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The Invention of the Silk Road, 1877

Tamara Chin

America's distance from Eurasia places it on the wrong side of the world from the "cockpit of history," a rapidly integrating Eurasian super-continent that is shaping its own future independently of the Western Hemisphere and the U.S. And the technology that is driving this epochal transformation is one of the most traditional: railways.

—Parag Khanna, "The New Silk Road Is Made of Iron"¹

Editor: Good travels at a snail's pace—it can, therefore, have little to do with the railways.

—M. K. Gandhi, *Hind Swaraj*²

We are heirs to two Silk Roads: not the ancient and the modern, but the invented and the reinvented. Let me begin with the latter. Today the Silk Road invokes a historical world map and a hope. It looks back to a vast premodern Afro-Eurasian trade network between Byzantium and Beijing, Samarkand and Timbuktu that somehow historically anticipated our hyperconnected, globalized world and that might, through collaboration across traditional divisions, offer ways to rethink the present and to reimagine the future. Two ideals animate this reinvented Silk Road. First, the Silk Road provides a model of idealized exchange. Like Marcel Mauss's archaic logic of reciprocity, Silk Road commerce brought otherwise hostile

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1. Parag Khanna, "The New Silk Road Is Made of Iron—And Stretches from Scotland to Singapore," 28 Sept. 2012, www.paragkhanna.com/?p=1931

2. M. K. Gandhi, *"Hind Swaraj" and Other Writings* ed. Anthony J. Parel (1909; Cambridge, 1997), p. 47.

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communities into peaceful relations. Such exchanges effectively served as diplomatic contracts. Thus the historical Silk Road offers a template for modern international commerce and, according to Yo-Yo Ma's orchestral Silk Road Project, "a modern metaphor for sharing and learning across cultures, art forms and disciplines."³ Second, the Silk Road offers a kind of geopolitical chronotope, that is, a condition or strategy for geopolitical thought and action, as well as a background context. In Chinese-language media and China studies the Silk Road generally begins with China's official diplomacy in Central Asia in the second century BCE and inserts China into an enduring world history of "open" empires instead of isolated civilizations.⁴ In Central Asian studies, by contrast, the Silk Road begins with Indo-European migrations four millennia ago and ends with Russian and Qing imperial expansion into Central Asia in the seventeenth century.⁵ This latter-most Silk Road remakes Central Eurasian pastoral nomads the political center, rather than the middleman, of an interconnected world history. In this aspect, it echoes Halford Mackinder's classic "The Geographical Pivot of History" (1904), which made Eurasia the "Heartland" of imperial rivalries; whoever possessed this vast region that in "antiquity lay open to the horse-riding nomads and is today about to be covered with a network of railways" would command global politics.⁶ Such

3. "Program Overview," Silk Road Project, www.silkroadproject.org/tabid/144/Default.aspx

4. See Valerie Hansen, *The Silk Road: A New History* (New York, 2012). For uses of the term *Silk Road* in Chinese-language media, see figure 1.

5. See Christopher I. Beckwith, *Empires of the Silk Road: A History of Central Eurasia from the Bronze Age to the Present* (Princeton, N.J., 2009), and E. E. Kuzmina, *The Prehistory of the Silk Road* (Philadelphia, 2008).

6. Halford Mackinder, "The Geographical Pivot of History," *Geographical Journal* 23 (Apr. 1904): 434. See Owen Lattimore, *Pivot of Asia: Sinkiang and the Inner Asian Frontiers of China and Russia* (Boston, 1950), which inserted the Silk Road into Mackinder's model. Owen Lattimore, whose geographical work probably first introduced the *Silk Road* into Chinese (as the neologism *si lu* 絲路; see figure 1), favored Soviet, rather than British, control over Central Asia. Recent geopolitical appropriations of the Silk Road include the 1999 bipartisan US Silk Road Strategy Act that continues to govern US policy in and around Afghanistan (and oil pipeline routes); see Nancy Jervis and Morris Rossabi, *From Silk Road to Oil: Cross-Cultural Connections along the Silk Road: A Curriculum for Educators* (New York, 2003). Compare this to the unregulated Bitcoins-operated Silk Road, the hidden, anonymous, online black market; see Nicolas Christin, "Traveling the Silk Road: A Measurement Analysis of a Large Anonymous Marketplace," www.andrew.cmu.edu/user/nicolasc/publications/TR-CMU-CyLab-12-018.pdf

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geopolitical concerns are legible within Parag Khanna's "New Silk Road." The new high-speed iron Silk Road promises not only to link Beijing central to London St. Pancras by 2020 but also to thrust Eurasia back into the "cockpit of history."

The "old" Silk Road that this essay seeks to describe was as much an invention as these new ones. The German geographer Baron Ferdinand von Richthofen (1833–1905) coined *die Seidenstrasse* in 1877 (fig. 1). The ancients did not use a comparable term for their own cosmopolitan networks and practices. Unlike the *cosmopolitan*, coined by the Cynic Diogenes for a kind of citizenship in an ethically enlarged world, the Silk Road began as a modern concept. For the first few decades Richthofen's term circulated in ways different from today's Silk Road. He did not attach his Silk Road to existing discourses of cosmopolitanism as he might have. Immanuel Kant's cosmopolitan "right of common possession of the surface of the earth," for example, had a long footnote on the historical geography of silk trade between "the Land of the People of *Ser*" and Europe. Kant had explicitly distinguished between contact and forcible entrance, and this cosmopolitan ancient traffic stood in contrast to Kant's own age when "the *inhospitable* behavior of the civilized states in our part of the world, especially the commercial ones" in foreign lands, have led to China and Japan "wisely, limit[ing] such interaction."⁷ In stark contrast, Richthofen's writings on the Silk Road belonged to a multivolume geological survey of China that guided the German colonial seizure of Qingdao in northern China in 1897. Richthofen's Silk Road was part of a competitive German blueprint for a commercial railroad linking China with Europe, designed at a time when the Qing government opposed foreign railway construction.

The significance of this first iron Silk Road lies in geological as well as political history. Richthofen and Sven Hedin, who popularized the Silk Road in the 1930s, asserted the centrality of geological knowledge to geopolitical action. They used the Silk Road to reshape spatiotemporal beliefs about the inhabited and uninhabited Earth. Recent environmental scholarship has explored industrialization's transformation of humans into geological agents. Our exit from the Holocene era, defined by the geostratigraphy of the Earth, into an Anthropocene era characterized by destructive human acts probably began in the Industrial Revolution. Richthofen's Silk Road participated in this transition. He

7. Immanuel Kant, "Toward Perpetual Peace, A Philosophical Sketch," in "*Toward Perpetual Peace*" and *Other Writings on Politics, Peace, and History*, trans. David L. Colclasure, ed. Pauline Kleingeld (New Haven, Conn., 2006), pp. 82, 83n, 82, 84.

- 1877 Ferdinand von Richthofen, *China*, vol. 1, on map of Central Asia dated 1876 ("die Seidenstrasse des Marinus," etc.) and in accompanying text
Richthofen, "Über die centralasiatischen Seidenstrassen bis zum 2 Jahrhundert n. Chr."
- 1878 "The Ancient Silk-Traders' Route Across Central Asia" *The Geographical Magazine* (partial trans. of Richthofen's article; republ. in *The Popular science monthly*)
- 1882 Elisée Reclus, *Nouvelle géographie universelle*, vol. 7 ("cette fameuse route de la Soie")
- 1889 Friedrich Hirth, "Zur Geschichte des antiken Orienthandels" ("Seidenstrasse des Marinus"; trans.: "the silk trade route of Marinus, as indicated...in von Richthofen's *China*")
- 1896 David-Léon Cahun, *Introduction à l'histoire de l'Asie*, "les passages entre l'empire chinois et l'empire romain, la route de la soie"
- 1910 A Herrman, *Die alten seidenstrassen zwischen China und Syrien* [Tientsin 1941 German imprint entitled *Handai sichou maoyi lu kao*; Japanese trans. *Shiruku rodo: pamiru kogen ruto no kenkyu*, 1944; "Die Seidenstrassen von China nach dem Römischen Reich," 1915
- 1913 J. Buchan, *Divus Johnson* (short story): "Russian geographers were interesting themselves in the line of the old silk route to Cathay"
- 1921 R. Grousset, *Histoire de l'Asie* ("Les pistes des caravanes entre la Chine et le Levant, — la Route de la Soie"); London Times (Tuesday April 6, 1921) Book of the Day review of Sven Hedin's *My Life as an Explorer*: "Lou-lan — once a frontier citadel on the great 'silk road' between China and the West"; 1933/4 Chinese translation of Hedin's book renders "Silk Road" as 往來運絲的大道
- 1928 Owen Lattimore, "Caravan Routes of Inner Asia," *The Geographical Journal*: "'silk road,' the classical route through the wastes of Lop Nor into southern Chinese Turkestan". *Di xue zazhi* 1929 translates "silk road" as *si dao* 絲道 and *si lu* 絲路
- 1929 Mildred Cable, *The Challenge of Central Asia* ("The famous Silk Route between the cities of Lanchow and Liangchow")
- 1936 Sven Hedin, *Sidenvägen: en bilfärd genom Centralasien*; 1936 *Die Seidenstrasse* (German trans.); 1936 *A selyem útja* (Hung. trans.); 1938 *The Silk Road* (Eng. trans.); 1939 赤色ルート踏破記 / *Shikishoku ruto tōhaki* (1st Jap. trans.); 1965 シルクロード / *Shiruku Rōdo* (2nd Jap. trans.); 1974 *Ipek yolu* (Turkish trans.); 1989 *Silk'ü rodü* 실크로드 (Korean trans.); 1996 絲綢之路 *Si chou zhi lu* (Chinese trans.)
- 1939 Shanghai News [*Shen bao* 1.11.39]: "In antiquity the so-called 'Silk Road' [所謂絲路 *Si lu*] bound together the states of India and Persia to China as a necessary road for commerce..." Chinese book review of Hedin's *The Silk Road* entitled 絲路 *Si lu*
- Frederick Teggart, *Rome and China* ("great 'silk route,' which ran from Sera Metropolis in western China, to the city of Antioch")
- 1943 Shanghai News: [絲綢之路 *Si chou zhi lu*]
- 1948 London Times Fireside Questions for the Family: A Test of General Knowledge Friday December 24, 1948: Q. XII: From where to where do, or did, these run... (e) the Silk Road (answer Dec 30: "China borders by various routes to Europe")
- ?1955 Ikuma Dan, *Shiruku rodo: kangengaku no tame no kumikyoku* (The Silk Road; suite for orchestra); brought Japanese orchestral music to China in 1979
- 1956 *Renmin Ribao* (People's Daily) 1956.07.21 "絲綢之路" on Chinese relations with Afghanistan; 1962 with Pakistan; 1971.06.22 with Iran, with title article "絲綢之路" explaining the term and origins in Chinese silk and Zhang Qian's trip; 1972 with Turkey; 1972 with Middle East;
- 1979 Gansu production of dance 絲路花雨 celebrating the silk road; troupe travels to Hong Kong, France, US etc. in 1980s
- 1980 Airing of Sino-Japanese (NHK) TV series on the Silk Road (negotiations begun in 1972 with Zhou Enlai)

