

# The PORTOLAN

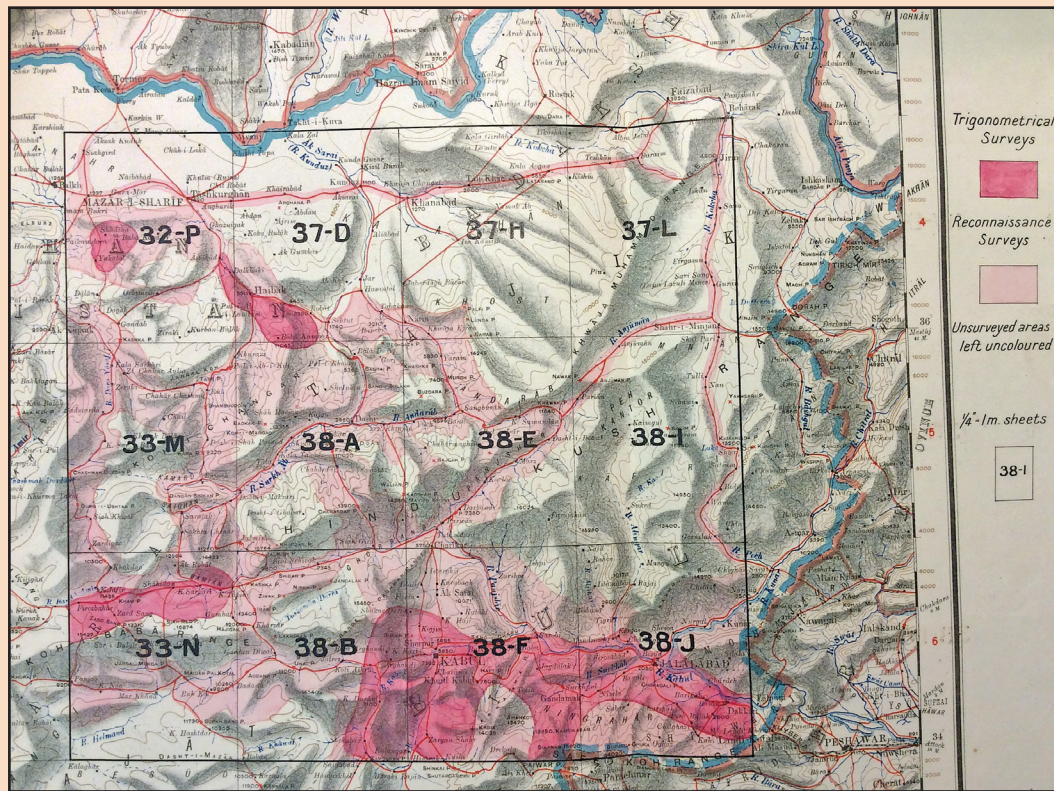
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2020 Ristow Prize for Academic Achievement in the History of Cartography

## From the Hilltops: The British Mapping of Afghanistan, 1839–1919

by Emily Boak



A diagram showing twelve adjacent map sheets, indicating the portions of those territories that have actually been surveyed [whether through trigonometrical survey (dark pink) or reconnaissance survey (pale pink)]. © British Library Board IOR/L/PS/12/1719. From the file, Coll. 3/129: *Suggestion to improve mapping in north eastern Afghanistan*. Courtesy of British Library India Office Records.

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2020 Ristow Prize for Academic Achievement in the History of Cartography

# From the Hilltops: The British Mapping of Afghanistan, 1839–1919

By Emily Boak

## INTRODUCTION

Afghanistan is one of the most imaged places in the world.<sup>1</sup> Satellites, drones, and laser scanners ceaselessly upload data to an ever-expanding mosaic of images and maps in the cloud, on university servers, and in government offices. Outside of the most recent war and occupation, however, Afghanistan has long been a place that foreign eyes attempted to capture and visualize from a distance. From the nineteenth century onwards, the growing colonial use of the aerial bird's-eye view shaped mapping into a new science in this Central Asian region. In this paper, by examining the British Great Trigonometrical Survey and the move toward mechanically reproduced and aerial images, I argue that the predominance of the aerial perspective in external representations of Afghanistan far predates the formal arrival of aerial and satellite imaging. Rather, as the systematic and mathematic methods of trigonometric survey allowed maps across British India and its hinterlands to be joined in one seamless image, the cartographer's identity faded, and maps began to present a single universal perspective akin to the satellite "view from nowhere." At the same time, trigonometric survey methodologies demanded the ability to see from up high and far in the distance and set the stage for the systematic mapping campaigns and aerial photography of the Soviet military, and later, the United States.

## TECHNOLOGICAL AND CARTOGRAPHIC CHANGES

By the 1860s, the rapid development of photography coupled with the new vantage points popularized by the panorama and air balloon had established maps as "innately panoptic views from above," for the aerial vantage point and vast visual scope afforded by these new methods of seeing allowed the entirety of a landscape to be taken in at once.<sup>2</sup> These technological advances further reinforced the existing Western conventions of single-point perspective.<sup>3</sup> That is, as precision in cartographic projects was pursued, it demanded the dimensional,

measurable view that only the aerial perspective could provide. This perspective enabled the creation of precise, systematic maps that, in turn, allowed maps to be seamlessly joined to create continuous coverage. As seamless, empire-wide projects of mapping developed, the authority of the cartographer shifted, and the individual figure of the mapmaker was gradually superseded. Amid these rapid technological changes, photography enjoyed an unproblematic and naturalized view as the camera—the new "observational machine"—came to reinforce the scientific authority of the surveyor and explorer.<sup>4</sup> Speaking of the sudden changes to cartographic processes, Colonel Thomas Holdich, cartographer for the Afghan Boundary Commission (1884–1886), lamented that,

Exploration in these days is becoming so professional and so scientific that modern methods hardly admit of the dare-devil, face-to-face intermixing with savage breeds and races that was such a distinctive feature in the work of these heroes of an older age. We get geographical results with a rapidity and a precision that were undreamt of in the early years (or even in the middle) of the last century. Our instruments are incomparably better, and our equipment is such that we can deal with the hostility of nature in her more savage moods with comparative facility. But we no longer live with the people about whom we set out to write books—we don't wear their clothes, eat their food, fraternize with them in their homes and in the field, learn their language and discuss with them their religion and politics. And the result is that we don't *know* them half as well.<sup>5</sup>

Extolling the importance of exhaustive knowledge of people, Holdich questioned nostalgically in 1910 whether any explorers remained akin to the "heroes of an older age" who came to know the people and places they surveyed.<sup>6</sup> While geographical results could be rapidly and precisely attained with new instruments and equipment, Holdich

lamented that, as survey became increasingly systematic and scientific, producing knowledge that could better serve the bureaucratic needs of political administrators, the surveyor does not “*know*” his subjects “half as well.”<sup>7</sup>

Holdich is clearly entrenched in the Orientalist rhetoric of his time, speaking of Afghans as “savage breeds and races.”<sup>8</sup> Yet his criticisms are exemplary of the shift that occurred throughout the mid- and late-nineteenth century as cartographic methods became increasingly systematic and, consequently, generated knowledge that was increasingly distanced. In the move toward modern instrumentation, Holdich mourns the fact that surveyors no longer live, eat with, or wear the clothes of the people whose lands they are mapping;<sup>9</sup> to him, the materiality of previous cartographic encounters is crucial and is lost in contemporary mapping. The direct experience of local cultures involved in previous survey and exploration had been replaced by systematic and carefully administered mapping programs.

Thus, distance, for Holdich, is not only brought about by new technologies. Holdich is not only lamenting the change in cartographic technologies, but also alerting readers to a change in the very people who undertake projects of surveying, mapping, and exploring. The modern cartographer lacked the “dare-devil” personality of the explorers and mapmakers who came before him, whom Holdich names the “heroes of an older age.”<sup>10</sup> This phenomenon, for Holdich, is not a problem that solely lies with surveyors and cartographers; he extols the value of missionaries and police officers, who, in their close interactions with people, may still gain some intimate knowledge of the population. Yet Holdich saw the decline of this intimacy rapidly advancing, and as “political administrators” and “parliamentary demagogues” replaced the explorers of times past,<sup>11</sup> the way in which the British knew the people in their Indian empire and its peripheries experienced drastic changes. Simultaneous cartographic, administrative, and technological shifts brought about increasingly remote, scientific, and systematic modes of visualizing Afghanistan for the British eye during the Anglo-Afghan Wars.

