an unreserved declaration of the opinion, that the Himalaya is the loftiest range of Alpine mountains which has been yet noticed, its most elevated peaks greatly exceeding the highest of the Andes."⁷⁸

Several Himalayan peaks were visible from certain locations even in distant Bengal. This implied that these peaks were higher than earlier believed.⁷⁹ On his journey through the Gangetic plain, Webb halted at Gorakhpur from where Dhaulagiri peak was clearly visible. He noted measurements from four different stations to assess its height. His estimate of the peak at 26,862 feet (8,187 metres) above sea level was fairly accurate despite the lack of sophisticated instruments.⁸⁰ Measurements pertaining to several other mountain peaks were also taken: many of these located in Nepal. Their heights were calculated and listed in the journal of the Asiatic Society.⁸¹

Systematic surveys were conducted across the Himalaya as part of colonial policy. In 1820, Captain W. S. Webb recorded the latitudes, longitudes and elevations of important places in Kumaon.⁸² Apart from being an "extension of geographical knowledge," the measuring of heights and positions of the important mountain peaks was important for accurately determining "the geographical position of any place, from whence one, or more of them are visible."⁸³ In these

76 Raper, "Narrative of a Survey for the Purpose of Discovering the Sources of the Ganges," 447.

77 Henry Thomas Colebrooke, "On the Heights of the Himalaya Mountains," *Asiatick Researches* 12 (1818): 263–64.

78 Ibid., 253.

79 Ibid., 256. Colebrooke suggested that considering the state of the atmosphere, only an 'elevation exceeding 28,000 feet' would be visible at such a distance.

80 Colebrooke, "On the Heights of the Himalaya Mountains," 267–70. Dhaulagiri I stands at 26,795 feet (8,167 metres) above sea level. By way of comparison, the report indicates that George Shuckburg calculated the height of Mont Blanc by this method at 15,662 feet. This is a bit short of 15,780 feet (4810 metres) estimated today.

81 Ibid., 276.

82 W. S. Webb, "Memoir Relative to a Survey of Kemaon, with some Account of the Principles, Upon Which It has been Conducted," *Asiatick Researches* 13 (1820).

83 J. A. Hodgson and J. D. Herbert, "Account of the Trigonometrical and Astronomical Operations for determining the Heights and Positions of the principal Peaks of the Himalaya Mountains," *Asiatick Researches* 14 (1822): 188.

explorations, colonial officers emulated the best European scholars and followed the methods of the most "skilful observers." Webb took pains to explain the method he had adopted. He learnt subsequently that Humboldt, too, had used the same method in his survey of Mexico and that the latter had adopted the tables prepared by Mendoza de Rios. He referred specifically to the great interest evoked by Humboldt's study on "New Spain" but argued that there was a need to provide accurate measurements for creating vertical sections. In February 1830, the author of a letter to the editor of *Gleanings in Science* wrote, "Perhaps, in England they think that officers of the army are unequal to the task, but really it is not mysterious; good instruments, time, care, perseverance, and a moderate skill in calculation are all that is required."⁸⁴ Noting the unwillingness of Europeans "to believe that the Himalaya are higher than the Andes," the letter claimed that Humboldt himself would "fully confirm" this and other related research were he to come to India.⁸⁵

While much was discovered about the heights of peaks and the course of rivers; there was even more that remained unknown about the Himalaya and its people. Early British explorers and contributors to the journal of the Asiatic Society had made an exciting beginning. The future promised to be even more fascinating.

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