FIGURE 1. Selective chronology of uses of *Seidenstrasse(n)*, Silk Road(s)/Silk route(s), 絲綢之路 (1877–1980).

mapped and discursively naturalized industrialization's global processes. The first half of this essay introduces Richthofen's reimagination of history in mapping the first Silk Road. It highlights his deparochialization of a Greco-Rome-centered antiquity in the service of scientific cartography. The second half turns to the politics of geology in Richthofen and Hedin's respective Silk Roads. The original rhetoric of the Silk Road revival shaped a belief in geology as a science of time as well as space. This geologism is missing from our new Silk Roads, even as they follow in the tracks of the old one. As such, I offer the invention of the

Silk Road, roughly 1877 to 1936, as part of the history of how we have come to see ourselves as subjects of an Anthropocene era, no longer attuned to the clock of geologic time.

1. Ptolemy's Silk Road

Richthofen's published works introduced two Silk Roads: a plural *Seidenstrassen* that delineated the historical routes of silk exports from China; and, far more prominently, a singular *Seidenstrasse* of the Greek geographers Marinus and Ptolemy. Although the former, more generalized usage was appropriated in ways that proliferate to the present, the latter explains Richthofen's coining of the term. Richthofen's map delineating Marinus's Silk Road belonged to the late-nineteenth-century pursuit of the most accurate maps of the classical and modern world. The novelty of Richthofen's cartographic solution lay in his evaluation of classical antiquity from the perspective of Chinese historiography.

Richthofen's writings on the Silk Road are limited to a dozen pages within the introductory volume of his geological surveys of China and a geographical journal article, both published in 1877.⁸ The plural *Seidenstrassen* of his article's title refer to the routes of silk trade whose geography and history he describes. "The notion of transcontinental Silk Roads" (*der Begriff transcontinentaler Seidenstrassen*), he concludes, lost its significance once sixteenth-century Europe and West Asia were producing their own silk and therefore had no need for Chinese imported silk ("U," p. 122). His much longer book version of this account lacks this millennia-spanning notion of *Seidenstrassen*. All four references to the *Seidenstrasse(n)* in his book and nine of the eleven references in the article concern "die Seidenstrasse des Ptolomaeus" or "die Seidenstrasse des Marinus" (See C and "U").⁹ The English version of Richthofen's article that appeared the following year in Britain's *Geographical Magazine* and the US's *Popular Science Monthly* reflected Richthofen's interest in this restricted usage. In translation, only the singular *Seidenstrasse* took the force of neologism, introducing

8. See Ferdinand von Richthofen, *China: Ergebnisse eigener Reisen und darauf gegründeter Studien*, 5 vols. (Berlin, 1877–1912), hereafter abbreviated C; and "Ueber die centralasiatischen Seidenstrassen bis zum 2. Jahrhundert n. Chr.," *Verhandlungen der Gesellschaft für Erdkunde zu Berlin* 4 (Jan.–Dec. 1877): 96–122, hereafter abbreviated "U."

9. The article lists under the sectional heading "*Seidenstrassen durch Central-Asien*": "1) *Chinesische Nachrichten*" and "2) *Die Seidenstrasse des Ptolomaeus*" ("U," pp. 109, 111). *China's* index has "*Seidenstrassen unter Han dynastie*" (C, 1:752), but the text itself does not use the term in this way. The index also has, under Marinus, "*Seidenstrasse von Baktra aus*" (C, 1: 748). The book also discusses "*die Seidenstrasse von Maës*" (C, 1:500), the agent of Marinus, and uses the plural form once in relation to Marinus; (see C, 1:496).

into English the *silk-route* (predating the *Silk Road*) in reference to the “silk-route of Marinus and Ptolemy.”¹⁰ The title became “The Ancient Silk-Traders’ Route across Central Asia,” and the plural *Seidenstrassen* elsewhere became the “route of silk-traders.”

What was this *Seidenstrasse* of Marinus and Ptolemy? In Richthofen’s *China*, it appears on the legend of a fold-out map of Central Asia (fig. 2), as well as in the text proper, as follows:

Map of Central Asia

Overview of transport-connections from 128 BC to 150 AD by F. v. Richthofen 1876.

The *blue* color shows everything that is obtained from *Chinese* sources, the *History of the Former Han Dynasty* in particular (see Text pp. 448–478).

Only the official roads in the Tarim Basin have been specified. The *red* names and lines show the geography of the land of *Serica* of *Ptolemy* and the *Silk Road of Marinus* (see Text pp. 479–500).

The road west of Baktra was completed following Kiepert.
[C, 1:500–501]

Marinus of Tyre was a first-century geographer whose work was preserved in the second century *Geography* of Ptolemy of Alexandria (Egypt). The fifteenth-century European rediscovery of this Alexandrian account, written in Greek, revolutionized European cartography. It provided the mathematical models of projection and regional grids of longitude and latitude as the basis of modern cartography.¹¹ Richthofen confines his Silk Road to the red lines representing the content of this Greek text and to the route proposed in it by Marinus (*die Seidenstrasse des Marinus*). The map is entitled “Map of Central Asia: Overview of Transport-Connections from 128 BC to 150 AD,” but *die Seidenstrasse* only refers to the single red line that runs horizontally between the left edge of the map, around modern-day Iran, and Sēra metropolis, which Richthofen’s accompanying text (cited in the map’s legend) identifies as the modern-day Chinese city of Xi’an (the Han

10. Richthofen, “The Ancient Silk-Traders’ Route across Central Asia,” *Geographical Magazine* 5 (Jan. 1878): 13 and “The Ancient Silk-Traders Route Across Central Asia,” *Popular Science Monthly: Supplement* 7–12 (New York, 1878), p. 381. See also Friedrich Hirth, “Zur Geschichte des Antiken Orienthandels,” *Chinesische Studien* 1 (1890): 1–24 and “Contributions to the History of Ancient Oriental Trade,” *China Review* 18 (1889): 41–54, and E. Wangerin, “Ueber die Seidenstrassen des Marinus,” *Ber. Studentischen Ver. E. Halle a. S.* (Winter 1894–1895): 9–10.

11. See Christian Jacob, *The Sovereign Map: Theoretical Approaches in Cartography throughout History*, trans. Tom Conley, ed. Edward Dahl (Chicago, 2006).

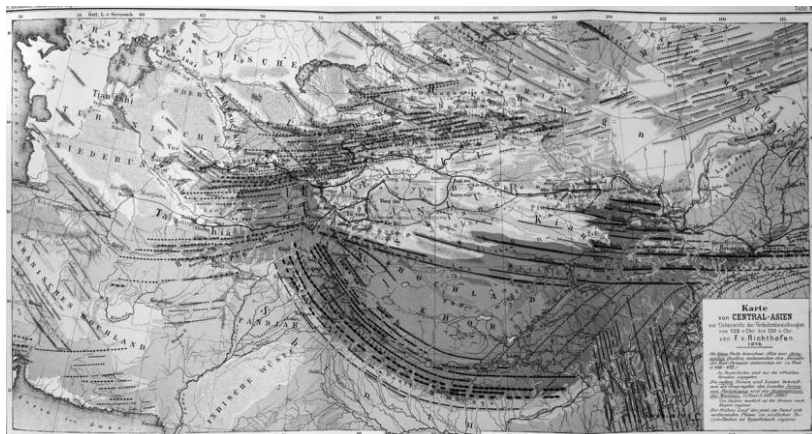


FIGURE 2. “Map of Central Asia.” From Ferdinand von Richthofen, *China: Ergebnisse eigener Reisen und darauf gegründeter Studien* (Berlin, 1877).

dynasty capital Chang’an). The colors of lines and toponyms differentiate data from two sets of textual sources, Greek (Ptolemy) and Chinese (principally the first-century *History of the Former Han Dynasty*). The blue Chinese lines occasionally overlap with Marinus’s Silk Road, but the color-coding maintains their distinction. Within the section of the text to which the legend refers the reader (see *C*, 1: 497–500), Richthofen refers to the “Silk Road of Marinus,” the “Silk Road of Ptolemy,” and the “Silk Road of Maës” (Marinus’s Macedonian informant), but Richthofen does not conflate the *Seidenstrassen* with terms such as *Verkehrsbeziehungen* (transport connections) and *Handelsstrassen* (trade routes).