As new visual technologies were introduced throughout the mid- to late-nineteenth century, British modalities of understanding their imperial interests shifted. People were no longer the lens through which to understand Afghanistan; rather, with the opening up of the aerial perspective and the systematization that it enabled, the British empire underwent a transition toward “fixing” their knowledge of the landscape. Exploration and mapping were systematized as the methodologies of the Survey of India and the Great Trigonometrical Survey of India were brought into Afghanistan. The first officers and explorers who travelled through Afghanistan generated fragmentary maps of regions they traveled through,

often depicting solely the corridor of their own route in a largely blank zone of unknown, unsurveyed terrain. The Survey of India, with its gridded approach, allowed these fragmentary maps to be joined under one seamless system, continuous from one map to another. This move toward gridded systematicity is exemplary of a larger shift, whereby measurable terrain and statistics took the place of people in understanding Afghanistan. The advent of gridded, systematic surveys allowed for finer-resolution mapping to extend across expansive, country-wide spaces and arguably marked a step toward the perspective brought by overhead and satellite imaging.

The predominance of the aerial perspective in foreign representations of Afghanistan far predates the formal arrival of aerial and satellite imaging. In 1887, Colonel Charles Edward Yate, an officer traveling with the Afghan Boundary Commission rode to the top of one of the highest hills, from which a “capital bird’s-eye view of the whole tract dispute could be obtained,” and wrote in his journal that, “there is no hill in this country which one cannot ride to the top of.”<sup>12</sup> It is evident through the journals, sketches, and maps produced by the members of the commission that there were few hills encountered that the members did not utilize for the perspective they provided. The Afghan Boundary Commission used hilltops “to fix,” or identify, locations accurately across large territories, thereby enabling large-scale mapping. Finally, the Commission’s usage of photography to reproduce the view from above accurately and mechanically laid the foundation for what has become a dominant mode of foreign representation and understanding of Afghanistan.

### TRIANGULATION AND THE SYSTEMATIZATION OF EXPLORATION

Systematic mapping, for the British, was arguably born in India.<sup>13</sup> When James Rennell (1742–1830) published his first *Map of Hindoostan* in 1783, Sir Joseph Banks, president of the Royal Society, awarded him with a medal and proclaimed,

Would I could say that England proud as she is of being esteemed by surrounding nations the Queen of Scientific improvement, could boast of a general map as well executed as the major’s [Rennell’s] delineation of Bengal and Baher [*sic*] a tract of Country considerably larger in extent than the whole of Great Britain and Ireland ... The accuracy of his particular survey stands unrivaled by the most laboured County Maps this nation has hitherto been able to produce.<sup>14</sup>

By the end of the eighteenth century, India was already more thoroughly mapped than England, and Rennell had

laid the foundation for the nineteenth century's explosion in cartographic efforts across the South Asian subcontinent and its peripheries. Rennell's survey methods drew from the principles of map compilation; that is, he designed his regional surveys to fit easily into a larger graticule of meridians and parallels when the larger maps were constructed.<sup>15</sup> Latitude and longitude were measured for key locations, or control points, and distances were measured along the roads traveled, resulting in a style of survey that was so rapid and efficient that it maintained popularity with military surveyors.<sup>16</sup>

In 1802, British surveyor Colonel William Lambton began the Great Trigonometrical survey, which would run for five decades and hold among its accomplishments the demarcation of the British territories in India, the measurement of the height of Mount Everest, and one of the first accurate measurements of a section of an arc of longitude. As the territory to be surveyed was large, this was accomplished through the creation of a gridiron of triangulation chains running from north to south and east to west, rather than creating a continuous triangulated network [Figure 1]. In conjunction with methods such as pacing or reckoning distance as a function of time,<sup>17</sup> triangulation promised the British "a technical solution" to the perfection of geographic knowledge, allowing them to create accurate maps under one unified system.<sup>18</sup> Indeed, by the 1820s, to be "proper" and "correct," it was no longer sufficient for maps to be informed merely by actual surveys; they were to be founded on triangulation.<sup>19</sup> The new precision was remarkable to the British, for it generated a "double record" consisting both of the map itself and the calculations and tables of map data.<sup>20</sup> As Holdich wrote, "Every point on a boundary-line, every peak in a mountain system, every landmark of any importance in the countryside, has a value whose correctness can be proved just as easily in a London office as in the open field."<sup>21</sup> Beyond the appearance of accuracy, the maps generated data that could be brought to any part of the Empire to prove that accuracy.

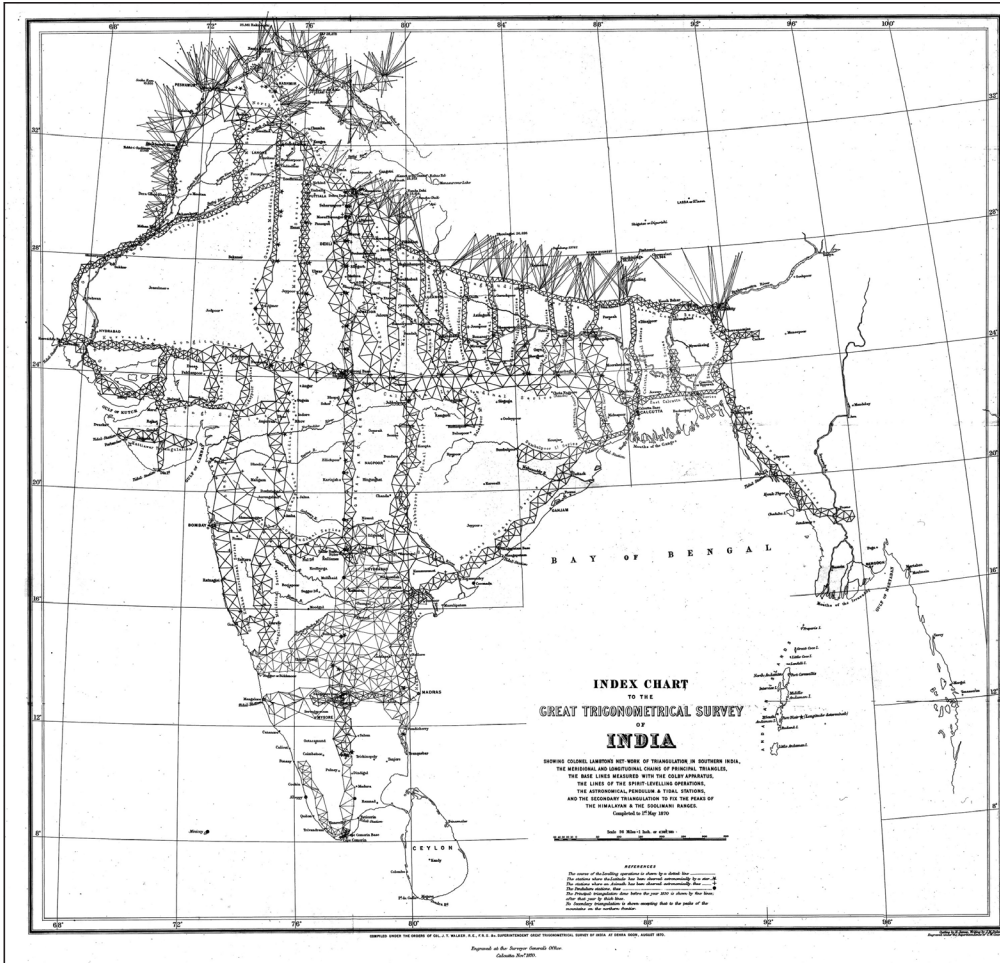
Despite not providing complete coverage, because chains of triangulation were followed instead of creating a fully connected network, the Great Trigonometrical Survey of India allowed the British to believe that they were, in the words of cartographic historian Matthew Edney, "constructing a single, complete, truthful, and ordered archive of geographical knowledge for their empire," although it would not be until 1878 that a single systematic and centralized survey organization—the Survey of India—was established.<sup>22</sup> The notion of the single, truthful, complete system of geographical knowledge is crucial. As Edney further argues, while the British belief was that "the simple presence of the GTS was sufficient to bring all [their] map-making activities into a single, coherent whole," the reality was that total comprehensiveness was impossible, and

accordingly, that British imperial knowledge was more incomplete than is often recognized.<sup>23</sup>

