



The Height of Health: Sections, Sanatoria, and Settler Colonialism in Northern India, 1815–42

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ABSTRACT

This article untangles a set of early nineteenth-century histories of military expansion by the British East India Company into the Himalayas. It uses shifting approaches in graphical representation to address the curiously slow development of hill stations in these landscapes, alongside medical experiments by Europeans in a radical testing of altitude, bodily effects and racial acclimatisation. It then considers how such medical practices helped disguise nascent actions of white settler colonialism and the usefulness of such actions in anchoring territory.

Historians have recognised a two-phase development in a number of the most significant colonial hill stations across the Himalayas, as they moved from military medical sanatoria to seats of civilian authority and retreat. However, scant attention has been paid to how the first phase of sanatorium construction came about, how conceptually blunt yet seductive theories of health and climate shaped site selection and station design, and what these decisions reveal about a broader essentialising of race and security within British India at this time. For expansion to happen, a cognitive shift in the vertical had first to take place, one rooted in sectional rather than planar thinking. This upward expansion into India produced not only a series of altitudinous urban networks linking various medico-climatic experiments, leading, belatedly, to the construction of hill stations, but also a different way of envisioning race and separation, exposing deep-seated economic and security fears of the Company based on miscegenation.

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But while these naively drawn settlements might initially appear mere embellishments, their relative positions against these two lines suggest the opposite. Most of the enclaves are depicted sitting within a perceived ideal band for European well-being, somewhat above the ‘diseased’ plain of the rivers but below the limit lines of forest and, indeed, of snow.

Begun in 1815, the long section — the accumulative product of numerous plans — had the facility not only to abstract and flatten layers of progressively higher terrain, as if spatially proximate, but to alter the perceptual framing of India by the British. It also altered their ambitions from a desire for surface terrain to a quest for altitude. In other words, this section was — to borrow Humboldt and Aimé Bonpland’s representational technique — a transect (Figure 2). But it was a transect that used the natural features of mountains and sloping river beds to plot not the locations of flora or minerals but rather the distribution of human settlement. The drawing marked what was indigenous against what was of recent European establishment, be it merely a solitary army outpost, a revenue collector’s bungalow or a military officer’s house. Government officials could read this as a manifesto of opportunity for further European high-altitude habitation as much as it recorded a current geography of occupation.⁶



Figure 2 Alexander von Humboldt and Aimé Bonpland, ‘Geographie der Pflanzen in den Tropen-Ländern; ein Naturgemälde der Anden [...] in den Jahren 1799 bis 1803’, Tübingen, 1807, showing a transect through Mount Chimborazo, coloured copper engraving on paper.

Indian hill stations and their relations to height and climate have led to an evolving historiography. A persistent theme has been the focus on these stations as both cultural enclaves and temperate retreats for the British colonial elite.⁷ Up until the 1970s, a dominant history portrayed various hill stations nostalgically and scenically as incongruous European havens, of a transplanted European architecture within strangely familiar landscapes.⁸ Anthony D. King’s distinctive yet homogenous thesis of a ‘colonial third culture’, of a colonially manufactured European constituency, was determined from his fieldwork contact with cantonments and hill stations.⁹ But by the 1990s, inflected by a Foucauldian discourse, historians began to view these elevated sanctuaries in more complex, systematic and generative terms. Such enclaves were argued to both codify and maintain imperial power through a sharp differentiation of race and class, preserving that power by testing and evolving their purposes through a focus on health and separation.¹⁰

Recent scholarship has noted that, of the thirty-seven hill stations built by the Company in India (that is, up until 1857), the majority were first intended as sanatoria rather than military or civil stations, thereby complicating prior narratives in their creation.¹¹ At closer inspection, historians such as Dane Kennedy and later Queeny Pradhan have confirmed that many of the earliest hill stations in the Himalayas first served as exclusive sanatoria for invalid military patients, only later becoming more complete towns for a wider community of civilian Europeans.¹² This sequence is not in dispute. Insufficient focus, however, has been devoted to the initial step of creating these military sanatoria. Moreover, historians have glossed over the puzzling delay of about twelve years in establishing the first sanatoria after the Bengal Army’s capture of this territory from the Nepalese in 1815. ‘The crucial decade was the 1820s’, Kennedy rightly notes.¹³ He argues that the deciding factor that turned European colonists’ attentions to the hills as potential medical havens was the pan-subcontinental cholera epidemic of 1817–21. That was certainly a component in the sequence.

This article, however, demonstrates that a proposition to climb upwards also required a conceptual shift that developed in parallel or even lagged. This shift comes to light through clues peppered across a range of archival and primary sources, both textual and visual. The Company's twelve-year hesitancy reveals that necessary changes in a set of colonial ideologies had first to take place for the British. These required re-employing previous practices of army separation from local Indian populations along racial and hygienic lines, evolving into medical theories of health related to climatic determinism. In essence, they first required a medical rethinking of height.

A DISCOVERY OF HEIGHT

For hill stations across the Himalayas to become conceptually viable, the lower-altitude regions of India, especially along the Indo-Gangetic Plain, had to be condemned not as specific locations but in an absolute sense. This required colonists to begin to consider India's variegated landscapes as part of an ageless, boundless and dangerous tropicality.¹⁴ Two things happened to propel this shift. The first was an ongoing practice of separating the army's cantonments from neighbouring cities, beginning in the early 1800s. The second was India's great cholera pandemic, which started in 1817 and began near Calcutta (Kolkata), followed by a high army death toll by disease in the war with Burma (Myanmar) between 1824 and 1826, such as at Chittagong (Chattogram).¹⁵

