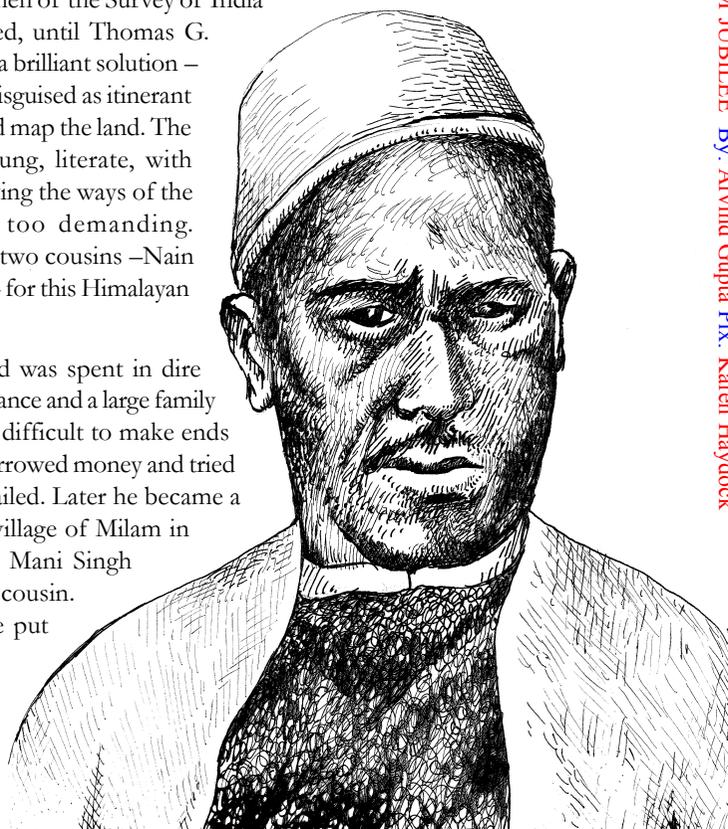


Nain Singh Rawat (1830 - 1895)

After establishing their rule in India it was only logical for the British colonialists to eye the booty which lay in the Himalayas and beyond. But it was tough going. The Emperor of China had closed the Tibetan border to foreigners, on pain of death. Several men of the Survey of India made attempts but died, until Thomas G. Montgomerie hit upon a brilliant solution – of sending in Indians, disguised as itinerant lamas, to literally *spy* and map the land. The recruits had to be young, literate, with Tibetan features, knowing the ways of the mountains and not too demanding. Montgomerie selected two cousins – Nain Singh and Mani Singh – for this Himalayan task.

Nain Singh's childhood was spent in dire poverty. With no inheritance and a large family to support he found it difficult to make ends meet. As an adult he borrowed money and tried his hand at trade but failed. Later he became a school teacher in the village of Milam in the Upper Himalayas. Mani Singh was Nain Singh's older cousin. In 1933, Montgomerie put

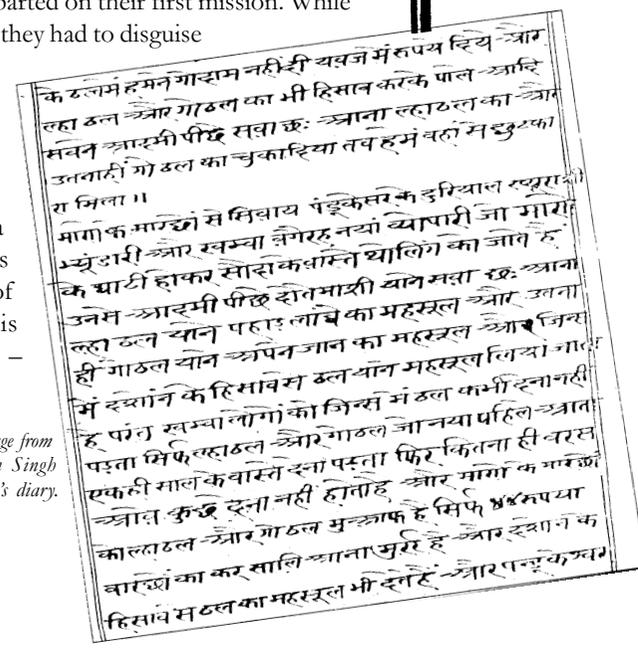


these cousins through a rigorous grind which later become the standard training for all future Indian surveyors – or 'chain men'. They were trained to walk in a measured fashion, so that no matter what the nature of the terrain, each pace measured a constant distance – 33 inches. To keep track of the number of paces, they were given rosaries, with 100 beads instead of the traditional 108. One complete circuit of the rosary would mean 10, 000 paces and measure 5 miles!

Nain Singh's pilgrim outfit had other special modifications. His tea bowl had a false bottom which stored mercury that helped him find the horizon. His walking stick hid a thermometer, which he would dip into tea water just as it came to a boil and thus determine the altitude. The boiling point of water as every school child knows, changes with altitude.