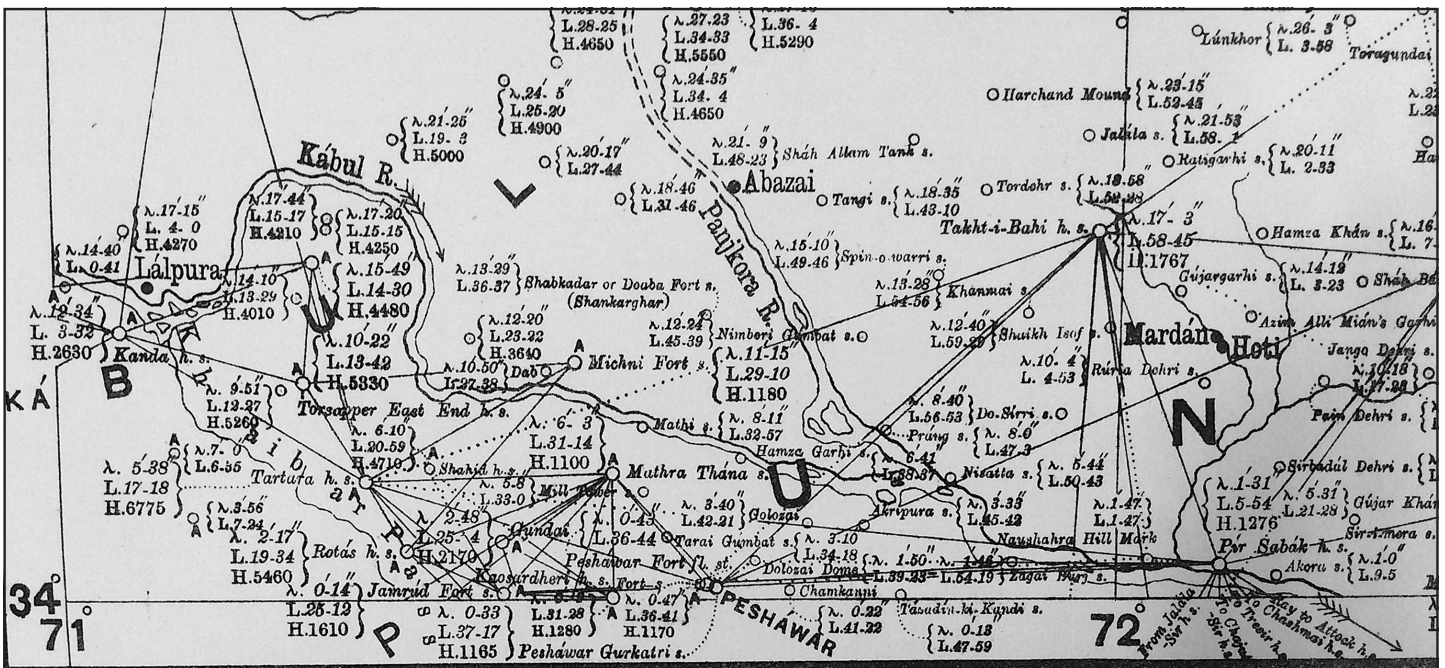
While much has been written of the Great Trigonometrical Survey in the context of India, its methods were carried into Afghanistan, in part by the Afghan Boundary Commission. Trigonometrical control points and measurements were recorded by the Commission as they moved across Northern Afghanistan, as is evident in the large-scale index maps created, such as the *Index to Points Fixed by Triangulation in Northern Afghanistan* published by the Trigonometrical Branch of the Survey of India in 1885 [Figure 2]. Trigonometrical charts like this one, which covers an area of nearly 36,000 square miles, paint an image of the intensity and systematicity of survey. Further, as argued by historian James Hevia, the charts—the data record of the survey documentary process—act as material reminders of the process through which the actual terrain of Afghanistan was fed through systems of visual technologies and scientific instrumentation and reduced to information that could be "recoded as imperial knowledge."<sup>24</sup>

The charts, and their emphasis on empirical data, also obscure the uncertain and incomplete nature of survey that was apparent in local surveys that formed the basis for these larger regional indices. The Great Trigonometrical Survey, as discussed above, brought about the belief that with triangulation, all of the empire's maps could be seamlessly joined. Thus, territories were divided into numbered and lettered grids, such that the benefits of smaller scale, regional and local maps could be maintained while allowing for the continuity across large extents afforded by large, national-scale maps. As data from smaller-scale trigonometrical and reconnaissance surveys were brought into the larger, unified, grid system, it was increasingly possible and common for unsurveyed areas to appear on maps alongside surveyed regions with little, aside from a small note, to mark the unsurveyed zone. Figure 3 shows a diagram of twelve map sheets that were joined together, indicating which regions of those maps were based upon trigonometrical survey (dark pink shading), reconnaissance survey (light pink shading), or no survey at all (uncolored). Viewing the map sheets apart from this diagram, no shading or indication is given, and the user would not know that many areas of the map were in fact unsurveyed. While gridded systems of mapping enabled by the Great Trigonometrical Survey allowed disparate fragments of geographical data to be joined under a unified system, the reality was that as data were unified, its fragmented nature was obscured, resulting in a seamless appearance. While the trigonometric survey certainly brought increased precision to the British image of Afghanistan, it crucially obscured vast uncertainty through its new ability to take discontinuous data and present a unified, continuous image.



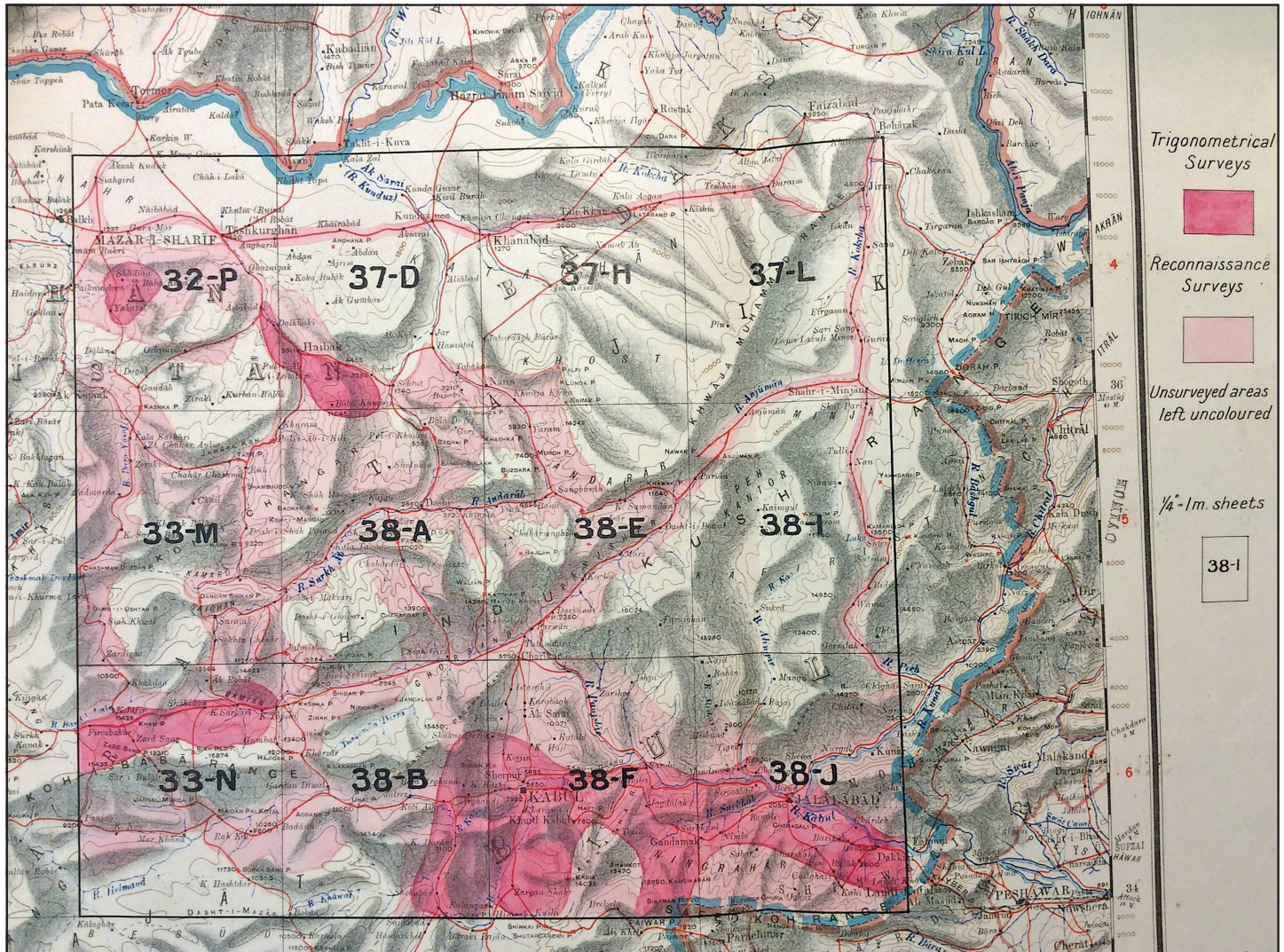


**Figure 1.** The Survey of India's gridiron chain of triangulation. 1870 *Index Chart to the Great Trigonometrical Survey of India*. M.144.e.24. Public Domain. British Library Map Collection. Courtesy of Wikimedia Commons.



**Figure 2.** Index to Points Fixed by Triangulation in Northern Afghanistan. Trigonometrical Branch, Survey of India. Chart No. 1. © British Library Board IOR/W/L/PS/21/H8. Courtesy of British Library India Office Records.