The idea of detaching white soldiers from low-lying Indian climates through an essentialist view of altitude had already been partially tested by colonial army elites, conceptualising their condition within architecture on the horizontal plane. James Lind, a Royal Navy physician, in his *Essay on Diseases Incidental to Europeans in Hot Climates* (1768), praised the benefits of living along temperate hillsides, though not on colder mountaintops.¹⁶ By the 1810s, officers were examining the army's enclaves almost surgically: walled cities, fortifications and towns. Military and medical officers linked what they saw as unchanging practices of nearby Indian settlements with sites of dirt and filth.¹⁷ The reasoning varied in each case. For example, at Allahabad (Prayagraj) Fort in 1802, officers of the newly installed Bengal Army had the surrounding ground cleared of bazaars, a procedure generally enacted for defence, but now used to protect against contagion. This cordon sanitaire was a consequence of ongoing ventilation debates over plans to convert the three outer sides of the square palace within the fortress into barracks for 1,000 privates of the European infantry, their cots necessarily placed within the dense string of small chambers linked *enfilade* along the outer wall (Figure 3).¹⁸ In Surat in 1804,

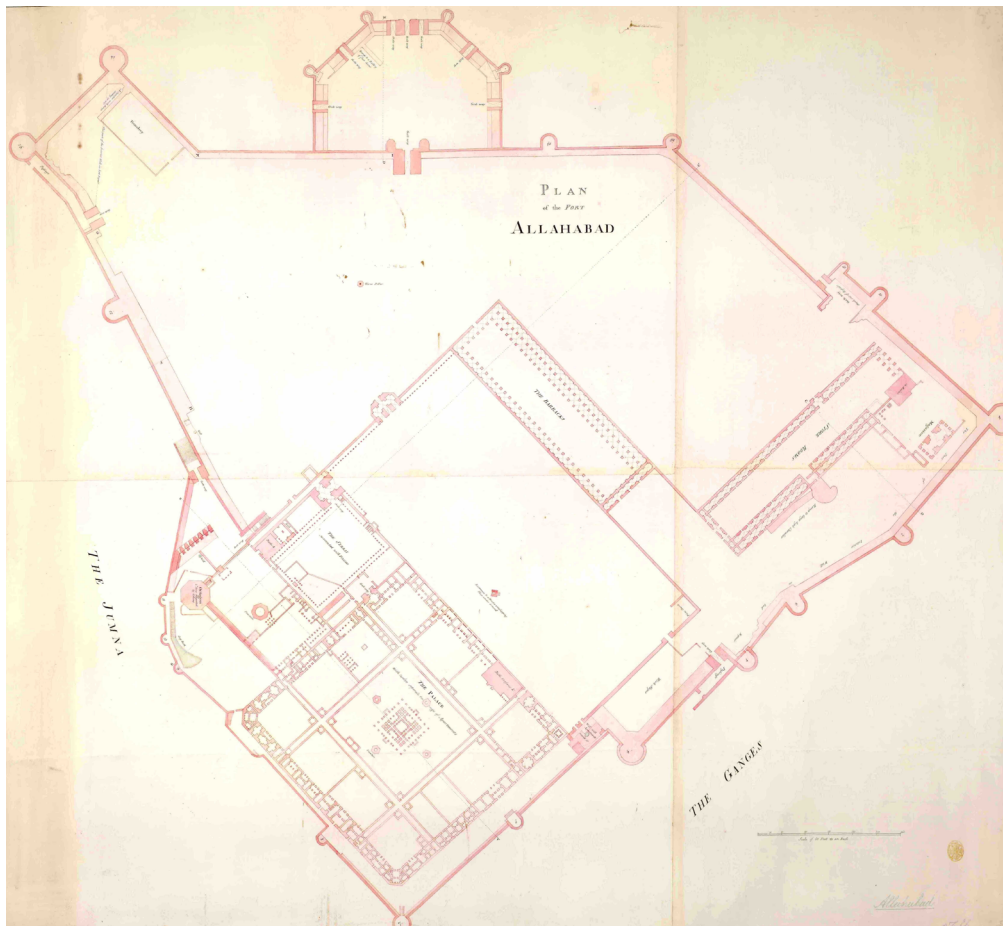


Figure 3 Anon., Plan of Allahabad Fort, showing the palace at the conjunction of the Yamuna and the Ganges, proposed to be converted into cantonment barracks, c. 1770–90, ink on paper, Maps K. Top. 115.53 (British Library Collection).

the Bombay Army used the excuse of crumbling city walls and unsanitary conditions to relocate its cantonment to higher ground, even though similar conditions had persisted for years. This move expanded the army's operational radius.¹⁹ And, in 1812, for the Madras Army at Fort St George, Madras (Chennai), commanders grew concerned about European soldiers mixing with natives in the adjoining Black Town. This intermingling, long practised, was now feared on moral and disciplinary grounds.²⁰ Each case complicates the history of Indian colonial medicine by demonstrating how medical concerns were closely tied to broader issues of military security.

The effects of climate upon the human constitution had been ruminated over by European colonists long before the nineteenth century.²¹ The conception was that a climate's effects were alterable by changing one's geographical location — principally via latitude — upon the earth's surface. It was a remnant of a classical understanding of climate stretching back to Parmenides, Aristotle and Strabo, in which cartographers divided the world into latitudinal zones of 'frigid', 'temperate' and 'torrid'.²² The governor-general, Lord Moira, Marquess of Hastings, declared as much when writing to request troop reinforcement of his northern borders in a secret dispatch to the Company in London in early 1815. 'Experience has shewn', he wrote, 'that a Residence in the Colonies prepares European Troops for this Climate in a manner to render them immediately available to Service in India without hazard to their Health.' The 'Colonies' he alluded to were the Cape of Good Hope and the Isle de France (Mauritius), requesting that they be prepared as acclimatising zones for the seasoning of European troops set for India.²³ These are geographies with latitudes below the equator that are similar to those of central and northern India above it. A paradigm shift had yet to occur in Moira's mind that would have allowed him to conceive of meeting both objectives simultaneously — of strengthening border security while preserving troop numbers — by populating the mountainous territories that the Company was taking with military bases. He was, as yet, unable to think medico-climatically in terms of elevation rather than of terrestrial surface. He failed to make that Humboldtian flip.