Despite its homage to Ptolemy, Richthofen’s Silk Road does not emblemize the triumph of Hellenic knowledge, as did earlier maps and texts of Central Asia, such as Joseph Hager’s “Route d’une Caravane Grecque à la Chine” (1805), one of the many works that Richthofen footnotes (fig. 3). The dotted lines of Hager’s Greek caravan essentially trace Richthofen’s red Silk Road to Sēra, which Hager also identifies with Xi’an. Although Hager does not use the actual term *Silk Road*, or *route de la soie*, the undulating silkworms in the bottom right-hand corner tease us as a potential precursor to Richthofen’s Silk Road in rebus form, namely silk(worm) + route. The large Greek letters in mock engraving, however, mark Hager’s very different relation to his sources. The map’s frame can barely contain the capitalized ΘΙΝΑ (Thina) that blazes out from beneath the mulberry fronds in a bigger, bolder font than any place name on the map. Hager’s central argument

Route d'une Caravane Grecque à la Chine
Proposé pour la Mémoire de M. KAOCC?
 Par J.D. HAGER, DU DOCTEUR (exempté de Relations Extérieures)
 Née le 28 (Janv. 1805)

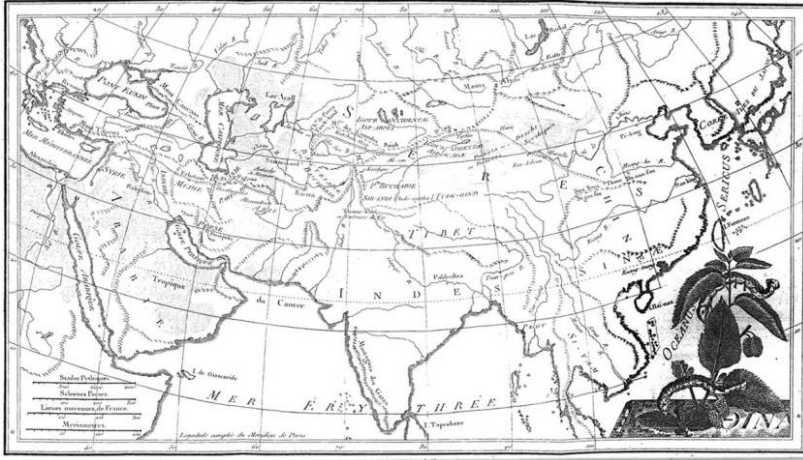


FIGURE 3. "Route of a Greek Caravan to China." From Joseph Hager, *Description des médailles chinoises du Cabinet impérial de France: Précédée d'un essai de numismatique chinoise* (Paris, 1805).

is that Ptolemy's *Sērica* was China and that Thina, Thinai, Sinai, and Sēres of Greek texts referred to China or the Chinese.¹² *Sērica*, Hager and later Richthofen argued, is etymologically derived from the Chinese term for silk, *si*, transliterated by Greek speakers as *sēr*. Those who traded their silk were called Sēres or "bringers of silk." Hager's silkworms possibly present a visual etymology of Ptolemy's Sēres, and their segmented undulations visually pun the winding route of the Greek caravan route towards the land of Thina. The title and the decorative excesses of Hager's map celebrate its dedication to Greek knowledge. Its untransliterated Greek letters are literally on a pedestal. Like Hager and other European scholars, Richthofen discursively grounds his map of Central Asia in Greek texts, but his *Seidenstrasse*, by contrast, remains disenchanting with the Greek word and spirit.

Richthofen presents his Silk Road as a scientific interpretation of

12. See Joseph Hager, *Description des médailles chinoises du Cabinet impérial de France: Précédée d'un essai de numismatique chinoise* (Paris, 1805). In Hager, *Panthéon chinois, ou, Parallèle entre le culte religieux des grecs et celui des chinois, avec de nouvelles preuves que la Chine a été connue des grecs, et que les Sères des auteurs classiques ont été des chinois* (Paris, 1806), he calls *Serica* and China "le pays de la soie" and identifies Ptolemy's *Seres* and *Sines* as the Chinese.

Ptolemy's *Geography*, not as a self-evident representation of it. In reference to "the Silk Road of Marinus," his map legend states: "the road west of Baktra was completed following Kiepert" (fig. 4). The geographer Heinrich Kiepert, Richthofen's rival and later colleague at the University of Berlin, had rigorously mapped every place mentioned in a classical Greek and Latin text across the modern grid of longitude and latitude. His *Atlas Antiquus* was the most authoritative and popular map of the Greco-Roman world that was available in the 1870s, and it was republished throughout the nineteenth and early twentieth centuries across Europe and the United States.¹³ Richthofen's red line of the Silk Road, which visibly thickens east of Baktra, asserts his mathematical revision of the eastern end of the Greek *oikoumene*. "Let us take a close look at the silk road of Marinus and Ptolemaeus," he writes in his 1877 article. "Its starting point is Baktra, the present day Balkh, south of the Oxus. Its terminus is Sēra metropolis" ("U," p. 20). Richthofen's Silk Road is not a cultural bridge between Orient and Occident but a measureable route between Balkh in Afghanistan and Xi'an in China that will revise Kiepert's canonical map of antiquity.

Richthofen's quarrel with Kiepert over this specific route invoked Marinus's traditional significance within European geographical discourse. As described in the theoretical introduction of Ptolemy's *Geography*, Marinus's original aim in measuring the road to Sēra metropolis was to estimate the longitudinal extent of the known world to the furthest point east along the parallel 36 degrees north of the equator.¹⁴ Ptolemy sought to revise Marinus's estimate by recalculating this distance to Sēra metropolis. He argued that Marinus's informants had relied on merchants who "often exaggerate distances out of boastfulness," and, in the imperative, Ptolemy insisted that one "reduce to half" the seven-month distance from the Euphrates to Sēra metropolis.¹⁵ Ptolemy thereby relocated Sēra metropolis to 177 degrees longitude from the westernmost point of the *oikoumene* (the Islands of the Blest off North Africa) and recalculated the east-west span of the known world. In recalculating the road to Sēra metropolis yet again in 1877, Richthofen does not address Ptolemy's somewhat arbitrary halving of empirical distances in reassessing Marinus's data. Rather, he attacks Ptolemy's failure to "combine" two sets of data about the easternmost world drawn from two more proximate regions.

13. See Heinrich Kiepert, *Atlas antiquus: Zehn Karten zur alten Geschichte* (Berlin, 1861).

14. See Ptol. *Geog.*, 1.11.

15. *Ibid.*, 1.12.

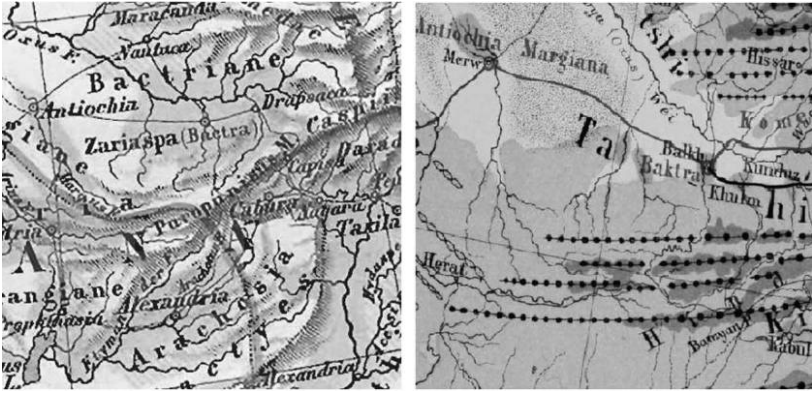


FIGURE 4. Details from Richthofen's "Map of Central Asia" and Heinrich Kiepert's "Orbis terrarum antiquis notus." From *Atlas antiquus: Zehn Karten zur alten Geschichte* (Berlin, 1861), showing the region around Baktra/Balkh.