**Figure 3.** A diagram showing twelve adjacent map sheets, indicating the portions of those territories that have actually been surveyed [whether through trigonometrical survey (dark pink) or reconnaissance survey (pale pink)]. © British Library Board IOR/L/PS/12/1719. From the file, *Coll. 3/129: Suggestion to improve mapping in north eastern Afghanistan*. Courtesy of British Library India Office Records.

### AUTHORSHIP AND THE AURA OF OBJECTIVITY

With the ability to amalgamate disparate fragments of data into one unified system, it was also at this time that the British cartographic system began to see massive shifts in the transparency of authorship. Whereas the authorship of maps was previously palpable from the distinctive style of individual explorers and cartographers, when data was input into one large system, markers that point to the individual—such as signatures, handwritten information, and particular styles of annotation—were erased in favor of one cohesive appearance. These markers of individuality are present in the numbered survey sheets of the Afghan Boundary Commission, where authorship is evident in

the different signatures, handwriting, and notes. The removal of the individual author’s style furthered the appearance of objectivity; while previous maps were signed by the individual cartographer and represented a material image of their individual experience and perspective of the place, the maps produced under the trigonometrical survey present place as visible from one universal perspective. Erasing authorship removed the perceived subjectivity of the document, augmenting the aura of objectivity that surrounded the instrument-based trigonometric survey.

With nearly all variation and personal traces absent in the maps produced by the Survey of India methodologies, the trigonometric survey produced the objective



appearance of being from nowhere. In this sense, the move to gridded systematicity and impersonal maps paralleled the move to the aerial perspective, as both developments resulted in a supposed objective distance from human manipulation. It is crucial to underscore here that even before the extensive use of aerial imaging, the notion that a view detached from personal perspective was more objective was already present.

### MAPPING FROM THE HILLTOPS

The process required to carry out trigonometric surveys, is also key to the consideration of a long history of the aerial perspective in Afghanistan in the sense that it was absolutely dependent on the surveyor's ability to sight locations from hilltops. Through the journals and writings of the Afghan Boundary Commission, a glimpse is afforded into the ways that trigonometrical surveys played out on the mountain and hilltops of Afghanistan. Thomas Holdich, head of the Boundary Commission's survey party, described the basic method as follows:

Usually [the surveyor] has to commence by making for himself a groundwork of triangulation (that is to say he has to fix the position of a large number of prominent points by means of theodolite observations and computations) for the assistants who follow with the plane table to base their mapping upon. This involves climbing to the highest peaks that circumstances will admit of his climbing.<sup>25</sup>

The surveyor would first locate the highest hills or buildings in the area, selecting those that best formed an even network of triangles. Triangles would be formed by imagining straight lines between the high points and, in turn, the interior angles of these triangles would be measured. Then, the size of the triangle could be determined by measuring the one side of the triangle—the baseline—from which the other lengths could be determined.<sup>26</sup> Within this system, wherein all points are defined with reference to another, what emerges is an approach to the landscape wherein what is prioritized, or valued, are the highpoints from which other high points are visible.

Measurements were taken day and night, as is seen in the journal of Colonel Charles Edward Yate. From a camp southwest of Farah while traveling toward Herat, Yate described the endless tasks involved in trigonometric survey, which proceed,

not only sunrise to sunset—nay, even the falling shades of night bring them but a short respite; for no sooner has daylight closed the innings of the plane-table and the prismatic compass, than the twinkle of the stars intimates that “time is up,” and

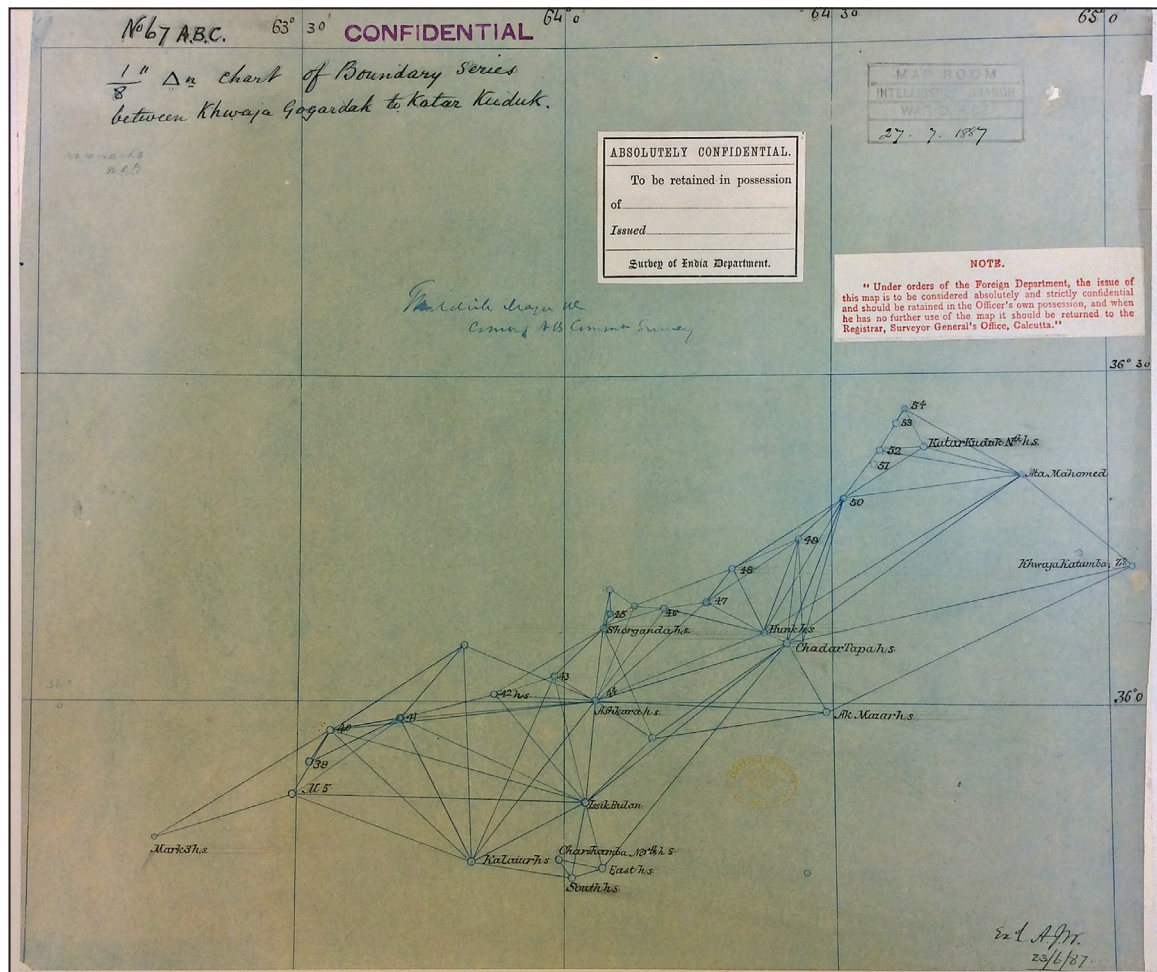
the innings of the theodolite commences, and the still night air is broken by solemn voices proclaiming mystic numbers and degrees that fall with comic meaninglessness on my unscientific ear.<sup>27</sup>

Yate here, in his effort to demonstrate the unceasing tasks that fall on the surveyors, nicely illustrates how periods of light and darkness provided the differential conditions of visibility that were essential to surveying. During the day, flags could be planted on hilltops, providing a specific point to sight for measurements by prismatic compass; inversely, at night, the theodolite was the instrument of choice,<sup>28</sup> and lights on the hilltops replaced the flags.<sup>29</sup> As trigonometric methods took hold, the eye of the cartographer was replaced with the measurements provided by the prismatic compass and the theodolite—instruments that brought an added sense of objectivity. While they brought new possibilities of precision and objectivity, new technologies also changed understandings of human observation. Within the passage above, Yate sees a sharp separation between the human and the numeric—the “mystic numbers and degrees” that fall on his “unscientific ear.”<sup>30</sup> Although he refers to them as “mystic,” Yate clearly respects the numbers. The instruments bring an accuracy that he sees as more objective than his mere human presence and operating at a higher level than his own meager human observations. The instruments, however, still relied upon the human eye and specific conditions of visibility.

Visibility from the hilltops was of the utmost importance, for the accuracy of trigonometric work relied upon the unbroken chain of measured control points; a break in the chain not only hurt accuracy, but also cut the seamless continuity that the British hoped would carry over from India to Afghanistan. Yate describes the occurrence of such an “unfortunate break in the chain of trigonometrical observations,” brought about by the “haziness of the atmosphere between Eudbar and Kalah-i-fath” and resulting in the “unavoidable sever[ance]” of the “connection with the Indian triangulation.”<sup>31</sup> Thus, the British aim of carrying one continuous system of triangulation—the “Indian system”—through Afghanistan and to the Russo-Afghan frontier was easily broken by a period of poor visibility.<sup>32</sup> As is discussed below, the immense importance of hilltop viewpoints can be seen in the materials produced by the Afghan Boundary Commission.