Moira was not alone at the time. Even James Johnson, author of the celebrated book *The Influence of Tropical Climates on European Constitutions*, first published in 1813, presented a medical 'journey' of fevers distinguished by their geographical locations on the surface of a map rather than through changes in altitude. Here, Johnson used a method familiar to doctors' accounts: the force of his own experience of morbidity, drawn from notes of his travels through the Bengal Presidency, combined with colleagues' reports across the eastern and western hemispheres and in the Mediterranean. Johnson emphasised the idea of a 'region' delineating an environment within which particular diseases were associated. However, in his enlarged second edition of 1818, he had further developed this understanding. He acknowledged that tropical boundaries were not as sharp and that diseases seemed to extend beyond them. To address this, he invented the term 'tropicoid' climates, referring to zones adjacent to tropical regions that generated disease only at particular times and resembled those of their equatorial neighbours. 'He then who studies the influence of Tropical Climates on European Constitutions, by *parallels of latitude*, will do so inefficiently', Johnson argued. 'It is like studying the physiology of the stomach or liver, without taking into consideration the functions of surrounding viscera.'²⁴

This greying or overlapping influence of regions upon the European constitution was all well and good for the medical explorer. Still, it did not align well with the rigid clarity between regions demanded by colonial administrators, increasingly eager to justify separating European troops from Indian populations. In fact, the process went in reverse. Due to war and mutiny in the mid-1820s, officials divided the Bengal Presidency into distinct medico-geographical zones.²⁵ This division enabled the colonial administration to manage regions differentially. The government began to listen attentively to medical advice, thereby allowing the conception of military hill sanatoria.

By late 1822, in southern India, the Madras Medical Board had submitted a report by three surgeons on their personal experience in the Nilgiris Hills. This region was a mountainous zone between Coimbatore and Wayanad towards the Malabar Coast. Its upper table — the Ootacamund Plateau — had been recently discovered by the revenue-collector-turned-explorer John Sullivan. Pitching its wondrous merits to the Board of Revenue, he described it as an elevated plateau

upon which every European as well as Tropical production would grow, situated in a climate so temperate that Europeans might labour out of doors with impunity for the greater part of the day, abounding in ranges of pasture for Cattle and possessing inexhaustible supplies of the finest water.²⁶

A component of determination was visual information. Politically, Ootacamund needed to appear familiar, almost English in its disposition. Indeed, its softly undulating hills captured by military sojourner artists over the immediately succeeding years helped in this reassurance (Figure 4).



Figure 4 Lieut.-Gen. Sir Richard Strachey, View of the Ootacamund Plateau, c. 1839, watercolour on paper, India Office Records, WD2332 (British Library Collection).

The Board subsequently called for testing of the hill climate by convalescent European soldiers from various regiments, who were to live there for a time.²⁷ However, without any perceived immediate benefits to the security of the Presidency, these recommendations were shelved. As part of this initial experiment, however, a surveyor was called upon to determine the ‘true elevation’ of the Nilgiris using trigonometry. Due to the high-altitude fogs, he deduced the information from a combination of barometer and thermometer readings.²⁸ Thus, colonists began to use climate readings to determine height accuracy. By inversion, such a simple, scientifically authoritative result would feed a new theory: that one’s exact elevation above sea level determined a location’s therapeutic efficacy for convalescent Europeans. The simplicity of this notion and presumption — removing considerations of geographical specificity — encouraged other agents, military and medical, to adopt similar lines of inquiry for different sites across India. By the mid-1820s, this presumption would affect the locating of all cantonment sanatoria in northern India.

Almora, a hill settlement along the edge of the southern Kumaon Hills in the Himalayas, was, most likely, the site of India’s first high-altitude colonial military health depot. At a relatively modest 5,300 feet above sea level, it was where an attack was made upon the Nepalese by the army of the Bengal Presidency in 1815, and so formed an early base for the Company’s troops.²⁹ Unusually, the cantonment was constructed with private donations from army officers.³⁰ Unlike other hill stations the British later established, Almora was already a thriving town, founded under the Chand dynasty some 250 years earlier. In contrast to the expansive table hills of the Nilgiris in southern India, the range of the Himalayas presented a particular topological challenge for the Bengal military; to ensure the security of swift communication between points across the settlement — that is, to maintain as sufficient a horizontal set of relations as possible — the army’s positions were constrained by the direction of razor-thin ridgelines along which they invariably built most of their installations. Almora was where they first learnt to think sectionally instead of in plan. Sacrificing planar organisation meant that the military cantonment had to be reinvented as a formal and functional concept.

A horseshoe-shaped ridge, Almora was formed of one central three-quarter-mile-long street running north-west-south-east and joining two bazaars at either end. Bisecting this was an old fort and palace, later converted into a jail. The cantonment’s limited troop lines formed at the western end of the town, their rear protected by a second fort dubbed ‘Fort Moira’.³¹ Tellingly, Major Hyder Young Hearsey’s first view of the recently captured settlement, labelled ‘Almorah, no. 1’, is notionally sectional (Figure 5). The old fort and palace are visible on the left, while the flagstaff of the new cantonment is at the far right of the ridgeline. It was here, perched 2,000 feet lower than Ootacamund, that the Bengal Army erected their first bungalows for the sick and invalided European veterans of the war.