There were inquiries made about Serica from two sides: on the one hand from India . . . on the other hand from Sogdiana and Bactriana. . . . Both of these lines of sight were located far apart, and the combination of both was rather difficult. Ptolemy viewed them . . . with each eye separately. Ptolemy was unable to combine both pictures stereoscopically (*stereoskopisch*). But he attempted what is nowadays customary in such cases, that is to calculate the route on a grid of longitude and latitude according to distance and direction and then enter the places he identified. ["U," p. 19]

Richthofen here and elsewhere introduces a metaphor of stereoscopic combination to explain how his "Silk Road of Marinus" presents the better interpretation of Ptolemy's own data. Although Richthofen attributes the metaphor to the British geographer Henry Yule ("Ptolemy, as Yule described so accurately, saw independently with each eye in a special way and was not capable of unifying both pictures stereoscopically" [C, 1:483]), Yule had actually commented that Ptolemy had not used "binocular vision" but rather "his right and left eye separately."¹⁶ Richthofen's use of stereoscopic instead of binocular to describe the way in which human vision accommodates the slight parallax of the two eyes was not idiomatic then (in German). The stereoscope, invented in 1838 and immediately redesigned for scientific research and mass entertainment, produced an illusory three-dimensional image

16. Henry Yule, *Cathay and the Way Thither: Being a Collection of Medieval Notices of China*, trans. and ed. Yule, 4 vols. (London, 1866), 1: xciv n. 1.

when the sitter viewed two pictures of an object that had been taken from slightly different angles.¹⁷

This awkward metaphor of a more modern, scientific visuality epitomizes Richthofen's representation of his own researches on China as an advance within the broader field of scientific geography.¹⁸ Richthofen's contemporary, Hermann von Helmholtz, had influentially placed optics at the center of interdisciplinary debates about the empirical basis of human knowledge, pronouncing in 1868 the end of an era in which the human eye was conceived as a perfect optical instrument.¹⁹ Exploiting the language of optics, Richthofen figuratively transforms cartography from a problem of representation to one of seeing. Ptolemy had opened his *Geography* (*Geōgraphikē hyphēgēsis*, or, *Guide to Drawing the World*) with an analogy of cartography to portraiture. After restrictively defining geography (*geōgraphia*) as "the imitation [*mimēsis*] through drawing of the entire known part of the world" and related things, Ptolemy writes: "In drawing a region [*khōrographikon*] the goal is an impression of parts, as if one were representing only an ear or an eye; however in drawing the world [*geōgraphikon*] it is a vision of the entirety, analogous to sketchings of the whole head."²⁰ The operation of the eye is not a problem in Ptolemy's analogy; the sitter's eye merely needs to be drawn in its correct relation to the head, the ear, and other parts across mathematically gridded space; the draftsman's eye represents the single and consistent point of perspective for portraits or map projections. The challenge for Ptolemy lay in visually representing

17. Popular and scientific accounts of human vision tended to reserve *stereoscopic* for the images or effects produced by the new stereoscope, even as it replicated and made measurable the normal "binocular" adjustments of human vision; see for example Hermann von Helmholtz, *Handbuch der physiologischen Optik* (Leipzig, 1867).

18. Richthofen does not advocate the actual use of stereoscopes in cartography, even though geographers had experimented with stereoscopic landscape maps by this time. See Francis Galton and Robert Cameron Galton, "On Steroscopic Maps, Taken from Models of Mountainous Countries," *Journal of the Royal Geographical Society of London* 35 (1865): 99–106.

19. Helmholtz redefined the eye by its scientifically measurable imperfections and used the stereoscope to demonstrate that what we actually see—just like what we touch, taste, or smell—was based on learned, inferred interpretations of sensory data and not on the innate mechanics of the sensory organs; see Helmholtz, "Die neueren Fortschritte in der Theorie des Sehens," *Preussische Jahrbücher* 21 (1868): 149–70, 261–89, 403–44 and "Recent Progress of the Theory of Vision," *Science and Culture: Popular and Philosophical Essays*, trans. E. Atkinson, ed. David Cahan (Chicago, 1995), pp. 127–203, drawn from Helmholtz's *Handbuch der physiologischen Optik*. On Charles Wheatstone's original invention, see Charles Wheatstone, "Contributions to the Physiology of Vision. Part the First. On Some Remarkable, and Hitherto Unobserved, Phenomena of Binocular Vision," *Philosophical Transactions of the Royal Society of London* 128 (1883): 371–94.

20. Ptol. *Geog.*, 1.2.

the earth's curvature while keeping the relative distances between places marked on it proportional. Rather than presenting himself as a better artist, Richthofen undermines the simile. The failure of "stereoscopic" combination in Ptolemy (mapping China)—as well as in David Livingstone (mapping Africa)—simply clarifies his own relation to the field. His "Silk Road of Marinus" is not the product of the winking artist replicating the landscape before him but of the modern scientist mathematically rearranging pictures of the landscape.²¹

More importantly for later appropriations of the *Silk Road*, Richthofen presents his Central Asia map as the first to systematically draw on Chinese sources. Marinus's Silk Road is not the only case in which Richthofen argues that to understand the ancient Greeks and the modern world one must incorporate the Chinese point of view.²² The published records of postlecture discussions include Richthofen's often-heated exchanges with Kiepert over the need to use ancient Chinese sources to interpret and enlarge the Greco-Roman topography of antiquity. One should note that Richthofen does not provincialize the nineteenth-century European conceit that the non-West can provide anything more than new archive for Western epistemology: "The kind of information the Chinese strove after was of a more superficial nature than that sought amongst the peoples of the West, at least amongst the Greeks and the Romans . . . who notably pursued a deep and scientific version of knowledge" (C, 1:474).²³ His bias in this way resembled that of Johann Wolfgang von Goethe's world literature ("We must not give this [literary] value to the Chinese, or the Serbian, or Calderon, or the *Nibelungen*; but, if we really want a pattern, we must always return to

21. Richthofen's dismissal of Ptolemy's defective eye in favor of stereoscopic (not merely binocular) vision might be situated within Jonathan Crary's account of nineteenth-century visuality, in which the rise of the stereoscope was indicative of a transformation of the observer and human vision into measurable objects of scrutiny: The stereoscope "produced an image which, in its hypertangibility, was all figure with no ground, no periphery. What is lost in . . . [the] stereoscope is the possibility not only of a classical figure/ground relationship, but also of consistent and coherent relations of distance between image and observer" (Jonathan Crary, *Suspensions of Perception: Attention, Spectacle, and Modern Culture* [Cambridge, Mass., 1999], p. 295). Richthofen's call for stereoscopic combination upsets the classical figure/ground relationship assumed by Ptolemy's portrait artist and cartographer. See Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, Mass., 1992), pp. 1–25, 97–136.

22. See Richthofen, "Ueber den Seeverkehr nach und von China im Alterthum und Mittelalter," *Verhandlungen der Gesellschaft für Erdkunde zu Berlin* 3 (1876): 97, and A. Bastian, "Sitzung am 5 Mai 1877," *Verhandlungen der Gesellschaft für Erdkunde zu Berlin* (1877): 95–96.

23. For a similar claim, see Richthofen, *Aufgaben und Methoden der heutigen Geographie* (Leipzig, 1883), pp. 2–3.



FIGURE 5. Details from Richthofen's "Map of Central Asia," showing a distance in classical Chinese units ("720 *li*") and from Jules Hansen, "Itinéraire au Lob-Nor (Asie centrale) par Prjevalski, 1877, d'après la carte du baron de Richthofen," *Bulletin de la Société de géographie* (June, 1879), showing Przhhevsky's relocation of Lake Lob Nor (in black). Sven Hedin later argued that Lake Nob Nor physically shifted between two locations over time.

the ancient Greeks").²⁴ At the same time, Richthofen's insistence that one needed Chinese records to interpret the Greeks and that the Greco-Roman map of antiquity was incomplete and incorrect without it went a step further than Goethe in provincializing the classicist. Amidst a rising academic, artistic, and popular late-nineteenth-century German Hellenism, when *Altertumswissenschaft* lay at the heart of the German educational system, Richthofen's Silk Road of Marinus emerges as a figure of the epistemological inadequacy of the Greeks and of the *unworldliness* of the classicist.

Richthofen made Chinese historical narratives essential to geographical knowledge. Richthofen inserts little blue units of distance in Chinese miles ("1000 *li*") alongside different sections of these blue lines (fig. 5). These numbers record the distances between cities that Richthofen laboriously extracted and tabulated from the *History of the Former Han Dynasty* (see C, 1:460–63 n. 3). Here as elsewhere in his reading of Marco Polo and Buddhist travelogues, Richthofen transformed travel narratives into spatial data by (1) removing the plot and descriptive details; (2) extracting toponyms and tabulating exact distances; (3) translating toponyms from different ancient languages; and (4) drawing a map. For example, the original passage in the Han annals on the oasis hub of Loulan (by Lob Nor) looked

24. J. W. von Goethe and J. P. Eckermann, "Conversations on World Literature (1827)," trans. John Oxenford, in *The Princeton Sourcebook in Comparative Literature: From the European Enlightenment to the Global Present*, ed. David Damrosch, Natalie Melas, and Mbongiseni Buthelezi (Princeton, N.J., 2009), p. 23.

like this: “The state of Shanshan, originally named Loulan [Liu-lan] [has its] ruler’s government based in the town of Wuni; it is 1600 li distant from the Yang barrier and 6100 li distant from Chang’an [Tshang-ngan]. There are 1570 households, 14100 individual.”²⁵ In Richthofen’s *China*, it became the following table (fig. 6):

From Liu-lan (6100 li from Tshang-ngan)	westward to Tsiê-mo	720 li
- Tsiê-mo (6820 - - -)	- SW - Hsiau-wan	390 -
- Hsiau-wan (7210 - - -)	- westward - Yung-liu	1090 -
- Yung-liu (8300 - - -)	- northwest - Tsing-tsuê	520 -
- Tsing-tsuê (8820 - - -)	- southwest - Kiu-mi	460 -
- Kiu-mi (9280 - - -)	- - Yü-tiën	390 -
- Yü-tiën (9670 - - -)	- southeast - Kiu-léi	280 -

FIGURE 6. Distances for Richthofen’s *China*.

The table enabled Richthofen’s drawing of the map through which he ultimately asserted his own authority over other geographers.