The biggest sacrilege, though, was Nain Singh's prayer wheel. A prayer wheel is a holy object stuffed with scrolls of the Tibetan mantra *Om! Mane Padme Hum!* (Hail! Jewel in the Lotus!). However, inside Nain Singh's divine prayer wheel were hidden his route survey, careful notes that showed altitudes, landmarks, and the distances that he walked. These *barefoot* surveyors were given code names – Nain Singh was the *Chief Pundit* and his cousin, the *Second Pundit*. These codes stuck on; and all later surveyors were called *Pundits*.

In 1865, the two pundits departed on their first mission. While crossing the Tibetan border they had to disguise as pilgrims. Once in Nepal, they separated ways and Nain Singh headed for the Tibetan border near Lhasa. He managed to cross into Tibet by associating with a party of traders. The traders ditched him and stole most of his money. Fortunately, his most precious possessions –



A page from Nain Singh Rawat's diary.



his survey equipment was left behind. It was hidden in a box with a false bottom.

With this primitive apparatus, he spent the entire summer of 1865 journeying to Lhasa, begging for food from the rare caravan that appeared. In January 1866, he finally reached the 'forbidden' city of Lhasa, where he lived like a pilgrim. He stayed in an inn for several weeks, and used the roof of the inn as his observatory at night. By measuring the boiling temperature of water, he calculated the altitude of Lhasa to be 3240 m above sea level. Today with all the modern equipment we know it to be 3540 m! From the angular altitude of stars, he calculated the latitude of Lhasa.

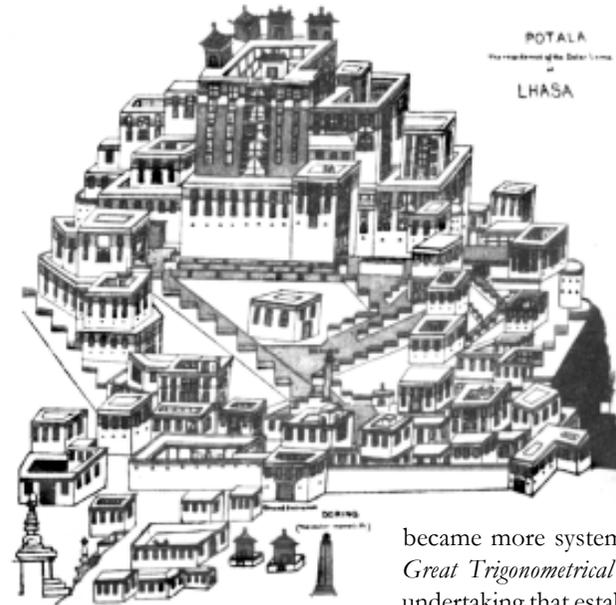
In April, he packed his equipment, and left for India with another caravan of people, who were heading west along the Tsangpo – the major Tibetan River. Finally, one night, he stole away from the caravan and struck north for India, reaching the Survey headquarters at Dehradun on 27 October 1866.

Nain Singh made two more voyages. On his second voyage in 1867, he explored western Tibet and visited the legendary Thok-Jalung gold mines. He noticed that the workers only dug for gold near the surface, because they believed digging deeper was a crime against the Earth and would deprive it of its fertility.

In 1873-75, he travelled from Leh in Kashmir to Lhasa, by a route more northerly than the one along the Tsangpo that he had taken on his first journey. His maps provided the only definitive information on these parts for almost half a century. This last journey had taken its toll on his health, also



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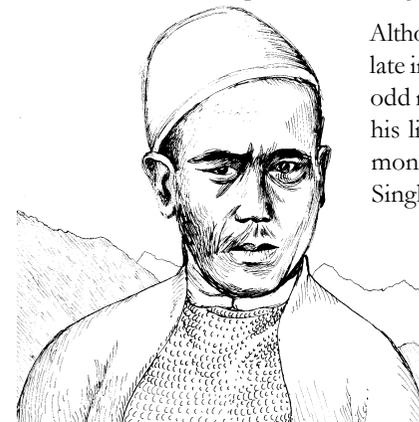


impairing his vision. He continued for a few years to train other Indians in the art of surveying (and spying), and did a highly commendable job of it too.

In Dehradun, Nain Singh's route surveys were collated together and slowly accurate maps were prepared. The process

became more systematic with the launch of the *Great Trigonometrical Survey of India* - a massive undertaking that established well-known points of latitude and longitude and then gradually built triangles between the points until a full map of the coast and interior of India was built.

Nain Singh's name and feats soon gained fame. In 1876, his achievements were announced in the *Geographical Magazine*. The awards and recognition soon started flowing in. On his retirement, the Indian Government honoured him with the grant of a village, and 1000 rupees in revenue. Nain Singh was presented with an inscribed gold chronometer by the Royal Geographic Society (RGS) in 1868. This was followed by the award of the Victoria or Patron's Medal of the RGS in 1877 saying, "Here is a man who has added a greater amount of positive knowledge to the map of Asia than any individual of our time." The Society of Geographers of Paris also awarded Nain Singh an inscribed watch. On June 27, 2004, an Indian postage stamp featuring Nain Singh was issued commemorating his role in the *Great Trigonometrical Survey*.



Although Nain Singh got the recognition he deserved late in life, one wonders why he trudged over 16,000 odd miles of the toughest terrain, constantly risking his life, all for a starting salary of rupees twenty a month! Perhaps, in the end it was all worth it - Nain Singh dared and did what no white man could do.