The colonial Bengal government ignored this informal health experiment until the end of 1819, when the senior medical officer claimed 100 rupees per month for out-of-pocket expenses incurred in attending to his patients. In his letter, he stated that,

although the Establishment of Bungalows for Sick Officers at Almorah has not fully effected every object intended, many Officers have, notwithstanding, recovered their health who might have otherwise been obliged to visit the Cape or go to Europe.³²

Here was the first assertion by a military officer of an economic imperative for high-altitude recuperation. Five years would pass before the governor-general and council cursorily noted that this was the last report received on that project. The obscurity of Almora's health experiment was likely because the military was occupying an established settlement, and it was but one part of an indistinguishable series of functions in the design of Almora's cantonment. It would take a further eight years, to 1827, for the first custom-built sanatorium of the Bengal Army at Landour, by Mussoorie, to be constructed from scratch, by which time chief members of the colonial government would pay every attention to its progress.

AGENTS ASCEND

John Sullivan was a pioneer in a line of European advocates who, through personal testimony and self-experimentation, sought to persuade the Company to establish new stations at high altitudes for healing. Of course, apparent difficulties of distance and access had to be countered by powerful advantages. For almost every apologist, two main modes of appeal were formulated and conjoined. These advocates almost always linked physical recovery experienced in the hills to mental recovery. This second benefit rested upon the notion of association, where the invalid would delight in thinking he was back in Britain. They argued that, with little effort, the body's senses — particularly of sight — would perceive a familiar environment. Through further exertion, an invalid could transform the familiar into the identical through horticulture and architecture.³³ It was a powerful, seductive, combinative argument. It enabled an enduring and vital link between security strategies of military health and European colonial settlement, between the early military sanatoria and the later civilian government centres that grew up on selected hill sites.

A series of illustrations of the Himalayas was published at about this time to strengthen the association argument. These images served a dual purpose. Mildred Archer has described a shift in the focus of British landscape painters of Company India from about the 1810s, a shift she describes

Figure 5 Maj. Hyder Young Hearsey, 'Almorah, [View] No. 1', 1815, watercolour and pencil on paper, India Office Records, WD4474 (British Library Collection).

as a movement away from the sublime and gigantic towards an ‘intimate picturesque’, of a more microscopic gaze.³⁴ This shift may also be explained as a movement away from the crumbling ‘exotic’ architectural monuments of Indo-Gangetic India and towards what European explorers considered the untouched, untamed natural scenery of the hills. In contrast, acting beyond the senses, Brahminic travellers, *swami* (ascetics) and *rishis* (sages), ritually journeyed across the Himalayas seeking holy spots, perceiving their routes as saturated with hidden human activity across a temporal landscape stretching back generations. More locally, *sadhus* (holy persons) and their followers worshipped within myriad sacred locations, visually unprepossessing sites often overlooked by Europeans.³⁵ The pre-colonial indigenous landscape also formed a rich lattice of labour, leisure and trade. In Ootacamund, this ranged from the dairy production of the Toda to the animal husbandry of the Bhil; around Shimla (Simla), from the regional dominance in agriculture of the Koli to the cross-border trade of the Pahari.³⁶

Not coincidentally, this period of European visual production coincided with the time when the Himalayan territories to the north first opened to the British. As with the famed painterly journeys of William Hodges and the uncle-and-nephew team of Thomas and William Daniell two decades before, artists such as James Baillie Fraser were not merely recorders of picturesque views within India but Company reconnaissance scouts of resources. Except, now, the exploitable resources were not cultural claims over historical monuments but the raw materials of a territory. Fraser’s *Views in the Himala Mountains*, published in 1820, was a watershed moment in pictorial realisation. Allied with his brother William, the commissioner for territory settlement in Garhwal, Fraser was able to push deep into the Himalayas in 1815 to depict and reveal the sources of both the Ganges and the Yamuna rivers (Figures 6 and 7).³⁷ Through a reverse-engineered approach, once the source is seen and known, each waterfall and tributary, each cluster of forest, its timbers identified, can be mapped and sequenced within the album by working backwards across the aquatint plates.



Figure 6 and Figure 7 James Baillie Fraser, ‘Byramghattee’, and ‘Jumnotree, the Source of the River Jumna’, forming a pair as the last pages of *Views in the Himala Mountains* (London: Rodwell & Martin, 1820), hand-coloured aquatint on paper.

Fraser was merely the first in a series of army illustrators who combined the picturesque with the ambitions of reconnaissance to depict the hills of northern India. The private journal of Lieutenant Charles Farquhar Trower — written between 1834 and 1838 — is filled with pen-and-ink and watercolour sketches that capture a variety of landscapes, cultures, architecture and road infrastructure, conveying the sheer immensity of the opportunities that journeys between new hill stations offered to the army adventurer (Figure 8).³⁸ Later, Lieutenant-General Sir Richard Strachey (the future planner of Allahabad’s Civil Lines) produced an extensive series of watercolour drawings during his early life in the hills, including lithographs for his unpublished ‘The Physical Geography of the Himalayas’. Within this series, he painstakingly illustrated the movement of glaciers. He also drew a series of waterfalls, possibly to locate both the water supply and the sources of latent energy.³⁹



Figure 8 Capt. Charles Farquhar Trower, 'Sketch of the little fort of Kenge taken from the Khoteghur road about three miles from the Phagoo Bungalow [near Shimla]', 23 June 1835, watercolour on paper (journal), India Office Records, Ms Eur B.307 (British Library Collection).