### “FIXING” THE LANDSCAPE

Particular visualization practices materialized from the methodologies of trigonometrical survey. As hilltops were of the utmost value for triangulation, a mode of survey emerged that valued above hilltops and peaks—locations that provide the aerial view and allow for the sighting of other high points—above all else. This turn



**Figure 4.** Afghan Boundary Commission Sheet No. 67. 1/8"  $\Delta^n$  [Triangulation] Chart of Boundary Series between Khwaja Gogardak to Katar Kuduk. June 23, 1887. © British Library Board M. 51800. (36). SHT. 67. Courtesy of British Library Map Collection.

towards increasingly systematic and aerial approaches to landscape is heavily reflected in the map sheets produced by the Afghan Boundary Commission; within the materials produced by the Commission, several maps depict the landscape as a blank grid, upon which the only points are peaks, hills, and highpoints connected by meticulously measured lines. Sheet No. 18 of the Commission's materials is made up of a simple grid, upon which labels read, "Hill near Sabzawar," "Near Conical Peak," "Cairn on near Range," "Furthest Peak," "Peak Furthest North," "Jega Hill," "Mil Koh highest," and "Peak A," among other similar notations.<sup>33</sup> Correspondingly, Sheet No. 67 [Figure 4], a 1/8"  $\Delta^n$  [Triangulation] Chart of Boundary Series between Khwaja Gogardak to Katar Kuduk, which dates to June 23, 1887, depicts the region through solely a simple grid upon which control points connected by lines are scattered, forming a web of triangles.<sup>34</sup>

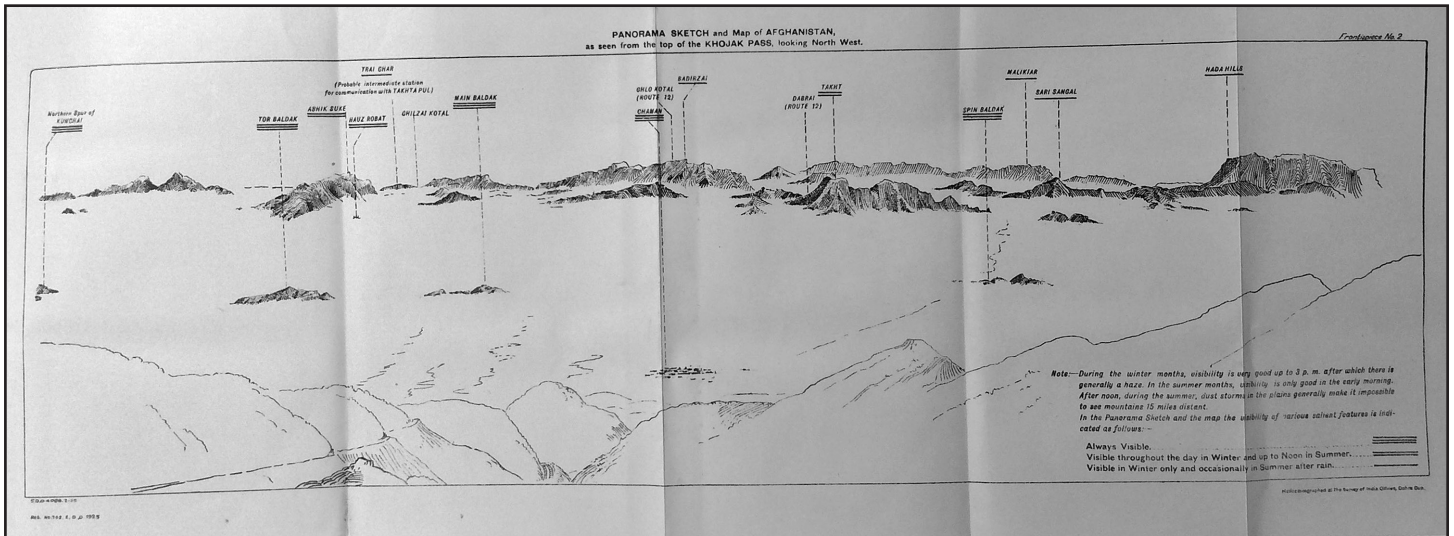
These maps reflect the nineteenth-century British pre-occupation with the notion of accurately "fixing" and measuring the natural world. To do so required the aerial

perspective, as is evident in the journals kept by members of the Afghan Boundary Commission. Colonel Yate wrote in his journal for October 18, 1884, that Captain William Peacocke, a member of the Royal Engineers and contributor to the Commission's surveys, was "desirous of fixing, relatively to Khwaja Ali, the position of several of the principal peaks and hill-ranges in the neighbourhood."<sup>35</sup>

On this autumn day, Yate found the atmosphere to be "unusually propitious,"<sup>36</sup> which meant that peaks more than seventy miles away were visible. Yate excitedly lists four far ranges of mountains that can be seen and, hopefully, triangulated, from the "peaks of Arbu and Samuli" to the "Kuh-i-Khanishin on the left bank of the Helmund."<sup>37</sup> The ability to stand upon a hilltop and see for tens of miles was not just something to be excitedly noted in one's journal; it was invaluable knowledge that was carefully recorded and diagrammed in the form of panoramas.

A large hand-drawn panorama forms the frontispiece of the 1925 *Military Report on Afghanistan*, which served as a compendium of the knowledge gathered in the course





**Figure 5.** *Panorama Sketch and Map of Afghanistan, as seen from the top of the Khojak Pass, looking North West.* © British Library Board IOR/L/PS/20/B255/1. Frontispiece No. 2, from the 1925 edition of the Military Report on Afghanistan, published by the General Staff Office of India. Courtesy of the British Library India Office Records.

of three was fought by the British in Afghanistan.<sup>38</sup> The image, entitled *Panorama Sketch and Map of Afghanistan, as seen from the top of the Khojak Pass, looking North West* [Figure 5], presents a view from a high mountain pass in which labeled peaks float out of an otherwise blank expanse. There are no traces of human presence; instead, this diagram is wholly focused on making the conditions of visibility from this specific location mappable. The names of peaks are labeled with brief parenthetical notes underneath; Trai Char, for instance, is noted to be a “probable intermediate station for communication with Takhta Pul,” while Dabrai is the location of “route 12.”<sup>39</sup> Most notable, however, are the lines that appear underneath the names of many of the peaks. Simple coding sorts the peaks by their visibility during various seasons and times of day: three underlines for “Always Visible,” two for “Visible throughout the day in Winter and up to Noon in Summer,” and one for “Visible in Winter only and occasionally in Summer after rain.”<sup>40</sup> This knowledge is further qualified by a note that reads,

During the winter months, visibility is very good up to 3 p.m. after which there is generally a haze. In the summer months, visibility is only good in the early morning. After noon, during the summer, dust storms in the plains generally make it impossible to see mountains 15 miles distant.<sup>41</sup>

This diagram illustrates the way that natural and seasonal phenomena such as atmospheric variations were made

measurable as part of the system of precision mapping that surrounded triangulation. As key points from which to take bearings, peaks and hilltops provided essential vantage points to the British, thereby enabling the production of maps with an air of precision.

In his November 1892 *Hints on Reconnaissance Mapping for Explorers in Unsurveyed Countries*, Major the Honorable M.G. Talbot of the Royal Engineers and Staff Captain of the Intelligence Division writes that all men moving through territories should remember the “importance of taking bearings to distant points,” for “such bearings afford a most useful means of checking the accuracy of the route and of connecting it to other work where the points have been already fixed.”<sup>42</sup> Further, he acknowledges the great difficulty of “identifying a peak on a range of mountains from different points of view,” and recognizes that when independent bearings are brought together, they can provide “considerable accuracy” in fixing the position of important hills.<sup>43</sup> In Talbot’s words, it is clear that accuracy and precision are more than scientific objectives for the ultimate truth. Rather, precision served certain military purposes, enabling the communication of accurate locations or providing a clear image of the ground conditions troops would face before they entered new territories. For British officers tasked with describing places and communicating these descriptions, the aerial perspective became a way to make the spatial layout of places comprehensible to personnel back in the metropole.

