The Tsangpo is the largest river of Tibet and on its banks and tributaries lie Tibet’s major towns and villages. Rising close to Mount Kailas and Gurla Mandhata, it flows east through southern Tibet between the Himalaya and the trans-Himalaya (Gangdise) before breaking through the eastern Himalaya by an exceptionally deep gorge (‘a sword slash of Buddha’) between Namcha Barwa (25,445ft) and Gyela Peri (23,460ft). Turning south it enters India and changes its name to Dihang and then to Brahmaputra, before joining the Ganges.

The exploration of this great river during the 19th and 20th centuries was made possible by three outstanding men: two pundits, Nain Singh (No 1) and Kinthup (K.P.), and F M (Eric) Bailey, an officer in the Indian Army.

In late November 1715 two Jesuit priests, Father Ippolito Desideri and Father Manuel Freyre, stood on the Maryum La (20,000ft), south and east of Kailas (Kangrinboche, Ngari Niongar). The vast desert plateau of western Tibet lay behind them, and their journey for the next 500 miles to Lhasa ran alongside a river known to the Tibetans simply as ‘great river’ or Tsangpo. This route was southern Tibet’s main artery of commerce and communication, via Leh, with Kashmir and India.

Flowing from west to east [the Tsangpo] traverses the centre third of Tibet [i.e Tibet proper] and the province of Kongto which lies more to the east, and then turning to the south-east enters the country of Lhoba [Lhobrag, a Tibetan district bordering on the north of Bhutan*] whence it descends to Rongmati [Rangabati, Assam] a province of Mogul [Mogul India] beyond the Ganges into which the principal river of Tibet at last flows.

Desideri, who wrote this description of the river and its course, had spent five years in Lhasa before returning to Italy. He died on 14 April 1733 and his manuscript, Historical Sketch on Tibet, was ‘lost’ until 1875 when a copy was discovered by Carlo Puini in a private collection at Pistola in Italy; but it would not be published for another thirty years. Desideri’s description of the course of the Tsangpo was not confirmed as substantially correct until 1913, after over fifty years of effort by the Survey of India.

* Desideri was misinformed, as the Tsangpo does not flow through Bhutan.
Although early maps of Tibet were produced by Chinese and other geographers prior to the 18th century, the first relatively accurate map of Tibet was published in France in 1733 by d'Anville. This was drawn by Jesuits in Peking and was based on data obtained by two lamas, Curqin Zangbu and Langen Zhainba, sent to Tibet by the Chinese Emperor, Kanshi. It shows the Tsangpo linking with the Irrawaddy, a convergence which was not supported by the work of James Rennell, the first Surveyor General of India who, whilst exploring the Brahmaputra in Assam, concluded that the Tsangpo flowed into that river.

The middle course of the Tsangpo was described by George Bogle, on his way to Tashilumpo Monastery in Shigatse in 1774, and by Thomas Manning, on his way to Lhasa in 1811, but the first European to see its source, after Desideri, was probably Edmund Smyth, Kumaon's first education officer. In 1864 he crossed the Lipu Lekh Pass into Tibet, and skirting around the south side of Gurla Mandhata, crossed the Dakeo Pass (20,000ft). Descending to the north, he found wide valleys, grassy flats and 'streams tending to the east'. There is little doubt that the Tsangpo rose from this region and, years later, Sven Hedin explored here and named a number of peaks. He identified the main source of the Tsangpo as the Kubi Tsangpo river.

Smyth was responsible for recruiting Bhotia natives of Milam village as the first pundits – the secret native explorers employed by the Survey of India. The first of these was Nain Singh, the Milam village schoolmaster, who, between 1865 and 1886, was the first man to survey the Tsangpo from its source to Lhasa. He was so successful that pundits were used over the next fifty years for the survey of Tibet and its hinterland. Later, on a second journey, Nain Singh surveyed the western end of the Gangdise range and an area north of Kailas. Finally, in 1874, he surveyed a route from Leh to Lhasa which went just north of the Gangdise range. On reaching Lhasa he was unable to proceed to China, his primary objective, so he turned south and followed the Tsangpo downstream to Chetang. From here he went south again, crossed the Himalaya to Tawang (just east of Bhutan) and reached India.