Captain John Luard published a series of lithographs in 1838, though drawn over the mid-1820s, which contrasted the familiar congested urban imagery of the Indian plains with the perceptual sparseness of India's hill culture. These included the earliest views of hill stations seen, such as Mussoorie and Shimla.⁴⁰ Visiting Shimla in 1826, he drew the first bungalow built, perched perfectly within the mountainous scene as if a gingerbread cottage from a Brothers Grimm fairytale (Figure 9). This hybrid confection belonged to Major Charles Kennedy of the Bengal Horse Artillery. Shimla, a forested ridge considered outstanding in its profile and views at about 7,500 feet above sea level, had been discovered by Kennedy's predecessor in a hunting expedition in 1819. By 1822, Kennedy was constructing his timber lodge upon it.⁴¹ One visitor, the French naturalist Victor Jacquemont, vividly recounts in his letters how the Pahari and Koli peoples rapidly built this architectural seed: 'Some hundreds of mountaineers were summoned, who felled the trees around, squared them rudely,

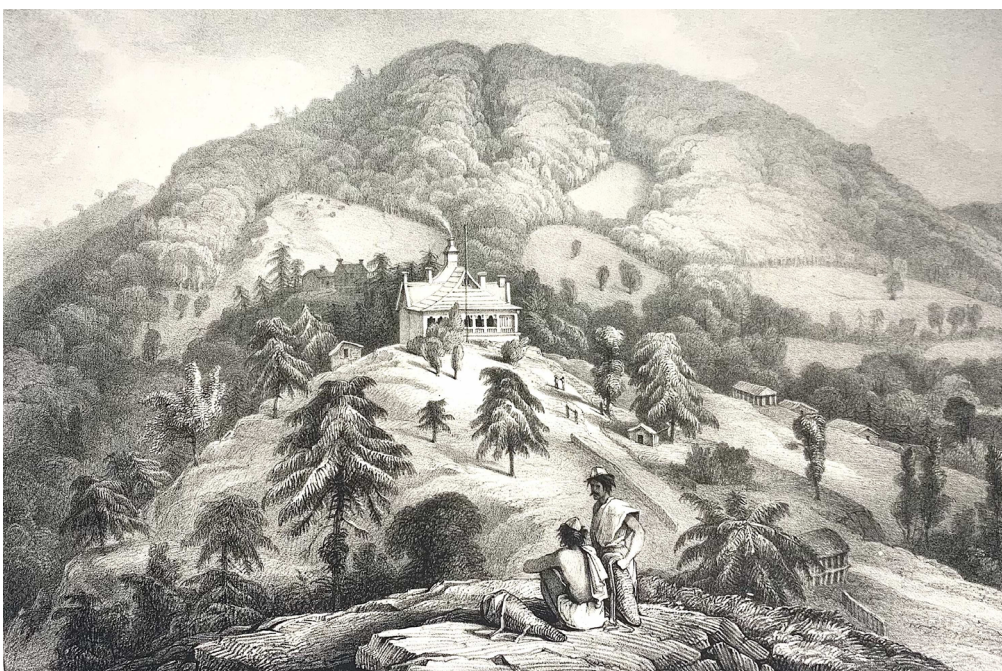


Figure 9 Capt. John Luard, 'Major Kennedy's House, Shimla', as sketched in 1826, in *Views in India, Saint Helena and Car Nicobar* (London: J. Graf, 1838), lithograph.

and, assisted by workmen from the plains, in one month constructed a spacious house.' By 1830, Jacquemont could write to his father, 'Each of the guests wished also to have one; and now there are upwards of sixty scattered [houses] over the peaks of the mountains or on their declivities.'⁴²

Shimla became, of all hill stations, that most conspicuously associated with British rule in India, feted as it was by future governors-general, and subsequently by the rest of the Bengal government, as a summer retreat and part-time capital. But it also had military beginnings, conceived from the first as part of a broader security network. Kennedy — a horseman and scout — quickly recognised and exploited the vast though dispersed reservoir of manual labour in the hills. By 1827, he had built, through the formulation of gang work, a network of five long roads, measuring between 6 and 12 feet in width, with an aggregate length of 255 miles.⁴³ This infrastructure opened up hill settlements across the western Himalayas.⁴⁴

The year 1824 was significant for the development of colonial spatial ideology in India, perhaps the year the 'Humboldtian flip' was made. Medics offered the earliest self-proclaimed 'medical topography' studies at Calcutta's newly formed Medical and Physical Society that year. Developed by army doctors, medical topography was a recent branch of military topography in which every natural and constructed land feature was scrutinised. Now, however, the combined purpose of that scrutiny was to ensure a site's health rather than its defensive position. During the Society's proceedings, doctors compared cantonments built in low-lying and marshy Chittagong in eastern Bengal to dry and elevated Meerut by the foot of the Himalayas in the North-Western Provinces. Studies suggested a direct link between altitude and relative health.⁴⁵ That same year, a young surgeon, Julius Jeffreys, further advanced this hypothesis. Jeffreys — who went on to invent the respirator — identified a set of hill stations and enlisted the help of monitors to reside at each, including at Subathu, Kotgarh and Karnal, where they regularly measured air temperature, barometric pressure and moisture content.⁴⁶ He dismissed the particularities of sites regarding soil and vegetation, arguing that, as every ground surface sloped, there was no standing water nor rotting matter to consider. The interface between skin and air was what concerned him. 'The truth of this', he wrote, 'will become manifest by considering that there are no means by which the interior of the body can be affected from without, but through the medium of the skin.'⁴⁷ By solely considering air and skin, he was simultaneously both racialising and climatising health under a universal rubric, providing the army with a 'scientific' reason to separate European soldiers from the plains.

Jeffreys dutifully fed his reports to the colonial government for over a year, subsequently condensing them into an essay for broader circulation.⁴⁸ The essay's impact on the development of the first military hill stations was enormous, thanks to its simple conclusions.⁴⁹ Jeffreys was unambiguous about the results. He declared, 'At altitudes between six thousand five hundred and seven thousand feet, climates will be met with approaching very nearly to that of the temperate parts of Europe.' He concluded,

It is of importance to observe, that in order to secure all the benefits of climate above specified, it is highly necessary the situation chosen for residence be not of less altitude than six thousand five hundred feet, as otherwise much of the benefit afforded by these climes will be lost.⁵⁰

He called for establishing a band across the Himalayas for European inhabitation. Following Jeffreys's analysis, the army soon built British India's first medical cantonment sanatorium and convalescent depot precisely in this band on a mountain ridge soon opposite the new settlement of Mussoorie.⁵¹ It would be called Landour.