Richthofen’s novel use of Chinese sources marked an intervention into modern as well as antiquarian cartography. While the red lines of Marinus’s Silk Road corrected Kiepert’s classical map, the blue lines of Han dynasty texts clarified the geomorphology of Inner Asia. There are no corresponding red numbers with ancient Greek *stades* or hours that Richthofen could have transcribed from Ptolemy’s tables of places and computed distances. Since Richthofen’s map already takes its scale from the clearly marked modern lines of latitude and longitude (from the Greenwich meridian), these Chinese *li* are ostensibly as superfluous as the Greek letters and silkworms on Hager’s map.²⁶ The modern grid should provide the scale. However, as Richthofen’s discussion makes clear, the reverse is the case. The blue Chinese lines have become the suggested yardstick for locating places within the modern lines of longitude and latitude in that region. Data from the ancient Chinese historical narratives “casts a new light on the structure of the [Tarim] basin” and on the inaccuracies of present-day maps of the southern part of the basin and its topography in particular (C, 1:460 n. 2). Richthofen’s map of Central Asia thus exceeds the modest antiquarian desires of its title, “Overview of Transport-

25. *Hanshu* (History of the Former Han Dynasty) (Beijing, 1962), chapter 96A, p. 3875. This was originally composed in the first and second centuries CE.

26. The Han dynasty *li* was about 0.415 km (Richthofen does not convert them into modern Chinese *li*). Greenwich became the universal meridian in 1884.

Connections from 128 BC to 150 AD.”²⁷ Richthofen introduces and frames his various discussions of the Silk Road with the latest information about international explorations and surveys of Central Asia, which shed light on “the path that the agents of Maës [Marinus’s informants] took from Balkh northwards” (“U,” p. 496).²⁸ By the end of 1877 Richthofen had to defend this map because the Russian explorer Nikolai Przhevalsky (1839–1888) returned from an expedition in Inner Asia with a new map of the Gobi desert regions that August Petermann and others pronounced a watershed in the history of geography. For Richthofen, Ptolemy’s Silk Road figured the inadequacy of the modern explorer and the classicist. Only when juxtaposed with Chinese data could one reveal the geological truths of one of the “last” regions to be conquered by Western cartography.

2. The Geological Clock

The broader stakes of mapping Ptolemy’s Silk Road lay in the political and commercial ambitions of Richthofen’s sponsors. Richthofen became Germany’s leading expert on China via geology and not via the more familiar avenues to sinology—missionary work, comparative philology, business, translation, or ethnography.²⁹ He benefited from the high premium placed on nineteenth-century geological science due to the importance of coal and railways to modern warfare and industry. His introductory volume ends with an account of the European study of China that culminates with the importance of scientific geography and geology. The comparative geography pioneered by his teacher, Carl Ritter, emphasized the collation and rigorous assessment of data from every possible scientific, literary, and journalistic source. However, after Britain’s “wrest-

27. See figure 2.

28. Richthofen’s “Ueber die centralasiatischen Seidenstrassen” begins: “The most recent research in Central Asia is due to the initiative of British and Russian surveyors” (“U,” p. 1). On Nikolay Przhevalsky’s watershed explorations of Lob Nor, see “Asien,” *Petermanns Geographische Mitteilungen* 23 (1877): 190, and Sven Hedin, *General Prschewalskij in Innerasien* (Leipzig, 1922), pp. 106–12.

29. George Steinmetz has usefully analyzed Richthofen’s contradictory representations of the Chinese in the context of a broader symbolic field of ethnography in which colonial (or precolonial) actors competed to demonstrate their superior knowledge of the Other. He explains Richthofen’s conflicting characterizations of the Chinese across his popular and academic writings in terms of his mixed set of class, professional, and political affiliations. For example, Richthofen’s cross-cultural sympathies with Chinese literati elites mostly drew from post-Hegelian, precolonial (pre-1897) German academic sinology. His reflections on the Chinese after the seizure of Jiaozhou, including the impossibility of a European becoming attached to a Chinese “except in the form of the relation between a master and his dog,” partly reflect the rhetoric of sinophobic business elites as well as of racial ethnology (quoted in George Steinmetz, *The Devil’s Handwriting: Precoloniality and the German Colonial State in Qingdao, Samoa, and Southwest Africa* [Chicago, 2007], p. 407).

ing of permission” for trade (in opium) in the Sino-British Opium Wars (1839–1842; 1856–1860), Richthofen found in British commercial geography a more congenial model of industrial geology that preceded and necessitated textual research.³⁰

In 1861, following Blakiston’s journey on the Yangzi, came the era of the development of China for science and thus also for her full practical exploitation through world-traffic, and we face the great task of exploring, according to the views of our times, this country—materially the most blessed among all countries on earth, the homeland of a third of human beings, the place of a particular highly developed culture, and a seemingly inexhaustible treasury of earthly products and an intelligent human work force, a country with an unpredictable yet important future whose vast trade will increasingly become the arena of competition amongst cultured peoples. Allow me, before my exposition of China in the next volume, to say a few further words about this position, to clarify what the goals and methods of the geographical approach should be, since both are still interpreted in very different ways. It should always be kept in mind that the first and foremost subject of scientific geography is the earth’s surface independent of its organization and its inhabitants. [C, 1:729–30]

British Captain T. W. Blakiston’s post-Opium War explorations of coal and mineral deposits herald the beginning of “the era of the development of China for science,” China’s “full practical exploitation [*volle praktische Ausbeutung*] through world-traffic” and transformation into a new “arena of competition.”³¹ Richthofen’s China is not G. W. F. Hegel’s China, geographically doomed to its essentialized, isolated, family-centered antiquity when the pendulum of world history first swung from East to West.³² Rather, China’s unrivaled mineral wealth (“materially the most blessed among all countries on earth”; “inexhaustible treasury of earthly products”) and exploitable labor pool point towards its “important future.”

30. Richthofen, “Die Kohlenfelder China’s,” *Mitteilungen der k.k. geographischen Gesellschaft in Wien* 17, no. 2 (1874): 66. Richthofen begins his account of China’s coalfields with this debt to the British.

31. Richthofen also mentions the prospecting of the American geologist Raphael Pumpelly; see C, 1:707–08, and Raphael Pumpelly, *Across America and Asia: Notes of a Five Years’ Journey around the World and of Residence in Arizona, Japan, and China* (New York, 1871), pp. 213–14, 288–93. Pumpelly also assesses competing railway routes by discussing various transcontinental “caravan routes” and by recalling the “greatest highway of commerce” between the Han and Roman empires (p. 213).

32. See G. W. F. Hegel, *Vorlesungen über die Philosophie der Weltgeschichte* (Hamburg, 1980), pp. 275–342.

Richthofen's subsequent volumes on China provide precisely the geological data on the uninhabited earth required to scientifically map and master this future.

Commerce and colonialism were integral to Richthofen's advancement of geological science and vice versa. European and American business corporations as well as the German state (by 1871, the German empire) had financed Richthofen's 1868–1872 geological surveys of China. These mapped for his funders the best possible routes for introducing railways into China on the eve of an international “scramble” for railway concessions by foreign governments and private syndicates.³³ Richthofen's 1870–1872 reports to the European-American Chamber of Commerce in Shanghai on China's regional commercial, mining, and railroad prospects highlighted the potential significance of future lines running west from Xi'an. With the recent completion of the transcontinental railway across the United States in 1869, Richthofen mapped a new plan for a railroad connecting China and Europe.

Little doubt can exist that, eventually, China will be connected with Europe by rail. . . . As regards natural facilities, and the supply, at both ends of the line, of the populous, productive and large commercial countries, the only line which ever can come into consideration is that by Si-ngan-fu [Xi'an], Lan-chau-fu [Lanzhou], Su-chau and Hami. It is a remarkable coincidence that this whole road, including the Pelu [Beilu, “the northern route” around the Tarim Basin], is well provided with coal. . . . There is scarcely an instance on record, where so many favourable and essential conditions co-operate to concentrate all future intercourse on so long a line upon one single and definite channel.³⁴

This coal-rich “northern route” around the Tarim Basin developed in the centuries following the Han dynasty and was marked out on other historical maps of Central Asia in the same series enclosed in Richthofen's introductory volume on China.

Marinus's Silk Road and the Han dynasty routes thus represented a set

33. See Chang Kia-Ngau, “The Scramble for Concessions (1895–1903),” in *China's Struggle for Railroad Development* (New York, 1943), pp. 26–38. See also Ralph William Huenemann, *The Dragon and the Iron Horse: The Economics of Railroads in China* (Cambridge, Mass., 1984); Mi Ruicheng, “Zhong-De guanxi zhong de tie lu wen ti,” *Zhongguo shehui kexue yuan ke yan ju zuzhi*, ed. *Mi Ruicheng ji* (Beijing, 2008), pp. 332–60; and Vera Schmidt, *Die deutsche Eisenbahnpolitik in Shantung 1898–1914: Ein Beitrag zur Geschichte des deutschen Imperialismus in China* (Wiesbaden, 1976). On Russian and French railways in China, see B. A. Romanov, *Russia in Manchuria (1892–1906)*, trans. Susan Wilbur Jones (New York, 1974), and Joseph Marchisio, *Les Chemins de fer Chinois: Finance et diplomatie, 1860–1914* (Paris, 2005).