The Gangdise range was shown on maps by 19th century geographers, and the observations of Nain Singh in 1874 formed the basis of a map published in 1889 on which it appears as the Kangri range. It is a loosely knit range of discontinuous mountain groups which Sven Hedin later crossed by yak or on foot in six places. He gave a detailed description of this journey in his three-volume work Trans-Himalaya.

Investigations of the southern, Indian side of the eastern Himalaya started in 1824 when Lt Wilcox surveyed a number of rivers, including the Dihang and Lohit Brahmaputra, that converged and formed the Brahmaputra at Sadiya in Assam. Both he and Pemberton, who had returned from an appointment in Bhutan, had obtained local knowledge that suggested that the Tsangpo and Dihang were the same river. This problem became one of
the most important geographical conundrums of Central Asia and the Survey of India was determined to solve it. Attempts to train local Assamese natives as secret surveyors failed and this was why pundits from Nain Singh onwards bore the brunt of this hazardous work in the eastern Himalaya. As Nain Singh's efforts to follow the Tsangpo below Chetang had failed, another pundit, Lala, tried in vain in 1876 before being arrested. He failed again in 1877.

In 1874 the Assam Survey was placed in the charge of Lt Henry Harman who was determined to establish the course of this mysterious river. In 1878 he measured the flow of the Dihang and found that it was greater than that of other streams converging on Sadiya. This made it the most likely link with the Tsangpo. Soon afterwards, in 1878-79, he recruited a lama, Nem Singh (G.M.N.) who, with his assistant Kinthup (K.P.), a tailor in Darjeeling, continued the survey beyond Chetang. They followed the Tsangpo due east, then north-east and finally south-east, cutting between the two highest peaks of the eastern Himalaya, Namcha Barwa (25,445ft) and Gyela Peri (23,460ft), before turning south. They continued to Gyala Sindong, a village 287 miles from Chetang, before returning. Though the accuracy of some of this survey was suspect, it still made a major contribution.

Completing the basic triangulation of Assam, Harman was posted to Darjeeling and again recruited Kinthup (K.P.) to solve the Tsangpo problem. Because Kinthup was illiterate, he was partnered by a Chinese lama on this occasion. They were told that if they were unable to follow the Tsangpo to Assam, they should prepare specially marked logs and throw them into the Tsangpo at their furthest point. These would be identified by specially trained 'watchers' posted near Sadiya in Assam, to see which tributary of the Brahmaputra they came down. Leaving Darjeeling in 1880 the pair first went to Lhasa, then returned to the Tsangpo river and went downstream to Chetang and Gyala Sindong. After fifteen miles they reached the village of Pemakochung. Here Kinthup described what became known as the 'rainbow falls', where the Tsangpo fell over a cliff 150ft high. As F M Bailey showed 25 years later when talking to Kinthup, this was a misrepresentation of Kinthup's field observations.

Unfortunately the Chinese lama, Kinthup's companion, absconded, first selling him as a slave to the local Jongpon. Nine months later Kinthup escaped but was captured 35 miles downstream at Marpung, where he exchanged one form of slavery for another. However, after 4½ months he was allowed to go on a pilgrimage during which he crossed to the opposite bank of the Tsangpo and prepared 500 specially marked logs, hiding them in a cave. Returning to Marpung he was allowed on another pilgrimage to Lhasa which he reached in December 1882. Here he had a letter written to Nem Singh in Darjeeling for transmission to Harman, telling him about the logs. Nem Singh gave this letter to the wife of a judge who was visiting Darjeeling. Unfortunately, just before she arrived, Harman left India, dying of tuberculosis in Florence on the way home.
Unaware of this, Kinthup returned to Marpung for a further nine months, after which he was set free. He now returned to his hidden cave and threw the logs into the Tsangpo. After this he followed the Tsangpo down stream as far as a small village, Onlet, from which he could see the haze of the Indian plains and another small village on the banks of the river. Unable to go any further because of hostile Abor tribesmen, he returned up the Tsangpo to Lhasa. Finally, in 1884, after an absence of four years, he returned to Darjeeling and, unnoticed by the Survey, took up his old job as a tailor. Unaware of his return, the Survey of India sent another pundit, Rinzin Namgyal (R.N.), to follow the same route down the Tsangpo. He was to approach the river from the south through Bhutan. But he was not able to cross the Bhutan–Tibet border. As a result he made the first, much-needed survey of Bhutan, except for its border with Tibet.