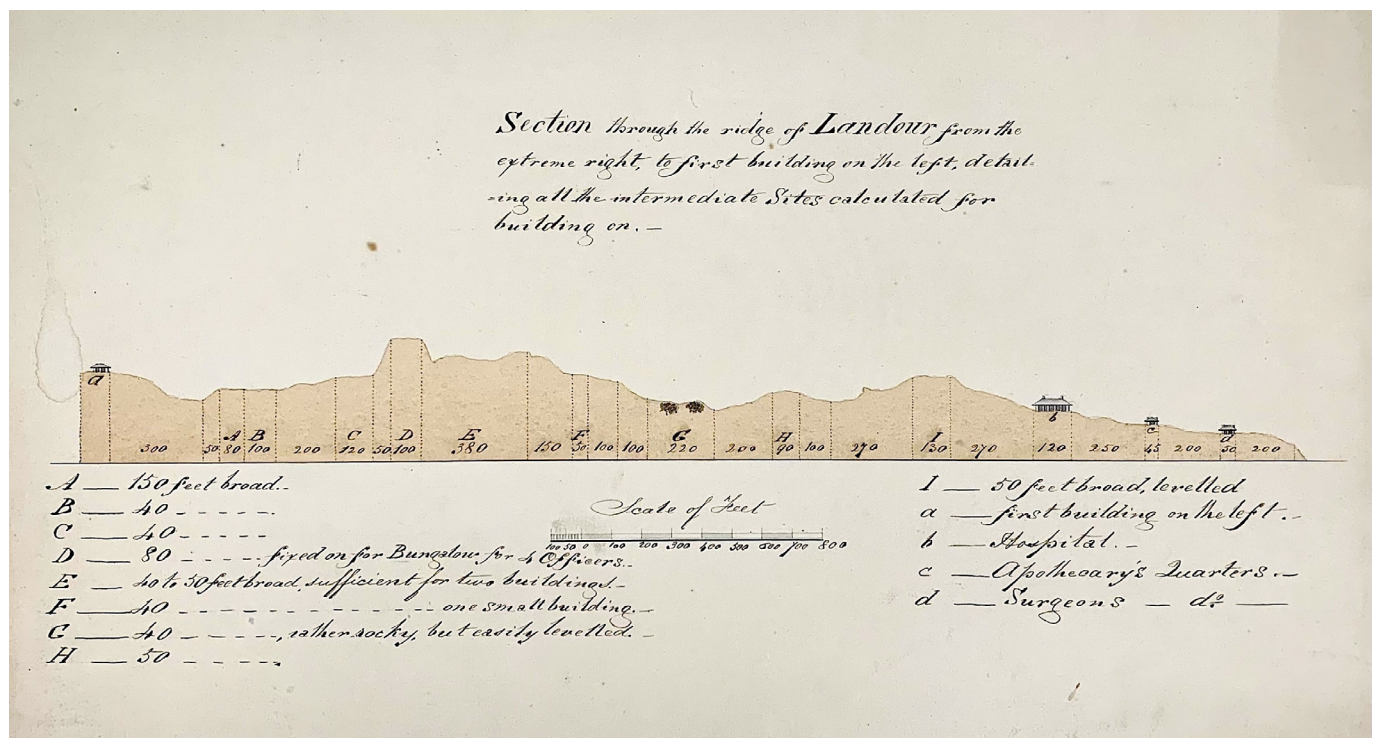
THE LANDOUR EXPERIMENT

Landour and Mussoorie are often spoken of together. They exist as twin settlements on ridgelines facing each other across a divide of about three miles. In this context, Landour, India's first medical cantonment, was indeed a bold experiment, but not as the military had intended it.⁵² Its apparent, custom-made isolation as a medical haven was entangled by its inevitable relations with Mussoorie. From the start, the so-called purity of the spoken experiment — to determine which diseases might be cured or alleviated by a short-term stay at the sanatorium of Landour, established at a precisely determined height — was complicated, even countered, by the unstated desire to test a parallel strategy of European settler colonisation of those same hills. This is where the principal problem revealed itself. Colonisation required able bodies; sanatoria required the sick. How could the army possibly combine the two projects?

The Landour experiment ought also to be seen as an organisational extension of Meerut Cantonment thousands of feet below — a European not *sipahi* (native troop) cantonment — and an exertion of territorial extension by Bengal's white troops.⁵³ Captain R. MacMullin, Meerut's barrack master, was charged with constructing the first set of buildings along Landour's slender ridgeline: an assemblage of dwellings, and a small hospital to accommodate one hundred European soldiers, together with an apothecary and a surgeon's quarters.⁵⁴ It was an unenviable task. MacMullin was obliged to spend part of his time in Meerut, continuing his work on barracks for the King's Regiment, and so scuttled up and down by horse and pony between sites across the winter months of 1827 and 1828. Skilled *mistri* (master craftsmen) based at Meerut under MacMullin were sent up from the station into freezing conditions to undertake the carpentry work. Yet, by March 1828, the sanatorium at Landour was ready to accept its first group of patients.⁵⁵