34. Richthofen, “Northern Shensi,” *Baron Richthofen's Letters, 1870–1872* (1872; Shanghai, 1903), pp. 151–52.

of possibilities Richthofen needed to consider in plotting out a modern railway route between China and Europe. Missing from Richthofen's maps is the full significance of the Tarim Basin region within the Great Game rivalry among British, Russian, and Qing imperial ambitions (fig. 7). Richthofen had not personally surveyed the Xi'an-Balkh distance during his 1868–1872 geological mission because, in 1864, Yaqub Beg had set up an independent Islamic state across much of this region that the Qing Empire had governed for a century through a network of Muslim officials or *begs*.³⁵ Przhhevsky, who had famously met with Yaqub Beg en route to Lob Nor, coupled military intelligence with imperial ambitions for Russia. Throughout the 1870s and 1880s, he exhorted an “advance across the Gobi [to Peking]” and in 1886 unsuccessfully advocated the annexation of Xinjiang, Mongolia, and Tibet.³⁶ By 1876 the Russian Empire had expanded east and south towards Afghanistan and China to annex Tashkent (1865), Samarkand (1868), Osh (1876), and even took Kuldja (Ili) within five years of the local revolt against the Qing imperial *begs*.³⁷ British expansion northwest to Peshwar (1849) and Gilgit (1877) followed its failures in the first Anglo-Afghan War, fuelled by fears about Russian imperial designs on British India.³⁸ Qing ambitions for colonizing Xinjiang were fuelled by scholars such as Wei Yuan and Xu Song, who had, as Richthofen noted, already produced preparatory maps from the Han dynasty annals (fig. 8).³⁹ By the time the Qing armies retook Xinjiang after Yaqub Beg's sudden death in 1877, the British and Russian empires had effectively expanded up to and across Chinese borders. Richthofen's Silk Road between Balkh and Xi'an simply marked a better Europe-China route than rival

35. On British support for Yaqub Beg's state, see H. C. Rawlinson, “On the Trade Routes between Turkestan and India,” *Proceedings of the Royal Geographical Society*, 13 (1868–69): 10–17.

36. Quoted in David Schimmelpenninck van der Oye, *Toward the Rising Sun: Russian Ideologies of Empire and the Path to War with Japan* (DeKalb, Ill., 2001), p. 34.

37. See Hodong Kim, *Holy War in China: The Muslim Rebellion and State in Chinese Central Asia, 1864–1877* (Stanford, Calif., 2004), pp. 52–57.

38. See H. C. Rawlinson, “Memorandum on the Central Asian Question,” 20 July 1868, L/P&S/20/Memo 21, India Office Records, British Library, and “Historical Summary of the Central Asian Question,” 30 Apr. 1874, HCR 20/3, Royal Geographical Society, the Major General Sir Henry Creswicke Rawlinson Collection. See also James Hevia, *The Imperial Security State: British Colonial Knowledge and Empire-Building* (Cambridge, 2012), esp. pp. 152–92.

39. See Xu Song, *Xi yu shui dao ji* (Record of the Waterways of the Western Regions) (Taipei, 1966), esp. pp. 250–59, and Wei Yuan, *Shengwu ji* (Record of Imperial Military Achievements) (1842; Shanghai, 1936), 4:10a. Richthofen mentions Xu Song in his debate with Przhhevsky; see Richthofen, “Remarks on the Results of Col. Prejevalsky's Journey to Lob-Nor and Altyn-Tagh, by Baron Von Richthofen,” in N. Prejevalsky, *From Kulja, across the Tian Shan to Lob-Nor*, trans. E. Delmar Morgan (London, 1879), p. 142.

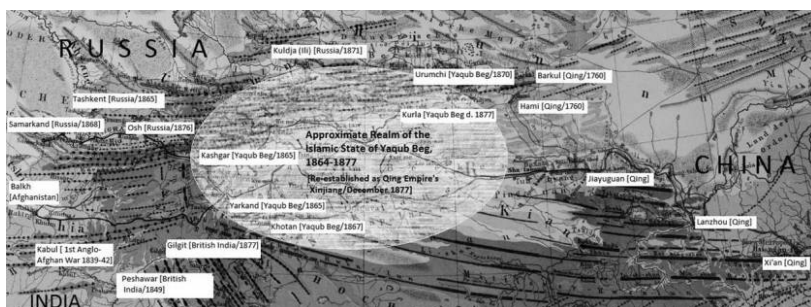


FIGURE 7. Political map of eastern Central Asia (1877), showing the Islamic State of Yaqub Beg (1864–1877) and the expansions of the Russian, British, and Qing empires.

British and Russian ones. Like its competing designs, this railroad traversed the terrain of communities it was not designed to serve.

European and Chinese politicians tied railway construction to imperial and colonial ambitions. British Prime Minister Lord Salisbury had, in 1871, declared that “small kingdoms are marked out by the destinies of the world for destruction. . . . The great organizations and greater means of locomotion of the present day mark out the future to be one of great empires.”⁴⁰ In 1875 the British (opium-trading) company Jardine, Matheson, and Company laid the Shanghai-Woosung line, the first ten miles of railroad in China. In 1877 the regional governor Shen Baozheng bought up and dismantled the line, sending the tracks away to Taiwan. Some Qing officials, like Liu Xihong, who had ridden trains in Britain and became the first Chinese ambassador to Germany in 1877, dismissed railroads and other modern Western technologies outright.⁴¹ Others, such as the reformist Li Hongzhang, warned that defending frontier regions of Xinjiang against Russians would require railways. Ma Jianzhong later concurred: “Only railroads will be able to annihilate (foreign) appetites for our frontiers and to provide protection for our country. Therefore I appeal that we must construct them, and permit no delay.”⁴² The tempo of railroad construc-

40. Quoted in Ronald E. Robinson, in *Railway Imperialism*, ed. Clarence B. Davis et al. (New York, 1991), p. 2. And see Davis, “Railway Imperialism in China, 1895–1939,” in *Railway Imperialism*, pp. 155–73.

41. See Liu Xihong, *Ying yao si ji* (Personal Record of Travels in Britain) (Changsha, 1981), p. 198.

42. Ma Jianzhong, “Tie dao lun” (Discussion on Railways), *Cai xi xue yi: Feng Guifen, Ma Jianzhong ji*, ed. Zheng Dahua (Shenyang, 1994), pp. 135–44. Ma’s article, published in 1890, calculated in gold and silver Chinese indemnities to Britain and France after the Opium Wars and argued that China could not afford *not* to build railways.

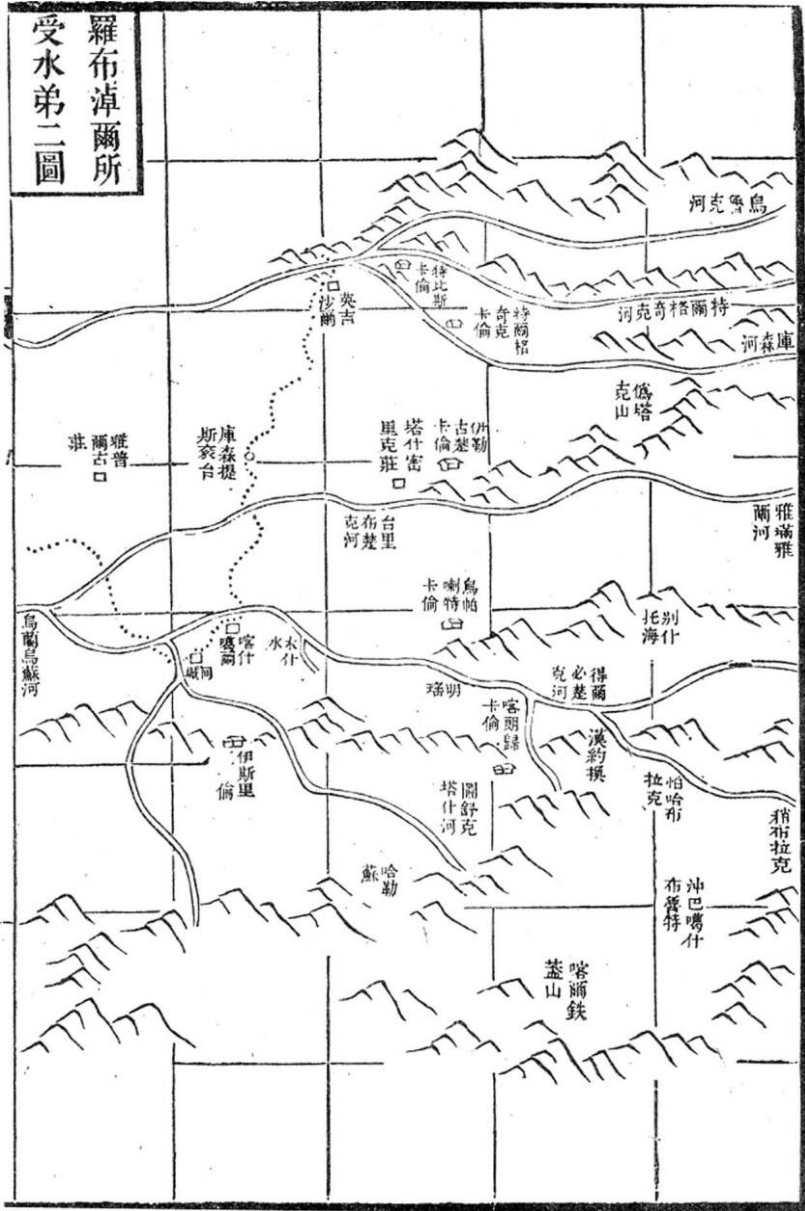


FIGURE 8. Detail from Xu Song's "Second Map of the Water Sources of Lake Lob Nor," derived in part from Han dynasty historical records. From Xu Song, *Xi yu shui dao ji* (1823; Taipei, 1966), p. 149.