## UNDERSTANDING PLACES FROM ABOVE

The importance of the aerial perspective for comprehending places and transmitting this information is evident in the journals of traveling officers. Talbot's guide to those traveling through unsurveyed regions implores men not to be "deterred from contributing to the advancement of geographical knowledge" by a lack of confidence in their drawing or cartographic skills.<sup>44</sup> Talbot clarifies, "everything should be noted down in such a way that it would be intelligible to a person absolutely ignorant of the country."<sup>45</sup> Details of the terrain traveled through, people encountered, mishaps along the route, and more were recorded in the journals of officers. Colonel Yate of the Afghan Boundary Commission employs the bird's-eye view in his writing to make the places he describes intelligible to those who had little understanding of Afghanistan, or who, in Talbot's words, were "absolutely ignorant of the country."<sup>46</sup> From Bala Murghab, Yate writes an extensive description of the camp:

Now to see what sort of camp it is in which we can amuse ourselves. Let us take a bird's-eye view of it. You see the flag-staff and the British ensign in the centre, whence four roads radiate north, south, east, and west. The tents that line both sides of the road running north and south are those of the officers of the Commission. West of this road you see a mixture of tents and khibitkas, and rows of horses and ponies. Those are the cavalry lines, and on their left flank are our two lawn-tennis courts, not exactly as flat as a billiard-table.<sup>47</sup>

This passage illustrates how the bird's-eye view allowed officers to take a distance from the complexities of life on the ground and easily organize their descriptions of spatial layout. Yate, by adopting the bird's-eye view, can map his description onto distinct quadrants, and describe the scene below square by square; this mode of description echoes the move toward gridded mapping discussed earlier in this paper.

The adoption of the bird's-eye view was similarly employed to make sense of cities and populated places, especially through the use of panoramic sketches. Lieutenant C. H. Manners Smith produced one such image in his 1880 *Panorama of the Country Round Kabul in Six Sheets*, which provides a 360-degree view of the surroundings of Kabul from the hilltops of the Takht-i-Shah [Figure 6].<sup>48</sup> While these hand-drawn images are artistic and may seem whimsical to the modern eye, they aided officers in better understanding the cityscape. Each of the six sheets in the series matches up seamlessly to the next, with the degree-range (i.e., 0° to 180°) indicated on every page. Small labels demarcate the prominent features of the towns, valleys,

fortresses, roads, and hills and peaks that ring Kabul. Many of the hilltops, as discussed in this article, were repeatedly used to create images of the city from above, reproducing the same view over years. While traditional maps brought precise, systematic knowledge, these early aerial views—produced decades before the invention of the airplane and far before the advent of satellite imaging—allowed the British to make sense of large regions. This desire to make sense of places by taking in the view from above is evocative of Timothy Mitchell's descriptions of European visitors to Egypt throughout the nineteenth century; Mitchell details how visitors "wrote of wanting to withdraw from the 'maze' of streets, in order to see the place as a picture or plan."<sup>49</sup> While Europeans in the Middle East often found themselves unable to "read" places from street level, the aerial perspective allowed them to understand places by reaching a level from which they could see a plan—seeing the place as if they were looking at a paper map. Such a phenomenon is described by Yate, who describes in his journals how it is only after riding to the top of "one of the highest hills overlooking the valley" from which a "capital bird's-eye view" could be obtained that he could understand the winding nature of the Murghab River.<sup>50</sup> Likewise, upon entering the cities of Balkh and Herat, Yate immediately sought out the most profitable vantage point from which to make his observations. From the "hill at the mouth of the Kamar Kalagh gorge immediately overlooking Herat,"<sup>51</sup> Yate carefully identifies the gates and walls of various sections of the city. In Balkh, Yate stands on the top of the citadel, from which he writes that "a capital bird's-eye view of the whole city is obtained."<sup>52</sup> Yate utilizes this view to describe the city, organizing his description by the cardinal directions.<sup>53</sup> The aerial perspective allowed officers to stand apart from the places they described and thereby easily organize spatial descriptions into clear narratives.

As the use of the aerial perspective grew at the end of the nineteenth century, maps (and narratives that surrounded them) adopted a scale and perspective devoid of people. This move ushered in a new mode of understanding Afghanistan that was inextricable from the growing use of photography and other novel forms of mechanical reproduction. The advent of modes of mechanically reproducing images—from photography to the camera lucida—marked the beginning of an ongoing tradition of aerial imaging in Afghanistan.

## AERIAL PHOTOGRAPHY: FROM HILLTOPS TO SATELLITES

"During the last twenty-five years a great change has been effected in the measure of our informations."<sup>54</sup> Thus begins Colonel Sir Thomas Holdich's 1901 book, *Indian Borderland*, which reflects on the dramatic changes in the knowledge of Afghanistan and the frontier of India





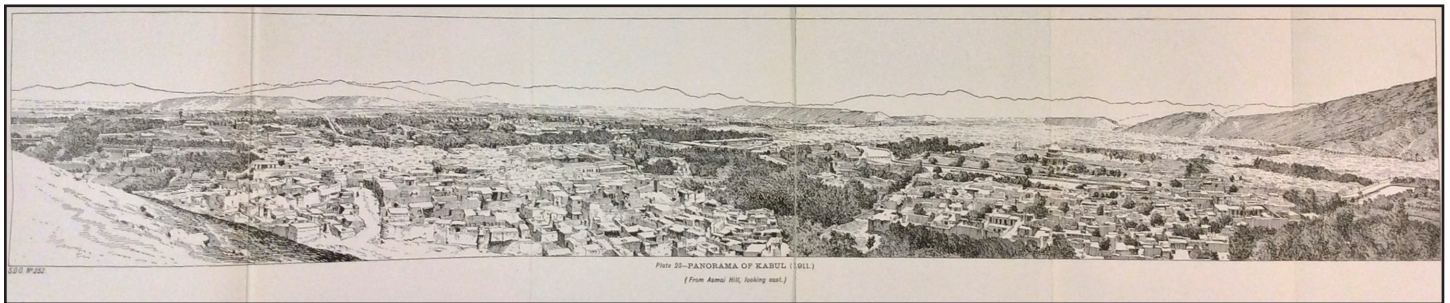
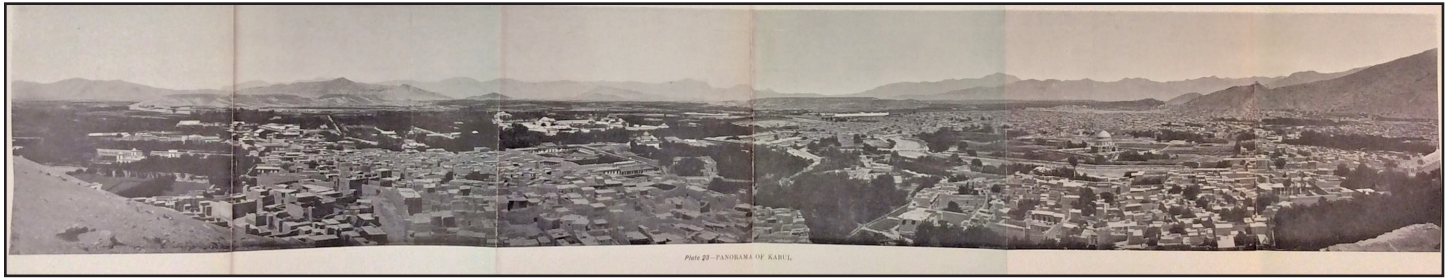
**Figure 6.** Panorama of the Country Round Kabul in Six Sheets Taken from the Takht-i-Shah by Lieut. C. H. Manners Smith, D. A. Q. M. G. Kabul, 3<sup>rd</sup> April 1880. © British Library Board M. 51820.26. Courtesy of the British Library Map Collection.

from 1880–1900, during which Holdich worked for the Survey of India and held high-ranking positions on the many boundary commissions operating at the time, including the Afghan Boundary Commission (1884–1886), the Tasmār Boundary Commission (1894), the Pamir Boundary Commission (1895), and the Perso-Baluchistan Boundary Commission (1896).<sup>55</sup> Holdich underscores the vast knowledge accumulated during these years, explaining that, indeed, just twenty-five years prior, “The hills which faced us [British India] on our own border, on to which we could step from the plains, were still shrouded in mystery.”<sup>56</sup> Holdich strikingly speaks in the past tense here: the hills and mountains of Afghanistan, once “shrouded in mystery,” were no longer so unknown. This shift in Holdich’s appraisal of British knowledge of Afghanistan occurred alongside and in part due to the expanding use of new scientific technologies that allowed images of Afghanistan to be rendered mechanically and transported to central offices and back to the metropole.

The introduction of aerial photography into British operations in Afghanistan at the close of the nineteenth century marked a further step from the hilltops toward the perspective brought by overhead and satellite imaging. Hence, certain locations, such as Kabul’s Asmai hill, became prized for the capturing of overhead images. During this period, parallel growth is seen in the use of the aerial perspective and the use of mechanical modes of reproducing images. These developments in technical, systematic, and scientific mapping processes occurred, however, in the context of conflict. The increasing uses of the aerial perspective and precision mapping, discussed in this article, were not solely modes of rendering Afghanistan legible but also changes that occurred during conflict. Hence, it is essential to understand the visual perspectives and practices discussed here in the context of warring.