In 1828, an army surveyor sketched the station during that first year of operation. It is the earliest-known visual document of Landour. But it is not pictorial, nor indeed is it a plan. The 'Section through the ridge of Landour' illustrates, as if with empirical precision, the perceptual anxieties of life along a precipitous, elevated medical experiment (Figure 10).⁵⁶ It bears a conceptual debt to the great Himalayan section of 1822 by Hodgson and Herbert, and recalls Hearsey's first view of Almora. However, the dramatic tendency to project a section rather than a plan to determine future buildings' sitings is initially somewhat puzzling. After all, the horizontal dimensions of the ridge, both width and length, were needed for plots, as stated on the drawing. But perhaps this was not altogether the point. Landour's drama lay in its relative heights, compressed somewhat overdramatically along the sheet. It was upon the topography of a line that a soldier's daily existence played out. Hodgson and Herbert had drawn a world projected at a distance from the spectator, with layers of hills and river inclines overlaid, a panoramic boast from two surveyors of territorial conquest. In contrast, the Landour section placed and bound the spectator upon a thin, undulating line as if the flattened fibrillations on a physician's chart. Numbers, given in feet, underpinned each length strip; the stakes for dimensional accuracy seemed much more concentrated than on a more extensive sectional survey, the precise relations of height more life-intensifying.

Figure 10 Anon., 'Section through the ridge of Landour', 1828, India Office Records, WD3809, ink and wash on paper (British Library Collection).



Mussoorie, meanwhile, sat in taunting proximity to Landour. Its size had grown visibly since 1827, with houses springing up along its ridges (Figure 11). As the commander-in-chief noticed, during the second recuperative season at Landour, from April to November 1829, there were twenty-six invalided military officers living in Mussoorie with their Indian spouses and Eurasian families, together with a considerable number of civilian officers, the latter undocumented.⁵⁷ This sister settlement shadowed Landour, unofficially duplicating its experiment, with its residents imploring Landour's doctors for the same medical assistance.

Because of the difficulty of access between the two settlements, in 1829 a medical committee recommended that an assistant surgeon, himself on sick leave at Landour, be sent across to 'this new, widely extended convalescent station' of Mussoorie to reside there and tend to the inhabitants' needs.⁵⁸ In addition, the committee recommended in a separate letter that another assistant surgeon remain behind at Landour over the winter months, thereby altering the parameters of the experiment by providing supervision for patients fit enough to benefit from extreme cold and year-round convalescence.⁵⁹ Such an adjustment only makes sense in the light of a conjoined, unstated experiment to test the benefits of long-term inhabitation in and around Landour. Why would a cured patient not be usefully discharged and returned to the plains and his regiment? In other words, the physicians assembled at Landour were hesitantly attempting to test settler colonisation through a regime of permanent convalescence, partly prompted by the proximity of an experiment already under way at Mussoorie.



Figure 11 Lieut.-Gen. Sir Richard Strachey, 'Mussoorie from Eagle's Nest', c. 1839, India Office Records, WD2332, watercolour and pencil on paper (British Library Collection).

Back in 1816, without understanding altitude, settler colonisation was neither an objective nor a plausible strategy for the Company. During this lacuna, the fear of European miscegenation with the peoples of the subcontinent grew. This fear had reached fever pitch among the London-based Court of Directors by 1820. They wrote to the governor-general in Calcutta:

It did not escape our notice that in many cases soldiers on their return to England leave Families behind them, the members of which may become obnoxious to Society in consequence of the loss of the European parent. But We considered that this evil would be far surpassed by another, if it were admitted in any manner whatever that a claim to permanent Residence in India would be established by forming connexions with Native Women.⁶⁰

For the Company in the 1820s, interracial children posed an existential threat to the core project of imperial governance, of rule at an increasing distance. It jeopardised the enactment of increased separation between European soldiers and Indian populations. By their very existence, such children were perceived not only as a financial drain but also as a political liability, a new societal glue binding the Company to the territory it was unwilling to contemplate. While intermarriage was commonplace among civil officers throughout the eighteenth and early nineteenth centuries, such cases were proportionately low. Miscegenation among the white armed forces was perceived to be of a different magnitude. When invalid figures had been low, such pensioner soldiers had been neatly contained, finding posts in the European invalid garrison at the cantonment fort of Chunar, for instance. Newer, sharply increased numbers of invalids made such a containment proposal impossible.⁶¹ But what if hill stations could address this on two fronts? What if they could neatly tuck such families and their mixed offspring above and away from the 'malign' influence of Indians along the plains below, while such stations might also provide an inducement to produce and retain more European children in India, thus anchoring white families instead of brown?

Early European colonisation by troops and the monitoring and mentoring of such soldiers' children were the impulses behind many of India's most prestigious boarding schools being built in hill stations. The first, the Mussoorie Seminary, was privately established in 1834 and lasted sixty-six years until its closure in 1900.⁶² However, institutions such as the Lawrence School in Sanawar (1847), Woodstock in Mussoorie (1854), the Lawrence School, Lovedale in Ootacamund (1858), the Bishop Cotton School in Shimla (1859), St Paul's in Darjeeling (1864), Sherwood College in Naini Tal (1869) and St Mary's in Mount Abu (1887) remain today among the most distinguished educational establishments in India. As hill sanatoria had countered the high cost of furlough by allowing European patients to recuperate in India, the hill school, the colonial government thought, might counter the evacuation of hundreds of white children to Britain for their education by retaining them in India, providing a bulwark against the growing number of Eurasians.