tion dramatically accelerated in the decades after 1877, especially after China's 1895 defeat in the Sino-Japanese war and Germany's annexation of Qingdao in 1897. Although railway construction projects always involved Chinese partnership, the railway treaties with foreign governments and private syndicates often enabled or followed territorial encroachment and involved loan agreements that gave the Chinese government the right to repurchase the lines only after a set number of decades. When Germany's imperial envoy to China, Max von Brandt, produced his 1899 map of China (fig. 9) marked with Russian, English, French, Japanese, German, Belgian, and American "Conceded or projected railroads," "Territories," and "Spheres of interest," over five hundred miles of railroad had been laid in China, and it was openly acknowledged that Russia would dominate northern China, excepting Germany's region around Shandong, while Britain monopolized the south.⁴³

Richthofen's official booklet on Qingdao's port of Jiaozhou published immediately after its 1897 seizure by Germany baldly stated that "[Jiaozhou's] importance lies in its role, when keenly administered, as the departure point for railroads."⁴⁴ Although Germany occupied Qingdao (on a ninety-nine-year lease) on the pretext of the killing of two German missionaries, Richthofen's earlier geological surveys had already identified Jiaozhou as the ideal starting point for annexation due to its strategic location and coal deposits (see *C*, 2:266).⁴⁵ Richthofen had long considered Jiaozhou's potential connection to Xi'an and hence to transcontinental railroads to Europe, but Germany was never in a position to realize this vision and Richthofen never published on the Silk Road thereafter.

When Richthofen's student Sven Hedin popularized the Silk Road in the 1920s through the 1940s, he detached the term from Greek geography and grounded it more firmly in geological science. His highly publicized surveys of Central Asia made the recent physical movement of a Central Asian lake the occasion and imperative for his commercial "Plan for a Revival of the Silk Road."⁴⁶ Richthofen and Przhevalsky had in 1877 fiercely

43. Germany's Schantung Eisenbahn Gesellschaft connected Qingdao, Jiaozhou, Jinan, and Yizhou only after annexing Qingdao; Russia expanded into Manchuria, founding the city of Harbin, to shorten its trans-Siberian route between Europe and Vladivostok; France, after taking Tonkin (northern Vietnam) in the 1884–1885 Sino-French War, planned a railroad joining Tonkin to Yunnan in southern China. Britain gained the greatest miles of railway concessions. On spheres of influence, see Huenemann, *The Dragon and the Iron Horse*, pp. 47–57.

44. Richthofen, *Kiautschou: Seine Weltstellung und voraussichtliche Bedeutung* (Berlin, 1897), p. 28.

45. Richthofen considers Jiaozhou's future connection to Xi'an and hence to transcontinental railroads; see *C*, 2:692–703.

46. Hedin discusses his "Plan for the Revival of the Silk Road" in its early stages and as formally submitted to the Chinese Nationalist government in Nanking in Sven Hedin and Folke

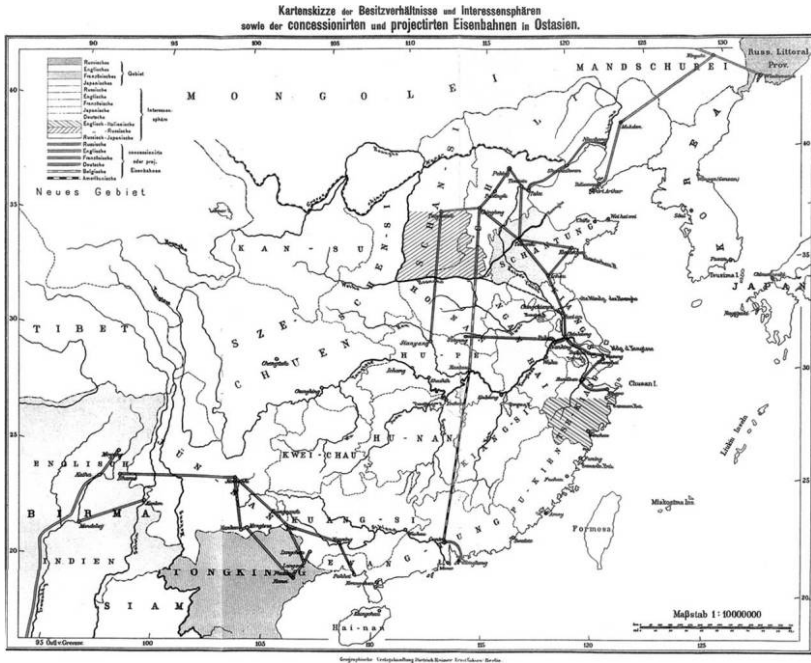


FIGURE 9. “Sketch Map of the Acquisitions and Spheres of Interest as Well as the Conceded and Projected Railways in East Asia.” From Max von Brandt, *Industrielle und Eisenbahn-Unternehmungen in China* (Berlin, 1899), enclosed map.

debated the exact location of Lob Nor, the terminal lake of the Tarim River in Central Asia’s Gobi Desert. Przhevalsky had proposed relocating the lake one geographical degree south based on his own explorations in the region; Richthofen defended existing maps by invoking the authority of ancient and modern Chinese sources.⁴⁷ Hedin, a student of Richthofen (and Kiepert) at the University of Berlin, resolved the issue by arguing that Lob Nor was a “wandering lake.”⁴⁸ During his 1900–1901 explorations of Central Asia, Hedin discovered a dried-up bed around the traditional location of Lake Lob Nor near the ruins of the Han dynasty city of Loulan.

Bergman, *History of the Expedition in Asia 1927–1935*, trans. Donald Burton, 4 vols. (Stockholm, 1943–1944), 2:173–75, 3:118, 125, 154.

47. Richthofen argued that “a wide experience of Chinese maps has taught me that although wanting in practical detail, nothing is ever laid down that does not actually exist” (quoted in Prejevalsky, *From Kulja, across the Tian Shan to Lob-Nor*, p. 146). He contended that Przhevalsky had unwittingly passed by the Tarim River tributary that flowed east into Lake Lob Nor and discovered a recently formed lake resulting from a southward shift in the course of the Tarim River.

48. See Hedin, *The Wandering Lake: Into the Heart of Asia* (London, 2009), pp. 231–56.

When Hedin returned to Lob Nor during his 1927–1932 expedition, he discovered that the Tarim River and its terminal lake had shifted north from their earlier positions. He concluded that surface erosion by wind over long periods of time made the path of the Tarim River cyclically alternate courses, terminating in two possible lake beds. “In fact, Lop-nor is, as it were, the weight which hangs on the pendulum of the Tarim river, and even though a single oscillation should stretch over a thousand years, still, measured by the clock of geological time, that is comparatively speaking little more than one of our seconds.”⁴⁹ The Tarim River “pendulum” of the “clock of geological time” had, he argued, swung south after the Han dynasty, around 330 CE and then back north to its Han dynasty position in 1921. Since oasis communities depended on the river and lake, the post-Han dynasty shift caused the historical abandonment of Loulan and hence the closure of this Silk Road artery between east and west. Now that the pendulum of river and lake “had returned to their old historic beds, the time had come to revive the old Silk Road” and to “[reopen] the Han-period road from Kansu via Lop-nor to Kashgar.”⁵⁰ Hedin effectively set Central Asia history and world politics to geological time.

Hedin’s bid to “Plan for the Revival of the Silk Road” transformed Richthofen’s Silk Road from an object of cartographic or geohistorical knowledge (Ptolemy’s Silk Road; Central Asian Silk Roads) into an urgent geohistorical memory. Through him the Silk Road became something *ethically* as well as geopolitically imperative to remember through collective industrial reconstruction. Hedin essentially reprised Richthofen’s Central Asian railways project. His first Sino-Swedish scientific expedition (1927–1928) in Central Asia sought the best airline route between Berlin and Peking-Shanghai on behalf of the German government and Lufthansa; his third Sino-Swedish expedition (1933–1935) plotted a motor-road route between Europe and China financed by the Chinese Nationalist government. Hedin’s infamous diplomacy enabled him to negotiate large-scale international collaborations between Nazi Germany, Chinese Nationalists, and various European and US governmental and private sponsors during Uyghur uprisings in Xinjiang, the Chinese Red Army’s Long March, and emergent conflicts in East Asia and Europe.⁵¹

49. Hedin, *Central Asia and Tibet: Towards the Holy City of Lassa*, 2 vols. (New York, 1903), 2:175. For his full account, see Hedin, *The Wandering Lake*.

50. Hedin, *The Silk Road: Ten Thousand Miles through Central Asia* (1938; New York, 2009), p. 174.

51. On Hedin’s political context, see Tobias Hübinette, “Asia as a Topos of Fear and Desire for Nazis and Extreme Rightists,” *Positions* 15 (Fall 2007): 403–28, and Magnus Fiskesjö, “Science across Borders: Johan Gunnar Andersson and Ding Wenjiang,” in *Explorers and Scientists in China’s Borderlands, 1880–1950*, ed. Denise M. Glover et al. (Seattle, 2011), pp. 240–66.