Two years after Kinthup’s return to Darjeeling the Survey debriefed him. Despite being illiterate, or more likely because of it, he had an extremely retentive memory with almost total recall of the topographical details of
his four-year saga on the Tsangpo. Decades later, in 1913, his account was checked and found to be remarkably accurate. Additional information about the Tsangpo was furnished by Kishen Singh (A.K.) at the end of his memorable four-year journey through Central Asia and his return by the gorge country of south-eastern Tibet.

Attempts to follow the Tsangpo to Assam were now abandoned by the Survey of India until 1911, when F M Bailey attempted to find the 'rainbow falls' on the Tsangpo. A many-sided man, naturalist, linguist, Central Asian explorer and secret agent in Tashkent, Bailey took part as a young man in the Younghusband mission to Lhasa in 1903-4. At the end of this he explored west along the north side of the Himalaya in south and west Tibet. Later he was appointed Political Officer to Sikkim, which also handled relations with Tibet and Bhutan, and envoy to Nepal. He discovered the Himalayan Blue Poppy (*Meconopsis betonicifolia* Bailey).

In 1911, at the end of his UK leave, Bailey returned to India by the trans-Siberian railway and China – and the Tsangpo. Approaching from the east, he was prevented by local wars from reaching the Tsangpo itself, but he explored the Lohit Brahmaputra to the east down to Sadiya in Assam. Undaunted, he then joined General Hamilton Bower's Abor expedition. In 1911-1912 the Dihang river had been followed north from Sadiya by A Bentinck, whose route overlapped much of Kinthrup's and who, in an article in the *Geographical Journal*, had expressed scepticism about the latter's topographical observations. The result was that in 1913, at the end of the Abor frontier skirmish, Bailey returned to the area with the surveyor Henry Morshead (later a member of early Everest expeditions) to check the topography for himself. After travelling east of the Tsangpo to Showa, he turned west to join the Dihang river and descended to Gyala Sindong to try to locate the rainbow falls near Pemakochung. He found that all Kinthup's topographical details were absolutely accurate, but although there were many rapids, no large falls were found on the main Tsangpo river. There was, however, one particularly large and high waterfall on a side stream entering the Tsangpo. They then returned upstream to Chetang and Darjeeling.

Topographically, politically and from the point of view of natural history, this was a vitally important expedition providing much-needed first-hand information for the 1914 Simla conference that determined the McMahon line in NE India. During this conference Bailey, through a Sikkimese acquaintance Gyaltsen Kazi, contacted Kinthup in Darjeeling and provided funds for him to travel to Simla. Here he was questioned by Bailey, the only European in India whose colloquial Tibetan was fluent enough to speak to the Dalai Lama without an interpreter. Kinthup's description of the Tsangpo gorge was precisely similar to that of Bailey himself who had just been there. When asked about the height of the rainbow falls he judged it to be similar to the height of the house in which they were talking – about 30-40ft high. It was quite clear to Bailey that Kinthup's original
topographical observations had been misrepresented and the falls of the side stream assigned to the main river. His descriptions were a monument to his accuracy of observation, tenacity and truthfulness, coupled with an extreme devotion to duty, for on many occasions he could have given up his quests. Sadly, a few months after returning to Darjeeling he died.

Verification of the surveys by Kinthup, Bailey and Morshead came with the work of Dunbar in the same area in 1912-13. The height and position of Namcha Barwa were fixed in 1911 by Lts. J A Field and G F Oakes, members of the Abor expedition, and were confirmed by another surveyor, Capt. O H B Trenchard. Namcha Barwa had been seen for the first time by Nem Singh in 1879 and by Kinthup in 1881. It is interesting that on the Survey of India map of 1887, drawn to illustrate Kinthup’s travels of 1880-84, no particularly high peaks are shown, presumably because they had not been surveyed accurately. Both Bailey and Morshead saw Namcha Barwa and Gyela Peri for the first time in 1913, their main survey being confined to the Tsangpo-Dihang gorge itself.

Thus, by the start of the First World War a major chapter in Himalayan exploration had been successfully completed by the Survey of India, and the mysteries of the Tsangpo river had been solved.

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Right
57. ‘The lion-hearted Kinthup’ photographed in Simla shortly before his death in 1913. (Records of the Survey of India) (p.124)

Below
58. Lieutenant-Colonel F M Bailey. ('Beyond the Frontiers' by A Swinson, Hutchinson 1971) (p.124)