Military writers laid the groundwork for hill schools through careful propaganda on child health. Captain Skinner's journey to Landour in 1828, as presented in the second epigraph to this essay, mimicked Humboldt's account of altitude against flora in the first epigraph, emphasising that the 'rosy cheeks' of the children, 'so rare generally in the plains, would rival those of the healthiest country babes in England'.⁶³ Skinner does not say whether these children are European or Eurasian, especially since the 'rosy cheeks' appear as a surprising effect of altitude on all the children, with youth and innocence supposedly making them more susceptible to the energising effects of a cooler climate. However, the timing of his account almost certainly means that these are Eurasian children, allowing us to read his words as an act of concealment. The captain travelled in April, in the wake of the first patients carried to the medical cantonment a month before, and he was accompanied by the mixed families of invalid European soldiers encouraged by the news and drawn by the magnet of Landour, with many heading for Mussoorie.⁶⁴

THE HILL SYSTEM

From very early on, white settler colonialism of the hills became integral to the Bengal Army's expansionary security infrastructure. Following the Company troops' disastrous retreat from Kabul in 1842, the Bengal Presidency, under a replacement governor-general, Lord Ellenborough, swiftly planted military bases north-westwards. The army replicated the earlier hill stations and sanatoria of the Himalayas in parallel, with newer cantonment bases along the plains. By November of that year, Ellenborough had strategically linked the hill stations with plains stations as pairs along twin tracks (Figure 12; see stations indicated along the top left). He developed a sectional strategy that tied Landour, Kasauli and Subathu as a high chain of protection across the frontier, with Ambala, Ludhiana and Firozpur as the lower line. These were to be joined by new roads and the intermittent construction of semaphore-telegraph towers.⁶⁵



Figure 12 G. U. Pope, Map of 'The North-Western Provinces and Nipal', in *A Text-book of Indian History* (London: W. H. Allen & Co., 1880); the positions of all significant plains and hill stations of the North-Western Provinces have been overlaid by the present author.

Kasauli and Ambala were essential to this arrangement as new high-to-low pins. The army selected Kasauli as the site for a cantonment depot at that magical altitude marker established by Jeffreys back in 1824 of 6,500 feet above sea level, ‘ascertained’, said the agent of Subathu, Colonel Tapp, quite dutifully, ‘by taking the temperature of boiling water with two excellent thermometers’.⁶⁶ Tapp, familiar now with the components of a correctly disposed hill station’s architecture and ecology, confirmed that

I have marked out the proposed ranges of Barracks, which from the irregularity of the ground it will be better to make 4 in number, each capable of containing 75 men. There is plenty of room for the Hospital, Cook rooms &ca, and on three sides of these there are several sites for Government Bungalows. On the fourth side there is a strip of Ground well adapted for a Garden which can be parceled out into small plots, for the amusement and comfort of the best behaved men in the Depôt. I have sown a great number of the seeds of the other species of Fir, and also of the Ilex and Rhododendron, which in the course of a few years will considerably improve the beauty of the place.⁶⁷

Though cantonments, whether now as hill stations or plains stations, were devised to be easily replicable, in reality, the cost of building new stations out into expanded regions often entailed the closure and cannibalisation of other stations further behind. In this regard, Ambala’s birth depended upon another’s death. Decades earlier, the Bengal Army had promoted Karnal Cantonment for its position within ‘a vast plain situated at the mouth of a pass’, and for ‘its proximity to the river and general healthiness’.⁶⁸ It sat on the (then) frontier of Sikh territory. The river hemmed in its eastern edge, and Karnal Cantonment pressed its southern boundary line hard up against the ‘decayed’ brick walls of the rounded indigenous town that acted as the cantonment’s bazaar, restricting the town’s growth while freeing the cantonment to cast a wide rectangular field for itself northwards.⁶⁹ It was a dispositional stratagem common to many plains cantonments. Now, the governor-general studiously used the power of medical topography and the authority of the medical professional at close quarters to achieve different, broader security objectives.

Back in 1831, Jacquemont had described the town of Karnal as

an infamous sink, a heap of every sort of uncleanness; amongst heaps of dung, brick-rubbish, and carcasses of beasts, are winding paths, scarcely passable for horses, and having there a few miserable huts. I have seen nothing so bad in India.⁷⁰

The executive had to amplify this portrayal of Karnal as inherently and irredeemably unhealthy, particularly when compared to Ambala. In his general order of November 1842, Ellenborough, perched up at Shimla, considered the ‘extreme unhealthiness’ at Karnal as justification for the dismantling of the European infantry barracks there, wherein whatever materials could be reused would be transported to Ambala for reconstruction.⁷¹ All that remained — indeed remains — as evidence of the cantonment’s existence is the impressive *pukka* English Baroque-style 115-foot-tall bell tower and portico of St James’s Church, abandoned following a demand by European soldiers to preserve it since it had been built through public subscription (Figure 13). Troops hauled the rest of its salvageable materials northwards across a canal and two rivers to Ambala.

Over time, as each medical committee’s report at each convalescent station failed to confirm that precise altitudes mirrored similar recovery numbers for similar ailments, the panacea of altitude faded and blended with other factors. However, such failure led to a shift in the way the function of a hill station was considered for the benefit of European health. As the Company began to accept hill stations as integral to British Indian security, institutional arguments for health altered from strategies for troop recovery to methods for their preservation. By 1870, an editorial in the *Calcutta Review* echoed what was now the dominant logic of height for the sanitary reform movement in India, as it recalled that

Much disappointment was experienced with regard to the climate of elevated regions. Too much was expected from them. There was a tendency to overrate their influence on disease, and it is only recently that the true value of Indian hill climates is becoming fully understood. They should be regarded as the means of *maintaining* the health of soldiers, not as curative agencies. The true value of the climate of the Indian hill ranges and elevated regions is *preventative*, not *curative*.⁷²



Figure 13 Bell tower and portico of St James's Church, Karnal Cantonment, photograph of 2012 by Parneet Singh (licensed under CC BY 3.0); the majority of the church was dismantled soon after 1842.

And so it appeared that settler colonialism had aligned with a newer narrative of preservative health, each suited to the reality of a post-1857 Rebellion, post-Company India. Both formed part of a more extensive reasoning, one in which the newly coined 'Raj', the reformulated colonial government, now believed that its very existence depended upon a radically enlarged, permanent presence of European soldiers protecting its interests, not just along the boundary of but also within an enlarged India, and at heights to suit their health.

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