In his diplomacy with China, Hedin influentially made the Han dynasty imperial embassy to the West the narrative starting point of the Silk Road. The “Silk Road” chapter of his international bestseller *The Silk Road* (1936) begins: “In the year 138 B.C., the great Emperor [Wudi], of the older Han dynasty, sent an embassy of a hundred persons, headed by [Zhang Qian], to . . . the modern Ferghana.” The chapter ends with Hedin’s exhortation that the Chinese government help construct the “the world’s longest motor-road” spanning Europe and China along this historical pathway. His sketch map (fig. 10) shows this road connecting Shanghai, Xi’an, Kashgar, Istanbul, and Boulogne that “should unite two oceans, the Pacific and the Atlantic; two continents; two races, the yellow and the white; two cultures, the Chinese and the Western.”⁵²

Although we no longer invoke the pendulum of Hedin’s wandering lake, his Silk Road popularized our familiar rhetorical figure of past and future East-West exchange. *Silk Road* originally entered Chinese as a neologism of European geographers. In their limited circulation prior to 1949, the new terms *si lu* (絲路) or *si chou zhi lu* (絲綢之路) generally appeared in quotation marks or as the “so-called Silk Road.” Translations of Lattimore and Hedin’s geographical works, or newspaper reportage of road construction in Xinjiang, tied this Silk Road to the geopolitics of Central Asia.⁵³ The *Renmin Ribao* (People’s Daily) later popularized the Silk Road using Hedin’s Han dynasty etiology.⁵⁴ Through the 1950s to the 1970s it described Chinese diplomatic and economic ties with Afghanistan, Pakistan, and the Middle East as the rebuilding of a two-thousand-year-old Silk Road that began when “the Han dynasty’s Zhang Qian opened up the road from China’s Gansu and Xinjiang to Afghanistan and Iran.”⁵⁵ The extension of the Silk Road rhetoric to the official ceremonies and reportage of China’s watershed diplomacy with the US, Japan, and Europe after 1979 helped to repopularize the term in the West. Although these new Silk Roads remain indebted to Hedin’s narratives and rhetoric of revival, they no longer follow geologic time.

In this context, one might note an earlier opposition to Richthofen’s geological model. The anarchist geographer Elisée Reclus (1830–1905) was amongst the earliest to resignify Richthofen’s Silk Road. The seventh volume of his *Nouvelle géographie universelle* (1882) incorporated “cette

52. Hedin, *The Silk Road*, pp. 223, 233, 234.

53. In 1939 the *Shen Bao* (Shanghai News) introduced the ancient “so-called Silk Road” (所謂絲路 *suo wei Si lu*) in the context of the advance of Soviet construction of roads to Xinjiang, a usage echoed in 1942 by China’s economic minister (and briefly premier), the geologist Wong Wen-hao (Hedin’s collaborator); see *Shen bao*, 11 Jan. 1939, p. 4, and Associated Press, “Russia Still Sends Supplies to China: Vital Materials Going by Camel, Carts and Trucks on 2,800-Mile Highway,” *New York Times*, 18 July 1942, p. 3.

54. See figure 1.

55. See “Silk Road” (“絲綢之路”), *Renmin Ribao*, 24 July 1971, p. 6. See figure 1.

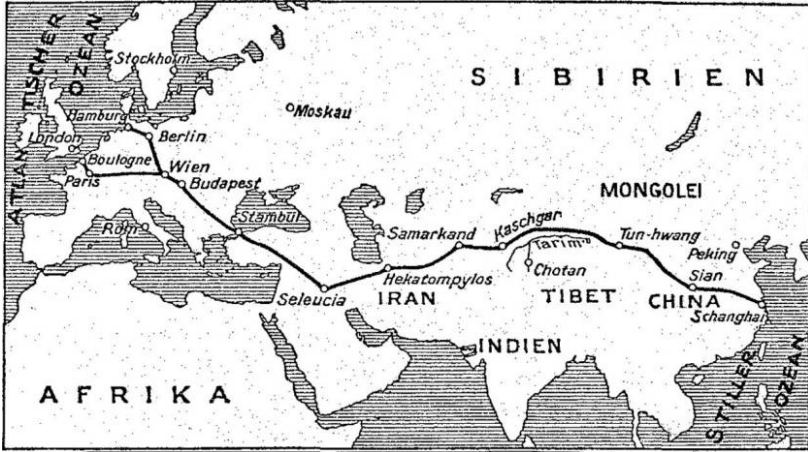


FIGURE 10. Map of a projected road between China and Europe. From Sven Hedin, *The Silk Road* (London, 1938), p. 231.

fameuse ‘route de la Soie’” into his radically ecological grand narrative that sought to unmask humanity as the ethical self-consciousness of the earth (“Man is nature becoming conscious of itself”).⁵⁶ Reclus had, like Richthofen, studied geography with Ritter at the University of Berlin, but Reclus described Richthofen as one of the European and Russian capitalist and colonialist “prophets of doom” (*prophètes de malheur*) who “fear that in the ‘struggle for existence’ the Chinese may easily become our master.”⁵⁷ In Reclus’s revision of the Hegelian Spirit, humanity was marching towards a liberatory self-realization of its place in nature: “To promote each individual plant, animal, and human life, to become fully conscious of our human solidarity, forming one body with the planet itself, and to take a sweeping view of our origins, our present, our immediate goal, and our distant ideal—this is what progress means.”⁵⁸ The Silk Road between

56. Elisée Reclus, *Nouvelle géographie universelle: La Terre et les hommes*, 19 vols. (1882; Paris, 1876–1894), 7:8, 104. “L’Homme est la nature prenant conscience d’elle-même” is the epitaph to Reclus, *L’Homme et la terre* (1905), 6 vols. (1905–1908), 1: i.

57. Reclus, *Nouvelle géographie universelle*, 7:17–18.

58. Reclus, “Progress” (1905), *Anarchy, Geography, Modernity: The Radical Social Thought of Elisée Reclus*, ed. John P. Clark and Camille Martin (Lanham, Md., 2004), p. 246. Reclus challenged the geographical premises of the Hegelian subject of world-historical progress on scientific grounds, arguing that “the so-called law of progress . . . from east to west has only provisional and localized validity, and that other serial movements have prevailed in various regions, depending on the slope of the terrain and the forces of attraction produced by the environmental condition” (p. 235). One should note, at the same time, the geographical and ethnic inequalities within Reclus’s grand narrative, including Europe’s present (but contingent) status as the “teachers of other peoples” (Reclus, *Nouvelle géographie universelle*, 7:4).

Greek and Chinese traders was part of this larger “progress of discovery” of solidarity between races (“white and yellow labour” in California) and across the ecosystem.⁵⁹ During the same decades that Richthofen was prospecting railroads in and from China, Reclus was linking social inequality to just such a human relation to the earth’s surface: “The entrepreneurs lease waterfalls and enclose them with wooden fences. . . . Then, through a deluge of advertising . . . the scattering droplets . . . are transformed into the resounding jingle of silver.”⁶⁰ Reclus subordinated travel narratives to his project of liberation from industrial maps and property deeds: “We will tear up the documents and maps, break down the doors of the chateaus and seize the estates.”⁶¹

Reclus effectively sought to unmask the ideology of the encroaching Anthropocene. In his model, the Silk Road was a geohistorical marker not of maximized commodity flow but of humanity’s collective self-awareness of “forming one body with the planet itself.”⁶² Over a century later, 1,100 orbiting systems network us into a vaster, older universe than that of Reclus. Astrophysicists, not geologists, calibrate the space-time of our Astrozoic eon.⁶³ So where does the old Silk Road lead us? A revival of Richthofen and Hedin’s geopolitical vision might take us beyond the new iron Silk Road to celestial and cyber Silk Roads traveled at ever more dizzying speeds through uninhabited domains.⁶⁴ Reclus’s manifesto models a slower Silk Road. It leads us to the spatiotemporal beliefs of the cyborg and, potentially, to his or her slow-dawning self-consciousness of the conflicted history and future of those beliefs.

59. Reclus, *East Asia: Chinese Empire, Corea, and Japan*, in *The Earth and Its Inhabitants: Asia*, trans. and ed. A. H. Keane, 2 vols. (New York, 1895), 2:58, 10. Compare Reclus, *Nouvelle géographie universelle*, 6:541 (on Russia).

60. Reclus, “The Feeling for Nature in Modern Society” (1866), *Anarchy, Geography, Modernity*, p. 124.

61. Reclus, “To My Brother, the Peasant” (1893), in *Anarchy, Geography, Modernity*, p. 130.

62. Reclus, “Progress,” p. 246.

63. Charles Lyell (1797–1875) and other nineteenth-century geologists introduced the chronological schema still used today that parcels up history according to the strata of the earth’s crust, from the overheated Hadean eon before fossil records of life through to our Phanerozoic (visible life) eon that spans the dinosaurs to *homo erectus*; see Martin J. S. Rudwick, *Worlds before Adam: The Reconstruction of Geohistory in the Age of Reform* (Chicago, 2008).

64. For different approaches to the contemporary politics of outer space, see Nayef R. F. Al-Rodhan, “Meta”-Geopolitics of Outer Space: *An Analysis of Space Power, Security, and Governance* (New York, 2012), and Alice Gorman, “The Archaeology of Space Exploration,” in *Space Travel and Culture: From Apollo to Space Tourism*, ed. Martin Parker and David Bell (Malden, Mass., 2009), pp. 132–45.