Before the advent of photography, the *camera lucida*—a portable optical instrument in which rays of light are reflected by a prism to produce a traceable image on a sheet of paper—marked an early mode of accurately producing





**Figures 7a-b.** *Panorama of Kabul, from Asmai Hill looking East (1911).* © British Library Board IOR/L/PS/20/B255/1 – Plate 23. Courtesy of the British Library India Office Records.

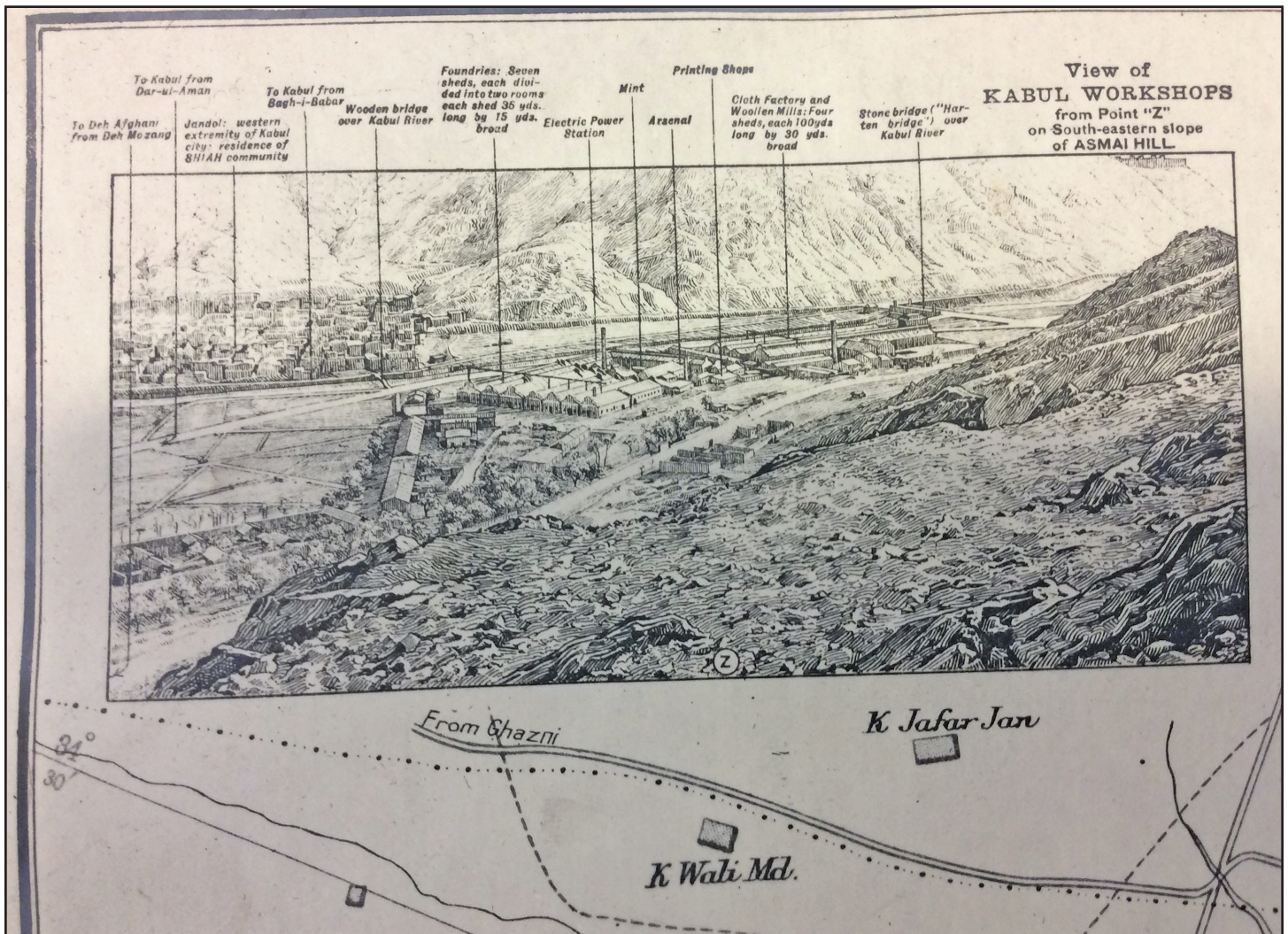
images that mirrored the visible world. In use since the beginning of the nineteenth century, and popular with traveling writers and illustrators by the 1820s, as described by Mitchell,<sup>57</sup> the device is discussed by Yate as one tool used by Captain Griesbach to capture “a good sketch” of the city of Herat from a range overlooking the area.<sup>58</sup> In Afghanistan, during the frenzy of survey that came at the height of the boundary commissions in the 1880s, the camera lucida was used contemporaneously with photography.<sup>59</sup> Photography had rapidly developed through the mid-nineteenth century, and in 1887 the officers of the Afghan Boundary Commission excitedly hoped that the mission’s “three photographic apparatuses” would “familiarize the general public with scenes from countries that have been rarely traversed before by British footsteps, and never by a photographer.”<sup>60</sup> For surveyors, using photography in concert with drawing allowed for the creation of panoramas and diagrams with new mechanical accuracy.<sup>61</sup> One such example can be seen in the General Staff Office’s *Military Report on Afghanistan*, which includes two panoramic views of Kabul: a photograph and a drawing that was produced from the photograph. While Mitchell does not directly discuss camera lucida and early photographic apparatuses in Afghanistan, he discusses how photo-mechanical reproduction allowed for the recording of a level of detail that was not reproducible through the printing practices of the time progress. He notes how the writer and artist Edward Lane traveled to Egypt in 1825 and produced detailed drawings with the camera lucida,

but was, “unable to find a publisher whose printing techniques could reproduce the minute and mechanical accuracy of the drawings.”<sup>62</sup> Thus, many of the earliest aerial photographs in Afghanistan do not appear in print as photographs, but instead as drawings, yet these images retain their photographic aura and represent the earliest forms of photographic vision in Afghanistan.

Photography, in concert with the systematized survey techniques discussed earlier, was one more means through which the increasing appearance of continuity and gridded order was achieved, thus marking a step toward satellite vision. The new aerial photographic views required wide vantage points. Earlier, I discussed how trigonometric survey practices highlighted peaks and hilltops over other locations; this practice was heightened with the advent of photography, which relied disproportionately on certain hills that provided greater vantage points. One such location was the Asmai hills, seen in the panoramic image *Panorama of Kabul (1911), from Asmai Hill, looking East* [Figures 7a-b].<sup>63</sup> This location, which had experienced “hard fighting” in December 1879 during the Second Anglo-Afghan War, provided an essential vantage point for overhead visualization of Kabul. At an elevation of 6,790 feet, Asmai forms the northern barrier of the Kabul gorge, dominating the northern reaches of the city from the west.<sup>64</sup>

The vantage point from the Asmai hill was also used to photograph and to diagram the Kabul workshops from above, seen as an inset in a circa 1900 map [Figure 8] entitled *Kabul, Dar-ul-Aman, and Environs*.<sup>65</sup> A note above the





**Figure 8.** Inset diagram entitled *View of Kabul Workshops from Point "Z" on South-eastern slope of Asmai Hill*, part of the larger map *Kabul, Dar-ul-Aman and environs*. © British Library Board IOR/W/L/PS/21/H36. Courtesy of the British Library India Office Records.

inset image specifies that the view is "from Point 'Z' on South-eastern slope of ASMAI HILL."<sup>66</sup> The image situates the viewer on the rocky foreground of the hill, providing a vantage point above the workshops and the western extremities of Kabul below. The view allows the cartographer to annotate the roads and buildings seen from above with precise measurements. It also shows how identifiers such as "Point 'Z'" became communicable locations from which to capture images.

An aerial image captured in 1879 [Figure 9] presents a panoramic view of Kabul from Asmai hill by joining three photographs that peer down onto the city below.<sup>67</sup> This ability to composite images was key in the growing production of seamless and photo-accurate views of Afghanistan. John Burke, who accompanied the British

forces into Afghanistan at the onset of the Second Anglo-Afghan War, captured at least nine such images of Kabul. Such precise images were difficult to capture and were considered to be of the highest form of photographic artistry. For the imaging of Kabul, Asmai hill provided the high and wide vantage point that allowed photographers to produce images that achieved a sort of proto-satellite vision. As photography developed toward the end of the nineteenth and beginning of the twentieth century, representations of Afghanistan came to rely increasingly upon the aerial perspective, producing views that were further and further divorced from life on the ground, instead of hovering above it.

While the new aerial images created an effect where the viewer felt high above and separated from life below on





**Figure 9.** *Panorama of Kabul from Asmai hill – showing Chardeh Valley on right to Sherpur [Cantonment] on left, 1879.*  
© British Library Board P. 430/3(91). Courtesy of British Library India Office Records Photo Collection.

the valley floors, the ability to capture these images would impact life below when utilized in the service of war. From May to August of 1919, the British fought the brief and inconclusive Third Anglo-Afghan War. Whereas they saw their previous campaigns as “deliberate offensives, carried out at times of our own choosing, to combat Russian influence,” the third of the Afghan wars was unique to the British, for they saw the Afghans as “the aggressors.”<sup>68</sup> The conflict had been provoked when Ḥabībullah Khan was assassinated on February 20, 1919 by anti-British individuals, bringing his son, Amānullāh Khan, to power.<sup>69</sup> Upon his coronation, Amānullāh declared independence from Great Britain, setting off a series of skirmishes between the Afghan army and British troops exhausted from fighting World War I.<sup>70</sup> The brief war gained Afghans the independent conduct of their own foreign affairs, with the treaty of Rawalpindi signed in August of 1919.<sup>71</sup>

Although the formal conflict was short-lived, the Third Anglo-Afghan War marked a decisive moment as the first time that planes were utilized in Afghanistan for an aerial perspective. The official account of the Third Afghan War published by the General Staff Branch of the Army Headquarters of India reads, “although aeroplanes had been employed against the Mohmands in 1916 and against the Mahsuds in 1917, this was the first occasion on which they were used in any numbers within Indian limits.”<sup>72</sup> The official account paints a mixed message of the efficacy of the planes; the value of which was proved in “long-distance strategical reconnaissances, in bombing areas of concentration, [and in] supply depots and transport.”<sup>73</sup> However, the Royal Air Force had been equipped with machines that were “obsolete and worn out,” with low climbing power.<sup>74</sup> Consequently, the planes were often “shot at from the hill tops as they passed along the valleys.”<sup>75</sup> Further, the officials argued that the planes were of “no great value” in short-distance tactical reconnaissances, as the terrain was challenging and the tribesmen quickly learned to “break into small groups and to keep still when an aeroplane was overhead.”<sup>76</sup> As a result, the “bodies of

the enemy were difficult to locate and negative information from the air had to be regarded with suspicion.”<sup>77</sup>

Two points are significant in this report. First, the conclusion that the airplane had proved its value in strategical reconnaissance demonstrates that by the end of World War I and the close of the Anglo-Afghan Wars, the aerial perspective had been established as a fundamental method for investigating and surveilling the enemy. Second, this passage demonstrates how peoples’ movements on the ground were already reshaped by the first uses of the airplane during war in Afghanistan; people had learned how to disperse and avoid movement that gave away location, such that the British were unable to trust what they saw when they failed to observe people below. The changes to peoples’ movements discussed in this passage are evocative of and demonstrate an early example of how life on the ground changed with the advent of aerial surveillance.

The way in which aerial surveillance reshapes life on the ground—whether through photography, airplanes, or drones—has been discussed in the context of modern drone warfare and the current War in Afghanistan.<sup>78</sup> People living in highly-surveilled areas have described feeling a “pervasive sense of powerlessness, anticipatory anxiety, and dread,” and fearing gathering in groups for social events from funerals to schools, given the perception that drones are more likely to strike groups.<sup>79</sup> The aerial perspective marked not only the development of increasingly-systematic modes of vision but also new forms of warfare organized around inequalities in technology and the ability to achieve powerful points of view that enacted changes in lives on the ground.

## CONCLUSION

The contemporary mode of knowledge production seen throughout the ongoing War in Afghanistan has its roots in the development of systematic and precision-focused mapping schemes during the British Anglo-Afghan Wars. The characteristics associated today with satellite vision



appear in the British Empire's late nineteenth- and early twentieth-century mapping campaigns in Afghanistan. That is, beyond rendering maps accurately and precisely quantifiable, early hilltop and aerial surveying presented a type of systematization unavailable previously as it enabled the advent of gridded, contiguous mapping programs. The Great Trigonometrical Survey and the cartographic work of the Afghan Boundary Commission joined individual cartographic images under one continuous, gridded framework and enabled fine-resolution mapping on an expansive scale, resulting in the replacement of the cartographer's individual perspective with a seemingly universal, objective view. These developments in mapping Afghanistan occurred in parallel to new modes of conducting warfare, which reconditioned the way people moved about their lives on the ground. Before the first airplane took flight over Afghanistan, and decades before the first satellites would be launched into orbit, the aerial perspective was established by the British Empire as a principal mode of understanding, visualizing, and cartographically representing Afghanistan.

#### ABOUT THE AUTHOR

*Emily Ellis Boak* is the winner of the 2020 Dr. Walter Ristow Prize for Academic Achievement in the History of Cartography. As a researcher with the Afghan Heritage Mapping Partnership at the University of Chicago, she developed a fascination with the ways in which foreign powers have visualized Afghanistan through maps and aerial images. Her graduate studies at the University of Calgary brought her to the British Library's archives, where she examined a collection of historical maps and images of Afghanistan. Her research has been recognized and supported nationally and internationally, most notably by the *American Ethnological Society* and the United Kingdom's *National Archives* and *Royal Geographical Society*. Emily recently received her Master of Arts in Anthropology from the University of Calgary in Canada.



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#### ENDNOTES

- 1 For popular press accounts of the extensive imaging of Afghanistan, see Bowley and Walsh.
- 2 Edney, *Cartography*, 138.
- 3 *Ibid.*
- 4 *Ibid.*
- 5 Holdich, *The Gates of India*, vii-ix, emphasis in original.

- 6 *Ibid.*, ix.
- 7 *Ibid.*, vii-ix.
- 8 *Ibid.*
- 9 *Ibid.*
- 10 *Ibid.*
- 11 *Ibid.*
- 12 Yate, *Northern Afghanistan*, 112.
- 13 Raj 131.
- 14 *Ibid.*
- 15 Edney, *Mapping an Empire*, 17–18.
- 16 *Ibid.*
- 17 Raj 131.
- 18 Edney, *Mapping an Empire*, 17.
- 19 *Ibid.*, 320.
- 20 Hevia 83.
- 21 *Ibid.*
- 22 Edney, *Mapping an Empire*, 17.
- 23 *Ibid.*
- 24 Hevia 97–98.
- 25 Holdich, *The Indian Borderland*, 352–53.
- 26 Edney, *Mapping an Empire*, 19.
- 27 Yate, *Travels with the Afghan*, 104–05.
- 28 Theodolites could heat unevenly in the sun and give skewed readings.
- 29 Edney, *Mapping an Empire*, 249.
- 30 Yate, *Travels with the Afghan*, 104–05.
- 31 *Ibid.*
- 32 *Ibid.*
- 33 M 51800. (36). SHT. 18.
- 34 M 51800. (36). SHT. 67.
- 35 Yate, *Travels with the Afghan*, 70.
- 36 *Ibid.*
- 37 *Ibid.*
- 38 IOR/L/PS/20/B255/1.
- 39 *Ibid.*
- 40 *Ibid.*
- 41 *Ibid.*
- 42 M DMO/4/46/Gen/39, 5.
- 43 *Ibid.*
- 44 M DMO/4/46/Gen/39, 7.
- 45 *Ibid.*
- 46 *Ibid.*
- 47 Yate, *Travels with the Afghan*, 209.
- 48 M 51820.26.
- 49 Mitchell 33.
- 50 Yate, *Northern Afghanistan*, 112.
- 51 *Ibid.*, 1–2.
- 52 *Ibid.*, 256.
- 53 *Ibid.*
- 54 Holdich, *The Indian Borderland*, vii.
- 55 *Ibid.*
- 56 *Ibid.*
- 57 Mitchell 23–44.

- 58 Yate, *Travels with the Afghan*, 175.  
 59 *Ibid.*  
 60 *Ibid.*, 19.  
 61 Hevia 133, 136.  
 62 Mitchell 23–24.  
 63 IOR/L/PS/20/B255/1.  
 64 India Army General Staff Branch & Adamec 42.  
 65 IOR/W/L/PS/21/H36.  
 66 *Ibid.*  
 67 P 430/3(91).  
 68 IOR/L/PS/20/A23, 132.  
 69 “The Anglo-Afghan Wars.”  
 70 *Ibid.*  
 71 *Ibid.*  
 72 IOR/L/PS/20/A23, 134.  
 73 *Ibid.*, 133.  
 74 *Ibid.*  
 75 *Ibid.*  
 76 *Ibid.*  
 77 *Ibid.*  
 78 Gusterson 42–43; Bowley.  
 79 Gusterson 42–43.

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